STATE OF NEW MEXICO
BEFORE THE SECRETARY OF THE ENVIRONMENT

IN THE MATTER OF THE APPLICATION OF BULLDOG COMPRESSOR STATION (XTO ENERGY) FOR AN AIR QUALITY PERMIT, NO. 8153-M1	**AQB 21-31**
IN THE MATTER OF THE APPLICATION OF JAYHAWK COMPRESSOR STATION (XTO ENERGY) FOR AN AIR QUALITY PERMIT, NO. 8152-M1	**AQB 21-32**
IN THE MATTER OF THE APPLICATION OF LONGHORN COMPRESSOR STATION (XTO ENERGY) FOR AN AIR QUALITY PERMIT, NO. 8349-M2	**AQB 21-33**
IN THE MATTER OF THE APPLICATION OF COWBOY CDP (XTO ENERGY) FOR AN AIR QUALITY PERMIT, NO. 7877-M1	**AQB 21-34**
IN THE MATTER OF THE APPLICATION OF WILDCAT COMPRESSOR STATION (XTO ENERGY) FOR AN AIR QUALITY PERMIT, NO. 7474-M2	**AQB 21-35**
IN THE MATTER OF THE APPLICATION OF ZIA HILLS CENTRAL FACILITY (CONOCOPHILLIPS) FOR AN AIR QUALITY PERMIT, NO. 7746-M8	**AQB 21-36**
IN THE MATTER OF THE APPLICATION WILLOW LAKE GAS PLANT (CRESTWOOD, NM) FOR AN AIR QUALITY PERMIT, NO. 5142-M8	**AQB 21-38**
IN THE MATTER OF THE APPLICATION MAVERICK COMPRESSOR STATION (XTO) FOR AN AIR QUALITY PERMIT, NO. 7565-M2	**AQB 21-39**
IN THE MATTER OF THE APPLICATION SPARTAN COMPRESSOR STATION (XTO) FOR AN AIR QUALITY PERMIT, NO. 7681-M2	**AQB 21-40**

IN THE MATTER OF THE APPLICATION TIGER COMPRESSOR STATION (XTO) FOR AN AIR QUALITY PERMIT, NO. 7623-M2

AQB 21-41

THE AIR QUALITY BUREAU'S STATEMENT OF INTENT TO PRESENT TECHNICAL TESTIMONY

Pursuant to 20.1.4.300(B)(1) NMAC, the Air Quality Bureau ("Bureau"), within the Environmental Protection Division ("Division") of the New Mexico Environment Department ("Department"), files this Statement of Intent to Present Technical Testimony in support of the ten applications in the above captioned matters. The public hearing in this matter is currently scheduled for October 25, 2021, and continuing, if necessary for additional dates. The Bureau submits to the Secretary the following:

1. Party filing this Statement of Intent

The Air Quality Bureau within the Environmental Protection Division of the Department.

2. Division's Recommendation on the application

The Bureau, on behalf of the Division, recommends the approval of the ten applications provided that each Applicant comply with the conditions of their respective permits. The Bureau reserves the right to recommend additional conditions for each permit. The Bureau also reserves the right to modify its position based on any comment or testimony presented at the hearing or based on any written comments submitted in connection with the applications.

3. Technical Witness Information

The Bureau will call the following witnesses at the hearing to present technical testimony:

A. **Rhonda Romero**, Minor Source Section Manager for the Bureau, 525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505. A copy of Ms. Romero's testimony is attached hereto as NMED Exhibit 1 and her resume is attached as NMED Exhibit 2. Ms. Romero's testimony is estimated to last approximately fifteen minutes and will address the following topics: her education and professional qualifications, an overview of construction permitting process authorized under 20.2.72 NMAC.

B. **Eric Peters**, Air Dispersion Modeler for the Bureau, 525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505. Mr. Peters' direct testimony is attached as NMED Exhibit 3 and a copy of Mr. Peters' resume is attached as NMED Exhibit 4. Mr. Peters' testimony is estimated to last approximately fifteen minutes and will address the following topics: his education and professional qualifications, his review of the air dispersion modeling submitted by the Applicants in this matter, his verification that the facilities followed appropriate modeling practices, and the standards applicable to such modeling practices.

C. **Angela Raso,** Air Dispersion Modeler for the Bureau, 525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505. Ms. Raso's direct testimony is attached as NMED Exhibit 5 and a copy of Mr. Raso's resume is attached as NMED Exhibit 6. Mr. Raso's testimony is estimated to last approximately fifteen minutes and will address the following topics: her education and professional qualifications, her review of the air dispersion modeling submitted by the Applicants in this matter, her verification that the facilities followed appropriate modeling practices, and the standards applicable to such modeling practices.

D. **Kathleen Primm**, Supervisor in the Minor Source Unit of the Permitting Section of the Bureau, 525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505. A copy of Ms. Primm's copy of Ms. Primm's resume is attached as NMED Exhibit 7. Ms. Primm will be appearing as a

technical rebuttal witness and will not be presenting technical. Her testimony is estimated to last approximately forty-five minutes and will address the following topics: her education and professional qualifications, challenges to permit conditions in the respective permits, and challenges to public outreach and public notice efforts undertaken by the Department with regard to each permit.

E. **James Nellessen**, Supervisor of the Prevention of Significant Deterioration Unit within the Major Source Permitting Section of the Bureau, 525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505. Mr. Nellessen's direct testimony is attached as NMED Exhibit 8 and a copy of his resume is attached as NMED Exhibit 9. Mr. Nellessen's testimony is estimated to last approximately fifteen minutes and will address the following topics: his education and professional qualifications, and two categories of comments submitted by WildEarth Guardians: 1) SSM and HAPs, and 2) Title V Operating Permits.

F. **Kirby Olson**, Major Sources Permitting Program Manager of the Air Quality Bureau, 525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505. Ms. Olson's direct testimony is attached as NMED Exhibit 10 and a copy of her resume is attached as NMED Exhibit 11. Ms. Olson's testimony is estimated to last approximately fifteen minutes and will address the following topics: her education and professional qualifications, the publication of the hearing notice, the structure of permit conditions, and two comments submitted by WEG: one comment on whether emissions from other facilities adjacent to the permitted facility should be included as part of the source, and one comment on the reduction of fugitive emissions in the Cowboy CDP proposed permit.

G. **Urshula Bajracharya**, Permit Specialist in the Major Source – Prevention of Significant Deterioration Unit ("PSD Unit") of the Permitting Section of the Bureau, 525 Camino

de los Marquez, Suite 1, Santa Fe, NM 87505. Ms. Bajracharya's direct testimony is attached as NMED Exhibits 12 through 16. A copy of her resume is attached as NMED Exhibit 17. Ms. Bajracharya's testimony is estimated to last approximately fifteen minutes and will address the following topics: her education and professional qualifications; a summary of Applications 8153M1 (Bulldog Compressor Station, No. AQB 21-31), 8349M2 (Longhorn Compressor Station, No AQB 21-33), 7681M2 (Spartan Compressor Station, AQB 21-40), 7623M2 (Tiger Compressor Station, AQB 21-41), and 5142M8 (Willow Lake Compressor Station, AQB 21-38); her administrative and technical review of the applications, the Bureau's public outreach efforts throughout various stages of these permitting actions, and the basis for conditions for the Draft Permits.

H. **Vanessa Springer**, Permit Specialist in the Title V Unit of the Permitting Section of the Bureau, 525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505. Ms. Springer's direct testimony is attached as NMED Exhibit 18 and a copy of her resume is attached as NMED Exhibit 19. Ms. Springer's testimony is estimated to last approximately fifteen minutes and will address the following topics: her education and professional qualifications, a summary of Application 7877-M1 (Cowboy CDP, AQB 21-34), her administrative and technical review of Application 7877-M1, the Bureau's public outreach efforts throughout various stages of this permitting action, and the basis for conditions in the Draft Permit.

I. **Asheley Coriz**, Permit Specialist in the Minor Source Unit of the Permitting Section of the Air Quality Bureau, 525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505. Ms. Coriz's direct testimony is attached as NMED Exhibit 20 and a copy of her resume is attached as NMED Exhibit 21. Ms. Coriz's testimony is estimated to last approximately fifteen minutes and will address the following topics: her education and professional qualifications, a summary of

Application 7746M8 (Zia Hills Central Facility, AQB 21-36), her administrative and technical review of Application 7746M8, the Bureau's public outreach efforts throughout various stages of this permitting action, and the basis for conditions in the Draft Permit.

J. **Julia Kuhn**, Title V Permit Specialist of the Major Sources Permitting Section of the Air Quality Bureau, 525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505. Ms. Kuhn's direct testimony is attached as NMED Exhibits 22 and 23, and a copy of her resume is attached as NMED Exhibit 24. Ms. Kuhn's testimony is estimated to last approximately fifteen minutes and will address the following topics: her education and professional qualifications; a summary of Application 8152M1 (Jayhawk Compressor Station, AQB 21-32) and 7565M2 (Maverick Compressor Station, AQB 21-39); her administrative and technical review of the Applications, the Bureau's public outreach efforts throughout various stages of these permitting actions, and the basis for conditions in the Draft Permits.

K. **Melinda Owens**, Title V Permit Program Manager of the Permitting Section of the Bureau, 525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505. Ms. Owen's direct testimony is attached as NMED Exhibit 25 and a copy of her resume is attached as NMED Exhibit 26. Ms. Owen's testimony is estimated to last approximately fifteen minutes and will address the following topics: her education and professional qualifications, a summary of Application 7474M2 (Wildcat Compressor Station, AQB 21-35), her administrative and technical review of the Application, the Bureau's public outreach efforts throughout various stages of this permitting action, and the basis for conditions in the Draft Permit.

4. List of Exhibits and Index

A list of exhibits the Bureau intends to offer into evidence in this matter is attached to this Statement. Also attached is are the indices to the Administrative Record for each respective

application. The Department reserves the right to introduce and move for admission of any other exhibit in support of rebuttal or additional direct testimony at the hearing.

NMED Exhibit 1	Rhonda Romero Direct Testimony
NMED Exhibit 2	Rhonda Romero Resume
NMED Exhibit 3	Eric Peters Direct Testimony (AQB 21-34)
NMED Exhibit 4	Eric Peters Direct Testimony (AQB 21-39)
NMED Exhibit 5	Eric Peters Direct Testimony (AQB 21-33)
NMED Exhibit 6	Eric Peters Direct Testimony (AQB 21-41)
NMED Exhibit 7	Eric Peters Resume
NMED Exhibit 8	Angela Raso Direct Testimony (AQB 21-31)
NMED Exhibit 9	Angela Raso Direct Testimony (AQB 21-40)
NMED Exhibit 10	Angela Raso Direct Testimony (AQB 21-32)
NMED Exhibit 11	Angela Raso Direct Testimony (AQB 21-36)
NMED Exhibit 12	Angela Raso Direct Testimony (AQB 21-38)
NMED Exhibit 13	Angela Raso Direct Testimony (AQB 21-35)
NMED Exhibit 14	Angela Raso Resume
NMED Exhibit 15	New Mexico Modeling Guidelines
NMED Exhibit 16	Kathleen Primm Resume
NMED Exhibit 17	James Nellessen Direct Testimony
NMED Exhibit 18	James Nellessen Resume
NMED Exhibit 19	Kirby Olson Direct Testimony
NMED Exhibit 20	Kirby Olson Resume
NMED Exhibit 21	Urshula Bajracharya Direct Testimony (AQB 21-31)

NMED Exhibit 22	Urshula Bajracharya Direct Testimony (AQB 21-33)
NMED Exhibit 23	Urshula Bajracharya Direct Testimony (AQB 21-40)
NMED Exhibit 24	Urshula Bajracharya Direct Testimony (AQB 21-41)
NMED Exhibit 25	Urshula Bajracharya Direct Testimony (AQB 21-38)
NMED Exhibit 26	Urshula Bajracharya Resume
NMED Exhibit 27	Vanessa Springer Direct Testimony (AQB 21-34)
NMED Exhibit 28	Vanessa Springer Resume
NMED Exhibit 29	Ashley Coriz Direct Testimony
NMED Exhibit 30	Ashley Coriz Resume
NMED Exhibit 31	Julia Kuhn Direct Testimony (AQB 21-32)
NMED Exhibit 32	Julia Kuhn Direct Testimony (AQB 21-39)
NMED Exhibit 33	Julia Kuhn Resume
NMED Exhibit 34	Melinda Owens Direct Testimony
NMED Exhibit 35	Melinda Owens Resume
NMED Exhibit 36	EPA Administrative Order
NMED Exhibit 37	EPA Order Denying Petition
NMED Exhibit 38	Administrative Record Index for AQB 21-31
NMED Exhibit 39	Administrative Record Index for AQB 21-32
NMED Exhibit 40	Administrative Record Index for AQB 21-33
NMED Exhibit 41	Administrative Record Index for AQB 21-34
NMED Exhibit 42	Administrative Record Index for AQB 21-35
NMED Exhibit 43	Administrative Record Index for AQB 21-36
NMED Exhibit 44	Administrative Record Index for AQB 21-38

NMED Exhibit 45	Administrative Record Index for AQB 21-39
NMED Exhibit 46	Administrative Record Index for AQB 21-40
NMED Exhibit 47	Administrative Record Index for AQB 21-41
NMED Exhibit 48	Radio PSA Requests

Respectfully submitted,

/s/ Chris Vigil
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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing Brief in Support of a Virtual Hearing was served by email on the following on October 12, 2021:

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STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE TEN (10) APPLICATIONS
FOR AN AIR QUALITY PERMIT AQB 21-31 – AQB 21-36 and 21-38 – AQB 21-41

TECHNICAL TESTIMONY OF RHONDA ROMERO

I. INTRODUCTION

My name is Rhonda Romero. I am the Staff Manager of the Minor Source Unit (MSU) of the Permitting Section of the Air Quality Bureau ("AQB" or "Bureau") of the New Mexico Environment Department ("NMED" or "Department"). I present this written testimony on behalf of the Department for the public hearing on ten (10) permit applications. These applications include seven (7) applications submitted by XTO Energy Inc. ("XTO") for the Bulldog Compressor Station ("Bulldog CS"), Longhorn Compressor Station ("Longhorn CS"), Spartan Compressor Station ("Spartan CS"), Tiger Compressor Station ("Tiger CS"), Jayhawk Compressor Station ("Jayhawk CS"), Maverick Compressor Station ("Maverick CS"), and Cowboy Central Delivery Point ("Cowboy CDP"), for the application submitted by Crestwood New Mexico Pipeline, LLC ("Crestwood") for the Willow Lake Gas Processing Plant ("Willow Lake"), and for the application submitted by ConocoPhillips Company (CPC) for the Zia Hills Central Facility. WildEarth Guardians ("WEG") challenges the Department's issuance of these Air Quality Permits. I manage the permit writer Asheley Coriz. She is the permit writer for CPC's Zia Hills Central Facility.

My testimony will address the following topics: my qualifications, a summary of the Minor Source Unit, the Department's authority to regulate sources of air contaminants, and responses to select comments from WEG: 1) The 8-hour ozone National Ambient Air Quality Standard

(NAAQS) in Lea County and Eddy County 2) The lack of a permit requirement for a startup, shutdown, maintenance, and malfunction (SSM/M) plan according to 20.2.70.300.D(5)(g) NMAC.

II. QUALIFICATIONS

I have been an employee of the Bureau for approximately eight and a half years. I was a Permit Specialist for 5 years and have been a Staff Manager of the MSU for the past 3.5 years. As a Staff Manager, I oversee the technical and regulatory review of complex Air Quality Bureau permit applications within regulatory deadlines for the Minor Source Unit. I ensure that emissions calculations are verified; aide with the determination of applicable state regulations and federal regulations; coordinate with various stakeholders including the public, industry, consultants, and AQB staff; review legally enforceable air permits and technical support documents; and ensure various special projects to achieve AQB goals are completed with AQB regulations, policies, and procedures. In addition, I work with all permitting managers to develop new permit condition templates and changes to monitoring protocols. I have reviewed hundreds of permitting actions for staff in the Minor Source Unit. My full background and qualifications are set forth in my resume.

III. SUMMARY OF MINOR SOURCE PERMITTING PROGRAM/OVERVIEW OF CONSTRUCTION PERMITS UNDER 20.2.72 NMAC

In New Mexico, Construction Permits are required by 20.2.72 NMAC, for facilities with a potential emission rate either greater than 10 pounds per hour (lb/hr) or 25 tons per year (TPY) of any pollutant with a national or state ambient air quality standard. In reviewing and approving an application, the Department must ensure that the facility, as represented in the application, demonstrates compliance with all federal and state regulations.

New Source Review (NSR) is a CAA program that requires permittees to submit a permit application and document types and quantities of air emissions that will be emitted from industrial

facilities before they begin construction or modification. 42 U.S.C. §§ 7401-7431, 7501-7515 (2018). The resulting NSR permit is a legal document specifying all applicable state and federal regulations, required emissions controls, emission limits, and assurances of adherence to these limits. These assurances are in the form of monitoring, recordkeeping, reporting, and testing requirements that are incorporated into the permit to make it enforceable. An NSR permit places restrictions on what construction is allowed, what air emission limits must be met, and how a facility can be operated.

NSR permits are coordinated under 20.2.72 NMAC, per 20.2.72.201 NMAC. NMED's authority to condition a permit is stated in 20.2.72.210 NMAC. Permit conditions are based on the contents of the permit application and conditions necessary to demonstrate compliance with applicable air quality regulations and ambient standards.

The Minor Source Unit of the AQB reviews registrations and permit applications for sources that are not defined as Major Stationary Sources because the facilities have the potential to emit regulated pollutants below Major Stationary Source thresholds. Major Stationary Source is defined in the written testimony of James Nellessen [NMED Exhibit 17].

IV. RESPONSES TO COMMENTS

The AQB received public comments from WEG on these applications (specific dates of receipt of comments can be found in testimonies of individual permit writers). The following section presents the Bureau's responses to select comments from WEG: 1) The 8-hour ozone National Ambient Air Quality Standard (NAAQS) in Lea County and Eddy County 2) The lack of a permit requirement for a startup, shutdown, maintenance, and malfunction (SSM/M) plan according to 20.2.70.300.D(5)(g) NMAC.

Comment: "Why the permit requirement to develop a startup, shutdown, and emergency operational plan according to 20.2.70.300.D(5)(g) NMAC is not applicable to the ConocoPhillips facility, as indicated by NMED's Statement of Basis. In other NMED Statement of Bases regarding similar facilities, the Department has not indicated this requirement is not applicable." **[AR Nos. 176, Bates 1243]**

Response: 20.2.70.300.D(5)(g) NMAC states a that a Title V permit application should contain "if requested by the department, an operational plan defining the measures to be taken to mitigate source emissions during startups, shutdowns and emergencies;". This requirement does not apply to Zia Hills Central Facility because Zia Hills Central Facility is not a Title V major source and is therefore not subject to 20.2.70 NMAC.

Comment: We are particularly interested in ensuring this permit modification will comply with all federal and state air regulations because the air quality in Lea County and Eddy County currently violates the 8-hour ozone National Ambient Air Quality Standard ("NAAQS"), meaning its air quality is in nonattainment. Ozone is a harmful air pollutant that extensive scientific evidence shows is associated with increases in respiratory infections, asthma attacks, and premature deaths, among other public health and economic impacts. Given the importance of preventing these public health impacts, it is critical for the public to understand how the Department determined that the proposed permit modification will not cause or contribute to air contaminant levels in excess of the NAAQS or New Mexico ambient air quality standards, 20.2.72.208(D) NMAC. Without the information we requested above, the public cannot understand the basis of the Department's determination. **[AR Nos. 165, Bates 1221]**

Response: The U.S. Environmental Protection Agency ("EPA") currently has Lea County and Eddy County designated as attainment; therefore, the statement that Lea County and Eddy County

are nonattainment is not factual. Data suggesting that an area's air monitoring data may qualify it to be nonattainment is not sufficient to formally designate an area. The interpretation that nonattainment based solely on air monitoring data was recently denied in the EIB Hearing No. 20-21(A) and EIB Hearing No. 20-33(A). Although this decision has been appealed by WEG to the Court of Appeals, the Environmental Improvement Board decision still stands. Further litigation on this matter is being addressed in a separate legal proceeding.

V. CONCLUSION

Bureau staff have completed technical reviews of these applications. The select comments received by the Bureau on these permits have been responded to in this testimony. The responses demonstrate that the comments do not raise any substantive issues that indicate these permits should not be issued. The permits comply with all air quality regulations and contain demonstrations of compliance for all conditions and emission limits to ensure compliance with Ambient Air Quality Standards. The Air Quality Bureau recommends that the Secretary uphold the Department's decision to approve issuance of these permits.

RHONDA V. ROMERO

525 Camino de Los Marquez, Suite 1, Santa Fe, NM 87505, 505-476-4354, Rhonda.romero@state.nm.us

Education

Master of Science: Natural Sciences- Geology — May 2014
New Mexico Highlands University - Las Vegas, NM

Bachelor of Science: Environmental Geology — July 2010
New Mexico Highlands University - Las Vegas, NM

Work History

Staff Manager - Environmental Science — 07/2018 to Current
New Mexico Environment Department- Air Quality Bureau – Santa Fe, NM

- Environmental permitting with a high level of understanding of local, state and federal air quality regulations.
- Manage the Air Quality Bureau Minor Source Permit Program.
- Supervise 6 staff with implementation of the Clean Air Act and New Mexico Administrative Code Environmental regulations.
- Continuously developing and establishing policies and guidance documents.
- Develop standard operating procedures.
- Determination and implementation of program requirements.
- Coordinate and guide the interface of staff with federal EPA, other state agencies, and clients.
- Evaluate and determine eligibility for Minor Source and Title V air quality permit applications under 20.2.72 NMAC and 20.2.70 NMAC.
- Emission calculation evaluations
- Review, provide oversight, and draft advanced technical permits for complex facilities in New Mexico.

Environmental Scientist & Specialist- Advanced — 08/2014 to 01/2018
New Mexico Environment Department- Air Quality Bureau – Santa Fe, NM

- Served as acting minor source section permitting manager for 5 months.
- Environmental permitting with a moderate level of experience with of local, state and federal air quality regulations.
- Evaluated and determined eligibility for Minor Source and Title V air quality permit applications under 20.2.72 NMAC and 20.2.70 NMAC.
- Emission calculation evaluations
- Drafted advanced technical permits for some of the most complex facilities in New Mexico.
- Developed advanced and effective communication skills to interact with the public, industry, and consultants

regarding technical matters.

Environmental Scientist & Specialist - Operational 01/2014 to 08/2014
New Mexico Environment Department – Santa Fe, NM

- In depth knowledge and understanding of state and federal air quality regulations.
- Evaluate and determine eligibility for Minor Source and Title V air quality permit applications under 20.2.72 NMAC and 20.2.70 NMAC.
- Typically took on 2-3 extra permits outside of normal workload per month.
- Possess technical ability to evaluate complicated industrial facilities throughout the State, including but not limited to the Mining Industry, and the Oil and Gas Industry.

Environmental Scientist & Specialist - Basic 02/2013 to 01/2014
New Mexico Environment Department- Air Quality Bureau – Santa Fe, NM

- Gained basic knowledge and understanding of state and federal air quality regulations.
- Evaluate and determine eligibility for Minor Source and Title V air quality permit applications under 20.2.72 NMAC -Possess technical ability to evaluate industrial facilities throughout the State, including but not limited to the Mining Industry, and the Oil and Gas Industry.
- Took on additional permitting actions out of the assigned workloads.

Graduate Research Assistant 01/2010 to 01/2012
New Mexico Highlands University – Las Vegas, NM

- Lead instruction in introductory level biology, geology, and hydrology courses and science labs with 25 - 100 students.
- Planned and lead class and lab lectures, grading and monitored student progress.
- Liaised between faculty and students to answer questions and optimize faculty time.

Intern - Environmental Science 05/2005 to 08/2005
Los Alamos National Security LLC – Los Alamos, NM

- Collected Data for fire risk assessment model after the Cerro Grande Fire of 2000.
- Performed environmental surveys, which included setting up plots to analyze tree, soil, and area characteristics.
- Performed analysis of the data statistically and ensured quality assurance and control -compiled and analyzed all data.
- Verified data integrity and accuracy.

Intern - Health Physics 01/2000 to 01/2004
Los Alamos National Security LLC – Los Alamos, NM

- Implemented training, research, and monitoring programs to protect personnel from radiological hazards.
- Helped develop criteria for modification of health physics detection equipment, such as germanium detectors.
- Implemented bioassay sample program successfully, following instructions set out by regulation and management.

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF XTO ENEGRY **AQB 21-34 (P)**
FOR AN AIR QUALITY PERMIT

TECHNICAL TESTIMONY OF ERIC PETERS

My name is Eric Peters. I have Bachelor of Science degrees in Mechanical Engineering and Biology from the University of Illinois, and Master of Science degree in Environmental Engineering from the University of Kansas.

I work for the Air Quality Bureau ("AQB" or "Bureau") of the New Mexico Environment Department ("NMED" or "Department") as an Air Dispersion Modeler. I have worked in the Modeling Section for over twenty-three years. One of my primary duties is the review of air dispersion modeling for New Source Review permit applications to determine if they will comply with air quality standards and other modeling-related requirements. Air dispersion modeling is a computer simulation that predicts air concentrations of pollutants after a facility is constructed. EPA develops models for this purpose to ensure quality analyses and equal protection under the law.

I reviewed the modeling submitted by XTO Energy for permit 7877M1, which is known as "Cowboy CDP" (the facility). [AR No. 1]. I verified that the facility followed appropriate modeling practices, as informed by the New Mexico Modeling Guidelines. [NMED Exhibit 15]. Details of the modeling are described in the Modeling Review Report, which is contained in the Administrative Record. [AR No. 6].

In order to be issued an NSR permit, the applicant must demonstrate that construction of the proposed facility will not cause or contribute to any violations of

National or New Mexico Ambient Air Quality Standards, Prevention of Significant Deterioration (PSD) Increments, or State Air Toxic pollutant requirements. National Ambient Air Quality Standards are periodically reviewed by the Environmental Protection Agency and are designed to protect the most sensitive individuals. PSD increments are designed to maintain the air quality of pristine areas. Toxic permitting thresholds prevent neighbors from being exposed to more than one percent of the amount that has been deemed acceptable for workers to be exposed to throughout the day. The requirement to demonstrate compliance with these air quality measures is contained in 20.2.72.203(A)(4) NMAC.

The Department maintains the New Mexico Modeling Guidelines to provide a basis for acceptable modeling analyses. These guidelines incorporate and interpret the most recent version of EPA's Guideline on Air Quality Models, which was published in the Federal Register, Vol. 82, No. 10. The New Mexico Modeling Guidelines also incorporate other information and guidance, such as EPA memorandums.

Cowboy CDP modeling was performed in accordance with the New Mexico Modeling Guidelines. If the facility operates in compliance with the terms and conditions of the draft permit, then it will not cause or contribute to any concentrations above state or federal ambient air quality standards or PSD increments. The facility has satisfied all modeling requirements and the permit may be issued.

Public comments requested additional information about the modeling, which I am addressing here.

Commenters expressed concern that the facility did not model NO_2 impacts using maximum potential to emit emission rates.

XTO and NMED did model NO_2 impacts using maximum potential to emit emission rates. Flare modeling showed the worst-case flaring scenario occurred when the emissions were evenly divided between the three flares, rather than all emissions coming from a single flare.

Commenters expressed concern that cumulative NO_2 concentrations did not account for hourly SSM and malfunction emissions from adjacent facilities and did not account for truck and heavy machinery traffic adjacent to the facility.

NMED requires the use of either a representative background concentration or cumulative modeling with nearby sources for a cumulative analysis. If it is probable that an adjacent facility will be undergoing higher than normal emissions (E.G. SSM operations) at the same time as the subject facility, then those higher emissions must be included in the cumulative modeling. In this case the facility completed cumulative analysis for the 1-hour NO_2 standard by adding a background concentration to the facility alone modeled concentration. These background concentrations where from NMED monitor in Carlsbad. The background concentration includes emissions close to the monitor, including traffic and machinery.

Commenters expressed concern that background hourly NO_2 value relied upon by XTO is inaccurate and not representative of the area where the facility is located.

The background hourly NO_2 values represented in modeling are sourced from NMED monitors in Carlsbad and are consistent with NMED/AQB guidance on the use of background concentrations for cumulative analysis. The Carlsbad monitor is the closest monitor to the site that NMED operates.

Commenters expressed concern that XTO did not use air quality monitoring stations that are closer in proximity to the facility to determine background concentrations of CO and SO_2.

Cowboy CDP did not produce concentrations above significant ambient concentrations for CO. No cumulative analysis is required unless these levels are exceeded. Background concentrations are irrelevant for pollutants that do not require a cumulative analysis since no background concentration is added.

SO_2 concentrations were slightly above significance levels for the 1-hour averaging period and were below significance levels for other averaging periods. NMED determined that Amarillo was the monitor most representative of the area of all available monitors. Big Springs, TX monitor is used to monitor a single source, and is not representative of background concentrations more than a few miles from that location. El Paso is a metropolitan area with many types of sources that are not present near the facility. Amarillo is typically downwind of the Permian Basin emissions.

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF XTO ENEGRY **AQB 21-39 (P)**
FOR AN AIR QUALITY PERMIT

TECHNICAL TESTIMONY OF ERIC PETERS

My name is Eric Peters. I have Bachelor of Science degrees in Mechanical Engineering and Biology from the University of Illinois, and Master of Science degree in Environmental Engineering from the University of Kansas.

I work for the Air Quality Bureau ("AQB" or "Bureau") of the New Mexico Environment Department ("NMED" or "Department") as an Air Dispersion Modeler. I have worked in the Modeling Section for over twenty-three years. One of my primary duties is the review of air dispersion modeling for New Source Review permit applications to determine if they will comply with air quality standards and other modeling-related requirements. Air dispersion modeling is a computer simulation that predicts air concentrations of pollutants after a facility is constructed. EPA develops models for this purpose to ensure quality analyses and equal protection under the law.

I reviewed the modeling submitted by XTO Energy for permit 7565M2, which is known as "Maverick Compressor Station" (the facility). [AR No. 1]. I verified that the facility followed appropriate modeling practices, as informed by the New Mexico Modeling Guidelines. [NMED Exhibit 15]. Details of the modeling are described in the Modeling Review Report, which is contained in the Administrative Record. [AR No. 11].

In order to be issued an NSR permit, the applicant must demonstrate that construction of the proposed facility will not cause or contribute to any violations of

National or New Mexico Ambient Air Quality Standards, Prevention of Significant Deterioration (PSD) Increments, or State Air Toxic pollutant requirements. National Ambient Air Quality Standards are periodically reviewed by the Environmental Protection Agency and are designed to protect the most sensitive individuals. PSD increments are designed to maintain the air quality of pristine areas. Toxic permitting thresholds prevent neighbors from being exposed to more than one percent of the amount that has been deemed acceptable for workers to be exposed to throughout the day. The requirement to demonstrate compliance with these air quality measures is contained in 20.2.72.203(A)(4) NMAC.

The Department maintains the New Mexico Modeling Guidelines to provide a basis for acceptable modeling analyses. These guidelines incorporate and interpret the most recent version of EPA's Guideline on Air Quality Models, which was published in the Federal Register, Vol. 82, No. 10. The New Mexico Modeling Guidelines also incorporate other information and guidance, such as EPA memorandums.

Maverick Compressor Station modeling was performed in accordance with the New Mexico Modeling Guidelines. If the facility operates in compliance with the terms and conditions of the draft permit, then it will not cause or contribute to any concentrations above state or federal ambient air quality standards or PSD increments. The facility has satisfied all modeling requirements and the permit may be issued.

Public comments requested additional information about the modeling, which I am addressing here.

Commenters expressed concern that surrounding sources were not included in modeling runs for certain pollutants.

The Department requires the use of either a representative background concentration or cumulative modeling with nearby sources for a cumulative analysis of CO, NO_2, or SO_2 unless the facility is near Albuquerque or El Paso. Under normal circumstances, the true background concentrations of these pollutants will be close to zero unless human activity produces emissions of these pollutants nearby. The monitors the Department uses for background concentrations for these pollutants are in areas with enough activity that the Department determined they would represent the industrial activity of an area with substantial industrial activity. Thus, the monitored concentrations in these industrial areas are substituted for the modeling of individual sources in more remote areas. Particulate matter background concentrations are not close to zero, so the Department requires both monitored concentrations and modeled background sources for these pollutants. The use of background concentrations by this facility was consistent with the NMED Modeling Guidelines.

Commenters expressed concern that NO_2 monitors were not representative of the area around the facility.

In this case the facility completed cumulative analysis for the 1-hour NO_2 standard by adding a background concentration to the facility alone modeled concentration. These background concentrations where from NMED monitor in Hobbs. The Carlsbad monitor was closer, but Hobbs was used because it had higher concentrations. The background concentration includes emissions close to the monitor, including traffic and machinery. The background hourly NO_2 values represented in modeling are consistent with NMED guidance on the use of background concentrations for cumulative analysis.

Commenters expressed concern that XTO did not use air quality monitoring stations that are closer in proximity to the facility to determine background concentrations of CO and SO_2.

The facility did not produce concentrations above significant ambient concentrations for CO. No cumulative analysis is required unless these levels are exceeded. Background concentrations are irrelevant for pollutants that do not require a cumulative analysis since no background concentration is added.

SO_2 concentrations were above significance levels for the 1-hour averaging period and some other averaging periods. NMED determined that Amarillo was the monitor most representative of the area of all available monitors. Big Springs, TX monitor is used to monitor a single source, and is not representative of background concentrations more than a few miles from that location. El Paso is a metropolitan area with many types of sources that are not present near the facility. Amarillo is typically downwind of the Permian Basin emissions.

Commenters expressed concern that states that XTO did not submit and secure approval of its modeling protocol.

The facility is a minor source with respect to PSD and a modeling protocol was not required. Modeling protocols are only required for new PSD permit applications and PSD major modifications.

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF XTO ENEGRY **AQB 21-33 (P)**
FOR AN AIR QUALITY PERMIT

TECHNICAL TESTIMONY OF ERIC PETERS

My name is Eric Peters. I have Bachelor of Science degrees in Mechanical Engineering and Biology from the University of Illinois, and Master of Science degree in Environmental Engineering from the University of Kansas.

I work for the Air Quality Bureau ("AQB" or "Bureau") of the New Mexico Environment Department ("NMED" or "Department") as an Air Dispersion Modeler. I have worked in the Modeling Section for over twenty-three years. One of my primary duties is the review of air dispersion modeling for New Source Review permit applications to determine if they will comply with air quality standards and other modeling-related requirements. Air dispersion modeling is a computer simulation that predicts air concentrations of pollutants after a facility is constructed. EPA develops models for this purpose to ensure quality analyses and equal protection under the law.

The Department reviewed the modeling submitted by XTO Energy for permit 8349M2, which is known as "Longhorn Compressor Station" (the facility). [AR No. 1]. The Department verified that the facility followed appropriate modeling practices, as informed by the New Mexico Modeling Guidelines. [NMED Exhibit 15]. Details of the modeling are described in the Modeling Review Report, which is contained in the Administrative Record. [AR No. 5].

In order to be issued an NSR permit, the applicant must demonstrate that construction of the proposed facility will not cause or contribute to any violations of National or New Mexico Ambient Air Quality Standards, Prevention of Significant Deterioration (PSD) Increments, or State Air Toxic pollutant requirements. National Ambient Air Quality Standards are periodically reviewed by the Environmental Protection Agency and are designed to protect the most sensitive individuals. PSD increments are designed to maintain the air quality of pristine areas. Toxic permitting thresholds prevent neighbors from being exposed to more than one percent of the amount that has been deemed acceptable for workers to be exposed to throughout the day. The requirement to demonstrate compliance with these air quality measures is contained in 20.2.72.203(A)(4) NMAC.

The Department maintains the New Mexico Modeling Guidelines to provide a basis for acceptable modeling analyses. These guidelines incorporate and interpret the most recent version of EPA's Guideline on Air Quality Models, which was published in the Federal Register, Vol. 82, No. 10. The New Mexico Modeling Guidelines also incorporate other information and guidance, such as EPA memorandums.

Longhorn Compressor Station modeling was performed in accordance with the New Mexico Modeling Guidelines. If the facility operates in compliance with the terms and conditions of the draft permit, then it will not cause or contribute to any concentrations above state or federal ambient air quality standards or PSD increments. The facility has satisfied all modeling requirements and the permit may be issued.

Public comments requested additional information about the modeling, which I am addressing here.

Commenters expressed concern that the facility did not model NO_2 impacts using maximum potential to emit emission rates.

XTO and NMED did model NO_2 impacts using maximum potential to emit emission rates.

Commenters expressed concern that cumulative NO_2 concentrations did not account for hourly SSM and malfunction emissions from adjacent facilities and did not account for truck and heavy machinery traffic adjacent to the facility.

NMED requires the use of either a representative background concentration or cumulative modeling with nearby sources for a cumulative analysis. If it is probable that an adjacent facility will be undergoing higher than normal emissions (E.G. SSM operations) at the same time as the subject facility, then those higher emissions must be included in the cumulative modeling. In this case the facility completed cumulative analysis for the 1-hour NO_2 standard by adding a background concentration to the facility alone modeled concentration. These background concentrations where from NMED monitor in Carlsbad. The background concentration includes emissions close to the monitor, including traffic and machinery.

Commenters expressed concern that background hourly NO_2 value relied upon by XTO is inaccurate and not representative of the area where the facility is located.

The background hourly NO_2 values represented in modeling are sourced from NMED monitors in Carlsbad and are consistent with NMED/AQB guidance on the use of background concentrations for cumulative analysis. The Carlsbad monitor is the closest monitor to the site that NMED operates.

Commenters expressed concern that surrounding sources were not included in modeling runs for certain pollutants.

The Department requires the use of either a representative background concentration or cumulative modeling with nearby sources for a cumulative analysis of CO, NO_2, or SO_2 unless the facility is near Albuquerque or El Paso. Under normal circumstances, the true background concentrations of these pollutants will be close to zero unless human activity produces emissions of these pollutants nearby. The monitors the Department uses for background concentrations for these pollutants are in areas with enough activity that the Department determined they would represent the industrial activity of an area with substantial industrial activity. Thus, the monitored concentrations in these industrial areas are substituted for the modeling of individual sources in more remote areas. Particulate matter background concentrations are not close to zero, so the Department requires both monitored concentrations and modeled background sources for these pollutants. The use of background concentrations by this facility was consistent with the NMED Modeling Guidelines.

Commenters expressed concern that XTO did not use air quality monitoring stations that are closer in proximity to the facility to determine background concentrations of CO and SO_2.

The facility did not produce concentrations above significant ambient concentrations for CO. No cumulative analysis is required unless these levels are exceeded. Background concentrations are irrelevant for pollutants that do not require a cumulative analysis since no background concentration is added.

SO_2 concentrations were above significance levels for the 1-hour averaging period and some other averaging periods. NMED determined that Amarillo was the monitor most representative of the area of all available monitors. Big Springs, TX monitor is used to monitor a single source, and is not representative of background concentrations more than a few miles from that location. El Paso is a metropolitan area with many types of sources that are not present near the facility. Amarillo is typically downwind of the Permian Basin emissions, where the facility is located.

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF XTO ENEGRY **AQB 21-41 (P)**
FOR AN AIR QUALITY PERMIT

TECHNICAL TESTIMONY OF ERIC PETERS

My name is Eric Peters. I have Bachelor of Science degrees in Mechanical Engineering and Biology from the University of Illinois, and Master of Science degree in Environmental Engineering from the University of Kansas.

I work for the Air Quality Bureau ("AQB" or "Bureau") of the New Mexico Environment Department ("NMED" or "Department") as an Air Dispersion Modeler. I have worked in the Modeling Section for over twenty-three years. One of my primary duties is the review of air dispersion modeling for New Source Review permit applications to determine if they will comply with air quality standards and other modeling-related requirements. Air dispersion modeling is a computer simulation that predicts air concentrations of pollutants after a facility is constructed. EPA develops models for this purpose to ensure quality analyses and equal protection under the law.

I reviewed the modeling submitted by XTO Energy for permit 7623M2, which is known as "Tiger Compressor Station" (the facility). [AR No. 1]. I verified that the facility followed appropriate modeling practices, as informed by the New Mexico Modeling Guidelines. [NMED Exhibit 15]. Details of the modeling are described in the Modeling Review Report, which is contained in the Administrative Record. [AR No. 8].

In order to be issued an NSR permit, the applicant must demonstrate that construction of the proposed facility will not cause or contribute to any violations of

National or New Mexico Ambient Air Quality Standards, Prevention of Significant Deterioration (PSD) Increments, or State Air Toxic pollutant requirements. National Ambient Air Quality Standards are periodically reviewed by the Environmental Protection Agency and are designed to protect the most sensitive individuals. PSD increments are designed to maintain the air quality of pristine areas. Toxic permitting thresholds prevent neighbors from being exposed to more than one percent of the amount that has been deemed acceptable for workers to be exposed to throughout the day. The requirement to demonstrate compliance with these air quality measures is contained in 20.2.72.203(A)(4) NMAC.

The Department maintains the New Mexico Modeling Guidelines to provide a basis for acceptable modeling analyses. These guidelines incorporate and interpret the most recent version of EPA's Guideline on Air Quality Models, which was published in the Federal Register, Vol. 82, No. 10. The New Mexico Modeling Guidelines also incorporate other information and guidance, such as EPA memorandums.

Tiger Compressor Station modeling was performed in accordance with the New Mexico Modeling Guidelines. If the facility operates in compliance with the terms and conditions of the draft permit, then it will not cause or contribute to any concentrations above state or federal ambient air quality standards or PSD increments. The facility has satisfied all modeling requirements and the permit may be issued.

Public comments requested additional information about the modeling, which I am addressing here.

Commenters expressed concern that the facility did not model NO_2 impacts using maximum potential to emit emission rates.

XTO and NMED did model NO_2 impacts using maximum potential to emit emission rates.

Commenters expressed concern that cumulative NO_2 concentrations did not account for hourly SSM and malfunction emissions from adjacent facilities and did not account for truck and heavy machinery traffic adjacent to the facility.

NMED requires the use of either a representative background concentration or cumulative modeling with nearby sources for a cumulative analysis. If it is probable that an adjacent facility will be undergoing higher than normal emissions (E.G. SSM operations) at the same time as the subject facility, then those higher emissions must be included in the cumulative modeling. In this case the facility completed cumulative analysis for the 1-hour NO_2 standard by adding a background concentration to the facility alone modeled concentration. These background concentrations where from NMED monitor in Carlsbad. The background concentration includes emissions close to the monitor, including traffic and machinery.

Commenters expressed concern that background hourly NO_2 value relied upon by XTO is inaccurate and not representative of the area where the facility is located.

The background hourly NO_2 values represented in modeling are sourced from NMED monitors in Carlsbad and are consistent with NMED/AQB guidance on the use of background concentrations for cumulative analysis. The Carlsbad monitor is the closest monitor to the site that NMED operates.

Commenters expressed concern that surrounding sources were not included in modeling runs for certain pollutants.

The Department requires the use of either a representative background concentration or cumulative modeling with nearby sources for a cumulative analysis of CO, NO_2, or SO_2 unless the facility is near Albuquerque or El Paso. Under normal circumstances, the true background concentrations of these pollutants will be close to zero unless human activity produces emissions of these pollutants nearby. The monitors the Department uses for background concentrations for these pollutants are in areas with enough activity that the Department determined they would represent the industrial activity of an area with substantial industrial activity. Thus, the monitored concentrations in these industrial areas are substituted for the modeling of individual sources in more remote areas. Particulate matter background concentrations are not close to zero, so the Department requires both monitored concentrations and modeled background sources for these pollutants. The use of background concentrations by this facility was consistent with the NMED Modeling Guidelines.

Commenters expressed concern that XTO did not use air quality monitoring stations that are closer in proximity to the facility to determine background concentrations of CO and SO_2.

The facility did not produce concentrations above significant ambient concentrations for CO. No cumulative analysis is required unless these levels are exceeded. Background concentrations are irrelevant for pollutants that do not require a cumulative analysis since no background concentration is added.

SO_2 concentrations were above significance levels for the 1-hour averaging period and some other averaging periods. NMED determined that Amarillo was the monitor most representative of the area of all available monitors. Big Springs, TX monitor is used to

monitor a single source, and is not representative of background concentrations more than a few miles from that location. El Paso is a metropolitan area with many types of sources that are not present near the facility. Amarillo is typically downwind of the Permian Basin emissions, where the facility is located.

Commenters expressed concern that states that XTO did not submit and secure approval of its modeling protocol.

The facility is a minor source with respect to PSD and a modeling protocol was not required. Modeling protocols are only required for new PSD permit applications and PSD major modifications.

Air Dispersion Modeler

PROFILE

Knowledgeable, understanding, diplomatic builder of teamwork with a passion for innovation and adaptation. I have great motivation and good experience writing and using computer programs and databases as well as experience in environmental management areas such as air dispersion modeling and hazardous waste remediation. I communicate well both orally and in writing.

CAREER HIGHLIGHTS

New Mexico Environment Department/Air Quality Bureau ❑ Santa Fe, NM ❑ **Environmental Specialist/Computer System Analyst** ❑ November 1997 to present

- Analyzed and performed air dispersion modeling for over 100 projects involving use of ISCST3, Calpuff, AERMOD, CTScreen, and other modeling software for evaluation of power plants, mining operations, and numerous other facility types.
- Worked with groups to develop and implement regulations for prescribed burning and general permits.
- Created MergeMaster program using Microsoft Access and Visual Basic. The program analyzes and transforms input data into formats needed to efficiently run computer models and draws maps using the data.
- Created database to store and manage emissions inventory and permit tracking for the state of New Mexico.
- Mapped and migrated data to Oracle and MS Access databases from various relational database formats.
- Extracted, analyzed, and transformed data from Oracle databases using SQL programming scripts.
- Trained employees to run air dispersion models and to use the emissions inventory database.
- Also proficient in the following software: ArcGIS, AERMOD, SASEM, Surfer, Excel, Word, Power Point.

Desert Research Institute ❑ Las Vegas, NV ❑ **Technical Temporary** ❑ Sept. 2003- March 2007 (part time)

- Designed MS Access database tools to describe and analyze visibility and pollutant monitoring stations.
- Programmed database to export data in HTML format for use in web pages.
- Wrote Visual Basic program to convert HYSPLIT output text files into GIS Shapefiles for use in ArcGIS.

Santa Fe Striders ❑ Santa Fe, NM ❑ **President** ❑ December 2000 to December 2002 (part time)

- Made management decisions for 100-member running club.
- Coordinated volunteers, police protection, insurance, sponsors, and technical support for races.
- Created database to track membership and race entries.

Environmental Protection Agency ❑ Kansas City, KS ❑ **Environmental Engineer** ❑Jun.1992 to Sept. 1994

- Managed Pilot Projects to develop guidance on selecting treatment technologies for Superfund sites contaminated by polychlorinated biphenyls (PCBs), manufactured gas plants, or grain fumigation.
- Helped develop, procure, and manage contracts.
- Researched treatment techniques for PCB, manufactured gas plant, and grain fumigation sites.
- Compiled and analyzed data and wrote reports and guidance documents for treatment of site types.

University of Illinois ❑ Urbana-Champaign, IL ❑ **Research Assistant** ❑ 1991

- Simulated protein folding by molecular dynamics using Silicon Graphics and Cray supercomputers.
- Analyzed and created computer codes written in Fortran using UNIX and Macintosh operating systems.

EDUCATION

Master of Science in Environmental Engineering
University of Kansas ❑ Lawrence, Kansas ❑ June, 1995

Bachelor of Science in Mechanical Engineering
Bachelor of Science in Honors Biology with a minor in Chemistry
University of Illinois ❑ Champaign-Urbana, Illinois ❑ December, 1991

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF XTO ENERGY FOR AN AIR QUALITY PERMIT
FOR THE BULLDOG COMPRESSOR STATION **AQB 21-31**

TECHNICAL TESTIMONY OF ANGELA RASO

I. QUALIFICATIONS

My name is Angela Raso, and I am a dispersion modeler for the New Mexico Environment Department's ("Department" or "NMED") Air Quality Bureau ("Bureau"). I hold a PhD in chemistry from Purdue University, and a BA in chemistry from Whitman College. I have been a dispersion modeler for the Bureau for approximately 3 years. One of my primary duties is the review of air dispersion modeling for New Source Review permit applications to determine if they will comply with air quality standards and other modeling-related requirements. Air dispersion modeling is a computer simulation that predicts air concentrations of pollutants after a facility is constructed. EPA develops models for this purpose to ensure quality analyses and equal protection under the law. My full background and qualifications are set forth in my resume. [NMED Exhibit 14].

II. PERMIT APPLICATION MODELING REVIEW

I reviewed the modeling submitted by XTO Energy for permit 8153M1, which is known as "Bulldog Compressor Station." {AR No. 1]. I verified that the facility followed appropriate modeling practices, as informed by the New Mexico Modeling Guidelines. [NMED Exhibit 15]. Details of the modeling are described in the Modeling Review Report, which is contained in the Administrative Record. [AR No. 5].

In order to be issued an NSR permit, the applicant must demonstrate that construction of the proposed facility will not cause or contribute to any violations of National or New Mexico Ambient Air Quality Standards, Prevention of Significant Deterioration (PSD) Increments, or State Air Toxic pollutant requirements. National Ambient Air Quality Standards are periodically reviewed by the Environmental Protection Agency and are designed to protect the most sensitive individuals. PSD increments are designed to maintain the air quality of pristine areas. Toxic permitting thresholds prevent neighbors from being exposed to more than one percent of the amount that has been deemed acceptable for workers to be exposed to throughout the day. The requirement to demonstrate compliance with these air quality measures is contained in 20.2.72.203(A)(4) NMAC.

The Department maintains the New Mexico Modeling Guidelines to provide a basis for acceptable modeling analyses. These guidelines incorporate and interpret the most recent version of EPA's Guideline on Air Quality Models, which was published in the Federal Register, Vol. 82, No. 10. The New Mexico Modeling Guidelines also incorporate other information and guidance, such as EPA memorandums.

Bulldog Compressor Station modeling was performed in accordance with the New Mexico Modeling Guidelines. If the facility operates in compliance with the terms and conditions of the draft permit, then it will not cause or contribute to any concentrations above state or federal ambient air quality standards or PSD increments. The facility has satisfied all modeling requirements and the permit may be issued.

III.RESPONSE TO COMMENTS

Comment Summary: Were the maximum potential to emit emission rates modeled for NO_2?

Response: The maximum facility wide - modeled NO_2 emission rate is identified in the Modeling Review Report as 44.94 pounds per hour during normal operations and 584.75 pounds per hour during startup, shutdown and maintenance (SSM). This emission rate accounts for the use of Compressor Engines, Heaters, Reboilers, and Flares. The emission rates for each piece of equipment identified in the Modeling Review Report are consistent with those found in the application form UA2. The emission rates identified in the Model Review Report were used to conduct modeling.

Comment Summary: Cumulative NO2 concentrations did not account for hourly SSM and malfunction emissions from adjacent facilities and did not account for truck and heavy machinery traffic adjacent to the Bulldog Compressor Station.

Response: For cumulative analysis NMED requires the use of either a representative background concentration or cumulative modeling with nearby sources. If it is probably that an adjacent facility will be undergoing higher than normal emissions (E.G. SSM operations or malfunction emissions) at the same time as the subject facility those higher emissions must be included in the cumulative modeling. In this case the subject facility completed cumulative analysis for the 1-hour NO_2 standard by adding a background concentration to the facility alone modeled concentration, and there is no reason to believe that SSM operations will be coordinated with nearby facilities. This background concentration was from the NMED monitor located in Hobbs. The background concentration from the monitor in Hobbs will include emissions close to the

monitor including traffic and machinery. It is likely that the NO_2 emissions from traffic near the monitor in Hobbs are higher than the emissions from traffic near the subject facility.

Comment Summary: Were the correct and representative background concentrations used (for NO_2)?

Response: To evaluate the cumulative impact of a minor source facility the Bureau often uses background concentrations from nearby monitors. Minor Source facilities are not expected to provide individual pre-construction monitoring. In the case of Bulldog Compressor Station, XTO Energy demonstrated compliance with the 1-hour NO_2 NAAQS using data from the NMED monitor located in Hobbs. This monitor is located 44.25 miles East-Northeast of the facility. The NMED monitor located in Carlsbad is closer to the facility, 26.71 miles West-Southwest of the facility. The monitor located in Hobbs has a higher concentration, and therefore is more conservative. This monitor is considered by the Bureau modeling staff to be representative of the area that the facility is located, and XTO Energy followed Bureau guidance in the use of the monitoring data

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF XTO ENERGY FOR AN AIR QUALITY PERMIT
FOR THE SPARTAN COMPRESSOR STATION AQB 21-40

TECHNICAL TESTIMONY OF ANGELA RASO

I. QUALIFICATIONS

My name is Angela Raso, and I am a dispersion modeler for the New Mexico Environment Department's ("Department" or "NMED") Air Quality Bureau ("Bureau"). I hold a PhD in chemistry from Purdue University, and a BA in chemistry from Whitman College. I have been a dispersion modeler for the Bureau for approximately 3 years. One of my primary duties is the review of air dispersion modeling for New Source Review permit applications to determine if they will comply with air quality standards and other modeling-related requirements. Air dispersion modeling is a computer simulation that predicts air concentrations of pollutants after a facility is constructed. EPA develops models for this purpose to ensure quality analyses and equal protection under the law. My full background and qualifications are set forth in my resume.[NMED Exhibit 8].

II. PERMIT APPLICATION MODELING REVIEW

I reviewed the modeling submitted by XTO Energy for permit 7681M2, which is known as "Spartan Compressor Station." [AR No. 1]. I verified that the facility followed appropriate modeling practices, as informed by the New Mexico Modeling Guidelines. [NMED Exhibit 15]. Details of the modeling are described in the Modeling Review Report, which is contained in the Administrative Record. [AR No. 8].

In order to be issued an NSR permit, the applicant must demonstrate that construction of the proposed facility will not cause or contribute to any violations of National or New Mexico Ambient Air Quality Standards, Prevention of Significant Deterioration (PSD) Increments, or State Air Toxic pollutant requirements. National Ambient Air Quality Standards are periodically reviewed by the Environmental Protection Agency and are designed to protect the most sensitive individuals. PSD increments are designed to maintain the air quality of pristine areas. Toxic permitting thresholds prevent neighbors from being exposed to more than one percent of the amount that has been deemed acceptable for workers to be exposed to throughout the day. The requirement to demonstrate compliance with these air quality measures is contained in 20.2.72.203(A)(4) NMAC.

The Department maintains the New Mexico Modeling Guidelines to provide a basis for acceptable modeling analyses. These guidelines incorporate and interpret the most recent version of EPA's Guideline on Air Quality Models, which was published in the Federal Register, Vol. 82, No. 10. The New Mexico Modeling Guidelines also incorporate other information and guidance, such as EPA memorandums.

Spartan Compressor Station modeling was performed in accordance with the New Mexico Modeling Guidelines. If the facility operates in compliance with the terms and conditions of the draft permit, then it will not cause or contribute to any concentrations above state or federal ambient air quality standards or PSD increments. The facility has satisfied all modeling requirements and the permit may be issued.

III.RESPONSE TO COMMENTS

Comment Summary: Were the maximum potential to emit emission rates modeled for NO_2?

Response: The maximum facility wide - modeled NO_2 emission rate is identified in the Modeling Review Report as 45.77 pounds per hour during normal operations and 524.05 pounds per hour during startup, shutdown and maintenance (SSM). This emission rate accounts for the use of Compressor Engines, Reboilers, and Flares. The emission rates for each piece of equipment identified in the Modeling Review Report are consistent with those found in the application form UA2. The emission rates identified in the Model Review Report were used to conduct modeling.

Comment Summary: Cumulative NO2 concentrations did not account for hourly SSM and malfunction emissions from adjacent facilities and did not account for truck and heavy machinery traffic adjacent to the Spartan Compressor Station.

Response: For cumulative analysis NMED requires the use of either a representative background concentration or cumulative modeling with nearby sources. If it is probably that an adjacent facility will be undergoing higher than normal emissions (E.G. SSM operations or malfunction emissions) at the same time as the subject facility those higher emissions must be included in the cumulative modeling. In this case the subject facility completed cumulative analysis for the 1-hour NO_2 standard by adding a background concentration to the facility alone modeled concentration, and there is no reason to believe that SSM operations will be coordinated with nearby facilities. This background concentration was from the NMED monitor located in Hobbs. The background concentration from the monitor in Hobbs will include emissions close to the monitor including traffic and machinery. It is likely that the NO_2 emissions from traffic near the monitor in Hobbs are higher than the emissions from traffic near the subject facility.

Comment Summary: Were the correct and representative background concentrations used (for CO, SO_2, and NO_2)?

Response: To evaluate the cumulative impact of a minor source facility the Bureau often uses background concentrations from nearby monitors. Minor Source facilities are not expected to provide individual pre-construction monitoring. In the case of Spartan Compressor Station, XTO Energy demonstrated compliance with the 1-hour NO_2 NAAQS using data from the NMED monitor located in Hobbs. This monitor is located 55.25 miles Northeast of the facility. The NMED monitor located in Carlsbad is closer to the facility, 27.65 miles West-Northwest of the facility. The monitor located in Hobbs has a higher concentration, and therefore is more conservative. This monitor is considered by the Bureau modeling staff to be representative of the area that the facility is located, and XTO Energy followed Bureau guidance in the use of the monitoring data

Facility alone modeling for Spartan Compressor Station showed that both 1-hour and 8-hour CO concentrations caused by the facility was below the Significant Impact Level (SIL). Because facility impacts were below the SIL cumulative analysis was not conducted, and no CO background concentration was utilized.

XTO Energy's facility alone modeling for Spartan Compressor Station showed that predicted concentration was above the SIL for the 1-hour SO_2 NAAQS, the 24-hour PSD increment, and the annual PSD increment. These results are summarized in table 16-W of the application form UA4 [AR No. 1]. XTO Energy demonstrated compliance with the 1-hour SO_2 NAAQS using data from the monitor from the monitor located in Amarillo TX. While the Big Spring TX monitor is closer to the facilities than the Amarillo monitor it does not produce an appropriate background concentration for the area. The Big Spring monitor is located directly downwind from a facility with very large emissions of SO2 (Big Spring Carbon Black Plant). The monitor and facility are surrounded by a 1-hour SO2 nonattainment area that has been defined by EPA and TCEQ. This

nonattainment area is localized to the facility and does not include the surrounding oil and gas region.

My review of the modeling concurred that facility impacts were above the SIL for the SO_2 1-hour NAAQS and the SO_2 24-hour Class II PSD increment. I modeled the cumulative impact of the facility and surrounding sources to verify compliance with the SO_2 1-hour NAAQS and SO_2 24-hour PSD Class II increment. These results are summarized in table 6 of the Modeling Review Report.

Comment Summary: A modeling protocol was not submitted for this facility modification, why?

Response: While modeling protocols are encouraged for minor source NSR permit applications they are not required. Modeling protocols are only required for new PSD permit applications and PSD major modifications.

Comment Summary: The modeling summary submitted by the applicant seems to report no increase in CO, NO_2 or SO_2 concentrations caused by surrounding sources, why?

Response: XTO Energy's modeling demonstration showed that for many standards the facility alone impacts were below the applicable SIL. For standards where facility alone impacts are below the SIL the applicant is not required to account for impacts from surrounding sources. For some standards the facility alone impacts were not below the SIL, and the applicant utilized approved background concentrations to account for surrounding sources. Modeling with surrounding sources was correctly utilized for standards where it was necessary.

Comment Summary: The facility is in an area currently in violation of the 8-hour ozone NAAQS. Has the Department properly verified that the facility will not cause or contribute to violations of

ozone air quality standards? Has the Department properly justified use of the ozone significant impact limit (SIL)[1]?

Response: The Bureau does not require applications for permits that are minor sources with respect to the Prevention of Significant Deterioration (PSD) permitting program to demonstrate compliance with ozone standards, but rather evaluates regional compliance with ozone standards. New regional rules for ozone precursors emitted from the oil and gas industry are currently under consideration by the Environmental Improvement Board.

EPA guidance, titled *Guidance on Significant impact levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program* (the guidance), recommends a Significant Impact Level (SIL) of 1 part per billion (1ppb) for ozone. Facilities with an impact lower than the SIL are considered to not cause or contribute to exceedances of air quality standards. Bureau modeling staff have determined that on an individual basis all minor sources, as a definition of their emission limits, will have an impact below the 1 ppb SIL on ozone concentrations. While the SIL has not been included in the 'significant ambient concentrations' described in NMAC 20.2.72 it was the clear intent of the administrative code to include the use of SILs in general in the permitting process. The use of the ozone SIL is documented in the Bureau's modeling guidelines, and the Bureau's modeling staff believe that this SIL represents the best available evidence at this time.

The guidance recommends that the use of the SIL be justified on a case-by-case basis for the inclusion in permitting decisions. However, the guidance is intended for use in permitting major sources with respect to the PSD permitting program. The bureau has not applied the SIL to

individual facilities, but rather applied the SIL to determine that no additional information can be gained by applying the SIL to individual minor sources.

This EPA guidance is non-binding guidance, and as it is intended for major sources, is particularly not binding on NMED with respect to permitting facilities that are minor sources. NMED is not required to follow all specifications of the guidance when permitting minor sources. This includes the EPA recommendation that permitting authorities include a justification for the case-by-case application of the SIL.

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF XTO ENERGY FOR AN AIR QUALITY PERMIT
FOR THE JAYHAWK COMPRESSOR STATION **AQB 21-32**

TECHNICAL TESTIMONY OF ANGELA RASO

I. QUALIFICATIONS

My name is Angela Raso, and I am a dispersion modeler for the New Mexico Environment Department's ("Department" or "NMED") Air Quality Bureau ("Bureau"). I hold a PhD in chemistry from Purdue University, and a BA in chemistry from Whitman College. I have been a dispersion modeler for the Bureau for approximately 3 years. One of my primary duties is the review of air dispersion modeling for New Source Review permit applications to determine if they will comply with air quality standards and other modeling-related requirements. Air dispersion modeling is a computer simulation that predicts air concentrations of pollutants after a facility is constructed. EPA develops models for this purpose to ensure quality analyses and equal protection under the law. My full background and qualifications are set forth in my resume [NMED Exhibit 14].

II. PERMIT APPLICATION MODELING REVIEW

I reviewed the modeling submitted by XTO Energy for permit 8152M1, which is known as "Jayhawk Compressor Station." [AR No. 1]. I verified that the facility followed appropriate modeling practices, as informed by the New Mexico Modeling Guidelines. [NMED Exhibit 15]. Details of the modeling are described in the Modeling Review Report, which is contained in the Administrative Record. [AR No. 11].

In order to be issued an NSR permit, the applicant must demonstrate that construction of the proposed facility will not cause or contribute to any violations of National or New Mexico Ambient Air Quality Standards, Prevention of Significant Deterioration (PSD) Increments, or State Air Toxic pollutant requirements. National Ambient Air Quality Standards are periodically reviewed by the Environmental Protection Agency and are designed to protect the most sensitive individuals. PSD increments are designed to maintain the air quality of pristine areas. Toxic permitting thresholds prevent neighbors from being exposed to more than one percent of the amount that has been deemed acceptable for workers to be exposed to throughout the day. The requirement to demonstrate compliance with these air quality measures is contained in 20.2.72.203(A)(4) NMAC.

The Department maintains the New Mexico Modeling Guidelines to provide a basis for acceptable modeling analyses. These guidelines incorporate and interpret the most recent version of EPA's Guideline on Air Quality Models, which was published in the Federal Register, Vol. 82, No. 10. The New Mexico Modeling Guidelines also incorporate other information and guidance, such as EPA memorandums.

Jayhawk Compressor Station modeling was performed in accordance with the New Mexico Modeling Guidelines. If the facility operates in compliance with the terms and conditions of the draft permit, then it will not cause or contribute to any concentrations above state or federal ambient air quality standards or PSD increments. The facility has satisfied all modeling requirements and the permit may be issued.

III. RESPONSE TO COMMENTS

Comment Summary: The facility is in an area currently in violation of the 8-hour ozone NAAQS. Has the Department properly verified that the facility will not cause or contribute to violations of ozone air quality standards? Has the Department properly justified use of the ozone significant impact limit (SIL)[1]?

Response: The Bureau does not require applications for permits that are minor sources with respect to the Prevention of Significant Deterioration (PSD) permitting program to demonstrate compliance with ozone standards, but rather evaluates regional compliance with ozone standards. New regional rules for ozone precursors emitted from the oil and gas industry are currently under consideration by the Environmental Improvement Board.

EPA guidance, titled "*Guidance on Significant impact levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program"* (the guidance), recommends a Significant Impact Level (SIL) of 1 part per billion (1ppb) for ozone. Facilities with an impact lower than the SIL are considered to not cause or contribute to exceedances of air quality standards. Bureau modeling staff have determined that on an individual basis all minor sources, as a definition of their emission limits, will have an impact below the 1 ppb SIL on ozone concentrations. While the SIL has not been included in the 'significant ambient concentrations' described in NMAC 20.2.72 it was the clear intent of the administrative code to include the use of SILs in general in the permitting process. The use of the ozone SIL is documented in the Bureau's modeling guidelines, and the Bureau's modeling staff believe that this SIL represents the best available evidence at this time.

The guidance recommends that the use of the SIL be justified on a case-by-case basis for the inclusion in permitting decisions. However, the guidance is intended for use in permitting major sources with respect to the PSD permitting program. The bureau has not applied the SIL to individual facilities, but rather applied the SIL to determine that no additional information can be gained by applying the SIL to individual minor sources.

This EPA guidance is non-binding guidance, and as it is intended for major sources, is particularly not binding on NMED with respect to permitting facilities that are minor sources. NMED is not required to follow all specifications of the guidance when permitting minor sources. This includes the EPA recommendation that permitting authorities include a justification for the case-by-case application of the SIL.

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF CONOCOPHILLIPS FOR AN AIR QUALITY PERMIT
FOR THE ZIA HILLS CENTRAL FACILITY **AQB 21-36**

TECHNICAL TESTIMONY OF ANGELA RASO

I. QUALIFICATIONS

My name is Angela Raso, and I am a dispersion modeler for the New Mexico Environment Department's ("Department" or "NMED") Air Quality Bureau ("Bureau"). I hold a PhD in chemistry from Purdue University, and a BA in chemistry from Whitman College. I have been a dispersion modeler for the Bureau for approximately 3 years. One of my primary duties is the review of air dispersion modeling for New Source Review permit applications to determine if they will comply with air quality standards and other modeling-related requirements. Air dispersion modeling is a computer simulation that predicts air concentrations of pollutants after a facility is constructed. EPA develops models for this purpose to ensure quality analyses and equal protection under the law. My full background and qualifications are set forth in my resume. [NMED Exhibit 14].

II. PERMIT APPLICATION MODELING REVIEW

I reviewed the modeling submitted by ConocoPhillips for permit 7746M8, which is known as "Zia Hills Central Facility." [AR No. 1]. I verified that the facility followed appropriate modeling practices, as informed by the New Mexico Modeling Guidelines. [NMED Exhibit 15]. Details of the modeling are described in the Modeling Review Report, which is contained in the Administrative Record. [AR No. 6].

In order to be issued an NSR permit, the applicant must demonstrate that construction of the proposed facility will not cause or contribute to any violations of National or New Mexico Ambient Air Quality Standards, Prevention of Significant Deterioration (PSD) Increments, or State Air Toxic pollutant requirements. National Ambient Air Quality Standards are periodically reviewed by the Environmental Protection Agency and are designed to protect the most sensitive individuals. PSD increments are designed to maintain the air quality of pristine areas. Toxic permitting thresholds prevent neighbors from being exposed to more than one percent of the amount that has been deemed acceptable for workers to be exposed to throughout the day. The requirement to demonstrate compliance with these air quality measures is contained in 20.2.72.203(A)(4) NMAC.

The Department maintains the New Mexico Modeling Guidelines to provide a basis for acceptable modeling analyses. These guidelines incorporate and interpret the most recent version of EPA's Guideline on Air Quality Models, which was published in the Federal Register, Vol. 82, No. 10. The New Mexico Modeling Guidelines also incorporate other information and guidance, such as EPA memorandums.

Zia Hills Central Facility modeling was performed in accordance with the New Mexico Modeling Guidelines. If the facility operates in compliance with the terms and conditions of the draft permit, then it will not cause or contribute to any concentrations above state or federal ambient air quality standards or PSD increments. The facility has satisfied all modeling requirements and the permit may be issued.

III. RESPONSE TO COMMENTS

Comment Summary: The facility is in an area currently in violation of the 8-hour ozone NAAQS. Has the Department properly verified that the facility will not cause or contribute to violations of ozone air quality standards? Has the Department properly justified use of the ozone significant impact limit (SIL)[1]?

Response: The Bureau does not require applications for permits that are minor sources with respect to the Prevention of Significant Deterioration (PSD) permitting program to demonstrate compliance with ozone standards, but rather evaluates regional compliance with ozone standards. New regional rules for ozone precursors emitted from the oil and gas industry are currently under consideration by the Environmental Improvement Board.

EPA guidance, titled "*Guidance on Significant impact levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program"* (the guidance), recommends a Significant Impact Level (SIL) of 1 part per billion (1ppb) for ozone. Facilities with an impact lower than the SIL are considered to not cause or contribute to exceedances of air quality standards. Bureau modeling staff have determined that on an individual basis all minor sources, as a definition of their emission limits, will have an impact below the 1 ppb SIL on ozone concentrations. While the SIL has not been included in the 'significant ambient concentrations' described in NMAC 20.2.72 it was the clear intent of the administrative code to include the use of SILs in general in the permitting process. The use of the ozone SIL is documented in the Bureau's modeling guidelines, and the Bureau's modeling staff believe that this SIL represents the best available evidence at this time.

The guidance recommends that the use of the SIL be justified on a case-by-case basis for the inclusion in permitting decisions. However, the guidance is intended for use in permitting major sources with respect to the PSD permitting program. The bureau has not applied the SIL to individual facilities, but rather applied the SIL to determine that no additional information can be gained by applying the SIL to individual minor sources.

This EPA guidance is non-binding guidance, and as it is intended for major sources, is particularly not binding on NMED with respect to permitting facilities that are minor sources. NMED is not required to follow all specifications of the guidance when permitting minor sources. This includes the EPA recommendation that permitting authorities include a justification for the case-by-case application of the SIL.

Comment Summary: Were the correct and representative background concentrations used (for CO, SO_2, and NO_2)?

Response: To evaluate the cumulative impact of a minor source facility the Bureau often uses background concentrations from nearby monitors. Minor Source facilities are not expected to provide individual pre-construction monitoring. In the case of Zia Hills Central Facility, ConocoPhillips demonstrated compliance with the 1-hour NO_2 NAAQS using data from the NMED monitor located in Hobbs. This monitor is located 59.7 miles Northeast of the facility. The NMED monitor located in Carlsbad is closer to the facility, 40.6 miles Northwest of the facility. The monitor located in Hobbs has a higher concentration, and therefore is more conservative. This monitor is considered by the Bureau modeling staff to be representative of the area that the facility is located, and ConocoPhillips followed Bureau guidance in the use of the monitoring data

Facility alone modeling for Zia Hills Central Facility showed that both 1-hour and 8-hour CO concentrations caused by the facility was below the Significant Impact Level (SIL). Because facility impacts were below the SIL cumulative analysis was not conducted, and no CO background concentration was utilized.

ConocoPhillips' facility alone modeling for Zia Hills Central Facility showed that predicted concentration was above the SIL for only the 1-hour SO_2 NAAQS. These results are summarized in table 16-W of the application form UA4. [AR No. 1]. ConocoPhillips demonstrated compliance with the 1-hour SO_2 NAAQS using data from the monitor from the monitor located in Amarillo TX. While the Big Spring TX monitor is closer to the facilities than the Amarillo monitor it does not produce an appropriate background concentration for the area. The Big Spring monitor is located directly downwind from a facility with very large emissions of SO2 (Big Spring Carbon Black Plant). The monitor and facility are surrounded by a 1-hour SO2 nonattainment area that has been defined by EPA and TCEQ. This nonattainment area is localized to the facility and does not include the surrounding oil and gas region.

Comment Summary: Were the maximum potential to emit emission rates modeled for NO_2?

Response: The maximum facility wide - modeled NO_2 emission rate is identified in the Modeling Review Report as 11.14 pounds per hour during normal operations and 224.45 pounds per hour during startup, shutdown and maintenance (SSM). This emission rate accounts for the use of Compressor Engines, Heaters, Reboilers, and Flares. The emission rates for each piece of equipment identified in the Modeling Review Report are consistent with those found in the application form UA2. The emission rates identified in the Model Review Report were used to conduct modeling.

Comment Summary: Cumulative NO_2 concentrations did not account for hourly SSM and malfunction emissions from adjacent facilities and did not account for truck and heavy machinery traffic adjacent to the Zia Hills Central Facility.

Response: For cumulative analysis NMED requires the use of either a representative background concentration or cumulative modeling with nearby sources. If it is probably that an adjacent facility will be undergoing higher than normal emissions (E.G. SSM operations or malfunction emissions) at the same time as the subject facility those higher emissions must be included in the cumulative modeling. In this case the subject facility (Zia Hills Central) completed cumulative analysis for the 1-hour NO_2 standard by adding a background concentration to the facility alone modeled concentration, and there is no reason to believe that SSM operations will be coordinated with nearby facilities. This background concentration was from the NMED monitor located in Hobbs. The background concentration from the monitor in Hobbs will include emissions close to the monitor including traffic and machinery. It is likely that the NO_2 emissions from traffic near the monitor in Hobbs are higher than the emissions from traffic near the subject facility.

Comment Summary: A modeling protocol was not submitted for this facility modification, why?

Response: While modeling protocols are encouraged for minor source NSR permit applications they are not required. Modeling protocols are only required for new PSD permit applications and PSD major modifications.

Comment Summary: The modeling summary submitted by the applicant seems to report no increase in CO, NO_2 or SO_2 concentrations caused by surrounding sources, why?

Response: ConocoPhillips' modeling demonstration showed that for many standards the facility alone impacts were below the applicable SIL. For standards where facility alone impacts are below the SIL the applicant is not required to account for impacts from surrounding sources. For the standards that the facility alone impacts were not below the SIL the applicant utilized approved background concentrations to account for surrounding sources. ConocoPhillips' modeling demonstration did not include modeling of surrounding sources for PM2.5 standards as required by AQB's modeling guidelines.

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF CRESTWOOD NEW MEXICO FOR AN AIR QUALITY PERMIT
FOR THE WILLOW LAKE GAS PLANT **AQB 21-38**

TECHNICAL TESTIMONY OF ANGELA RASO

I. QUALIFICATIONS

My name is Angela Raso, and I am a dispersion modeler for the New Mexico Environment Department's ("Department" or "NMED") Air Quality Bureau ("Bureau"). I hold a PhD in chemistry from Purdue University, and a BA in chemistry from Whitman College. I have been a dispersion modeler for the Bureau for approximately 3 years. One of my primary duties is the review of air dispersion modeling for New Source Review permit applications to determine if they will comply with air quality standards and other modeling-related requirements. Air dispersion modeling is a computer simulation that predicts air concentrations of pollutants after a facility is constructed. EPA develops models for this purpose to ensure quality analyses and equal protection under the law. My full background and qualifications are set forth in my resume. [NMED Exhibit 14].

II. PERMIT APPLICATION MODELING REVIEW

I reviewed the modeling submitted by Crestwood New Mexico for permit 4142M8, which is known as "Willow Lake Gas Plant." [AR No. 1]. I verified that the facility followed appropriate modeling practices, as informed by the New Mexico Modeling Guidelines. [NMED Exhibit 15]. Details of the modeling are described in the Modeling Review Report, which is contained in the Administrative Record. [AR No. 10].

In order to be issued an NSR permit, the applicant must demonstrate that construction of the proposed facility will not cause or contribute to any violations of National or New Mexico Ambient Air Quality Standards, Prevention of Significant Deterioration (PSD) Increments, or State Air Toxic pollutant requirements. National Ambient Air Quality Standards are periodically reviewed by the Environmental Protection Agency and are designed to protect the most sensitive individuals. PSD increments are designed to maintain the air quality of pristine areas. Toxic permitting thresholds prevent neighbors from being exposed to more than one percent of the amount that has been deemed acceptable for workers to be exposed to throughout the day. The requirement to demonstrate compliance with these air quality measures is contained in 20.2.72.203(A)(4) NMAC.

The Department maintains the New Mexico Modeling Guidelines to provide a basis for acceptable modeling analyses. These guidelines incorporate and interpret the most recent version of EPA's Guideline on Air Quality Models, which was published in the Federal Register, Vol. 82, No. 10. The New Mexico Modeling Guidelines also incorporate other information and guidance, such as EPA memorandums.

Willow Lake Gas Plant modeling was performed in accordance with the New Mexico Modeling Guidelines. If the facility operates in compliance with the terms and conditions of the draft permit, then it will not cause or contribute to any concentrations above state or federal ambient air quality standards or PSD increments. The facility has satisfied all modeling requirements and the permit may be issued.

III. RESPONSE TO COMMENTS

Comment: Comment Summary: Were the maximum potential to emit emission rates modeled for NO_2?

Response: The maximum facility wide - modeled NO_2 emission rate is identified in the Modeling Review Report as 169.49 pounds per hour. This emission rate accounts for the use of Compressor Engines, Heaters, and Flares. The emission rates for each piece of equipment identified in the Modeling Review Report are consistent with those found in the application form UA2. The emission rates identified in the Model Review Report were used to conduct modeling.

Comment: Cumulative NO_2 concentrations did not account for hourly SSM and malfunction emissions from adjacent facilities and did not account for truck and heavy machinery traffic adjacent to the Willow Lake Gas Plant.

Response: For cumulative analysis NMED requires the use of either a representative background concentration or cumulative modeling with nearby sources. If it is probably that an adjacent facility will be undergoing higher than normal emissions (E.G. SSM operations or malfunction emissions) at the same time as the subject facility those higher emissions must be included in the cumulative modeling. In this case the subject facility (Willow Lake Gas Plant) completed cumulative analysis for the 1-hour NO_2 standard by adding a background concentration to the facility alone modeled concentration, and there is no reason to believe that SSM operations will be coordinated with nearby facilities. This background concentration was from the NMED monitor located in Carlsbad. The background concentration from the monitor in Carlsbad will include emissions close to the monitor including traffic and machinery. It is likely that the NO_2 emissions

from traffic near the monitor in Carlsbad are higher than the emissions from traffic near the subject facility.

Comment: Were the correct and representative background concentrations used (for CO, SO_2, and NO_2)?

Response: To evaluate the cumulative impact of a minor source facility the Bureau often uses background concentrations from nearby monitors. Minor Source facilities are not expected to provide individual pre-construction monitoring. In the case of Willow Lake Gas Plant, Crestwood New Mexico demonstrated compliance with the 1-hour NO_2 NAAQS using data from the NMED monitor located in Carlsbad. This monitor is located 15.8 miles Northeast of the facility. This monitor is considered by the Bureau modeling staff to be representative of the area that the facility is located, and Crestwood New Mexico followed Bureau guidance in the use of the monitoring data.

Facility alone modeling for Willow Lake Gas Plant showed that both 1-hour and 8-hour CO concentrations caused by the facility was below the Significant Impact Level (SIL). Because facility impacts were below the SIL cumulative analysis was not conducted, and no CO background concentration was utilized.

Crestwood New Mexico's facility alone modeling for Willow Lake Gas Plant showed that predicted concentration was below the SIL for all SO_2 standards. These results are summarized in table 16-W of the application form UA4. NMED review of the modeling suggested that facility impacts may be above the SIL for the SO_2 1-hour NAAQS and the SO_2 24-hour Class II PSD increment. I modeled the cumulative impact of the facility and surrounding sources to verify

compliance with the SO_2 1-hour NAAQS and SO_2 24-hour PSD Class II increment. These results are summarized in table 7 of the Modeling Review Report.

Comment: The modeling summary submitted by the applicant seems to report no increase in CO, NO_2 or SO_2 concentrations caused by surrounding sources, why?

Response: Crestwood New Mexico's modeling demonstration showed that for most standards the facility alone impacts were below the applicable SIL. For standards where facility alone impacts are below the SIL the applicant is not required to account for impacts from surrounding sources. For the standards that the facility alone impacts were not below the SIL the applicant utilized approved background concentrations to account for surrounding sources. Crestwood New Mexico's modeling demonstration did not include modeling of surrounding sources.

My review of modeling for Willow Lake Gas Plant concluded that for several standards facility alone impacts may be above the SIL. I modeled cumulative impacts for the PM2.5 24-hour NAAQS, PM2.5 24-hour PSD Class II increment, PM2.5 annual NAAQS, PM2.5 annual PSD Class II increment, SO_2 1-hour NAAQS, and SO_2 24-hour PSD Class II increment with surrounding sources. Cumulative analysis verified compliance with all applicable standards for Willow Lake Gas Plant.

Comment Summary: The facility is in an area currently in violation of the 8-hour ozone NAAQS. Has the Department properly verified that the facility will not cause or contribute to violations of ozone air quality standards? Has the Department properly justified use of the ozone significant impact limit (SIL)[1]?

Response: The Bureau does not require applications for permits that are minor sources with respect to the Prevention of Significant Deterioration (PSD) permitting program to demonstrate compliance with ozone standards, but rather evaluates regional compliance with ozone standards. New regional rules for ozone precursors emitted from the oil and gas industry are currently under consideration by the Environmental Improvement Board.

EPA guidance, titled "*Guidance on Significant impact levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program"* (the guidance), recommends a Significant Impact Level (SIL) of 1 part per billion (1ppb) for ozone. Facilities with an impact lower than the SIL are considered to not cause or contribute to exceedances of air quality standards. Bureau modeling staff have determined that on an individual basis all minor sources, as a definition of their emission limits, will have an impact below the 1 ppb SIL on ozone concentrations. While the SIL has not been included in the 'significant ambient concentrations' described in NMAC 20.2.72 it was the clear intent of the administrative code to include the use of SILs in general in the permitting process. The use of the ozone SIL is documented in the Bureau's modeling guidelines, and the Bureau's modeling staff believe that this SIL represents the best available evidence at this time.

The guidance recommends that the use of the SIL be justified on a case-by-case basis for the inclusion in permitting decisions. However, the guidance is intended for use in permitting major sources with respect to the PSD permitting program. The bureau has not applied the SIL to individual facilities, but rather applied the SIL to determine that no additional information can be gained by applying the SIL to individual minor sources.

This EPA guidance is non-binding guidance, and as it is intended for major sources, is particularly not binding on NMED with respect to permitting facilities that are minor sources. NMED is not required to follow all specifications of the guidance when permitting minor sources. This includes the EPA recommendation that permitting authorities include a justification for the case-by-case application of the SIL.

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF XTO ENERGY FOR AN AIR QUALITY PERMIT
FOR THE WILDCAT COMPRESSOR STATION **AQB 21-35**

TECHNICAL TESTIMONY OF ANGELA RASO

I. QUALIFICATIONS

My name is Angela Raso, and I am a dispersion modeler for the New Mexico Environment Department's ("Department" or "NMED") Air Quality Bureau ("Bureau"). I hold a PhD in chemistry from Purdue University, and a BA in chemistry from Whitman College. I have been a dispersion modeler for the Bureau for approximately 3 years. As a dispersion modeler, I routinely evaluate the air quality impacts of complex facilities. My full background and qualifications are set forth in my resume, which is marked as NMED Exhibit 14.

II. PERMIT APPLICATION MODELING REVIEW

I reviewed the modeling submitted by XTO Energy for permit 7474M2, which is known as the "Wildcat Compressor Station." I verified that the facility followed appropriate modeling practices, as informed by the New Mexico Modeling Guidelines [NMED Exhibit 15]. Details of the modeling are described in the Modeling Review Report, which is contained in the Administrative Record. [AR No. 44].

In order to be issued an NSR permit, the applicant must demonstrate that construction of the proposed facility will not cause or contribute to any violations of National or New Mexico Ambient Air Quality Standards, Prevention of Significant Deterioration ("PSD") Increments, or State Air Toxic pollutant requirements [20.2.72.200(A)(2) and 20.2.72.203 NMAC]. National Ambient Air Quality Standards are

periodically reviewed by the Environmental Protection Agency and are designed to protect the most sensitive individuals. See 20.2.72.7(Q) NMAC (defining such standards and citing the federal regulatory basis). PSD increments are designed to maintain the air quality of pristine areas. Toxic permitting thresholds prevent neighbors from being exposed to more than one percent of the amount that has been deemed acceptable for workers to be exposed to throughout the day.

The Wildcat Compressor Station modeling was performed in accordance with the New Mexico Modeling Guidelines. If the facility operates in compliance with the terms and conditions of the draft permit, then it will not cause or contribute to any concentrations above state or federal ambient air quality standards or PSD increments. The facility has satisfied all modeling requirements and the permit may be issued.

III. RESPONSE TO COMMENTS

Comment: Where the maximum potential to emit emission rates modeled for NO_2?

Response: The maximum facility wide - modeled NO_2 emission rate is identified in the Modeling Review Report as 432.742 pounds per hour. This emission rate accounts for the use of Compressor Engines, Heaters, and Flares. The emission rates for each piece of equipment identified in the Modeling Review Report are consistent with those found in the application form UA2. The emission rates identified in the Model Review Report were used to conduct modeling.

Comment: Cumulative NO2 concentrations did not account for hourly SSM and malfunction emissions from adjacent facilities and did not account for truck and heavy machinery traffic adjacent to the Wildcat Compressor Station.

Response: For cumulative analysis NMED requires the use of either a representative background concentration or cumulative modeling with nearby sources. If it is probably that an adjacent facility will be undergoing higher than normal emissions (E.G. SSM operations or malfunction emissions) at the same time as the subject facility those higher emissions must be included in the cumulative modeling. In this case the subject facility (Wildcat Compressor Station) completed cumulative analysis for the 1-hour NO_2 standard by adding a background concentration to the facility alone modeled concentration, and there is no reason to believe that SSM operations will be coordinated with nearby facilities. This background concentration was from the NMED monitor located in Carlsbad. The background concentration from the monitor in Carlsbad will include emissions close to the monitor including traffic and machinery. It is likely that the NO_2 emissions from traffic near the monitor in Carlsbad are higher than the emissions from traffic near the subject facility.

Comment: The background hourly NO2 value relied upon by XTO is inaccurate and not representative of the area where the Wildcat Compressor Station is located.

Response: To evaluate the cumulative impact of a minor source facility the Bureau often uses background concentrations from nearby monitors. Minor Source facilities are not expected to provide individual pre-construction monitoring. In the case of Wildcat Compressor Station, XTO Energy demonstrated compliance with the 1-hour NO_2 NAAQS using data from the NMED monitor located in Carlsbad. This monitor is located 30.9 miles West-Northwest of the facility. This monitor is considered by the Bureau modeling staff to be representative of the area that the facility is located, and XTO Energy followed Bureau guidance in the use of the monitoring data

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Education

Purdue University, West Lafayette, IN **December 2018**
Doctor of Philosophy, Analytical chemistry
Dissertation: "Halogen Photochemistry and Emissions from the Arctic Snowpack"
Advisor Dr. Paul B. Shepson, Dr. Kerri A. Pratt (University of Michigan)

Whitman College, Walla Walla, WA **May 2012**
Bachelor of Arts, Chemistry. Mathematics minor.
Undergraduate Thesis: "Determining the Presence of Dense Non-Aqueous Phase Liquid (DNAPL) Pollutants in River Sediments"
Advisor Dr. Frank M. Dunnivant

Professional Experience

Dispersion Modeler, New Mexico Environment Department, Air Quality Bureau September 2018 - Present

- Evaluate facilities emissions for compliance with Ambient Air Quality Standards using dispersion models
- Assist with data analysis and evaluation related to emissions inventories
- Assist with special projects involving modeling and emissions inventories including; preparation for and review of photochemical modeling, modeling for state implementation plans

Research Experience

Research Assistant, Purdue University **Fall 2012 – August 2018**

- Lead field work based research on gas phase oxidation processes in the Arctic to understand a complex environmental system
- Collaboratively design and perform atmospheric chemistry experiments in the Arctic including eddy covariance flux measurements
- Full process responsibility for analytical measurements in a remote Arctic environment
- Coordinate logistical needs to ensure successful Arctic fieldwork in Barrow, Alaska
- Manage instrumentation including a homebuilt chemical ionization mass spectrometer, and an ion chromatography / liquid chromatography system
- Mentor and train students to safely and effectively use instrumentation
- Conduct zero- and one- dimensional photochemical modeling to understand and contextualize the importance of measurements

Visiting Research Assistant, University of Michigan **Fall & Winter 2015**

- Collaboratively planned for a spring 2016 field study in Barrow, Alaska

User, Environmental Molecular Sciences Laboratory, **October 2015**
Pacific Northwest National Laboratory

- Acquired first ever measurements of iodide in Arctic snow using ion chromatography coupled with inductively coupled plasma mass spectrometry (IC-ICPMS)

Undergraduate Research Assistant, Whitman College **Fall 2010 –Spring 2012**

- Conducted research on dense non-aqueous phase liquids in mixed stream-bed media for detection at highly polluted sites using gas chromatography – electron capture detection

Teaching Experience

General Chemistry Adjunct, Santa Fe Community College **Spring & Fall 2019**

- Instructed General Chemistry Laboratories

Analytical Chemistry TA, Purdue Chemistry Department **Fall 2013**

- Instructed laboratory sessions for upper division chemistry students in a major required course

- Wrote and graded exam questions and graded written lab reports, giving important feedback to students

Fundamental General Chemistry TA, Purdue Chemistry Department **Spring 2013**

- Instructed laboratory and recitation for students with no previous chemistry courses to give a gentle introduction to important laboratory and scientific skills

General Chemistry for Engineers TA, Purdue Chemistry Department **Fall 2012**

- Instructed laboratory and recitation sessions to introduce freshman engineers and scientists to college level science courses.

Chemistry Tutor, Whitman Chemistry Department **2010 -2012**

- Demonstrated concepts and problem solving techniques for students from general, organic and analytical chemistry classes in an open "drop in" environment using a variety of teaching methods

Organic Chemistry Laboratory Assistant, Whitman Chemistry Department **Fall 2011**

- Supported students in an organic chemistry laboratory to ensure safe, time effective, and comprehensive completion of experiments

Quantitative Analysis Lab. Assistant, Whitman Chemistry Department **Fall 2011**

- Supported students in a data rich laboratory to introduce analytical methods to chemistry majors
- Corrected spreadsheet style lab reports to give important feedback to students

Tutor, Whitman College Academic Resource Center **2010-2012**

- Tutored general chemistry, organic chemistry, calculus I, calculus II and differential equations to support student understanding and grades

Publications and Presentations

- "Active Molecular Iodine Photochemistry in the Arctic" December 11, 2017. Oral Presentation, American Geophysical Union Meeting. New Orleans, La
- "Surface fluxes and recycling of molecular halogens above the snowpack" December 11, 2017. Poster, American Geophysical Union Meeting. New Orleans, La
- Raso, A. R. W., K. D. Custard, N. W. May, D. J. Tanner, M. K. Newburn, L. Walker, R. Moor, L. G. Huey, M. L. Alexander, P. B. Shepson, K. A. Pratt "Active Molecular Iodine Photochemistry in the Arctic" *Proceedings of the National Academy of Sciences 114(38) 10053-10058*
- Custard, K. D., A. R. W. Raso, K. A. Pratt, R. M. Staebler, and P. B. Shepson (2017) "Molecular halogen production in and flux measurements from tundra snow" *ACS earth and space chem. 1(3), 142-151*
- Raso, A.R.W., B. Elstrott, and F. M. Dunnivant, (2012) Envirolab: Simulations of Laboratory experiments in environmental chemistry [Computer Program]
- Available at http://people.whitman.edu/~dunnivfm/software.html
- "Mass transport and recycling of molecular halogens near the snowpack surface in Barrow (Utqiaġvik), Alaska" December 12, 2016. American Geophysical Union Fall Meeting. San Francisco, Ca.
- "The impact of Molecular iodine photochemistry in the Arctic" December 17, 2014. Poster, American Geophysical Union Fall Meeting. San Francisco, Ca.
- "Determining the presence of dense non-aqueous phase liquid (DNAPL) pollutants in river sediments" March 26, 2012. Poster, National Spring Meeting of the American Chemical Society. San Diego, Ca.

New Mexico Air Quality Bureau

Air Dispersion Modeling Guidelines

Revised October 26, 2020

Recent changes to the Modeling Guidelines are described in Appendix A at the end of this document.

Notes:
EPA in-stack ratio database:
https://www.epa.gov/scram/nitrogen-dioxidenitrogen-oxide-stack-ratio-isr-database

Significance levels for PM2.5 and ozone:
https://www.epa.gov/sites/production/files/2016-08/documents/pm2_5_sils_and_ozone_draft_guidance.pdf
2017 Appendix W:
https://www3.epa.gov/ttn/scram/appendix_w/2016/AppendixW_2017.pdf

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1.0 INTRODUCTION

1.1 Introductory Comments

Air pollution has been proven to have serious adverse impacts on human health and the environment. In response, governments have developed air quality standards designed to protect health and secondary impacts. The only way to predict compliance with these standards by a facility or modification that does not yet exist is to use models to simulate the impacts of the project. Regulatory models strike a balance between cost-effectiveness and accuracy, though the field of air quality prediction is not necessarily an inexpensive or a highly accurate field. The regulatory model design is an attempt to apply requirements in a standard way such that all sources are treated equally and equitably.

It is the duty of the NMED/Air Quality Bureau (the Bureau) to review modeling protocols and the resulting modeling analyses to ensure that air quality standards are protected and to ensure that regulations are applied consistently. This document is an attempt to document clear and consistent modeling procedures in order to achieve these goals. Occasionally, a situation will arise when it makes sense to deviate from the guidelines because of special site-specific conditions. Suggested deviations from the guidelines should be documented in a modeling protocol and submitted to the Bureau for approval prior to submission of modeling.

In general, the procedures in the latest version of the EPA document, Guideline On Air Quality Models[1] should be followed when conducting the modeling analysis. This EPA document provides complete guidance on appropriate model applications. The purpose of this document is to provide clarification, additional guidance, and to highlight differences between the EPA document and New Mexico State modeling requirements.

Please do not hesitate to call the Bureau modeling staff with any questions you have before you begin the analysis. We are here to help; however, we will not conduct modeling courses. There are many courses offered which teach the principles of dispersion modeling. These courses provide a much better forum for learning about modeling than the Bureau modeling staff can provide.

1.2 The Modeling Review Process

1.2.1 Modeling Protocol Review

A modeling protocol should be submitted and approved before submitting a permit application. The Bureau will make every attempt to approve, conditionally approve, or reject the protocol within two weeks. Details regarding the protocol are described in section 6.0, Modeling Protocols. Protocols will be archived in the modeling archives in the protocol section until they can be stored with the files for the application.

1.2.2 Permit Modeling Evaluation

When a permit application involving air dispersion modeling is received, modeling staff has 30 days to determine whether the modeling analysis is administratively complete. The modeling section staff will make a quick determination to see if the modeling analysis appears complete. This involves checking to see if

[1] Environmental Protection Agency, 40 CFR Part 51, Revision to the Guideline on Air Quality Models https://www.epa.gov/sites/production/files/2020-09/documents/appw_17.pdf

modeling files are attached and readable and verifying that application forms and modeling report are present. If the analysis is incomplete, the staff will inform the applicant of the deficiencies as quickly as possible. This will halt the permitting process until sufficient information is submitted. Deficiencies not resolved prior to the completeness determination deadline may result in ruling the application incomplete.

After the application has been ruled complete, Bureau staff will perform a complete review of the modeling files. This analysis includes a review to make sure that information in the modeling files are consistent with the information in the permit application and may involve the emission rate of each emission point, the elevation of sources, receptors, and buildings, evaluation and modification of DEM data, property fence line, or other aspects of the modeling inputs. If the dispersion modeling analysis submitted with the permit application adequately demonstrates that ambient air concentrations will be below air quality standards and/or Prevention of Significant Deterioration (PSD) increments, the Bureau modeler will summarize the findings and provide the information to the permit writer. If dispersion modeling predicts that the construction or modification causes or significantly contributes to an exceedance of a New Mexico or National Ambient Air Quality Standard (NMAAQS or NAAQS) or PSD increment, the permit cannot be issued under the normal permit process. For nonattainment modeling, refer to 20.2.72.216 NMAC, 20.2.79 NMAC, or contact the Bureau for further information.

The application (including modeling) is expected to be complete and in good order at the time it is received. However, the Bureau will accept general modifications or revisions to the modeling before the modeling is reviewed provided that the changes do not conflict with good modeling practices. Once the modeling review begins, only changes to correct problems or deficiencies uncovered during the review of the modeling will normally be accepted, and the Bureau will provide a deadline by which changes need to be submitted to allow for them to be reviewed and for the permit to be issued. No changes to modeling will be allowed after the review has been completed.

2.0 MODELING REQUIREMENTS AND STANDARDS

2.1 Regulatory Requirement for Modeling

The requirements to perform air dispersion modeling are detailed in New Mexico Administrative Code (NMAC) **20.2.70.300.D.10 NMAC** (Operating Permits), **20.2.72.203.A.4 NMAC** (Construction Permits), and **20.2.74.305 NMAC** (Permits - Prevention of Significant Deterioration), and 20.2.79 NMAC (Nonattainment). The language from these sections is listed below for easy reference.

Basically, with a construction permit application, an analysis of air quality standards is required, which normally requires air dispersion modeling. In some cases, previous modeling may satisfy this requirement. In these cases, the applicant may seek a modeling waiver from the Bureau. In any case, it is the responsibility of the applicant to provide the modeling, or the justification for the modeling waiver, or the air quality analysis for nonattainment areas. Title V sources that have not demonstrated compliance with a standard or increment are required to come into compliance with this applicable requirement. This may be accomplished by modeling to show the area is in attainment with this standard or increment. If they are not able to model compliance, then a compliance plan will be needed.

2.1.1 Title V Operating Permits

Federal air quality standards are applicable requirements for sources required to have an operating permit. Modeling is usually not required to issue a Title V operating permit. If a facility is not required to have a construction permit (e.g., some landfills and "Grandfathered" facilities) then it will need to model any new emissions or changes that could increase ambient pollutant concentrations.

Selected Title V regulatory language applying to modeling is copied below for easy reference.

> **20.2.70.7 NMAC DEFINITIONS:** In addition to the terms defined in 20.2.2 NMAC (definitions), as used in this part the following definitions shall apply.
>
> E. "Applicable requirement" means all of the following, as they apply to a Part 70 source or to an emissions unit at a Part 70 source (including requirements that have been promulgated or approved by the board or US EPA through rulemaking at the time of permit issuance but have future-effective compliance dates).
>
> (11) Any national ambient air quality standard.
>
> (12) Any increment or visibility requirement under Part C of Title I of the federal act, but only as it would apply to temporary sources permitted pursuant to Section 504(e) of the federal act.

Note: The PSD increment analysis is required for the development of general permits for temporary Title V sources but is not an applicable requirement for regular Title V permit modeling. PSD increment modeling is required for Title V sources that are satisfying their modeling requirements through 20.2.72 NMAC modeling.

> **20.2.70.201 NMAC REQUIREMENT FOR A PERMIT:**
>
> D, Requirement for permit under 20.2.72 NMAC.
>
> (1) Part 70 sources that have an operating permit and do not have a permit issued under 20.2.72 NMAC or 20.2.74 NMAC shall submit a complete application for a permit under 20.2.72 NMAC within 180 days of September 6, 2006. The department shall consider and may grant reasonable requests for extension of this deadline on a case-by-case basis.

(2) Part 70 sources that do not have an operating permit or a permit under 20.2.72 NMAC upon the effective date of this subsection shall submit an application for a permit under 20.2.72 NMAC within 60 days after submittal of an application for an operating permit.

(3) Paragraphs 1 and 2 of this subsection shall not apply to sources that have demonstrated compliance with both the national and state ambient air quality standards through dispersion modeling or other method approved by the department and that have requested incorporation of conditions in their operating permit to ensure compliance with these standards.

20.2.70.300.D.10 NMAC

(10) Provide certification of compliance, including all of the following.

(a) A certification, by a responsible official consistent with Subsection E of 20.2.70.300 NMAC, of the source's compliance status for each applicable requirement. For national ambient air quality standards, certifications shall be based on the following.

(i) For first time applications, this certification shall be based on modeling submitted with the application for a permit under 20.2.72 NMAC.

(ii) For permit renewal applications, this certification shall be based on compliance with the relevant terms and conditions of the current operating permit.

2.1.2 New Source Review (NSR) Permitting for Minor Sources

For new permits, a demonstration of compliance with air quality standards, PSD increments, and toxic air pollutants subject to 20.2.72.403.A(2) is required for all pollutants emitted by the facility. For significant revisions, a demonstration of compliance with air quality standards, PSD increments, and toxic air pollutants subject to 20.2.72.403.A(2) is required for all pollutants affected by the modification or permit revision. For technical revisions involving like kind replacement, as specified in 20.2.72.219B(1)(d), a demonstration that the replacement unit has stack parameters which are at least as effective in the dispersion of air pollutants is required (provided previous modeling determined the area to be in compliance with air quality standards). Permits for sources not in attainment with standards should refer to 20.2.72.216 NMAC, NONATTAINMENT AREA REQUIREMENTS.

If previous modeling has demonstrated compliance for each averaging period of each pollutant with a state or federal ambient air quality standard or toxic air pollutant, and that modeling used current modeling practices and is up-to-date for that area, then a modeling waiver may be used as the discussion demonstrating compliance. Otherwise, new modeling is required. For other minor source permitting actions, modeling is not part of the permitting process. Modeling waivers do not apply to nonattainment areas.

Selected NSR regulatory language applying to modeling is copied below for easy reference.
Definition of modification:

20.2.72.7 DEFINITIONS: In addition to the terms defined in 20.2.2 NMAC (Definitions) as used in this Part:

P. "Modification" means any physical change in, or change in the method of operation of, a stationary source which results in an increase in the potential emission rate of any regulated air contaminant emitted by the source or which results in the emission of any regulated air contaminant not previously emitted, but does not include:

(1) a change in ownership of the source;

(2) routine maintenance, repair or replacement;

(3) installation of air pollution control equipment, and all related process equipment and materials necessary for its operation, undertaken for the purpose of complying with regulations adopted by the board or pursuant to the Federal Act; or

(4) unless previously limited by enforceable permit conditions:

(a) an increase in the production rate, if such increase does not exceed the operating design capacity of the source;

(b) an increase in the hours of operation; or

(c) use of an alternative fuel or raw material if, prior to January 6, 1975, the source was capable of accommodating such fuel or raw material, or if use of an alternate fuel or raw material is caused by any natural gas curtailment or emergency allocation or any other lack of supply of natural gas.

Requirements for permit:

20.2.72.200 APPLICATION FOR CONSTRUCTION, MODIFICATION, NSPS, AND NESHAP - PERMITS AND REVISIONS:

A. Permits must be obtained from the Department by:

(1) Any person constructing a stationary source which has a potential emission rate greater than 10 pounds per hour or 25 tons per year of any regulated air contaminant for which there is a National or New Mexico Ambient Air Quality Standard. If the specified threshold in this subsection is exceeded for any one regulated air contaminant, all regulated air contaminants with National or New Mexico Ambient Air Quality Standards emitted are subject to permit review. Within this subsection, the potential emission rate for nitrogen dioxide shall be based on total oxides of nitrogen;

(2) Any person modifying a stationary source when all of the pollutant emitting activities at the entire facility, either prior to or following the modification, emit a regulated air contaminant for which there is a National or New Mexico Ambient Air Quality Standard with a potential emission rate greater than 10 pounds per hour or 25 tons per year and the regulated air contaminant is emitted as a result of the modification. If the specified threshold in this subsection is exceeded for any one regulated air contaminant, all regulated air contaminants with National or New Mexico Ambient Air Quality Standards emitted by the modification are subject to permit review. Within this subsection, the potential emission rate for nitrogen dioxide shall be based on total oxides of nitrogen;

Like-kind-replacement required modeling:

20.2.72.219 PERMIT REVISIONS:

B. Technical Permit Revisions:

(1) Technical permit revision procedures may be used only for:

(d) Modifications that replace an emissions unit for which the allowable emissions limits have been established in the permit, provided that the new emissions unit:

(i) Is equivalent to the replaced emissions unit, and serves the same function within the facility and process;

(ii) Has the same or lower capacity and potential emission rates;

(iii) Has the same or higher control efficiency, and stack parameters which are at least as effective in the dispersion of air pollutants;

(vi) Would not, when operated under applicable permit conditions, cause or contribute to a violation of any National or New Mexico Ambient Air Quality Standard; and

Modeling requirements for new permits or significant revisions:

20.2.72.203.A.4 NMAC

Contain a regulatory compliance discussion demonstrating compliance with each applicable air quality regulation, ambient air quality standard, prevention of significant deterioration increment, and provision of 20.2.72.400 NMAC - 20.2.72.499 NMAC. The discussion must include an analysis, which may require use of US EPA-approved air dispersion model(s), to (1) demonstrate that emissions from routine operations will not violate any New Mexico or National Ambient Air Quality Standard or prevention of significant deterioration increment, and (2) if required by 20.2.72.400 NMAC - 20.2.72.499 NMAC, estimate ambient concentrations of toxic air pollutants.

2.1.3 NSR Permitting for PSD Major Sources

PSD major sources and major modifications have additional modeling requirements beyond those of minor sources. PSD major source modeling authority is contained here:

> **20.2.74.305 NMAC AMBIENT AIR QUALITY MODELING:** All estimates of ambient concentrations required by this Part shall be based on applicable air quality models, data bases, and other requirements as specified in EPA's Guideline on Air Quality Models (EPA-450/2-78-027R, July, 1986), its revisions, or any superseding EPA document, and approved by the Department. Where an air quality impact model specified in the Guideline on Air Quality Models is inappropriate, the model may be modified or another model substituted. Any substitution or modification of a model must be approved by the Department. Notification shall be given by the Department of such a substitution or modification and the opportunity for public comment provided for in fulfilling the public notice requirements in subsection B of 20.2.74.400 NMAC. The Department will seek EPA approval of such substitutions or modifications.

2.2 Air pollutants

Emissions of Sulfur Dioxide (SO_2), Particulate matter with an aerodynamic diameter of less than or equal to 10 micrometers (PM_{10}), Particulate matter with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$), Carbon Monoxide (CO), Nitrogen Dioxide (NO_2), Lead (Pb), Hydrogen sulfide (H_2S), and air toxics as listed in 20.2.72 NMAC are pollutants that may require modeling. Ozone and Volatile Organic Compound (VOC) emissions do not currently require a modeling analysis for a PSD minor source. If NO_X or VOCs are subject to PSD review, you should contact NMED and the EPA Regional Office to determine current ozone modeling requirements.

2.3 Modeling Exemptions and Reductions

2.3.1 Modeling waivers

In some cases, the demonstration that ambient air quality standards and PSD increments will not be violated can be satisfied with a discussion of previous modeling. If emissions have been modeled using current modeling procedures and air quality standards, and this modeling is still valid for the current standards, then the modeling waiver form may be submitted to request approval of a modeling waiver. The Bureau will determine on a case-by-case basis if the modeling waiver can be granted. The waiver discussion and written waiver approval should be included in the modeling section of the application.

The Bureau has performed generic modeling to demonstrate that the following small sources do not need modeling. The application must include a modeling waiver form to document the basis of the waiver. Permitting staff must approve the total emission rates during the permitting process for any waiver to be valid.

Table 1. Very small emission rate modeling waiver requirements

Pollutant	If all emissions come from stacks 20 feet or greater in height and there are no horizontal stacks or raincaps (lb/hr)	If not all emissions come from stacks 20 feet or greater in height, or there are horizontal stacks, raincaps, volume, or area sources (lb/hr)
CO	50	2
H_2S (Pecos-Permian Basin)	0.1	0.02
H_2S (Not in Pecos-Permian Basin)	0.01	0.002
Lead	Waiver not available.	Waiver not available.
NO_2	2	0.025
PM2.5	0.3	0.015
PM10	1.0	0.05
SO_2	2	0.025
Reduced sulfur (Pecos-Permian Basin)	0.033	Waiver not available.
Reduced sulfur (Not in Pecos-Permian Basin)	Waiver not available.	Waiver not available.

2.3.2 General Construction Permits (GCPs)

General Construction Permits do not require modeling. General modeling was performed in the development of these permits.

2.3.3 Streamlined Compressor Station Modeling Requirements

Compressor stations may be eligible for streamlined permits under the authority of **20.2.72.300-399 NMAC**. Streamlined permits have reduced modeling analysis requirements.

Streamlined Compressor Station Location Requirements

Restrictions preventing use of streamlined permits in certain locations are listed in **20.2.72.301 NMAC**. Those restrictions dealing with location are described below.

According to **20.2.72.301.B.4 NMAC**, the facility cannot co-locate with petroleum refineries, chemical manufacturing plants, bulk gasoline terminals, natural gas processing plants, or at any facility containing sources in addition to IC engines and/or turbines for which an air quality permit is required through state or federal air quality regulations.

20.2.72.301.B.5 NMAC restricts the location of streamlined permit in areas predicted by air quality monitoring or modeling to have more than 80% of state or federal ambient air quality standards or PSD increments consumed. Table 2, below, is a list of these areas. This restriction means that any streamlined permit applicant wishing to locate in a nonattainment area or those areas listed in Table 2 must demonstrate, using air dispersion modeling, that the entire facility will not produce any concentrations above significance levels.

Table 2. Areas Where Streamlined Permits Are Restricted

County	Latitude	Longitude	Radius (m)
San Juan	36.73120	-107.9608189	3000
San Juan	36.48296	-108.1200487	1000

* Locations within 150 meters of a facility that emits 25 tons per year of NO_X are restricted areas for streamlined compressor station permits unless modeling is performed.

20.2.72.301.B.6 NMAC prohibits the location of streamline permit from use in areas if the nearest property boundary will be located less than:
(a) 1 kilometer (km) from a school, residence, office building, or occupied structure. Buildings and structures within the immediate industrial complex of the source are not included.
(b) 3 km from the property boundary of any state park, Class II wilderness area, Class II national wildlife refuge, national historic park, state recreation area, or community with a population of more than twenty thousand people.

Table 3. List of state parks, Class I areas, Class II wilderness areas, Class II national wildlife refuges, national historic parks, and state recreation areas

County	Name	Type	Min. Distance (km)
Bernalillo	Sandia Mountain Wilderness	State Wilderness	3
Catron	Gila Wilderness	Class I Area	30
Catron	Gila Cliff Dwelling	National Monuments	3
Catron	Datil Well	Recreation Sites	3
Chaves	Bottomless Lake	Class II State Parks	3
Chaves	Salt Creek Wilderness Area	Class I Area	30
Chaves	Bitter Lake National W.R.	Class II Wildlife Refuge	3
Cibola	Bluewater Lake	Class II State Parks	3
Cibola	El Malpais	National Monuments	3
Cibola	El Morro	National Monuments	3
Colfax	Cimarron Canyon	Class II State Parks	3
Colfax	Maxwell National W.R.	Class II Wildlife Refuge	3
Colfax	Capulin	National Monuments	3
DeBaca	Sumner Lake	Class II State Parks	3
DeBaca	Ft. Sumner	State Monuments	3
Dona Ana	Leesburg Dam	Class II State Parks	3
Dona Ana	Aguirre Springs	Recreation Sites	3
Dona Ana	Ft. Seldon	State Monuments	3
Eddy	Carlsbad Caverns National Park	Class I Area	30
Eddy	Living Desert	Class II State Parks	3
Grant	Gila Wilderness	Class I Area	30
Grant	City of Rocks	Class II State Parks	3
Guadalupe	Santa Rosa Lake	Class II State Parks	3
Harding	Chicosa Lakes	Class II State Parks	3
Harding	Kiowa National Grasslands	National Grasslands	3
Lea	Harry McAdams	Class II State Parks	3
Lincoln	White Mountain Wilderness	Class I Area	30
Lincoln	Valley of Fires	Class II State Parks	3
Lincoln	Lincoln	State Monuments	3

County	Name	Type	Min. Distance (km)
Luna	Pancho Villa	Class II State Parks	3
Luna	Rock Hound	Class II State Parks	3
McKinley	Red Rock	Class II State Parks	3
Mora	Coyote Creek	Class II State Parks	3
Mora	Ft. Union	National Monuments	3
Otero	Oliver Lee	Class II State Parks	3
Otero	White Sands	National Monuments	3
Otero	Three Rivers Petro	Recreation Sites	3
Quay	Ute Lake	Class II State Parks	3
Rio Arriba	San Pedro Parks Wilderness	Class I Area	30
Rio Arriba	El Vado Lake	Class II State Parks	3
Rio Arriba	Heron Lake	Class II State Parks	3
Rio Arriba	Navajo Lake (Sims)	Class II State Parks	3
Rio Arriba	Chama River Canyon Wilderness	State Wilderness	3
Roosevelt	Oasis	Class II State Parks	3
Roosevelt	Grulla National W. R.	Class II Wildlife Refuge	3
San Juan	Navajo (Pine)	Class II State Parks	3
San Juan	Chaco Canyon	National Historic Park	3
San Juan	Aztec Ruins	National Monuments	3
San Juan	Angel Peak (National)	Recreation Area	3
San Miguel	Conchas Lake	Class II State Parks	3
San Miguel	Storey Lake	Class II State Parks	3
San Miguel	Villanueva	Class II State Parks	3
San Miguel	Las Vegas National W. R.	Class II Wildlife Refuge	3
San Miguel	Pecos	National Monuments	3
Sandoval	Bandelier Wilderness	Class I Area	30
Sandoval	Coronado	Class II State Parks	3
Sandoval	Rio Grande Gorge/Fenton Lake	Class II State Parks	3
Sandoval	Bandelier	National Monuments	3
Sandoval	Sandia Crest (State)	Recreation Area	3
Sandoval	Coronado	State Monuments	3
Sandoval	Jemez	State Monuments	3
Sandoval	Sandia Mountain Wilderness	State Wilderness	3
Santa Fe	Hyde Memorial	Class II State Parks	3
Sierra	Caballo Lake	Class II State Parks	3
Sierra	Elephant Butte Lake	Class II State Parks	3
Sierra	Percha Dam	Class II State Parks	3
Socorro	Bosque del Apache Wilderness	Class I Area	30
Socorro	Sevillita National W.R.	Class II Wildlife Refuge	3
Taos	Pecos Wilderness	Class I Area	30
Taos	Wheeler Park Wilderness	Class I Area	30
Taos	Kit Carson	Class II State Parks	3
Taos	Rio Grande Gorge	Recreation Sites	3
Taos	Latir Peak Wilderness	State Wilderness	3
Torrance	Manzano Mountain	Class II State Parks	3
Torrance	Grand Guivira	National Monuments	3

County	Name	Type	Min. Distance (km)
Torrance	Quarai at Salinas	National Monuments	3
Torrance	Abo at Salinas	State Monuments	3
Torrance	Manzano Mountain Wilderness	State Wilderness	3
Union	Clayton Lake	Class II State Parks	3
Valencia	Sen. Willie Chavez	Class II State Parks	3
Valencia	Manzano Mountain Wilderness	State Wilderness	3

(c) 10 km from the boundary of any community with a population of more than forty-thousand people, or
(d) 30 km from the boundary of any Class I area;

20.2.72.301.B.7 NMAC prohibits the location of streamline permit in Bernalillo County or within 15 km of the Bernalillo County line.

Streamlined Compressor Station Modeling and Public Notice Requirements

Modeling and public notice requirements for streamlined compressor station permits depend on the amount of emissions from the facility. Refer to the table below, using the maximum of the Potential to Emit (PTE) of each regulated contaminant from all sources at the facility to determine applicability. The potential to emit for nitrogen dioxide shall be based on total oxides of nitrogen. The effects of building downwash shall be included in modeling if there are buildings at the site.

Table 4. Streamlined Permit Applicability Requirements for facilities with less than 200 tons/year PTE

Applicable Regulation	PTE (TPY)	Modeling Requirements (from 20.2.72.301 D NMAC)
20.2.72.301 D (1)	<40	• None
20.2.72.301 D (2)	<100	• The impact on ambient air from all sources at the facility shall be less than the ambient significance levels.
20.2.72.301 D (3)	<200	• Air quality impacts must be less than 50% of all applicable NAAQS, NMAAQS and PSD increments. • There shall be no adjacent sources emitting the same air contaminant(s) as the source within 2.5 km of the modeled NO_2 impact area. • The sum of all potential emissions for NO_X from all adjacent sources within 15 km of the NO_X ROI must be less than 740 tons/year. • The sum of all potential emissions for NO_X from all adjacent sources within 25 km of the NO_X ROI must be less than 1540 tons/year.

There are other criteria that must be met for streamlined permits for compressor stations. Please refer to **20.2.72.300-399 NMAC** for more information.

2.3.4 Minor NSR Exempt Equipment

Exempt equipment under 20.7.72.202 NMAC do not need to be included in modeling for 20.2.72 NMAC permits. The exemption does not exclude them from modeling requirements under other types of permits, such as 20.2.70 NMAC or 20.2.74 NMAC.

2.4 Levels of Protection

2.4.1 Significance Levels

Modeling significance levels are thresholds below which the source is not considered to contribute to any predicted exceedance of air quality standards or PSD increments. The definition of 'source' can apply to the whole facility or to the modifications at the facility. For a new facility or an unpermitted facility, NMED considers the entire facility to be the 'source'. For other cases, 'source' includes only the new equipment or new emissions increases described in the current application. Equipment that replaces other equipment is part of the new equipment.

Example of source to model for permitting:
The entire facility was modeled for annual NO_2 and 1-hour and 8-hour CO in 1999 but was never modeled for 1-hour NO_2. The facility applies to replace a widget. If this widget emits only NO_2 and CO, then modeling review is applicable for these pollutants. For CO and for NO_2, the applicant may model only the replacement widget. If the impacts from the widget alone are below significance levels, then modeling is done for that pollutant/averaging period. If the impacts from the widget alone are above significance levels, then the entire facility plus nearby sources must be modeled for comparison with air quality standards and PSD increments.

Significance levels are listed in **20.2.72.500 NMAC** and are repeated in the sections below. Always use the maximum predicted concentration from the source for radius of impact/significance level determination. Even if the form of the standard allows it to be exceeded several times per period, that fraction is based on cumulative concentration and cannot be related to partial concentrations. If multiple years of meteorological data are used, then the average of those concentrations is compared with the significance level, except for $PM_{2.5}$ and 1-hour SO_2, for which the maximum across multiple years is compared with the significance level.

Use of the $PM_{2.5}$ significant ambient concentration level or significant monitoring concentration for PSD major modifications or new PSD major sources is not allowed. This significant ambient concentration level may still be used for minor source permitting.

2.4.2 Air Quality Standards

Air quality standards are maximum allowable concentrations that are designed to protect the most sensitive individuals from harm from airborne pollutants. National Ambient Air Quality Standards (NAAQS) and New Mexico Ambient Air Quality Standards (NMAAQS) are explained below. Unless otherwise noted, standards are not to be exceeded.

2.4.3 Prevention of Significant Deterioration (PSD) Increments

To prevent relatively clean areas from degrading to levels just barely in compliance with the air quality standards, limits on the change have been established in the form of PSD increments. Compliance demonstrations for PSD increments demonstrate that the deterioration is less than the allowable increment.

List of State air quality standards:
http://www.nmcpr.state.nm.us/nmac/parts/title20/20.002.0003.htm

2.5 Concentration Conversions

Many of the air quality standards are written in the form of parts per million (ppm) or parts per billion (ppb), but the models generally give output in units of micrograms per cubic meter (μg/m^3). EPA has verbally communicated to NMED that AERMOD output is expressed at Standard Temperature and Pressure (STP) conditions. Therefore, most air quality standards can be compared to modeled concentration without corrections for elevation (and associated low pressure). If a need for elevation correction arises, a method to adjust for elevation is listed below.

2.5.1 Gaseous Conversion Factor for Elevation and Temperature Correction

The following equation calculates the conversion from μg/m^3 to ppm, with corrections for temperature and pressure (elevation):

$$ppm = 4.553 \times 10^{-5} \times \frac{C \times T}{M_w} \times 10^{Z \times 1.598 \times 10^{-5}}$$

or, rearranged to calculate μg/m^3:

$$C = ppm \times M_W / (T \times (4.553\ E\ -5) \times (10^{Z \times 1.598\ E\ -5}))$$

where:

C = component concentration in μg/m^3.
T = average summer morning temperature in Rankin at site (typically 530 R).
M_w = molecular weight of component.
Z = site elevation, in feet.

2.5.2 Gaseous Conversion Factor at Standard Temperature and Pressure (STP) Conditions

Federal standards are expressed as mass per unit volume or ppm or ppb under standard temperature and pressure.

> "40 CFR 50.3 Reference conditions.
> All measurements of air quality that are expressed as mass per unit volume (e.g., micrograms per cubic meter) other than for particulate matter (PM2.5) standards contained in §§ 50.7 and 50.13 and lead standards contained in § 50.16 shall be corrected to a reference temperature of 25 (deg) C and a reference pressure of 760 millimeters of mercury (1,013.2 millibars)."

If a monitored or modeled concentration has been adjusted to STP, then the following equation calculates the conversion from ppm to μg/m^3 for NAAQS:

$$C = ppm \times M_w \times 40.8727$$

or, rearranged to calculate ppm:

$$ppm = C / (M_w \times 40.8727)$$

where:

C = component concentration in $\mu g/m^3$.
M_w = molecular weight of component.

$$p = p_0 \cdot \left(1 - \frac{L \cdot h}{T_0}\right)^{\frac{g \cdot M}{R \cdot L}} \approx p_0 \cdot \exp\left(-\frac{g \cdot M \cdot h}{R \cdot T_0}\right),$$

Parameter	Description	Value
p_0	sea level standard atmospheric pressure	101325 Pa
L	temperature lapse rate	0.0065 K/m
T_0	sea level standard temperature	288.15 K
g	Earth-surface gravitational acceleration	9.80665 m/s^2
M	molar mass of dry air	0.0289644 kg/mol
R	universal gas constant	8.31447 J/(mol•K)

$[PM10]_{STP} = [PM10]_{modeled} (P_{standard})(T_{measured})/((P_{calculated\ by\ elevation})(T_{standard}))$

2.6 Modeling the Standards and Increments

Unless otherwise specified, the discussion of the standards assumes one year of representative meteorological data is used. For multiple years of data, some pollutants use the average of the values predicted for each year as the design value. Others (including PM2.5, CO, and Pb) use the maximum value from the multiple years of data. Verify the form of the standard in regulations and EPA memos if multiple years of meteorological data are being used. Background concentrations are averaged over three years unless otherwise specified.

In cases where all the emissions of the pollutant in question are emitted from permitted sources, the nearby sources may be modeled instead of adding the background concentration. CO, NO_2, and SO_2 may use this substitution if they are over 20 km from the center of Albuquerque and El Paso. To use this substitution, include all nearby sources. Particulate matter sources and sources within 20 km of the center of Albuquerque or El Paso should include both surrounding sources and monitored background concentrations.

2.6.1 Carbon Monoxide (CO) Standards

Table 5A: Carbon Monoxide Air Quality Standards

Averaging Period	Significance Level ($\mu g/m^3$)	NAAQS (ppm)	NAAQS ($\mu g/m^3$)	NMAAQS (ppm)	NMAAQS ($\mu g/m^3$)
8-hour	500	9	10,303.6	8.7	9,960.1
1-hour	2,000	35	40,069.6	13.1	14,997.5

2.6.1.1 Design value of CO standard.

CO NAAQS are not to be exceeded more than once per year. NMAAQS are not to be exceeded. Demonstration of compliance with CO NMAAQS automatically demonstrates compliance with NAAQS.

2.6.1.2 Modeling for the CO design value.

Tier 1, 1-hour NMAAQS: Model the entire facility to determine the high 1-hour concentration. Add the high 1-hour background concentration to the high 1-hour predicted concentration to determine the total design concentration for comparison to the 1-hour NMAAQS.

Tier 1, 8-hour NMAAQS: Model the entire facility to determine the high 8-hour concentration. Add the high 8-hour background concentration to the high 8-hour predicted concentration to determine the total design concentration for comparison to the 8-hour NMAAQS.

Optionally, all nearby sources may be modeled instead of adding a background concentration, if the facility is over 20 km from the center of Albuquerque and El Paso.

Tier 2: Hourly background concentrations may be added instead of the maximum concentrations for each averaging period.

2.6.2 Hydrogen sulfide (H_2S) Standards

Table 5B: Hydrogen Sulfide Air Quality Standards

Averaging Period	Significance Level ($\mu g/m^3$)	NMAAQS (ppm)	NMAAQS ($\mu g/m^3$)	Notes
1-hour	1.0	0.010	13.9	For the state, except for the Pecos-Permian Basin Intrastate AQCR. Not to be exceeded more than once per year.
1/2-hour	5.0	0.10	139.3	For the Pecos-Permian Basin Intrastate AQCR
1/2-hour	5.0	0.030	41.8	for within 5-miles of the corporate limits of municipalities within the Pecos-Permian Basin AQCR

Design value of standard: For modeling ½-hour H_2S NMAAQS, use the 1-hour averaging time because the models cannot resolve less than one-hour increments.

Model the entire facility and any nearby sources and compare the high 1-hour concentration to the standard for that region. No background concentration is added.

2.6.3 Lead (Pb) Standards

Table 5C: Lead Air Quality Standards

Averaging Period	Significance Level ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
Quarterly	0.03	0.15

Design value of standard: For modeling quarterly lead averages, use the monthly averaging period as a conservative approach, unless the model being used has a quarterly averaging period or post-processing is desired to calculate quarterly values. Model the entire facility without surrounding sources and compare the high month concentration to the standard. No background concentration is added.

2.6.4 Nitrogen Dioxide (NO_2) Standards

Table 5D: NO_2 Air Quality Standards

Averaging Period	Significance Level ($\mu g/m^3$)	NAAQS (ppb)	NAAQS ($\mu g/m^3$)	NMAAQS (ppb)	NMAAQS ($\mu g/m^3$)	Class II PSD Increment ($\mu g/m^3$)	Class I PSD Significance Level ($\mu g/m^3$)	Class I PSD Increment ($\mu g/m^3$)
annual	1.0	53	99.66	50	94.02	25	0.1[8]	2.5
24-hour	5.0			100	188.03			
1-hour	7.52[1]	100	188.03					

[1] EPA proposed significance level of 4 ppb corrected to a reference temperature of 25°C and a reference pressure of 760 millimeters of mercury.

2.6.4.1 Design value of NO_2 standard

Demonstration of compliance with 1-hour standard is automatically a demonstration of compliance with the 24-hour NMAAQS. Otherwise, the 24-hour NO_2 standard is compared with the highest 24-hour average calculated by the model.

The annual NMAAQS design value is determined by modeling the entire facility and adding the annual background concentration. The total is compared to the standard. Optionally, to determine the total design value, the facility and all nearby sources may be modeled instead of adding a background concentration if the facility is over 20 km from the center of Albuquerque and El Paso.

The annual NO_2 PSD increment is compared with the annual average calculated by the model.

The 1-hour NO_2 standard is compared with the 3-year average of the 98th-percentile of the annual distribution of daily maximum 1-hour concentrations. If one year of on-site meteorological data is used, the 98th-percentile value associated with the 1-year period of meteorological data modeled is the design value. Each day of modeling, the maximum 1-hour concentration is determined for each receptor. The high-eighth-high value at each receptor is calculated, and the maximum of these is compared with the standard. If multiple years are modeled, the maximum value is averaged over the span of years before comparing with standards.

2.6.4.2 NO_2 Reactivity

Combustion processes emit nitrogen oxides in the forms of nitrogen oxide (NO) and nitrogen dioxide (NO_2). Only the concentration of NO_2 is regulated by air quality standards; however, emissions of nitrogen oxides ($NO_X = NO + NO_2$) must be modeled to estimate total NO_2 concentrations because nitrogen oxides change form in the atmosphere.

Two key reactions are most important in determining the equilibrium (or quasi-equilibrium) ratio of NO_2 to NO.

$NO + O_3 \rightarrow NO_2 + O_2$

$NO_2 + h\nu$ (energy) $\rightarrow NO + O$

Many other reactions participate in the determination of the atmospheric concentration of NO_2. As the plume travels away from the stack, more and more ozone diffuses into the plume, enabling the relatively quick reaction to form NO_2.

2.6.4.3 Estimating NO_2 concentrations

The Bureau has approved techniques, described below, for estimating NO_2 concentrations from NO_X point sources. Note that NO_2 emissions reported by the emissions inventory are actually NO_X emissions.

Tier 1, Total Conversion Technique: 100% conversion

This technique assumes all the NO_X is converted to NO_2. This simple technique is suitable for small facilities where compliance with standards is not a problem.

Tier 2, Ambient Ratio Method 2 (ARM2) Technique

ARM2 method is included as an option in AERMOD. This method is approved without the need for EPA approval. 0.5 is the national default for minimum ambient ratio. A minimum ambient ratio as low as 0.2 may be used by providing evidence that the in-stack ratio of the modeled emission units is equal to or lower than the minimum ambient ratio used. The default maximum ratio is 0.9.

Tier 3, Ozone Reaction Techniques

Two methods account for the ozone that mixes into the plumes and encourages NO_2 formation: Ozone Limiting Method (OLM) and Plume Volume Molar Ratio Method (PVMRM). Both these techniques are accepted and are built into AERMOD.

OLM assumes an NO_2 plume and an NO plume are each dispersing. The in-stack ratio of NO_2/NO_X is used to determine the amount of nitrogen dioxide initially in each plume. The concentration of NO at each receptor is assumed to react stoichiometrically with the background ozone concentration at that time to form NO_2. Contributions from both plumes are added to get the NO_2 concentration at that time.

PVMRM works similarly to OLM but uses the total volume of the plume by the time it reaches the receptor to calculate how much ozone is available for reaction. Both methods result in greater conversion with greater distance from the source but use different approximations for determining how much ozone has dispersed into the plume.

Both methods require additional information.

For the equilibrium NO_2/NO_X ratio, the value of 0.9 is approved.

For the in-stack NO_2/NO_X ratio, values lower than 0.5 must be justified with data. Combustion involving excess oxygen results in higher in-stack NO_2/NO_X ratios than do stoichiometric reactions. The facility may use an in-stack ratio of 0.5 without justification. Surrounding sources, if required, may be modeled with an in-stack ratio of 0.3 without justification.

Recent ozone data representative of the area should be used. See the section on background concentrations for more information.

Special techniques are required to model PSD increment with OLM or PVMRM if increment-expanding sources are being modeled. No negative emission rates can be used. See *ADDENDUM, USER'S GUIDE FOR THE AMS/EPA REGULATORY MODEL – AERMOD (EPA-454/B-03-001, September 2004),* Pg. 25, for more details on the PSDCREDIT option**.**
(http://www.rflee.com/RFL_Pages/AERMOD_USERGUIDE_ADDENDUM_06341.pdf)

Combined-Plume Option vs. Individual-Plume Option
AERMOD provides two options for calculating ozone-limited NO_2 concentrations, the "plume-by-plume" (INDVDL) calculation, and the combined plume (SRCGRP) calculation. The Bureau has accepted a general demonstration that if two plumes are impacting the same receptor at the same time, then the two plumes have merged. If the plumes do not impact the same receptor at the same time, then the plumes have not merged, but both options will calculate the same concentration for that hour. Therefore, the Bureau will accept either INDVL or SRCGP option without additional demonstrations.

2.6.4.4 Modeling for the 1-hour NO_2 design value

Model the entire facility and add the 98th percentile 1-hour background concentration to compare to the design value. Optionally, all nearby sources may be modeled instead of adding a background concentration if the facility is over 20 km from the center of Albuquerque and El Paso, Texas. Refined hourly background concentrations may be used instead of the maximum 1-hour concentration as described in the section on background concentrations.

Before attempting to calculate the design value, first locate the areas with highest overall concentrations. Place a few receptors in these areas and re-run the model in these areas. The maximums will occur in nearly the same places.

Maximum modeled concentration may also be used as a conservative approximation of the design value.

"The highest of the average 8th-highest (98th-percentile) concentrations across all receptors, based on the length of the meteorological data period, represents the modeled 1-hour NO_2 design value based on the form of the standard."

2.6.4.5 Modeling for the annual NO_2 NMAAQS design value

Model the entire facility and add the annual background concentration to compare to the design value. Optionally, all nearby sources may be modeled instead of adding a background concentration if the facility is over 20 km from the center of Albuquerque and El Paso, Texas. (Use of hourly background concentrations does not affect the result for an annual average).

2.6.4.6 Modeling for the annual NO_2 PSD increment design value

Model all increment-consuming parts of the facility and increment-consuming nearby sources of the facility (or nearby sources of the Class I area for Class I analysis). Compare the result to the design value. All sources (not just increment affecting sources) will need to be modeled in order to take credit for increment expanding sources using OLM or PVMRM. See the AERMOD User's Guide Addendum for more details. Optionally, a monitored background value may be substituted for the modeled surrounding sources as a conservative approach to the increment consumption.

2.6.5 Ozone (O_3) Standards

Ozone is normally only modeled for regional compliance demonstrations and does not need to be modeled for air quality permits. However, permit applicants for PSD applications that apply to NO_X or VOCs should contact NMED and the EPA Regional Office to determine how to complete the ozone ambient impact analysis.

Table 5E: O_3 Air Quality Standards

Averaging Period	Significance Level ($\mu g/m^3$)	NAAQS (ppm)	NAAQS ($\mu g/m^3$)
8-hour	1.96 [2]	0.07[1]	137.3

[1] To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.07 ppm.
[2] 1.0 ppb, Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program, EPA, April 17, 2018

Ozone concentrations may be estimated using the following method derived from the MERP guidance[2].

[O3] = ((NO_X emission rate (tons/year) /184) + (VOC emission rate (tons/year) /1049)) x 1.96 $\mu g/m^3$

> "Simulation of ozone formation and transport is a highly complex and resource intensive exercise. Control agencies with jurisdiction over areas with ozone problems are encouraged to use photochemical grid models, such as the Models-3/Community Multi-scale Air Quality (CMAQ) modeling system, to evaluate the relationship between precursor species and ozone." --68234 Federal Register / Vol. 70, No. 216 / Wednesday, November 9, 2005 / Rules and Regulations

In accordance with this guidance, NMED performs ozone modeling on a regional scale as need arises, rather than requiring permit applicants to quantify their contribution to a regional ozone concentration. Comprehensive ozone modeling is too resource intensive to attach this expense to a typical permit application, and screening modeling on an affordable scale currently cannot quantify a source's impacts to ambient ozone concentrations.

Regional ozone modeling for the Four Corners area was done in 2009 (see http://www.nmenv.state.nm.us/aqb/4C/Modeling.html) and the Air Quality Bureau is continuing to analyze ozone in the region.

2.6.6 Particulate matter less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$) Standards

[2] Guidance on the Development of Modeled Emission Rates for Precursors (MERPS) as a Tier 1 Demonstration Tool for Ozone and $PM_{2.5}$ under the PSD Permitting Program, Richard A. Wayland, EPA, December 2, 2016.

Table 5F: $PM_{2.5}$ Air Quality Standards[3]

Averaging Period	Significance Level [4] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	Class II PSD Increment[3] ($\mu g/m^3$)	Class I PSD Significance Level ($\mu g/m^3$)	Class I PSD Increment[3] ($\mu g/m^3$)
annual	0.2	12 [1]	4	0.05	1
24-hour	1.2	35 [2]	9	0.27	2

[1] To attain this standard, the 3-year average of the annual arithmetic mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed 12.0 ug/m^3.
[2] To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 ug/m^3.
[3] For any period other than an annual period, the applicable maximum allowable increase may be exceeded during one such period per year at any one location.
[4] Guidance on Significant Impact Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program, EPA, April 17, 2018.

$PM_{2.5}$ secondary formation concentrations may be estimated using the following method derived from the MERP guidance[4].

$[PM_{2.5}]_{annual}$ =
((NO_X emission rate (tons/year) /3184) + (SO_2 emission rate (tons/year) /2289)) x 0.2 $\mu g/m^3$

$[PM_{2.5}]_{24\text{-}hour}$ =
((NO_X emission rate (tons/year) /1155) + (SO_2 emission rate (tons/year) /225)) x 1.2 $\mu g/m^3$

Secondary formation from the project should be added to the modeled value. Refined factors for certain geographic areas may be developed using the MERP guidance.

2.6.6.1 $PM_{2.5}$ design value

The 24-hour design value is the 98th percentile of the combined concentrations from all sources. The annual design value is the annual average.

2.6.6.2 Modeling for the 24-hour $PM_{2.5}$ design value

AERMOD and current emissions inventories currently do not account for secondary formation of $PM_{2.5}$ in the atmosphere. Sources that emit at least 40 tons per year of NO_X or at least 40 tons per year of SO_2 are

[3] Prevention of Significant Deterioration (PSD) for Particulate Matter Less Than 2.5 Micrometers ($PM_{2.5}$) – Increments, Significant Impact Levels (SILs) and Significant Monitoring Concentration (SMC), ENVIRONMENTAL PROTECTION AGENCY
40 CFR Parts 51 and 52, RIN 2060-AO24 http://www.epa.gov/nsr/documents/20100929finalrule.pdf
[4] Guidance on the Development of Modeled Emission Rates for Precursors (MERPS) as a Tier 1 Demonstration Tool for Ozone and PM2.5 under the PSD Permitting Program, Richard A. Wayland, EPA, December 2, 2016.

considered to emit significant amounts of precursors. Sources with significant increases of $PM_{2.5}$ precursors must qualitatively and/or quantitatively account for secondary formation of $PM_{2.5}$.[5]

Two tiers of modeling are available for $PM_{2.5}$ modeling. Both tiers include modeling the facility and nearby sources and adding secondary formation and a background concentration to that. Particulate sources typically have impacts in the immediate vicinity of the source that are not represented in background monitors, so double-counting of background concentrations is expected to be limited.

Add the design value of the modeled direct $PM_{2.5}$ to the design value of the secondary $PM_{2.5}$ and the design value of the background $PM_{2.5}$.

Tier 1: To the modeled concentration(s), add the secondary $PM_{2.5}$ and the 98th percentile 24-hour monitored background concentration.
Tier 2: Add the secondary $PM_{2.5}$ and the monthly or quarterly maximum background concentrations to daily modeled concentrations. Compare the high-eighth-high combined concentration with the 24-hour standard. If multiple years of meteorological data are used, then the high-eighth-high combined concentration is compared with the standard.

2.6.6.3 Modeling for the 24-hour $PM_{2.5}$ PSD increment design value

Model the high-second-high concentration of all increment-consuming sources at the facility and at nearby sources. Calculate secondary formation from NO_X and SO_2 increases after the appropriate baseline date and add that to the modeled concentration. Compare the total with the 24-hour PSD increment.

2.6.6.4 Modeling for the annual $PM_{2.5}$ PSD increment design value

Model all increment-consuming sources at the facility and at nearby sources. Calculate secondary formation from NO_X and SO_2 increases after the appropriate baseline date and add that to the modeled concentration. Compare the total predicted annual average concentration with the allowable increment.

2.6.7 Particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10}) Standards

Table 5G: PM_{10} Air Quality Standards

Averaging Period	Significance Level ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	PSD Increment[2] Class II ($\mu g/m^3$)	PSD Class I Significance Level ($\mu g/m^3$)	PSD Class I Increment[2] ($\mu g/m^3$)
annual	1.0		17	0.2[1]	4
24-hour	5.0	150	30	0.3[1]	8

[1] EPA proposed significance level
[2] For any period other than an annual period, the applicable maximum allowable increase may be exceeded during one such period per year at any one location.

2.6.7.1 Modeling for the 24-hour PM_{10} NAAQS design value

[5] Guidance for PM2.5 Permit Modeling, Stephen D. Page, May 20, 2014. http://www.epa.gov/ttn/scram/guidance/guide/Guidance_for_PM25_Permit_Modeling.pdf

If PM2.5 emission rates are modeled as equal to PM10 emission rates, then the PM2.5 NAAQS demonstration will satisfy the requirement for demonstration of compliance with PM10 NAAQS. However, PM10 PSD increment demonstration is not necessarily satisfied by any PM2.5 modeling.

The 24-hour NAAQS is not to be exceeded more than once per year.
Use high second high and a single year of representative meteorological data. This is approximately equivalent to the high fourth high specified in the multi-year analysis.
"…[W]hen n years are modeled, the (n+1)th highest concentration over the n-year period is the design value, since this represents an average or expected exceedance rate of one per year."
http://www.epa.gov/ttn/scram/guidance/guide/appw_05.pdf

Two tiers of modeling are available for PM_{10} NAAQS modeling. Both tiers include modeling the facility and nearby sources and adding a background concentration to that. Particulate sources typically have impacts in the immediate vicinity of the source that are not represented in background monitors, so double-counting of background concentrations is expected to be limited.

Tier 1, option 1: Use highest predicted concentration (instead of the high second high) and a single year of representative meteorological data. To the modeled concentration, add the high second high 24-hour monitored background concentration.

Tier 1, option 2: Use high second high predicted concentration and a single year of representative meteorological data. To the modeled concentration, add the highest 24-hour monitored background concentration.

Tier 2: Add monthly maximum background concentrations to daily modeled concentrations. The high-second-high combined concentration may be compared with the 24-hour standard.

2.6.7.2 Modeling for the 24-hour PM_{10} PSD increment design value

Model all increment-consuming sources at the facility and at nearby sources. Compare the high-second-high predicted concentration with the allowable increment.

2.6.7.3 Modeling for the annual PM_{10} PSD increment design value

Model all increment-consuming sources at the facility and at nearby sources. Compare the predicted annual average concentration with the allowable increment.

2.6.8 Sulfur Dioxide (SO_2) Standards

Table 5I: SO_2 Air Quality Standards

Averaging Period	Significance Level ($\mu g/m^3$)	NAAQS (ppb)	NAAQS ($\mu g/m^3$)	NMAAQS (ppb)	NMAAQS ($\mu g/m^3$)	PSD Class II Increment[3] ($\mu g/m^3$)	PSD Class I Significance Level ($\mu g/m^3$)	PSD Class I Increment[3] ($\mu g/m^3$)
annual	1.0			20	52.4	20	0.1[2]	2
24-hour	5.0			100	261.9	91	0.2[2]	5
3-hour	25.0	500	1309.3			512	1.0[2]	25
1-hour	7.8[1]	75	196.4					

[1] EPA proposed 1-hour significance level of 3 ppb corrected to a reference temperature of 25°C and a reference pressure of 760 millimeters of mercury.

[2] EPA proposed significance level.
[3] For any period other than an annual period, the applicable maximum allowable increase may be exceeded during one such period per year at any one location.

2.6.8.1 SO_2 design value

In NMAC, the SO_2 standards for the area within 3.5 miles of the Chino Mines Company smelter furnace stack at Hurley are set equal to the federal standards. However, since this stack no longer exists, the distance is irrelevant. The NMAAQS listed in table 5I apply for the entire state.
Demonstration of compliance with 1-hour standard will also demonstrate compliance with the other standards, but not necessarily the PSD increments.

The form is the 3-year average of the 99th percentile of the annual distribution of daily maximum 1-hour average concentrations.

2.6.8.2 Modeling for the 1-hour SO_2 NAAQS

The standard is calculated similarly to the NO_2 1-hour standard instructions in section 2.6.4.4, but the fourth highest is used in place of the eighth highest (and 99th percentile is substituted for 98th percentile). All sulfur oxides are assumed to be in the form of SO_2. If multiple years are modeled, the resulting high-fourth-high values at each receptor are averaged over the years modeled and the maximum average value is compared with the standard.

Tier 1: Add the 99th percentile 1-hour background concentration to 99th percentile modeling for the entire facility (without neighboring sources) and compare the total with the 1-hour NAAQS. Optionally, to determine the total design value, the facility and all nearby sources may be modeled instead of adding a background concentration if the facility is over 20 km from the center of Albuquerque and El Paso.

Tier 2: Add the hourly 1-hour background concentrations (as described in the background concentration section) to each hour of the modeling results and compare the 99th percentile of the totals with the 1-hour NAAQS. Optionally, to determine the total design value, the facility and all nearby sources may be modeled instead of adding a background concentration if the facility is over 20 km from the center of Albuquerque and El Paso.

2.6.8.3 Modeling for the 3-hour SO_2 PSD increment

Model the increment consuming emissions at the facility and at nearby sources and compare the high-second-high 3-hour average with the allowable PSD increment. Optionally, a monitored background value may be substituted for the modeled surrounding sources as a conservative approach to the increment consumption.

2.6.8.4 Modeling for the 24-hour SO_2 PSD increment

Model the increment consuming emissions at the facility and at nearby sources and compare the high-second-high 24-hour average with the allowable PSD increment. Optionally, a monitored background value may be substituted for the modeled surrounding sources as a conservative approach to the increment consumption.

2.6.8.5 Modeling for the annual SO_2 PSD increment

Model the increment consuming emissions at the facility and at nearby sources and compare the predicted annual average with the allowable PSD increment. Optionally, a monitored background value may be substituted for the modeled surrounding sources as a conservative approach to the increment consumption.

2.6.9 Total Reduced Sulfur Except For Hydrogen Sulfide Standards

Table 5J: Total Reduced Sulfur except for H_2S Air Quality Standards

Averaging Period	NMAAQS (ppm)	Notes
1/2-hour	0.003	for the state, except for the Pecos-Permian Basin Intrastate AQCR
1/2-hour	0.010	for the Pecos-Permian Basin Intrastate AQCR
1/2-hour	0.003	For within corporate limits of municipalities within the Pecos-Permian Basin Intrastate Air Quality Control Region.
1/2-hour	0.003	For within five miles of the corporate limits of municipalities having a population of greater than twenty thousand and within the Pecos-Permian Basin Intrastate Air Quality Control Region

2.6.9.1 Total Reduced Sulfur design value

EPA test methods suggest that reduced sulfur compounds in some cases consist primarily of carbon disulfide (CS_2), carbonyl sulfide (COS), and hydrogen sulfide (H_2S). To calculate the parts per million of reduced sulfur, use the average molecular weight in the sample. For example, 1-heptanethiol ($CH_3[CH_2]6SH$) has a molecular weight of 132.3.

For modeling ½-hour total reduced sulfur NMAAQS, use the 1-hour averaging time because the models cannot resolve less than one hour increments.

2.6.9.2 Modeling the Total Reduced Sulfur ½-hour NMAAQS

Model the entire facility and compare the 1-hour predicted concentration with the ½-hour NMAAQS. Surrounding sources and background concentrations are not added.

Table 6A. Air Quality Standard Summary (Without Notes).

Pollutant	Avg. Period	Sig. Lev. (μg/m³)	Class I Sig. Lev. (μg/m³)	NAAQS (μg/m³)	NMAAQS (μg/m³ unless noted)	PSD Increment Class I (μg/m³)	PSD Increment Class II (μg/m³)
CO	8-hour	500		10,303.6	9,960.1		
	1-hour	2,000		40,069.6	14,997.5		
H_2S	1-hour	1.0			13.9		
	1/2-hour	5.0			139.3		
	1/2-hour	5.0			41.8		
Pb	Quarterly	0.03		0.15			
NO_2	annual	1.0	0.1	99.66	94.02	2.5	25
	24-hour	5.0			188.03		
	1-hour	7.52		188.03			
O_3	8-hour	1.96		137.3			
$PM_{2.5}$	annual	0.2	0.05	12		1	4
	24-hour	1.2	0.27	35		2	9
PM_{10}	annual	1.0	0.2			4	17
	24-hour	5.0	0.3	150		8	30
SO_2	annual	1.0	0.1		52.4	2	20
	24-hour	5.0	0.2		261.9	5	91
	3-hour	25.0	1.0	1309.3		25	512
	1-hour	7.8		196.4			
Reduced S	1/2-hour				3 ppb		
	1/2-hour				10 ppb		

Table 6B. Standards for which Modeling is not Required.

Standard not Modeled	Surrogate that Demonstrates Compliance
CO 8-hour NAAQS	CO 8-hour NMAAQS
CO 1-hour NAAQS	CO 1-hour NMAAQS
NO_2 annual NAAQS	NO_2 annual NMAAQS
NO_2 24-hour NMAAQS	NO_2 1-hour NAAQS
O_3 8-hour	Regional modeling
SO_2 annual NMAAQS	SO_2 1-hour NAAQS
SO_2 24-hour NMAAQS	SO_2 1-hour NAAQS
SO_2 3-hour NAAQS	SO_2 1-hour NAAQS

Table 6C. Modeling the Design Value Summary (Default Modeling).

Averaging Period	Add Nearby Sources?	Add Background Concentration?	Modeled Concentration
CO 8-hour NMAAQS	No* (Yes)	Yes* (high 8 hour) (No)	high 8 hour
CO 1-hour NMAAQS	No* (Yes)	Yes* (high 1 hour) (No)	high 1 hour
H_2S 1-hour or ½-hour NMAAQS	Yes	No	high 1 hour
Pb Quarterly NMAAQS	No	No	high month
NO_2 annual NMAAQS	No* (Yes)	Yes* (annual average) (No)	annual average
NO_2 annual PSD increment	Yes	No	annual average
NO_2 1-hour NAAQS	No* (Yes)	Yes* (1-hr 98th percentile) (No)	98th-percentile 1 hour
$PM_{2.5}$ annual NAAQS	Yes	Yes (annual average)	annual average
$PM_{2.5}$ annual PSD increment	Yes	No	annual average
$PM_{2.5}$ 24-hour NAAQS	Yes	Yes (24-hr 98th percentile)	98th-percentile 24 hour
$PM_{2.5}$ 24-hour PSD increment	Yes	No	high 24 hour
PM_{10} annual PSD increment	Yes	No	annual average
PM_{10} 24-hour NAAQS	Yes	Yes (high 24 hour)	high second high 24 hour
PM_{10} 24-hour PSD increment	Yes	No	high second high 24 hour
SO_2 annual PSD increment	Yes	No	annual average
SO_2 24-hour PSD increment	Yes	No	high second high 24 hour
SO_2 3-hour PSD increment	Yes	No	high second high 3 hour
SO_2 1-hour NAAQS	No* (Yes)	Yes* (high 1 hour) (No)	99th-percentile 1 hour
Reduced S ½-hour NMAAQS	No	No	high 1 hour

* Standards marked with an asterisk normally offer the choice to either model nearby sources or add a representative background concentration.

2.7 PSD Increment Modeling

2.7.1 Air Quality Control Regions and PSD Baseline Dates

Any facility that is required to provide an air dispersion modeling analysis with its construction permit application is required to submit a PSD increment consumption analysis unless none of its sources consume PSD increment. Table 7 serves as a tool to determine which sources to include in PSD increment modeling.

Table 7: PSD Increment Consumption and Expansion

Sources that do not consume PSD increment	• Temporary emissions (sources involved in a project that will be completed in a year or less). • Any facility or modification to a facility constructed before the PSD major source baseline date. • Any minor source constructed before the PSD minor source baseline date.
Sources that consume PSD increment	• Any new emissions or increase in emissions after the PSD Minor Source Baseline date (for that AQCR and pollutant). • Any new emissions or increase in emissions at a PSD Major source that occurs after the Major Source Baseline Date.
Sources that expand PSD increment	• A permanent reduction in actual emissions from a baseline source.

Notes:

- EPA memos written before the publication of the Draft NSR Workshop Manual indicate that PSD regulations were not intended to apply to temporary pilot projects. The memo clearly indicated that the pilot project did not need a PSD permit.
- If a minor source facility once existed but shut down before the minor source baseline date, then it would not be considered to be part of the baseline.
- Haul road emissions are treated the same way other sources of emissions are treated.
- An increase in emissions due to increased utilization of a facility, such as de-bottlenecking, are treated as any other increase in emissions.
- The Bureau interprets temporary emissions to mean emissions at the location that will occur for less than one year or emissions of standby or emergency equipment that operates less than 500 hours per year. For example, if a series of three gravel crushers operate at a mine for more than one year, PSD increment modeling should be performed because the mining operations at the location are not temporary in nature, even though none of the of individual crushers remained on-site for an entire year.

Table 8: Minor Source Baseline Dates by Air Quality Control Region

AQCR	NO_2 Date	SO_2 Date	PM_{10} Date	$PM_{2.5}$ Date
12	8/10/1995	8/10/1995	8/10/1995	Not established
14	6/6/1989	8/7/1978	8/7/1978	Not established
152	3/26/1997	5/14/1981	3/26/1997	2/11/2013
153	8/2/1995	Not established	6/16/2000	Not established
154	Not established	Not established	Not established	Not established
155	3/16/1988	7/28/1978	2/20/1979	11/13/2013
156	Not established	8/4/1978	8/4/1978	Not established
157	Not established	Not established	Not established	Not established

Table 9: Major Source Baseline Dates and Trigger Dates

Pollutant	Major Source Baseline Date	Trigger Date
PM	January 6, 1975	August 7, 1977
SO_2	January 6, 1975	August 7, 1977
NO_2	February 8, 1988	February 8, 1988
$PM_{2.5}$	October 20, 2010	October 20, 2011

2.7.2 PSD Class I Areas

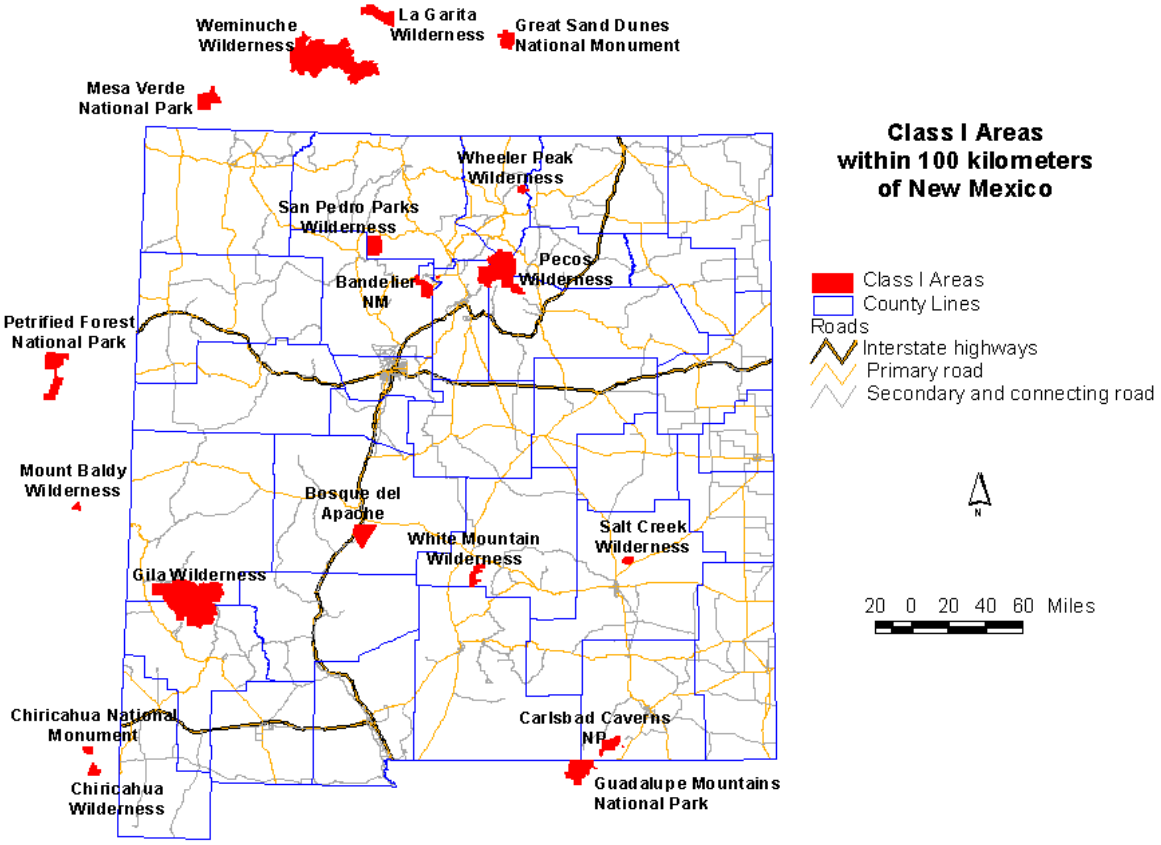


Figure 1: Class I areas

2.7.3 PSD Class I Area Proposed Significance Levels

The Environmental Protection Agency (EPA) has proposed significance levels for PSD Class I areas. No significance levels have been promulgated, but the Federal land managers (FLMs) are currently accepting the use of this value.

Table 10. Class I Prevention of Significant Deterioration Significance Levels

Pollutant	Averaging Period	Significance Level ($\mu g/m^3$)	PSD Class I Increment ($\mu g/m^3$)
Sulfur Dioxide (SO_2)	annual [a] 24-hour 3-hour	0.1 [b] 0.2 [b] 1.0 [b]	2 5 25
PM_{10}	annual [a] 24-hour	0.2 [b] 0.3 [b]	4 8
Nitrogen Dioxide (NO_2)	annual [a]	0.1 [b]	2.5
$PM_{2.5}$	annual 24-hour	0.06 0.07	1 2

[a] annual arithmetic mean
[b] EPA proposed significance level

2.8 New Mexico State Air Toxics Modeling

Modeling must be provided for any toxic air pollutant sources that may emit any toxic pollutant in excess of the emission levels specified in **20.2.72.502 NMAC** - Permits for Toxic Air Pollutants. Sources may use a correction factor based on release height for the purpose of determining whether modeling is required. Divide the emission rate for each release point by the correction factor for that release height on Table 11 and add the total values together to determine the total adjusted emission rate. If the total adjusted emission rate is higher than the emission rate in pounds per hour listed in **20.2.72.502 NMAC**, then modeling is required. The controlled emission rate (not the adjusted emission rate) of the toxic pollutant should be used for the dispersion modeling analysis.

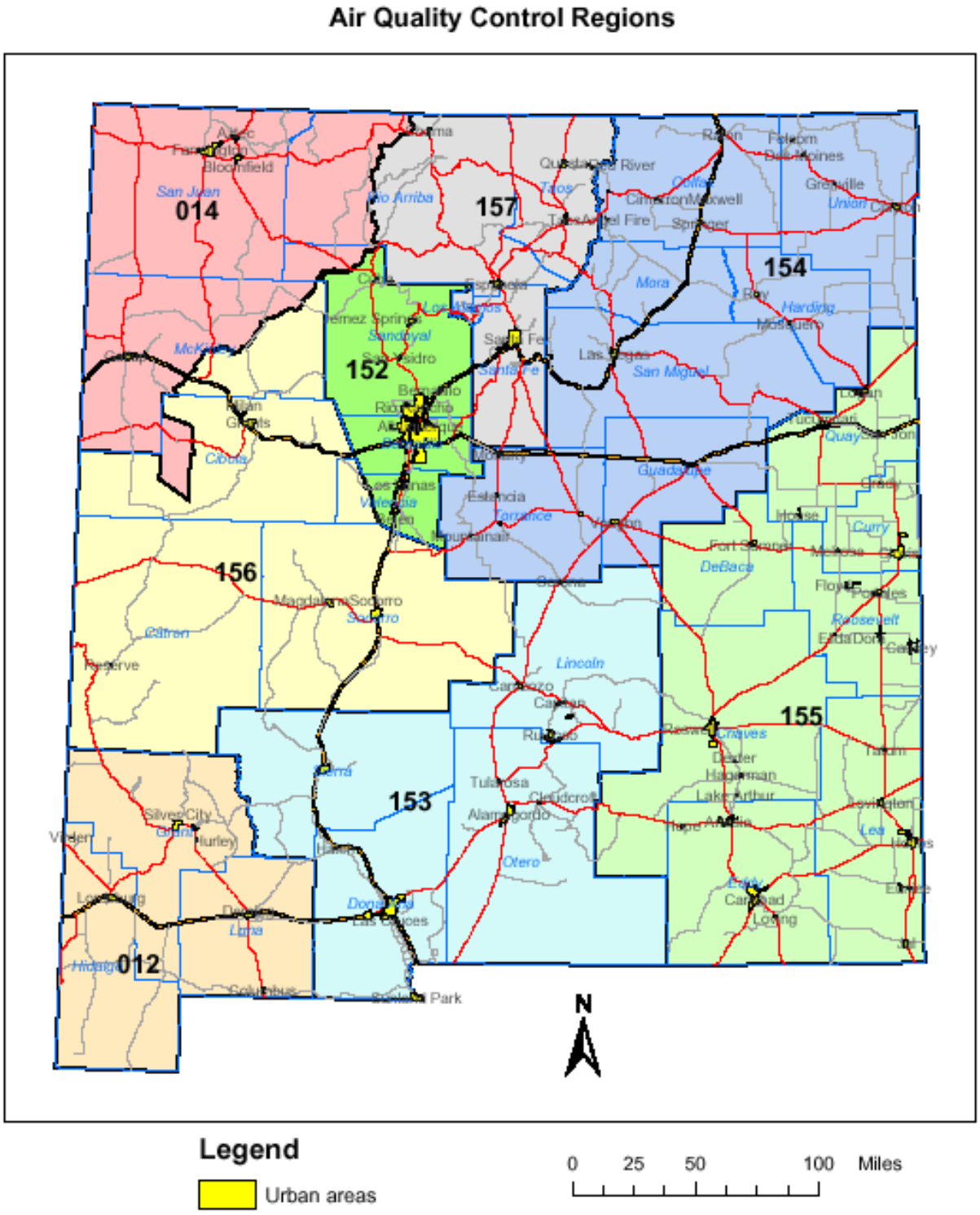


Figure 2: Air quality control regions (each AQCR has a different color)

Table 11: Stack Height Release Correction Factor (adapted from 20.2.72.502 NMAC)

Release Height in Meters	Correction Factor
0 to 9.9	1
10 to 19.9	5
20 to 29.9	19
30 to 39.9	41
40 to 49.9	71
50 to 59.9	108
60 to 69.9	152
70 to 79.9	202
80 to 89.9	255
90 to 99.9	317
100 to 109.9	378
110 to 119.9	451
120 to 129.9	533
130 to 139.9	617
140 to 149.9	690
150 to 159.9	781
160 to 169.9	837
170 to 179.9	902
180 to 189.9	1002
190 to 199.9	1066
200 or greater	1161

The table below lists a few of the commonly encountered State Air Toxics in New Mexico. This is not the complete list, which is too expansive to reprint here.

Table 12: A few common state air toxics and modeling thresholds (<u>from 20.2.72.502 NMAC</u>)

Pollutant	OEL (mg/m^3)	1% OEL ($\mu g/m^3$)	Emission Rate Screening Level (pounds/hour)
Ammonia	18	180	1.20
Asphalt (petroleum) fumes	5.00	50	0.333
Carbon black	3.50	35	0.233
Chromium metal	0.500	5.00	0.0333
Glutaraldehyde	0.700	7.0	0.0467
Nickel Metal	1.00	10.0	0.0667
Wood dust (certain hard woods as beech & oak)	1.00	10.0	0.0667
Wood dust (soft wood)	5.00	50.0	0.333

If modeling shows that the maximum eight-hour average concentration of each toxic pollutant is less than one one hundredth of its Occupational Exposure Level (OEL) listed in **20.2.72.502 NMAC**, then the analysis is finished. For a source of any known or suspected human carcinogens (per **20.2.72.502 NMAC**) which will cause an impact greater than one-one hundredth of the OEL, the source must demonstrate that best available control technology will be used to control the carcinogen. If modeling shows that the impact

of a toxic which is not a known or suspected human carcinogen (per **20.2.72.502 NMAC**) is greater than one-one hundredth of the OEL, the application must contain a health assessment for the toxic pollutant that includes: source to potential receptor data and modeling, relevant environmental pathway and effects data, available health effects data, and an integrated assessment of the human health effects for projected exposures from the facility.

2.9 Hazardous Air Pollutants

Hazardous Air Pollutants (HAPs) do not require modeling, as they are regulated by means other than air quality standards. Sources should be aware of the Title V major source thresholds of 10 tons/year for any Hazardous Air Pollutants (HAP) and 25 tons/year for total HAPs, which will require an operating permit to be obtained from the department under **20.2.70 NMAC**- Operating Permits.

2.10 Nonattainment and Maintenance Areas

In nonattainment areas and for those sources outside of the nonattainment area that significantly contribute to concentrations in a nonattainment area, the modeling analysis required is a demonstration of an air quality benefit. Regular modeling is required in maintenance areas, however. Further information on nonattainment area modeling is in section 7.4, Nonattainment Area Requirements. Nonattainment areas are described at https://www.env.nm.gov/air-quality/nonattainment-areas/.

3.0 MODEL SELECTION

3.1 What dispersion models are available?

The Bureau accepts the use of EPA approved models for dispersion analysis. Commercial or parallel versions of these models are fine as long as they produce the same results. This section of the modeling guidelines is designed to describe the models that are available and provide some guidance on which situations are the most appropriate for which regulatory modeling situations.

Two types of models are currently in use for air dispersion modeling: probability density function (PDF) models, and puff models. Probability density function models apply a probability function from each emission release point to calculate the concentration at a receptor based on the location of the receptor, wind speed and direction, stability of the atmosphere, and other factors. The plume is assumed to extend all the way out to the most distant receptor, no matter how far that receptor is from the emission source. Because of this characteristic, PDF models suffer in accuracy when modeling distant concentrations or unstable conditions. SCREEN3, ISCST3, ISC_OLM, CTSCREEN, ISC-PRIME, and AERMOD are all PDF models. All but AERMOD use a Gaussian, or normal, distribution for their probability density function. AERMOD uses a PDF that varies depending on nearby terrain and other factors. Currently, AERMOD and CTSCREEN are EPA-approved models for near-field modeling. As of November 9, 2006, SCREEN3, ISCST3, and ISC_OLM are no longer considered EPA-approved models. The Federal Register notice detailing the promulgation of AERMOD is located at: http://www.epa.gov/scram001/guidance/guide/appw_05.pdf

CALPUFF is a puff model, meaning that it tracks puffs, or finite elements of pollution, after they are released from their source. This strategy makes the model ideal for tracking pollution over long distances or in conditions that are not stable, and also allows chemical reactions within the plume to be modeled. Unfortunately, puff models require large amounts of computing time. CALPUFF is an EPA-approved model for modeling long range transport and/or complex non-steady-state meteorological conditions.

3.2 EPA Modeling Conferences and Workshops

EPA Modeling Conference presented a wealth of information about recent regulatory modeling developments. The EPA web page with the details is https://www.epa.gov/scram/air-modeling-conferences-and-workshops.

3.3 Models Most Commonly Used in New Mexico

Most analyses reviewed by the Bureau will begin with an AERMOD analysis, and possibly CALPUFF for Class I analyses. For dispersion modeling within 50 kilometers of the source, AERMOD should be used. CALPUFF should be used only for PSD Class I area analyses, per the Interagency Workgroup Air Quality Modeling (IWAQM) Phase II report, but may be approved for use on a case-by-case basis for other analyses.

3.3.1 AERMOD

- AERMOD is intended to be the standard regulatory model. The PRIME building downwash algorithm is used by the model. Both the Ozone Limiting Method (OLM) and the Plume Volume Molar Ratio Method (PVMRM) algorithms for nitrogen conversion are built into the model.
- AERMOD has greater accuracy in complex terrain than CTSCREEN.
- AERMOD is suggested for extremely complex terrain.

See the section on nitrogen oxides for more information and options.

3.3.2 CALPUFF

- CALPUFF is a puff model designed to calculate concentrations at distances up to and beyond 50 kilometers. The model is significantly more difficult to run than the other models discussed in these guidelines. Use of CALPUFF for NAAQS, NMAAQS, or PSD increment modeling must be approved by the Bureau before submitting the modeling.
- CALPUFF is required for additional impact analyses when Federal Land Managers require additional impact analyses for Class I areas near PSD major sources. Typically, CALPUFF light is used for this modeling.

3.3.3 CTSCREEN

- CTSCREEN is applicable only for modeling receptors above stack height.
- CTSCREEN is a difficult model to run because of the difficulty in obtaining hill contour profiles.
- CTSCREEN uses screening meteorology.
- AERMOD produced greater accuracy than CTDMPLUS (the full implementation of CTSCREEN) when modeling the data that was used to develop CTSCREEN/CTDMPLUS.
- CTSCREEN is typically used to model the terrain on top of a hill that did not pass when using AERMOD.

The following list can be used to correct 1-hour CTSCREEN concentrations to 3-hour, 24-hour and annual concentrations by multiplying by the appropriate conversion factor for the averaging period.

Table 13: CTSCREEN Correction factors for 1-hour concentration.

Averaging Period	Correction factor
3-hour	0.7
24-hour	0.15
Annual	0.03

3.3.4 AERSCREEN

- AERSCREEN is a screening version of AERMOD.

4.0 MODEL INPUTS AND ASSUMPTIONS

Models should be used with the technical options recommended in the Guideline on Air Quality Models (http://www.epa.gov/ttn/scram/guidance/guide/appw_05.pdf) except as noted in this document or approved by the Bureau.

Unless otherwise noted, information and procedures in this section refer to all of the models listed above.

4.1 Operating Scenarios

4.1.1 Emission Rates

All averaging periods shall be modeled using the maximum short-term emission rate allowed in the permit. The preferred method of modeling all averaging periods is to use maximum short-term emission rates and to use the hours of operation model input option to limit the facility's emissions.

4.1.2 Hours of Operation

If the facility is limited to operating certain hours of the day or has other operating restrictions, limiting the operating hours in the model can normally reduce the concentration produced by the model. Hours of operation can only be modeled by models that use actual meteorology, but not by screening models. Use screening models only to model facilities as if the maximum operating rate were emitting continuously.

4.1.3 Time Scenarios

Sometimes a facility has unusual operating times, for example, if the facility is allowed to operate 12 hours per day, but the hours are not specified. The facility may model as if it operates continuously, but as an option, the facility can model different time periods at the amount of time allowed per day as different operating scenarios, making sure that the maximums are modeled. In the 12 hour example, the facility might model three scenarios: 7AM to 7PM. 7PM to 7AM. And 5PM to 5AM. This way, all the hours of the day were modeled, and the modeler can be fairly certain that the maximum was modeled because the worst-case scenarios would occur when the calm blocks of time were modeled together. All scenarios should be modeled at maximum hourly emission rates.

4.1.4 Operating at Reduced Load

Some sources (like engines and boilers) can produce higher concentrations of pollution in ambient air when they are operating below maximum load than when they are at maximum load. The applicant shall analyze various feasible operating scenarios (100%, 75%, and 50% are typical) to determine the worst-case impacts, and then use that worst-case scenario for the entire modeling analysis. This requirement is in section 8.1 of Appendix W of EPA's Guideline.

4.1.5 Alternate Operating Scenario

If the permit application contains multiple operating scenarios (such as use of different fuels or different engines) then the applicant shall model each of the scenarios for the radius of impact analysis. Whichever scenario produces the greatest impacts on ambient air shall be used for the cumulative analysis, if required. If it is unclear which operating scenario produces the greatest impacts, each scenario shall be modeled for cumulative impact analysis.

4.1.6 Startup, Shutdown, Maintenance (SSM), and Other Short-term Emissions

If startup, shutdown, maintenance, or other temporary events have the potential for producing short-term impacts greater than the normal operating scenarios, then the applicant shall model each of the scenarios to demonstrate compliance with the ambient air quality standard.

If it is probable that an adjacent facility will have emissions higher than normal operation during the time the applicant's facility has increased emissions, then those emissions should also be accounted for in the modeling. Otherwise, model surrounding sources at their normal operating rate. Because of the short nature of the SSM emissions, modeling does not have to demonstrate compliance with annual standards or annual increment consumption. Highest hourly SSM emission rate should be modeled for NAAQS, NMAAQS and for increment consumption modeling.

Whichever scenario produces the greatest impacts on ambient air shall be used for the cumulative analysis, if required. If it is unclear which operating scenario produces the greatest impacts, each scenario shall be modeled for cumulative impact analysis.

4.2 Plume Depletion and Deposition

Dry plume depletion may be used to reduce concentrations of particulate matter. Appropriate particle characteristics for the specific type of source being modeled should be used. Check the web page for sample particle size distributions. Because of the length of time required to run a model with plume depletion, the Bureau recommends only applying plume depletion to receptors that are modeled to be above standards when the model is run without plume depletion.

The wet deposition option should not be used for the modeling analysis unless data are available and the use of wet deposition has been previously approved.

4.3 Meteorological Data.

4.3.1 Selecting Meteorological Data.

The meteorological data used in the modeling analysis should be representative of the meteorological conditions at the specific site of proposed construction or modification, or else use screening meteorological data, which contains worst-case data.

Representative, on-site data is obviously the best data to use; however, for many sources on-site data is not available. Bureau modeling staff can supply preferred meteorological data sets for various locations around the state. The National Weather Service also collects data throughout the country. These data sets are available through the National Climatic Data Center. It is mandatory that Bureau modeling staff approve the chosen meteorological data before the analysis is submitted. PSD permits contain more rigorous requirements relating to the collection of representative, on-site meteorological data. Either 1 year of representative data which serves as on-site data or 5 years of appropriate off-site data must be used. Please contact the Bureau as soon as possible if you anticipate the need to collect on-site meteorological or ambient monitoring data for a PSD permit.

Setback distance modeling for portable sources may require separate meteorological data than that used in the rest of the modeling for that facility. Preliminary analysis indicates that the Substation meteorological data set is appropriate for locations throughout the State. Contact the Bureau for guidance on relocation meteorological data selection.

The goal of modeling is to use site-specific meteorological data. In cases where the form of the standard allows the standard to be exceeded a number of times per year, this is based on site-specific data. If the equivalent of site-specific data is not available, then the highest concentration estimate should be considered the design value unless multiple years of data are used. (68238 Federal Register / Vol. 70, No. 216 / Wednesday, November 9, 2005 / Rules and Regulations)

For example, no meteorological monitoring stations are available near Raton, New Mexico, and there are terrain features that may make Raton meteorology different from other places. The Bureau will still recommend meteorological data to use for modeling in Raton, but the PM_{10} standard is not allowed to be exceeded at all because the meteorological data is not completely representative of the area.

For concentration monitoring data, proximity to the monitor is normally the driving factor for selection of a representative monitor. For meteorological data, the similarity of the terrain (including canyon and valley directions) is more important than finding the closest monitor. Unless otherwise noted, AQB staff will need the exact location of the facility to select or approve a set of meteorological data representative of the location. Staff will compare wind roses with prominent terrain features that influence drainage patterns or otherwise influence wind directions.

Processed meteorological data is available on the web page: https://www.env.nm.gov/air-quality/meteorological-data/.

4.4 Background Concentrations

> "Background concentrations should be determined for each critical (concentration) averaging time." (68242 Federal Register / Vol. 70, No. 216 / Wednesday, November 9, 2005 / Rules and Regulations)

The background concentrations listed below were derived from information downloaded from http://aqsdr1.epa.gov/aqsweb/aqstmp/airdata/download_files.html.

4.4.1 Uses of Background Concentrations

Background concentrations are added to the modeled concentrations or are used for stoichiometric modeling applications such as OLM or PVMRM. Normally, a background concentration associated with the averaging period being modeled is added after the model (with all facility and nearby sources) is completed. Sometimes this approach proves too conservative to demonstrate compliance with standards. If so, monthly, daily, or hourly concentration profiles can be developed using representative sets of monitoring data appropriate for the modeling domain. Adding refined background concentrations normally requires post-processing of hourly output files.

It is very important to use recent monitoring data, because concentration trends are likely to change over time (much more so than weather patterns). If hourly meteorological data does not match hourly monitoring data, then the following methods can be used to produce a concentration profile for the refined modeling exercise.

Choose the highest background for each period for the region that best describes the modeling domain, unless adequate justification can be made that a specific monitor is most representative. For rural areas that do not match the regional descriptions above, use a monitor from Eastern NM or Southwestern NM.

4.4.1.1 Refined background concentrations

Background concentrations may be refined to take into account patterns in daily and monthly fluctuations in concentration. Since background concentrations are added to the model after dispersion is complete, there is no point mathematically in determining refined background concentrations shorter than the averaging period of the air quality standard. 24-hour concentrations do not need 1-hour background concentrations (except for ozone limiting of NO_2 concentrations, which happens during dispersion).

4.4.1.2 Developing 24-hour refined background concentrations

Each of the 12 months is represented by the maximum 24-hour concentration occurring during that month. If three years of data are available, average the three values for each month and use the average for the background. If a given month has a low maximum concentration due to the small number of samples collected that month, then the concentration from that month is not used and the average of the maximums of the two other years will be used as the 24-hour background for that month.

Example: Roswell $PM_{2.5}$ (This example uses outdated data and should not be used for new modeling).

$PM_{2.5}$ has a 24-hour averaging period and an annual averaging period. The annual average uses the annual value in the standard background tables, but it is appropriate to use refined background concentrations for the 24-hour period. The Partisol sampler in Roswell is a Federal Reference Method sampler for $PM_{2.5}$. The filters are collected about every three days, so there is not data available for every day. Over three years of data are available, and 2007 through 2009 are presented in the following table.

January, 2007 had a maximum reported concentration of 10.0 $\mu g/m^3$. January 2008 and 2009 had maximum concentrations of 18.0 and 11.7, respectively. The average of these three values is 13.2. After the model has run, every day in January adds a background concentration of 13.2 $\mu g/m^3$. Care must be taken to identify the greatest sum of modeled concentration plus background, since background concentration varies each month – the highest modeled concentration may no longer be the highest when the background values are added.

Table 14: Roswell $PM_{2.5}$ Monitoring Data (2007-2009)

Year	Month	$PM_{2.5}$ concentration. ($\mu g/m^3$)											Max	3-year avg.
2007	1	2.33	3.67	9.50	6.25	10.00	6.25	4.67	5.58	7.25			10.00	**13.2**
2007	2	5.92	5.50	25.5	9.00	13.75	2.67	2.42	5.67	2.25			25.50	**14.7**
2007	3	1.67	2.92	4.42	4.17	3.42	12.25	8.00	9.29	2.67	5.58	2.67	12.25	**12.8**
2007	4	4.75	9.58	4.83	5.86	3.67	5.75	8.00	2.75	5.83	6.00		9.58	**9.2**
2007	5	4.58	3.42	4.00	8.33	6.08	4.00	3.75	4.33				8.33	**10.0**
2007	6	7.00	6.92	8.25	4.00	5.19	5.67	9.29	13.7	6.58			13.67	**11.5**
2007	7	8.58	8.28	8.17	5.75	7.92	8.67	7.33	7.28				8.67	**9.2**
2007	8	11.92	3.08	7.50	11.83	18.50	8.67	7.92	6.33	6.00	7.83		18.50	**13.2**
2007	9	11.75	4.00	4.75	6.75	9.17	4.08	4.08	3.17	4.42	4.08		11.75	**11.1**
2007	10	5.25	6.00	6.08	6.92	4.33	5.08						6.92	**7.0**
2007	11	7.75	7.58	8.75	7.25	5.42	8.33	7.83	7.25	18.58	8.33		18.58	**10.4**
2007	12	3.17	4.08	4.25	3.17	5.83	10.50	5.58	4.33	2.25			10.50	**10.8**
2008	1	5.3	8.2	3.6	4.4	3.0	4.9	18.0	13.4	4.2	2.6		18.0	
2008	2	2.2	3.8	3.3	3.3	7.4	3.5	9.3	4.6				9.3	
2008	3	6.8	3.7	14.8	4.9	5.8	5.8						14.8	
2008	4	3.7	5.5	10.7	2.9	6.7	6.2	5.2	9.5				10.7	
2008	5	6.8	7.4	4.3	5.2	11.6	6.2	6	5.3				11.6	
2008	6	6.3	7.1	4.8	5.2	6.3	14	4.9	4.9				14.0	
2008	7	6.7	6.4	4.8	4.0	7.0	6.1	9.2	9.2	9.8			9.8	
2008	8	6.5	6.7	9.2	3.6	5.6	4.3	5.2	7.8				9.2	
2008	9	7.6	7.6	2.3	4.8	5.0	8.8	8.8	11.1	8.9			11.1	
2008	10	7.2	2.8	4.6	4.8	3.2	4.3	7.9	3.5	4.0			7.9	
2008	11	5.5	6.2	4.1									6.2	
2008	12	3.8	4.6	7.8	5.2								7.8	
2009	1	5.2	3.7	1.8	11.7	10.0	5.6	4.1	7.3				11.7	
2009	2	5.8	5.6	9.3	3.4	8.1	9.0	4.2	5.4	4.7			9.3	
2009	3	4.1	6.0	11.4	2.8	4.1	3.8	11.3	6.2	9.7	4.0	4.2	11.4	
2009	4	7.2	4.4	6.2	1.8	4.8	1.8	3.1	6.6				7.2	
2009	5	6.4	3.2	10.0	6.7	3.9							10.0	
2009	6	6.4	3.9	4.7	5.0	6.7	5.3						6.7	
2009	7	4.8	8.9	4.5	5.7	6.0	8.6	9.2	5.8	8.5	8.1	8.4	9.2	
2009	8	8.4	10.5	7.6	5.0	6.1	11.8	7.0	4.3				11.8	
2009	9	7.9	3.9	4.9	5.3	10.3	1.7	6.5					10.3	
2009	10	2.2	6.2	1.9	1.9	3.0	3.6						6.2	
2009	11	6.2	5.3	6.1	2.8	5.5	5.0	6.3	2.6				6.3	
2009	12	14.2	5.5	4.3	7.7	4.9	5.3						14.2	

4.4.1.3 Developing 1-hour refined background concentrations

From the geographically nearest full set of monitoring data to the facility to be modeled, determine the maximum one-hour concentration that occurs during each hour of the day for each month. The result will be twelve different 24-hour profiles that will be repeated for the entire month that each represents. This profile can be used for all averaging periods. If three years of data are available, average the three values for each month and use the average for the background. POST files may be used to add hourly background concentrations to receptors.

Example: Determine the maximum concentration for hour 1 (midnight to 1AM) in January. Use this for hour 1 for each day in January. Determine the maximum concentration for hour 2 (1AM to 2AM) in January. Use this for hour 2 for each day in January. … Determine the maximum concentration for hour 24 (11PM to midnight) in December. Use this for hour 24 for each day in December. Complete the entire year in this manner, with hour and month-specific data.

4.4.1.4 Eliminating double-counting of emissions in background

In some cases the addition of a background concentration may result in double-counting of some of the emissions, if the reference monitor is very close to the modeling domain. This effect may be reduced by placing a receptor at the monitor location and modeling the sources in the model that existed at the time of the monitoring. The modeled concentration at the monitor may be subtracted from the background (with a minimum background of zero). The averaging period should be the same as the one used for the background calculation, and must be temporally correlated if the maximum monitored concentration is not being used.

4.4.2 CO Background Concentration

Ambient CO monitors to represent New Mexico are very limited. Concentrations near Sunland Park are best represented by monitors in El Paso. Monitors operated by Albuquerque should be conservative for the rest of New Mexico.

Table 15: Carbon Monoxide Background Concentration

Region	ID	Location	1-hour ($\mu g/m^3$)	8-hour ($\mu g/m^3$)	Latitude	Longitude	Notes
The rest of New Mexico	350010023	Del Norte High School	2203	1524	35.1343	-106.585	4700a San Mateo NE, Albuquerque, NM
Albuquerque	350010029	South Valley	2746	1566	35.01708	-106.657	201 Prosperity SE, Albuquerque, NM
Sunland Park	481410044	El Paso Chamizal	4677	2834	31.76569	-106.455	800 S San Marcial Street, El Paso, TX

Concentrations are the average of the maximum concentrations for 2015-2017.

4.4.3 H_2S Background Concentration

NMED has no H_2S monitors. The standards are generally designed to protect against noticeable changes in concentration above the background concentration for the region, and no background concentration is added.

4.4.4 Lead Background Concentration

Reformulation of gasoline and other control measures have virtually eliminated ambient lead concentrations. NMED has no lead monitors. Treat as zero background.

4.4.5 NO_2 Background Concentration

Note: No 24-hour averages were calculated. Compliance with 1-hour NAAQS automatically demonstrates compliance with 24-hour NMAAQS.

Table 16: NO_2 Background Concentration

Region	ID	Location	1-hour Background ($\mu g/m^3$)	1-hour 98th %ile ($\mu g/m^3$)	Annual Background ($\mu g/m^3$)	Latitude	Longitude	Address
4-Corners	1ZB, 350450009	Bloomfield	85.1	67.3	19.6	36.74222	-107.977	162 Hwy 544, Bloomfield NM 87413
4-Corners	1NL, 350450018	Navajo Dam	62.2	52.1	11.0	36.80973	-107.652	423 Hwy 539, Navajo Dam, NM 87419
4-Corners	350451233	Dine College	73.3	54.9	11.3	36.8071	-108.695	Dine College, GIS Lab
Albuquerque	350010023	Del Norte High School	94.2	83.8	20.2	35.1343	-106.585	4700A San Mateo NE
South Central	6ZM, 350130021	Sunland Park	100.4	85.7	12.5	31.79611	-106.584	5935A Valle Vista, Sunland Park, NM
South Central	6ZN, 350130022	US-Mexico Border Crossing	102.9	77.5	8.5	31.78778	-106.683	104-2 Santa Teresa International Blvd, NM
Eastern NM	5ZR, 350151005	Outside Carlsbad	60.3	38.7	5.0	32.38	-104.262	Holland St, SE of Water Tank, Carlsbad, NM
Eastern NM	5ZS, 350250008	Hobbs-Jefferson	83.2	64.2	8.1	32.72666	-103.123	2320 N. Jefferson St, Hobbs, NM
Southwestern NM[1]	7E, 350290003	Deming	62.052	53.277	6.966	32.2558	-107.723	310 Airport Road, Deming, NM88030

Annual background is the average of three annual averages of monitoring data from 2015 to 2017. The maximum 1-hour NO_2 concentrations from each of three years were averaged to determine the 1-hour background concentration, using monitoring data from 2015 to 2017

Refined 1-hour background profiles may be developed using the guidance described in "Refined Background Concentrations", above.

[1]Based on 2013 -2015 averages.

4.4.6 Total Reduced Sulfur Background Concentration

NMED has no total reduced sulfur monitors. The standards are generally designed to protect against noticeable changes in concentration above the background concentration for the region, and no background concentration is added.

4.4.7 Ozone Background Concentration

Ozone background concentrations are required for NO_2 modeling using PVMRM or OLM.

Table 17: Ozone Background Concentration

Region	ID	Location	1-hour Background (µg/m^3)	Latitude	Longitude	Address
4-Corners	1ZB, 350450009	Bloomfield	146.1	36.74222	-107.977	162 Hwy 544, Bloomfield NM 87413
4-Corners	1NL, 350450018	Navajo Dam	156.9	36.80973	-107.652	423 Hwy 539, Navajo Dam, NM 87419
4-Corners[1]	350450020	Chaco Culture National Historical Park	144.8	36.03022	-107.910	1808 County Road 7950, Nageezi, NM 87037
4-Corners	1H, 350451005	Shiprock Substation	145.4	36.79667	-108.473	Usbr Shiprock Substation (Farmington)
4-Corners	350451233	Dine College	151.8	36.8071	-108.695	Dine College, GIS Lab
Albuquerque	2ZJ, 350431001	Highway Department, Bernalillo	148.6	35.29944	-106.548	Highway Dept. Yard Near Bernalillo
Albuquerque	2LL, 350610008	Los Lunas	140.4	34.8147	-106.74	1000 W. Main St, Los Lunas, NM 87031
Albuquerque	350010023	Del Norte High School	153.1	35.1343	-106.585	4700A San Mateo NE
Albuquerque	350010029	South Valley	145.4	35.01708	-106.657	201 Prosperity SE
Albuquerque	350011012	Foothills	152.4	35.1852	-106.508	8901 Lowell NE
South Central	6O, 350013008	La Union	161.3	31.93056	-106.631	St Lukes Episcopal Ch Rt 1 (La Union)
South Central	6ZK, 350130020	Chaparral Middle School	170.2	32.04111	-106.409	680 McCombs, Chaparral, NM
South Central	6ZM, 350130021	Desert View Elementary School	175.9	31.79611	-106.584	5935A Valle Vista, Sunland Park
South Central	6ZN, 350130022	US-Mexico Border Crossing	169.0	31.78778	-106.683	104-2 Santa Teresa International Blvd, NM
South Central	6ZQ, 350130023	NM Highway Dept. Yards In Las Cruces	149.9	32.3175	-106.768	750 N. Solano Drive, Las Cruces, NM
Southwestern NM[2]	7T, 350171003	Hurley Smelter	139.294	32.69194	-108.124	Chino Blvd near Hurley Park, Hurley, NM
Eastern NM	5ZS, 350025008	Hobbs-Jefferson	150.5	32.72666	-103.123	2320 N. Jefferson St, Hobbs, NM
Eastern NM	5ZR, 350151005	Outside Carlsbad	155.6	32.38	-104.262	Holland St, SE of Water Tank, Carlsbad, NM
Eastern NM	350153001	Carlsbad Caverns	145.4	32.1783	-104.441	Carlsbad Caverns National Park
North Central	350390026	Coyote	140.4	36.18774	-106.698	21 New Mexico 96, Coyote, NM, 87012
North Central	3SFA, 350490021	Santa Fe Airport	139.7	35.61975	-106.08	2001 Aviation Drive, Santa Fe, New Mexico 87507

[1]Based on 2017 only
[2]Based on 2013-2015 averages.

The hourly maximum ozone concentration from the nearest ozone monitor may be used for ozone limiting. Unless otherwise noted, the maximum 1-hour O_3 concentrations from each of three years were averaged to determine the 1-hour background concentration, using monitoring data from 2015 to 2017.

Refined 1-hour background profiles may be developed using the guidance described in "Refined Background Concentrations", above. Ozone files typically use the format, "(4I2,5X,F8.3)". Hourly concentrations use µg/m^3 to avoid elevation errors.

4.4.8 $PM_{2.5}$ Background Concentration

Table 18: $PM_{2.5}$ Background Concentration

Region	ID	Location	24-hour Background 100th%ile ($\mu g/m^3$)	24-hour Background 98th%ile ($\mu g/m^3$)	Annual Background ($\mu g/m^3$)	Latitude	Longitude	Address
Albuquerque	350010023	Del Norte High School	11.5	10.8	4.6	35.1343	-106.5852	4700A San Mateo NE
Albuquerque[1]	350010029	South Valley	22.6	18.20	7.43	35.01708	-106.6574	201 Prosperity SE
South Central[2]	6CM, 350130016	Anthony	18.4	17.0	7.6	32.00361	-106.5992	SE Corner Of Anthony Elem. School Yard
South Central	6ZM, 350130021	Sunland Park	25.9	24.3	7.3	31.79611	-106.5839	5935A Valle Vista, Sunland Park
South Central	6Q, 350130025	Las Cruces District Office of NMED	16.1	14.9	5.1	32.32194	-106.7678	2301 Entrada Del Sol, Las Cruces
Eastern NM	5ZS, 350250008	Hobbs-Jefferson	15.8	13.4	5.9	32.72666	-103.1229	2320 N. Jefferson St, Hobbs
4-Corners[1]	1FO, 350450019	Farmington Environment Department Office	14.13	11.77	4.19	36.77416	-108.165	3400 Messina Drive Suite 5000 Farmington
North Central[1]	3HM, 350490020	Santa Fe	16.55	9.45	4.32	35.67111	-105.9536	Runnels Bldg. 1190 St. Francis Dr.

[1]Based on 2013-2015 averages

[2]Based on average of 2013, 2014, and 2017

Concentrations are the average of three years of maximum data from 2015 to 2017. Some monitors may not represent background concentrations. Anomalously high values were eliminated before calculating aggregate concentrations. Use the highest 98th percentile background concentration from the region in which the facility is located, unless another monitor is more representative of the local area. Refined 24-hour background profiles may be developed using the guidance described in "Refined Background Concentrations", above.

Monthly background concentrations for Southeastern New Mexico from Hobbs are listed below. These were collected from January 2015 to December 2018.

Table 18B: Hobbs Refined $PM_{2.5}$ Background Concentration

Month	Monthly 24-hour Maximum ($\mu g/m^3$)
1	**12.1**
2	**10.2**
3	**21.1**
4	**17.5**
5	**16.5**
6	**16.1**
7	**17.6**
8	**13.3**
9	**15.6**
10	**10.3**
11	**13.2**
12	**17.7**

4.4.9 PM_{10} Background Concentration

Table 19: PM_{10} Background Concentration

Region	ID	Location	Annual Background ($\mu g/m^3$)	24-hour Background Maximum ($\mu g/m^3$)	24-hour Background Second High ($\mu g/m^3$)	Latitude	Longitude	Address
Albuquerque	350010026	Jefferson	24.3	74.0	70.3	35.1443	-106.6047	3700 Singer
Albuquerque	350010029	South Valley	33.7	152.0	132.2	35.01708	-106.6574	201 Prosperity SE
4-Corners[1]	1ZB, 350450009	Bloomfield	13.0	55.0	50.0	36.74222	-107.977	162 Hwy 544, Bloomfield NM 87413
South Central	6CM, 350130016	Anthony	22.0	50.7	44.7	32.003611	-106.5992	SE Corner of Anthony Elem. School Yard
South Central	6ZK, 350130020	Chaparral Middle School	25.3	120.0	112.3	32.041111	-106.4092	680 McCombs, Chaparral
South Central[1]	6ZM, 350130021	Sunland Park	26.0	78.0	73.0	31.796111	-106.5839	5935A Valle Vista, Sunland Park
South Central	6WM, 350130024	Las Cruces City Well #46	15.3	94.7	83.3	32.278056	-106.8644	South of I-10 at Las Cruces Well #46
Southwestern[2]	7D, 350029001	Deming	16.2	56.5	46.5	32.267222	-107.7553	Post Office Pine St
Southwestern[2]	7E, 350029003	Deming Airport	22.7	128.7	109.3	32.2558	-107.7227	310 Airport Road, Deming
Eastern NM	5ZS, 350250008	Hobbs-Jefferson	24.0	100.7	37.3	32.726656	-103.1229	2320 N. Jefferson St, Hobbs
North Central[2]	3HM, 350490020	Santa Fe	9.0	23.0	20.7	35.671111	-105.9536	Runnels Bldg. 1190 St. Francis Dr.
North Central[2]	3ZD, 350055005	Taos	14.2	52.0	40.5	36.383333	-105.5833	Fire Station Santiago Road

Concentrations are averaged from 2015 to 2017. Some monitors, such as 350010026 and 350010029, are located near industrial sources or in disturbed areas and do not represent ambient background concentrations.

[1]Monitor 350450009 was missing 2015 data. Monitor 350130021 was missing 2016 data. These monitors used two year averages.

[2]Based on 2013-2015 averages

Refined 24-hour background profiles may be developed using the guidance described in "Refined Background Concentrations", above.

Anomalously high values were eliminated before calculating aggregate concentrations.

Monthly background concentrations for Southeastern New Mexico from Hobbs are listed below. These were collected from July 2011 to June 2014. The monitor was discontinued after June 2014.

Table 20: Hobbs Refined PM_{10} Background Concentration

Month	**Monthly 24-hour Maximum** ($\mu g/m^3$)
1	43.0
2	46.0
3	62.7
4	58.0
5	62.3
6	82.3
7	86.7
8	61.3
9	60.0
10	74.3
11	48.7
12	39.7

4.4.10 SO_2 Background Concentration

Table 21: SO_2 Background Concentrations

Region	ID	Location	1-hour Background ($\mu g/m^3$)	1-hour Background 99th Percentile ($\mu g/m^3$)	Annual ($\mu g/m^3$)	Latitude	Longitude	Address
Albuquerque	350010023	Del Norte High School	15.8	13.2	1.75	35.1343	-106.585	4700A San Mateo NE
Southwest New Mexico[1]	7T, 350171003	Hurley Smelter	6.11	1.75	0.0183	32.69194	-108.124	Chino Blvd Near Hurley Park, Hurley, NM
The rest of New Mexico	1ZB, 350450009	Bloomfield	8.84	5.31	0.219	36.74222	-107.977	162 Hwy 544, Bloomfield NM 87413
Between Farmington and Shiprock	1H, 350451005	Shiprock Substation	41.6	22.1	0.389	36.79667	-108.473	Usbr Shiprock Substation (Farmington)
4-Corners west of Shiprock	350451233	Dine College	37.3	19.5	1.48	36.8071	-108.695	Dine College, GIS Lab
Eastern New Mexico	483751025	Amarillo, 24th Ave	68.3	47.0	0.670	35.2367	-101.787	4205 NE 24th Ave, Amarillo TX

Background concentrations are from 2015 to 2017
[1]Based on 2013-2015 averages

Refined 1-hour background profiles may be developed using the guidance described in "Refined Background Concentrations", above.

4.5 Location and Elevation

Important: Use the same UTM zone and datum for the entire facility. Facilities on the border between two UTM zones must convert all information into one zone or the other.

Make sure that the source location and parameters are the same as those listed in the application form!! This is the most common mistake we see.

4.5.1 Terrain Use

Terrain classifications are defined as follows:

- **Flat terrain** – Terrain with all elevations equal to the base of the source
- **Simple terrain** – Terrain with elevations below stack height
- **Complex terrain** – Terrain with elevations above stack height

- **Intermediate (Complex) terrain** – Terrain with elevations between stack height and plume height (a subset of complex terrain).

Flat terrain should be used if the source base is higher than all the surrounding terrain or if the facility consists primarily of non-buoyant fugitive sources. Simple and complex terrain should be used for all other scenarios.

4.5.2 Obtaining Elevation

Elevation data for receptors, sources, and buildings should be obtained from Digital Elevation Model (DEM) files or National Elevation Dataset (NED) files with a resolution of 30 meters or better. USGS DEMs are available for New Mexico in either 7.5-minute or 1-degree formats. It is strongly suggested that the 7.5-minute data be used in dispersion modeling rather than the coarse resolution 1-degree data. Keep in mind that the USGS DEMs can be in one of two horizontal datums. Older DEMs were commonly in NAD27 (North American Datum of 1927) while many of the latest versions in NAD83 (North American Datum of 1983). It is important to use the same source of data for all elevations. Even USGS 7.5-minute maps and USGS 7.5-minute DEM data may differ. Surrounding sources' elevations provided by the Bureau have been determined using 7.5-minute DEM data (NAD83), where available, and 1-degree DEM data elsewhere.

Elevations should be included for at least all receptors within 10 km of your facility or within your facility's ROI (whichever is smaller). Your source's elevation may be used for receptors beyond 10 km, but it may be wiser to use actual DEM elevations for the entire ROI because surrounding sources are provided with actual elevations.

4.6 Receptor Placement

4.6.1 Elevated Receptors on Buildings

Elevated receptors should be placed on nearby buildings at points of public access where elevated concentrations may be predicted. Use flagpole receptors in areas with multi-story buildings to model state and federal standards. In cases where nearby buildings have publicly accessible balconies, rooftops, or similar areas, the applicant should consult with the Bureau modeling staff to ensure proper receptor placement. PSD increment receptors are limited to locations at ground level.[6]

4.6.2 Ambient Air

Ambient air is defined as any location at or beyond the fence line of the facility. The fence line must restrict public access by a continuous physical barrier, such as a fence or a wall. If plant property is accessible to the public or if any residence is located within the restricted area, receptors should be located on-property.[7] Public access is interpreted to include housing, schools, hospitals, and similar areas that are frequented by family members of employees, but the remainder of the restricted area is excluded from public access if such family members do not have access to excluded areas. For example, receptors would not be placed in dormitories on military bases, but would be placed in family housing areas.

4.6.3 Receptor Grids

"Receptor sites for refined modeling should be utilized in sufficient detail to estimate the highest concentrations and possible violations of a NAAQS or a PSD increment. In designing a receptor network,

[6] NSR Workshop Manual, page C.42
[7] NSR Workshop Manual, Page C.42

the emphasis should be placed on receptor resolution and location, not total number of receptors." (68238 Federal Register / Vol. 70, No. 216 / Wednesday, November 9, 2005 / Rules and Regulations)

The modeling domain can be defined using a Cartesian grid with 1000 meter spacing. Fine grids or fence line receptors with 50 to 100 meter spacing should fill any areas of the domain with potential to contain the highest concentration and/or any possible exceedances of NMAAQS, NAAQS, or PSD increment for the refined modeling. 50 meter spacing is recommended for fence line receptors for most sources, but 100 meters is recommended for expansive sources like coal mines, copper mines, or large military bases. (Grids with 50 meter spacing and 2 km side width are recommended for medium or large neighboring point sources. 50 meter spacing and 1 km width grids are recommended for hilltops or small neighboring sources.) Once these areas of potential high concentrations have been refined, the remaining receptors may be discarded.

For sources with an ROI greater than 50 kilometers, the grid should not extend beyond 50 km, as is noted in the NSR Workshop Manual.

4.6.4 PSD Class I Area Receptors

A modeling analysis of the PSD increment consumed at the nearest Class I areas must be performed by increment-consuming sources in AQCRs where the PSD minor source baseline date has been established, or in any AQCR where a new PSD-major source is to be installed. One receptor at the near boundary of the Class I area is normally sufficient for modeling to compare with Class I significance levels. 1000 meter spacing is recommended within the Class I areas for facilities with significant concentrations. If concentrations are above 75% of the PSD increment, then 50 to 100 meter spacing should be used near the hot spots. See Figure 1 for locations of Class I areas.

4.6.5 PSD Class II Area Receptors

Other than areas that are designated as PSD Class I areas, the entire state of New Mexico is a Class II area. The receptor grid for the PSD Class II increment analysis should be the same as the one for the cumulative run.

4.7 Building Downwash and Cavity Concentrations

Building downwash should be included in the analysis when stack height is less than good engineering practice (GEP) stack height and there are buildings, tanks, fans or other obstacles near the facility. All buildings and structures should be identified and analyzed for potential downwash effects. NMED requires the use of BPIP-Prime or equivalent for this analysis. GEP stack height should be determined as per 40 CFR 51.100. For receptors very near buildings, a cavity region analysis may be required. Modelers should consult with the Bureau modeling staff.

As summarized from 40 CFR 51.100:
GEP stack height is the greater of:

1) 65 meters, measured from the ground-level elevation at the base of the stack

or

2) H + 1.5L

Where

H = Height of nearby structure(s) measured from the ground-level elevation at the base of the stack.

L = The lesser of the height or the projected width (width seen by the stack) of nearby structures. Nearby structures can be as far as 5 times the lesser of the width or height dimension of the structure, but not greater than 0.8 km.

Stacks taller than GEP stack height should be modeled as if they were GEP stack height.

4.8 Neighboring Sources/Emission Inventory Requirements

> "The number of nearby sources to be explicitly modeled in the air quality analysis is expected to be few except in unusual situations. In most cases, the few nearby sources will be located within the first 10 to 20 km from the source(s) under consideration." (Federal Register / Vol. 82, No. 10 / Tuesday, January 17, 2017 / Rules and Regulations)

4.8.1 Neighboring Sources Data

The Emissions Inventory of neighboring sources is used as input data in air quality models. This data will be provided by the Bureau within a few days of request. E-mail the UTM coordinates of the location(s) to be modeled to the Bureau to request source data.

4.8.1.1 Determining which sources to include

This section functions as a definition for "nearby sources" as used in this document. The definition varies based on context, as illustrated below.

The contributions of distant sources are included in the background concentration. If the background concentration is added and includes all neighboring sources or a conservative approximation of them, then surrounding source modeling is not required for modeling of NAAQS or NMAAQS. For particulate matter or cases where the background concentration does not include all neighboring sources, then include all sources within 10 km of the facility in the model, and discard sources beyond 10 km from the facility. PSD increment is modeled, not monitored. (PSD increment may optionally add a background concentration instead of modeling the more distant sources.) For cases where background concentrations are not added, retain all sources within 25 km of the facility, plus sources emitting over 1000 pounds per hour within 50 km of the facility. For PSD Class I increment analysis, retain all sources within 25 km of the Class I area, plus sources emitting over 1000 pounds per hour within 50 km of the Class I area.

Table 22: Surrounding Source Retention Example for a Source Near Bloomfield.

Pollutant and averaging period	Neighboring source notes:
NO_2 1-hour NAAQS	Do not include surrounding sources. (Optionally, instead of adding background concentrations, include all sources within 25 km of the facility, plus sources emitting over 1000 pounds per hour within 50 km of the facility.)
$PM_{2.5}$ 24-hour NAAQS	Retain sources within 10 km of facility.
NO_2 annual Class II PSD increment	Retain sources within 25 km of the facility, plus sources emitting over 1000 pounds per hour within 50 km of the facility..
NO_2 annual Class I PSD increment	Retain sources within 25 km of Mesa Verde National Park, plus sources emitting over 1000 pounds per hour within 50 km of Mesa Verde.

4.8.1.2 Surrounding source format

The Bureau provides AERMOD input files with the surrounding sources (*.INP) and reference tables (*.XLS) to describe the sources in more detail. The AERMOD input files can be imported in GUI programs or edited manually. The Excel files are for reference only, and should not be used as the basis for modeling.

Sources numbered 0-49,999 belong in the NAAQS/NMAAQS analysis. Sources numbered 10,000 and above belong in the PSD increment analysis. (Notice overlap of two groups). Numbering in the reference tables may not include the 50,… or 10,… prefix for the counting numbers.

Unless otherwise noted, units of measure used in the surrounding sources files are the metric units associated with model input format. Emissions designated as NO_2 are actually total oxides of nitrogen (NO_X).

4.8.1.3 Handling errors in surrounding source files

Please contact the Bureau if you see suspicious data in the inventory. We know that there are errors in our database and we would like to correct them.

If you find a piece of equipment that has unusual stack parameters, document the error and corrected values in your modeling report. Please also report the error to Joe Kimbrell (Joseph.Kimbrell@state.nm.us) as well for database correction. Include MASTER_AI_ID, SUBJECT_ITEM_CATEGORY_CODE, and SUBJECT_ITEM_ID in the documentation. Please document the reason the error is suspected.

The following parameters may be substituted for missing or invalid data. Determine the type of source that best matches the types below. For example, engines use the “other” category. Find the smallest emission rate in the table that is greater than or equal to the emission rate of the emission unit. That column contains the parameters that may be used for the parameters that are missing. (These parameters are based on modeling for general construction permits or on existing source data for control devices.)

Table 23: Missing Stack Parameter Substitutions for Turbines.

NO_2 Rate (lb/hr)	Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)
21.7	7	588	10	0.7
21	6	588	10	0.7
20	5	588	10	0.7
19	5	588	10	0.6
18	4.5	588	10	0.6
17	4.5	588	10	0.6
16	4.5	588	10	0.5
15	4.5	588	10	0.5
14	4.5	588	10	0.5
13	4	588	10	0.5
12	4	588	10	0.5

NO_2 Rate (lb/hr)	Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)
11	3.5	588	10	0.5
10	3.5	588	10	0.5
9	3.5	588	10	0.5
8	3.5	588	10	0.4
7	3	588	10	0.4
6	3	588	10	0.4
5	2.5	588	10	0.4
4	2.5	588	10	0.4
3	2	588	10	0.35
2	1.8	588	10	0.24
1	1.8	588	10	0.24

Table 24: Missing Stack Parameter Substitutions for Flares.

SO_2 Rate (lb/hr)	Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)
5000	18	1273	20	20.80618
4500	16	1273	20	19.73848
4000	14	1273	20	18.60962
3500	12	1273	20	17.4077
3000	9	1273	20	16.1164
2500	6	1273	20	14.71219
2100	6	1273	20	13.48395
2000	6	1273	20	13.15899
1900	6	1273	20	12.82579
1800	6	1273	20	12.48371
1700	6	1273	20	12.13198
1600	6	1273	20	11.76975
1500	6	1273	20	11.39602
1400	6	1273	20	11.0096
1300	6	1273	20	10.60911
1200	6	1273	20	10.19291
1100	6	1273	20	9.758965
1050	6	1273	20	9.534591
1000	6	1273	20	9.304808
950	6	1273	20	9.069204
900	6	1273	20	8.827315
850	6	1273	20	8.578609
800	6	1273	20	8.322474
750	6	1273	20	8.0582
700	6	1273	20	7.784961
650	6	1273	20	7.501776
600	6	1273	20	7.207473
550	6	1273	20	6.90063
500	6	1273	20	6.579493
450	6	1273	20	6.241855
400	6	1273	20	5.884877
350	6	1273	20	5.504798
300	6	1273	20	5.096453
250	6	1273	20	4.652404
200	6	1273	20	4.161237
150	6	1273	20	3.603737
100	6	1273	20	2.942439
90	6	1273	20	2.791442
80	6	1273	20	2.631797
70	6	1273	20	2.461821
60	6	1273	20	2.279203
50	6	1273	20	2.080618
40	6	1273	20	1.860962
30	6	1273	20	1.61164
29	6	1273	20	1.584552
28	6	1273	20	1.556992
27	6	1273	20	1.528936
26	6	1273	20	1.500355
25	6	1273	20	1.471219
24	6	1273	20	1.441495
23	6	1273	20	1.411144
22	6	1273	20	1.380126
21	6	1273	20	1.348395
20	6	1273	20	1.315899
19	4	1273	20	1.282579
18	4	1273	20	1.248371
17	4	1273	20	1.213199
16	4	1273	20	1.176975
15	4	1273	20	1.139602
14	4	1273	20	1.10096
13	4	1273	20	1.060911
12	4	1273	20	1.019291
11	4	1273	20	0.9758965
10	4	1273	20	0.9304808
9	3.5	1273	20	0.8827316
8	3.5	1273	20	0.8322473
7	3.5	1273	20	0.7784961
6	3.5	1273	20	0.7207473
5	3.5	1273	20	0.6579493
4	3	1273	20	0.5884877
3	3	1273	20	0.5096453
2	2.5	1273	20	0.4161237
1	2	1273	20	0.2942439

Table 25: Missing Stack Parameter Substitutions for Particulate Control Devices.

PM10 Rate (lb/hr)	Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)
22	19	0	28	4.6
21	18	0	27	4.6
20	17	0	26	4.4
19	16	0	25	4.2
18	15	0	24	4
17	14	0	23	3.8
16	14	0	22	3.6
15	13	0	21	3.4
14	13	0	20	3.2
13	12	0	19	3
12	12	0	18	2.8
11	11	0	17	2.6
10	11	0	16	2.4
9	10	0	15	2.2
8	10	0	14	2
7	10	0	13	1.8
6	9	0	12	1.6
5	9	0	11	1.4
4	9	0	10	1.2
3	9	0	9	1
2	9	0	8	0.8
1	9	0	7	0.6

Table 26: Missing Stack Parameter Substitutions for Other Point Sources.

NO_2 Rate (lb/hr)	Height (m)	Temperature (K)	Velocity (m/s)	Diameter (m)
21.7	7	730	28	0.3
21	6	730	28	0.3
20	5.5	730	28	0.3
19	4.5	730	28	0.3
18	4.5	730	27	0.3
17	4.5	730	27	0.3
16	4.5	730	27	0.25
15	4.5	730	27	0.25
14	4.5	700	22	0.25
13	4.5	700	22	0.25
12	4.5	700	22	0.2
11	4.5	700	22	0.2
10	4.5	700	22	0.2
9	4.5	700	20	0.2
8	4.5	700	18	0.2
7	4.5	700	14	0.2
6	4.5	650	14	0.2
5	4.5	500	5	0.2
4	4	500	5	0.1
3	3.5	500	5	0.1
2	3	500	5	0.0762
1	2	500	5	0.0762

For GCP 2, 3, and 5 permits with 95 tons/year of $PM_{2.5}$ emissions, use the following values:

TSP emission rate = 95 TPY
PM_{10} emission rate = 71.25 TPY (TSP X 0.75)
$PM_{2.5}$ emission rate = 17.875 TPY (PM_{10} X 0.25) = (TSP X 0.1875)

For volume sources with missing parameters:

Maximum release height = 10 m
Minimum release height = 1 m
Missing release height = PM10 Rate x 20 m/(lb/hr)
Initial vertical dimension = release height x 0.93
No limit to the maximum lateral dimension.
Lateral dimension = PM10Rate x 10 m/(lb/hr)
Minimum Lateral Dimension = 0.47 m

4.8.1.4 Refining Surrounding Sources

In some cases, it will be possible to use actual emissions to model surrounding sources instead of the maximum values allowed in the permit. If actual emission rates from the most recent two years is available, then the following optional technique may be used.

Annual averaging period: For the most recent two consecutive years of operation, if that period is representative of normal operation, the emission rate for each hour (in pounds per hour) is the total tons emitted for those two years divided by 8.76 (lb x year/ton x hour).

Other averaging periods: The unit is assumed to operate continuously unless there is a permit condition or physical limitation that prevents it from operating certain hours of the day or days of the year. If data is available for the most recent two years (Continuous Emissions Monitoring (CEM) data, for example) then a temporally representative level when operating may be used. For example, a generator that provides more power during peak hours could be modeled such that the maximum emission rate would be emitted during the peak hours of the day and the minimum operating emission rate would be emitted during the lowest-demand hours and the hours the unit would normally be off.[8]

4.8.2 Source Groups

It often saves considerable analysis time to set the model up to run with multiple source groups. The following groups are recommended.

- **Source alone group** – contains the sources at the facility that are used to compare with significance levels for the pollutant and averaging period being modeled. This group determines if the facility is above significance levels at the location and time.
- **Cumulative sources group** – contains all allowable emissions of the source and surrounding sources. This group is used to determine compliance with NAAQS and NMAAQS.
- **PSD sources group** – contains all sources that consume or expand PSD increment. This group is used to determine compliance with PSD increment regulations.

Impacts from different groups can be compared to determine if a source contributes significant concentrations if there is a problem complying with air quality standards.

4.8.3 Co-location with a GCP for aggregate processing facilities, asphalt plants, or concrete batch plants

At this time, General Construction Permits (GCPs) for aggregate processing facilities, asphalt plants, and concrete batch plants currently have the requirement that no visible emissions shall cross the fence line, which has been demonstrated to show compliance with all particulate matter air quality standards and PSD increments. NMED has allowed co-located facilities operating under a GCP to rely upon the GCP modeling demonstration for when co-located facilities operate at the same time, since all facilities at the location are required to have the same, no visible emissions, requirement at the fence line. However, if a source operating under a regular construction permit, and not a GCP, co-locates with a GCP source, it must show compliance with all particulate matter air quality standards through air dispersion modeling. The modeling for the source operating under a regular construction permit shall include all sources other than the co-located GCP sources. Gaseous pollutant modeling shall include the co-located GCP(s).

[8] **Federal Register,** Vol. 82, No. 10, pg. **5220** / Tuesday, January 17, 2017 / Rules and Regulations

5.0 EMISSIONS SOURCE INPUTS

This section describes appropriate modeling for many types of sources. Additional guidance can be found in the User's Guide for the AMS/EPA Regulatory Model - AERMOD (EPA, 2004, http://www.epa.gov/scram001/dispersion_prefrec.htm).

5.1 Emission Sources

There are two general types of sources:

Sources that come from a stack or vent – stack sources, or point sources;
And sources that don't – fugitive sources.

5.2 Stack Emissions/Point Sources

All stacks should be modeled as point sources, as detailed below.

5.2.1 Vertical Stacks

Stacks that vent emissions vertically should be modeled as point sources with stack parameters that will simulate the manner in which emissions are released to the atmosphere:

Stack exit velocity, V_s = average upward velocity of emissions at the top of the stack;
Stack diameter, d_s = stack exit diameter;
Stack exit temperature, T_s = average temperature of emissions at the top of the stack;
Stack height, H_s = stack release height.

5.2.2 Stacks with Rain Caps and Horizontal Stacks

Stacks with capped stacks should be modeled in AERMOD using the POINTCAP source type.

Horizontal stacks should be modeled in AERMOD using the POINTHOR source type.

AERMOD will set the temperature to ambient temperature if the stack exit temperature is set to 0 K. If the model being used does not do this, then set the temperature to ambient temperature or to a close approximation thereof.

5.2.3 Flares

Both process and emergency flares should be modeled for comparisons with NAAQS and NMAAQS. If parts of the facility will be shut down when the flare operates then those emission units may be omitted from the flare modeling.

Flares should be treated as point sources with the following parameters:

Stack velocity = 20 m/s = 65.617 ft/s
Stack temperature = 1000°C = 1832°F
Stack height = height of the flare in meters
Effective stack diameter in meters= $D = \sqrt{10^{-6} q_n}$
where $q_n = q(1 - 0.048\sqrt{MW})$
and q is the gross heat release in cal/sec
MW is the weighted by volume average molecular weight of the mixture being burned.
(SCREEN3 Model User's Guide, 1995)

Flares in the surrounding sources inventory from the Bureau should already have an effective diameter calculated; so the parameters in the inventory can be entered directly into your model input "as is". There are

other methods for analyzing impacts of flares; if you wish to use another method, check with the Bureau modeling staff first.

NOTE: The NAAQS cannot be violated, even during upset conditions. All emergency flares should be modeled to show compliance with the NAAQS short-term standards under upset conditions. Emergency flares should be modeled with surrounding sources, but not including neighboring emergency flares and other sources that operate less than 500 hours per year.

5.2.4 Cool Stacks

Filters, cooling towers, or other sources without raised temperature should be modeled at ambient temperature. AERMOD will set the temperature to ambient temperature if the stack exit temperature is set to 0 K. If the model being used does not do this, then set the temperature to ambient temperature or to a close approximation thereof.

5.3 Fugitive Sources

5.3.1 Aggregate Handling

Aggregate handling emissions consist of three separate activities, namely: loading material to and from piles, transportation of material between work areas, and wind erosion of storage piles.

Loading material to and from piles should be modeled as volume sources representative of the loading or unloading operation. Emissions for loading and unloading are calculated using AP-42 Section 13.2.4. The loading and unloading each involve dropping the material onto a receiving surface, whether being dropped by a dump truck, a front-end loader, or a conveyor. Each drop should be modeled as described in Fugitive Equipment Sources, below.

Transportation of material between work areas should be modeled according to haul road methodology if vehicles are used to transport the material, or using transfer point methodology if conveyors are used to transport the material, as described in Fugitive Equipment Sources, below.

Modeling of wind erosion of storage piles is optional, as it says in AP42 not to use the equations for wind erosion in a steady state model.

For the following example facility, aggregate is handled 6 times:

1- a pile in front of the mine face is created,
2- a pile in front of the mine face is loaded into trucks or conveyors,
3- a pile in front of the processing equipment (crusher or HMA) is created,
4- loading the equipment (crusher or HMA),
5- a pile after the equipment, and
6- loading the truck

1 and 2 would not apply if on-site mining does not occur.
5 may be considered a transfer point (conveyor) instead of aggregate handling if controls are applied.
5 and 6 may not apply for HMA plant, as material is bound in asphalt.
6 would not apply if the waste pile is left on site.

5.3.2 Fugitive Equipment Sources

Emissions coming from equipment such as crushers, screens, or material transfer points should be modeled as volume sources. Emission rates are normally calculated using AP42 factors.

The release height (H) is the distance from the center of the volume to the surface of the ground. The base of each volume source must be square. For elongated sources, use a series of volume sources with square bases. Determine the apparent size of a volume source by estimating how large the plume would look to an observer. Consider the movement of the plume source during the course of an hour when determining the apparent size. For example, if the source of emissions is from disturbances on a pile, and the entire pile is disturbed at some point in the hour, then use the size of the pile as the apparent size instead of the area of the pile that would be disturbed at any one instant. The reason for this is that the model operates in one-hour blocks of time, so using instantaneous sizes could inaccurately target nearby receptors with elevated emission concentrations.

For a single volume source, divide the apparent length by 4.3 to determine the initial lateral dimension (σ_{Yo}) to input into the model. For a line source represented by a series of volume sources, divide the distance between the centers of adjacent sources by 2.15 to determine σ_{Yo}.

For a source on the ground, divide the vertical dimension of the source by 2.15 to determine the initial vertical dimension (σ_{Zo}) to input into the model. For a source on or connected to a building, divide the height of the building by 2.15 to determine the σ_{Zo}. For an isolated elevated source, divide the vertical dimension of the source by 4.3 to determine the σ_{Zo}.

Example sources are described in the table below. Some sources will vary from the characteristics listed in the table.

Table 27: Example Dimensions of Fugitive Sources

Source Type	Height of Volume (m)	σ_{Zo} (m)	Release Height (m)	Width of Volume (m)	σ_{Yo} (m)
Crusher	5	2.33	6	5	1.16
Screen	5	2.33	4	5	1.16
Transfer point	2	0.93	2	2	0.47
Elevated transfer point	4	0.93	4	2	0.47
High Elevated transfer point	4	0.93	8	2	0.47
Concrete truck loading	5	2.33	4	5	1.16

5.3.3 Haul Roads

Traffic carrying materials mined or processed at the facility must be modeled as part of the facility. Haul roads to be modeled include the portion of roads that are not publicly accessible. The Bureau recommends haul road modeling to be consistent with Regional/State/Local Haul Road Workgroup Recommendations, as described below. Haul road emissions should be modeled as a series of adjacent volume sources, except that area sources should be used for modeling haul roads where receptors located within source dimensions are important. A procedure to develop model input parameters follows. The applicant can use

other procedures on a case-by-case basis but must demonstrate that those procedures would be appropriate.

Road Source Characterization: Follow the instructions described below.

Plume height:

The height of the volume (H) or plume height will be equal to 1.7 times the height of the vehicle generating the emissions. Use the same for top of plume height for area sources.
The initial vertical sigma (σ_{Zo}) is determined by dividing the height of the plume by 2.15.
The release height is determined by dividing the height of the volume by two. This point is in the center of the volume.

Table 28: Example Haul Road Vertical Dimensions

Vehicle size	Truck Height	Height of Volume	σ_{Zo}	Release Height
Large trucks	4 m (13.1 ft)	6.8 m (22.3 ft)	3.16 m (10.4 ft)	3.4 m (11.1 ft)
Small trucks	2 m (6.6 ft)	3.4 m (11.2 ft)	1.58 m (5.2 ft)	1.7 m (5.6 ft)

RH = H/2 = Release Height above the ground (m). It's the center of the volume source. Also use this for the source height of the area source, if using the area source alternative.
σ_{Zo} = H/2.15 = initial vertical dimension of the volume (m)

Road width:

The adjusted width of the road (W) is the actual width of the road plus 6 meters. The additional width represents turbulence caused by the vehicle as it moves along the road. This width will represent a side of the base of the volume. Use W for the width of the area source, if using the area source alternative.

The initial horizontal sigma (σ_{Yo}) for each volume is determined as follows:

- If the road is represented by a single volume, divide W by 4.3.
- If the road is represented by adjacent volumes, divide W by 2.15.
- If the road is represented by alternating volumes, divide the distance between the center point of one volume to the center point of the next volume by 2.15. σ_{Yo} = 2W/2.15 This representation is only recommended for very long roads.
- If using area sources, the aspect ratio (i.e., length/width) should be less than 100 to 1. Subdivide the sources if they are too long.
- If using area sources, model each road segment as a straight line. Do not create a road segment with a bend in the road – divide the road into different segments when bends occur.

Road length:

The sum of the length of all volume sources should be about equal to the actual road length, unless the road is very long and half the segments are skipped to save time. The volume sources should be evenly spaced along the road and should be of equal size for a given road. It is acceptable to artificially end the haul road up to 50 meters before the intersection with a public road. The reduced length of the road is due to the observation that vehicles normally slow down or stop before exiting the property. All emissions from haul roads must be modeled, however. Emissions from the reduced road length are added to other road segments.

The two lateral dimensions (length and width) of a volume source should be equal. The number of volume sources, N, is determined by dividing the length of the road (optionally minus 50 meters) by W. The result is the maximum number of volume sources that could be used to represent the road. If N is very large, modeling time can be reduced by using alternating volume sources to reduce the number of sources.

Table 29: Example Haul Road Horizontal Dimensions

Vehicle size	Width of Volume	Length of Volume	σ_{Y_0}
Large trucks	13 m (42.65 ft)	13 m (42.65 ft)	W/2.15 = 6.05 m (19.85 ft)
Small trucks	10 m (32.8 ft)	10 m (32.8 ft)	W/2.15 = 4.65 m (15.26 ft)

Road location:

The UTM coordinates for the volume source are in the center of the base of the volume. This location must be at least one meter from the nearest receptor.

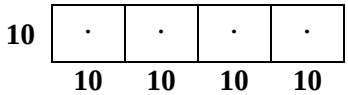
Emission Rate:

Divide the total emission rate equally among the individual volumes used to represent the road, unless there is a known spatial variation in emissions. Use the emissions calculated from the entire road length, even if you artificially end the road volume sources early before exiting the facility.

Example sources:

Use of the following modeling parameters should result in acceptable haul road modeling. Different facilities have different sized trucks, roads, and other variables. It is acceptable to use facility-specific parameters

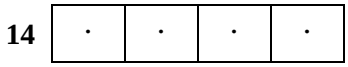
Example One-Way Road Source



(looking from above)
Width = W = 10 m (32.8 ft)
σ_{Y_0} = W/2.15 = 4.65 m (15.26 ft)

Figure 3: One-Way Road Source

Two-Way Road Source



(looking from above)
Width = W = 14 m (45.9 ft)
σ_{Yo} = W/2.15 = 6.51 m (21.4 ft)
Figure 4: Two-Way Road Source

Additional guidance can be found in Volume II of the User's Guide for ISC3 model (EPA, 1995).

5.3.4 Area Sources

Sources that have little plume rise may be modeled as area sources. Examples are: storage pile emissions, waste lagoon emissions, or gaseous emissions from landfills. Area source types include rectangle, circle, and irregularly shaped polygon. The model uses only the portion of the area source that is upwind of the receptor for calculating emissions for the hour, so it is safe to put receptors inside the area source without overly magnifying concentrations. The ISC input file uses emissions per area, but front-end programs for developing input files may calculate this for you based on total emissions from the source. For additional information, see the ISC User's Guide (EPA, 1995d).

Extremely long or odd-shaped (like a giant "L") area sources should be broken up into smaller area sources or modeled as a series of volume sources, because they may misrepresent emissions. Area sources, such as AREACIRC sources, may require many times as long to run the model as do volume or point sources in AERMOD.

5.3.5 Open Pits

The open pit source type should only be used to model open pits (not elevated trash dumpsters or anything else that somewhat resembles an open pit). The elevation of the pit entered into the model is the elevation of the top of the pit, which should be ground level.

The model calculates the effective depth of the pit by dividing the pit volume by the length and width of the pit. Release height above the base of the pit must be smaller than this value. Emissions from the bottom of the pit are expressed with a release height of zero.

Pit length should be less than 10 times the pit width. However, a pit cannot be sub-divided because the model needs to calculate mixing done throughout the pit. If the pit is irregular in shape, use the actual area of the top of the pit to calculate a rectangular shape with the same area.

Do not place receptors inside a pit.

The model input file requires pit emission rates to be expressed in mass per time per area [i.e., $g/(s \cdot m^2)$]. Model input front-end programs may convert actual emission rate into area-based emission rates automatically, however.

5.3.6 Landfill Offgas

Decomposition of landfill material can result in the release of gasses such as H_2S. If these gases are not collected using a negative pressure system and flared, then the area of the landfill that is releasing gas can be modeled as an area or a circular area source. If gas is collected by a negative pressure collection

system and flared, then model the flare the same way other flares are modeled. Place large area sources in areas that have little effect from the negative pressure collection system. In either case, elevation of the source should be equal to that of the surface, and release height should be zero because they are released from the ground and are not significantly affected by turbulence caused by vehicles traveling over the off-gasses.

6.0 MODELING PROTOCOLS

6.1 Submittal of Modeling Protocol

A modeling protocol should be submitted prior to the performance of a dispersion modeling analysis. For PSD applications, a modeling protocol is mandatory, and must be sent to NMED/AQB for review and comment. Consultation with Bureau modeling staff regarding appropriate model options, meteorological data, background concentrations, and neighboring sources is recommended for minor sources also, and can be accomplished in writing or by phone. The applicant should allow two weeks for the Bureau to review and respond to the written protocol. To avoid delays caused by misinterpretation or misunderstanding, we strongly recommend consultation with our staff on the following topics:

a.) Choice of models;
b.) Model input options;
c.) Terrain classification (flat or simple and complex);
d.) Receptor grids;
e.) Source inventory data;
f.) Minor source baseline dates for modeling increment consumption;
g.) Nearby Class I areas;
h.) Appropriate meteorological data;
i.) Background concentrations;
j.) Setback distance calculation if a proposed facility is a portable fugitive source;
k.) Any possible sources of disagreement;

Important: Modeling that substantially deviates from guidelines may be rejected if it is not accompanied by a written approved modeling protocol.

The input data to the models will be unique to the source. Data will usually consist of 1) emission rates and stack parameters for the proposed source at maximum load capacity and at reduced load capacity; 2) emission parameters of sources in the area; 3) model options; 4) suitable meteorological data; 5) definition of source operation which creates the greatest air quality impacts if other than maximum load conditions; and 6) terrain information, if applicable. Very important: **The emission parameters used in the modeling analysis of the proposed source are normally the same as those in the permit application. Any difference between the two should be clearly documented and explained.** Failure to adhere to this rule may result in an incomplete analysis.

6.2 Protocol ingredients

The shortest acceptable modeling protocol would be a statement that the modeling guidelines will be followed and a statement of what meteorological data will be used. Ask the modeling section or check the web page for the latest sample protocols.

6.3 How to submit the protocol

E-mail the modeling protocol to the modeling manager: Sufi.Mustafa@state.nm.us

7.0 DISPERSION MODELING PROCEDURE

Note: The basic steps for performing the modeling are presented in sequential format. Sometimes, it will make sense to perform some of the steps out of order. The sequential modeling steps are designed as an aid to modeling, not a mandatory requirement.

It is important to have an approved modeling protocol before proceeding. Modeling that substantially deviates from guidelines may be rejected if it is not accompanied by a written approved modeling protocol.

7.1 Step 1: Determining the Radius of Impact

A facility's significance area is defined as all locations outside of its fence line where the source produces concentrations that are above the significance levels listed in Table 6. The source is deemed culpable for concentrations that exceed air quality standards or PSD increments that occur at a receptor if the source's contribution is above the significance level at the same time that the exceedance of air quality standards or PSD increments occurs.

The Bureau uses the Radius of Impact (ROI) to make sure the entire significance area is analyzed. The ROI is defined as the greatest distance from the center of the facility to the most distant receptor where concentrations are greater than significance levels.

An illustration of determining an ROI from modeling output is shown in Figure 5, below. Note that the entire ROI is completely contained within the receptor grid, as required.

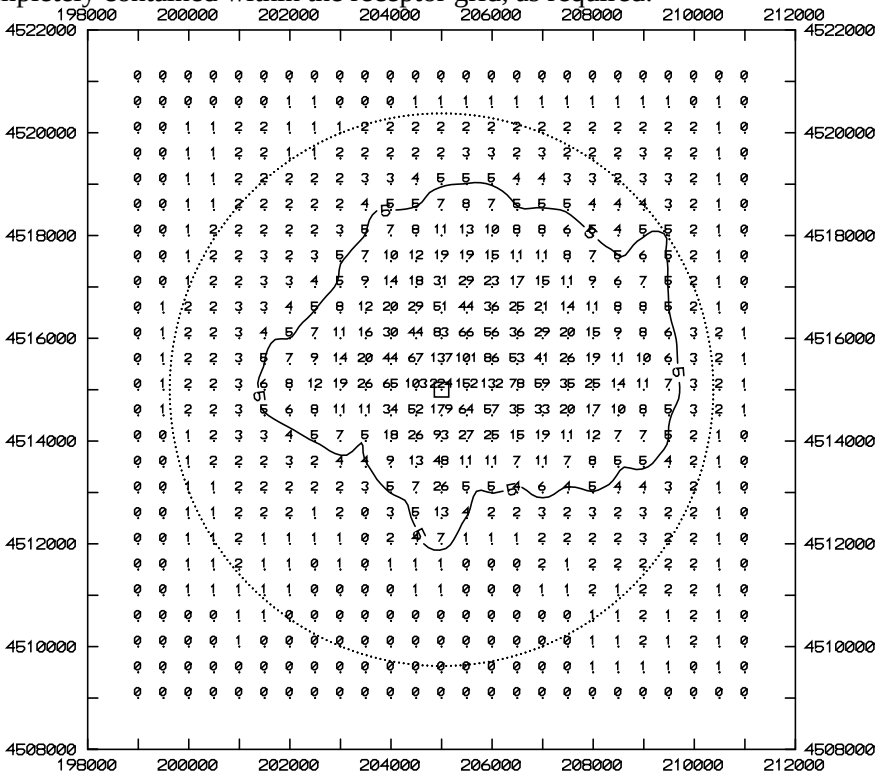


Figure 5. Plot of pollutant concentrations showing the 5 μg/m^3 significance level and the radius of impact (dashed line circle), determined from the greatest lineal extent of the significance level from the source.

7.1.1 Prepare the ROI analysis as follows:

I. Select the model that will be used for the analysis. It is usually quicker in the long run to use the same model for the radius of impact analysis as will be used for the refined analysis.
II. Model the entire source, as defined in section 2.4.1. Suggestion: Plot your sources to verify locations and identify typographical errors.
III. Set up the receptors as described above. Make sure the receptor grid extends far enough in every direction to capture the entire ROI, subject to the maximum radius of 50km.
IV. Optional step: Calculate the elevations of all sources, receptors, and buildings. This complex terrain analysis is optional for the ROI run, but it may save time to do it now.
V. Optional step: Add buildings and analyze them with BPIP or equivalent programs. This building downwash analysis is optional for the ROI run, but it may save time to do it now.
VI. Choose modeling options, as appropriate.
VII. Make sure that all sources and operating scenarios are modeled according to the guidelines in sections 4 and 5, above.
VIII. Run the model.

7.1.2 Analyze modeling results to determine ROI

I. Determine a radius of impact for each pollutant for each applicable averaging period. The largest ROI may be designated as the ROI for that pollutant, or each averaging period determined independently.
II. The ROI for NO_2 may be determined using Ambient Ratio Method 2 (ARM2).
III. Concentrations inside the facility's fence line can be ignored when determining the ROI.
IV. If no concentrations of a pollutant are above the significance levels for that pollutant, then the ROI for that pollutant is 0. Skip to Step 3 for that pollutant.
V. It is acceptable to scale impacts from one pollutant to determine impacts from another pollutant if several pollutants vent from the same stack and the ratios of emission rates and the averaging periods are the same.

Proceed to Step 2 for each pollutant with an ROI greater than zero.

7.2 Step 2: Refined Analysis

The entire area of significance must be included in the analyses for all averaging periods for each pollutant. If the ROI was determined using coarse grids, then add fine grid spacing to the potential areas of maximum concentration or concentrations above standards. If the ROI was determined using appropriate grid spacing, elevations, and building downwash (if applicable), then only the significant receptors need to be modeled for the refined analysis.

Once the ROI is determined for a specific source, neighboring sources need to be included and a cumulative impact analysis needs to be performed. As the ROI analysis is concerned with significance levels, the refined analysis is concerned with NAAQS, NMAAQS, and PSD Class I and Class II increments. The concentrations produced by the facility plus surrounding sources must be demonstrated to be below these levels in order to issue a permit under the regular permitting process.

7.2.1 Prepare the Refined Analysis as Follows:

I. If a screening model was used to determine ROI, the modeler may wish to use a refined model to reduce the area of significant impact. If so, return to *Step 1* and repeat the step with the new model.
II. Prepare a new modeling input file from the ROI file.

III. Fill the ROI with receptors with appropriate spacing (or discard receptors below significance levels if appropriate spacing was used for the ROI analysis).
IV. Add receptors near areas of high concentration if these areas are not contained within a fine grid. The modeling run must definitively demonstrate that the maximum impact has been identified. Concentrations should "fall off" from the center of the fine grid.
V. Add surrounding sources to the input file, if appropriate, as described in *Neighboring Sources/Emission Inventory Requirements*, above. Include $PM_{2.5}$ surrounding sources if particulate modeling is required. Suggestion: set up source groups so that impacts from the source alone, from the PSD increment consuming sources, and from all sources can be analyzed in a single run and compared with each other for determination of culpability.
VI. Building downwash analysis must be included in the refined analysis, if applicable.
VII. Terrain elevations must be included in the refined analysis, if applicable.

7.2.2 Analyze the Refined Modeling Results

I. Make sure the maximum impacts for each averaging period fall within a fine enough receptor grid to identify true maximums. Include fine grids near adjacent sources and in "hot spots".
II. Compare the highest short-term and annual impacts from all sources with NAAQS and NMAAQS.
III. Determine if there is an exceedance of PSD Class II increment within the area defined by the radius of impact by the group containing all PSD increment consuming sources.
IV. Determine if there is an exceedance of PSD Class I increment within any Class I area.
V. If the facility alone will violate any NAAQS, NMAAQS, or PSD increment, then the permit cannot be issued through the normal process. Please contact the Bureau for further information.
VI. If there are exceedances of the NMAAQS or NAAQS at any receptors within the ROI, the next step is to determine if the facility being modeled significantly contributes (see significance levels in Table 6) to the exceedance at those receptors during the same time period(s) that the exceedance occurs. If so, the permit cannot be issued through the normal process. See nonattainment area requirements, below.
VII. If no exceedances are found, or if the facility does not contribute amounts above significance levels to the exceedances, then the facility can be permitted per the modeling analysis.

7.2.3 NMAAQS and NAAQS

All sources are required to submit NMAAQS and NAAQS modeling. The total concentrations of all facilities and background sources are required to be below the NAAQS. The steps required for this analysis are outlined above.

7.2.4 PSD Class II increment

PSD Increment modeling applies to both minor and major sources. If the minor source baseline date has been established in the Air Quality Control Region (AQCR) in which the facility will be located, then PSD increment consumption modeling must be performed. If the minor source baseline date has not been established in that region, then only PSD major sources must perform this analysis.

Portable sources that are not located at a single location continuously for more than one year are not required to model PSD increment consumption.

The steps required for this analysis are outlined above.
The same significance levels that apply to NAAQS and NMAAQS standards are assumed to apply to PSD Class II increment as well.

7.2.5 PSD Class I increment

If a PSD Class II increment analysis is required and the proposed construction of a minor source is within 50 km of a Class I area (see Figure 1), then PSD increment consumption at the Class I area(s) must be determined and compared with the Class I PSD increment. If the proposed construction of a PSD major source is within 100 km of a Class I area, then PSD increment consumption at the Class I area(s) must be determined and compared with the Class I PSD increment. The PSD permit process requires a more thorough Class I analysis, which is described in *Step 6*.

See *Receptor Placement*, above, for receptor instructions.

Proceed with the Class I area analysis similarly to the other analyses described above. Class I significance levels apply for determining whether or not a facility contributes significantly to an exceedance in a PSD Class I area and for determining the Class I ROI.

7.3 Step 3: Portable Source Fence Line Distance Requirements for Initial Location and Relocation

Skip this step if the facility is not a portable source.

Portable sources should model fence line distance requirements for relocation purposes and for setback distances within the initial property. If the facility wants to be able to move equipment around within the property, or move to a new location, permit conditions will be required to ensure the facility continues to demonstrate compliance with air quality standards as it moves. For this modeling, use meteorological data that the Bureau has approved for relocation modeling, which may be different from that used for the rest of the modeling for the facility. Model the facility with a haul road length at least as long as the setback distance and a number of truck trips equal in number to the count at the original location. Surrounding sources may be ignored, but include co-located facilities if the desire is to be able to co-locate with other facilities at the new locations. To determine setback distance, draw a line connecting the concentrations where they drop off to the point that are just under the ambient air standard or PSD increment. Make sure to add background concentration before determining the isopleths for ambient air standards. From each point on the isopleth line, determine the distance to the nearest source (excluding haul road sources). The setback distance is the largest of these distances. Setback distance is typically rounded up to the nearest meter that is above the calculated value. An example setback distance determination is pictured in Figure 6, below.

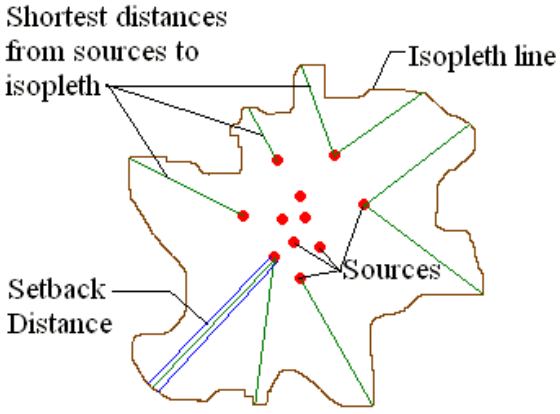


Figure 6: Setback Distance Calculation

Fine spacing is suggested within the property boundary for relocation requirement modeling.

If the applicant does not perform fence line distance modeling, relocation distance will be assumed to be the distance from the edge of a facility operations to the most distant point on the initial fence line. An irregular or elongated fence line shape can result in relocation requirements that require very large properties to be fenced off in order to relocate there without submitting modeling for each new location of the facility.

7.4 Step 4: Nonattainment Area Requirements

Skip this step if all modeled concentrations are below NAAQS, NMAAQS, and PSD Increments.

If the modeling analysis of a source predicts that the impact from any regulated air contaminant will exceed the significance level concentrations at any receptor which does not meet the NMAAQS or NAAQS, the source will be required to demonstrate a net air quality benefit and meet the requirements of 20.2.72.216 NMAC or 20.2.79 NMAC. The net air quality benefit is a reduction of at least 20% of the maximum modeled concentration from the facility or the emission sources being modified. The 20 percent reduction shall be calculated as the projected impact subtracted from the existing impact divided by the existing impact. The existing impact for the net air quality benefit must be based on the lowest enforceable emission rate, or the actual emission rate if a unit has no enforceable emission rate. The offsets used to meet the net air quality benefit must be quantifiable, enforceable, and permanent. For more information regarding nonattainment permit requirements, see **20.2.72.216 NMAC** and **20.2.79 NMAC** – Nonattainment Areas.

7.5 Step 5: Modeling for Toxic Air Pollutants

Skip this step if there are no toxics to model at this facility. See section 2, "New Mexico State Air Toxics Modeling", to determine if modeling of toxics is required and for other details about toxics regulatory requirements.

I. Model the toxic air pollutants similar to the way the other pollutants were modeled, as described above in steps 1 and 2. Use an 8-hour averaging period, complex terrain, and building downwash.
II. No surrounding source inventory exists for the toxics, so model only your source.
III. Make sure a fine grid is used in the area of maximum concentration.
IV. If more than one toxic pollutant is being modeled and they use the same stacks at the same ratio of emission rates, it is allowable to scale the results of the first pollutants by the emission rate ratio to determine the concentration of the other toxics.

If modeling shows that the maximum eight-hour average concentration of all toxics is less than one percent of the Occupational Exposure Level (OEL) for that toxic, then the analysis of that toxic pollutant is finished. Report details about the maximum concentrations in the modeling report. Otherwise, perform BACT analysis or health assessments, as required. Contact the Bureau on how to proceed if the $1/100^{th}$ of the OEL is exceeded.

7.6 Step 6: PSD Permit Application Modeling

Skip this step if the facility is not a PSD major source.

PSD sources and requirements are defined in NMAC 20.2.74.303 to 305. New PSD major sources and major modifications to PSD major sources must submit the following modeling requirements in addition to the NSR minor source modeling requirements. Minor modifications to PSD major sources

are only subject to NSR minor source modeling requirements listed above, as required under NMAC 20.2.72.

Due to a court ruling, the use of the $PM_{2.5}$ significant monitoring concentration for PSD major modifications or new PSD major sources is not allowed. This significant ambient concentration level may still be used for minor source and nonattainment permitting.

Sources subject to PSD requirements should consult with the Bureau to determine how to proceed in the application process. For PSD applications, a modeling protocol is required for review. Please refer to EPA's *New Source Review Workshop Manual.* The following items are required for PSD permit applications and supersede other modeling requirements in this document.

7.6.1 Meteorological Data

Applicants may need to collect one year of on-site meteorological and ambient data to satisfy PSD requirements. In some cases, it may be advantageous to begin collecting on-site meteorological and ambient data to ensure that it is available at a site that may become PSD in the future. A company considering a monitoring program is advised to consult with the Bureau as early as possible so that an acceptable data collection process, including instrument parameters, can be started. Generally, the following meteorological parameters will be measured: wind direction, wind speed, ambient air temperature, solar insolation, ΔT, and σ_θ. For further information on meteorological monitoring Refer to EPA's *Guideline on Air Quality Models* and *On-Site Meteorological Program Guidance for Regulatory Modeling Applications*. Refer to *Ambient Monitoring Guidelines for Prevention of Significant Deterioration (PSD)* for ambient monitoring guidance. In addition, a monitoring protocol and QA plan **must** be submitted and approved prior to beginning collection of data for a PSD application if these data are to be used for the analysis.

In the absence of actual on-site data, the Bureau may approve the use of off-site data that the Bureau believes mimics on-site data for that location or the Bureau may approve the use of data produced by the model MM5.

7.6.2 Ambient Air Quality Analysis

The ambient air quality analysis is the same as described above, with the exception of the following points.

- The PSD project is defined as the future potential emission rate minus the past actual emission rate.
- If the maximum ambient impact is less than EPA's significant concentration levels (see Table 6), then a full analysis is not required.
- Nearby sources must be considered. Discarding sources is discussed in the section on "neighboring sources data".
- A total air quality analysis must also be performed for each appropriate Class I area if the facility produces concentrations greater than the Class I significance levels in Table 6. All sources near the Class I area must be considered. The inventories for the analysis near the facility and the inventory for the analysis near Class I areas may be quite different because they are centered on different locations.
- If subject to 20.2.74.403 NMAC (Sources impacting Federal Class I Areas), an analysis of Air Quality Related Values must be included in the PSD application. If the facility will have no impact on the AQRV, then that must be stated in the application (NSR Workshop Manual, Chapter D).
- There may be additional analyses required by the Federal Land Managers (FLM) for Air Quality Related Values (AQRVs). See **F**ederal **L**and **M**anagers' **A**ir Quality Related Values Work

Group (FLAG) for more information at:
http://www2.nature.nps.gov/air/Permits/flag/index.cfm

7.6.3 Additional Impact Analysis (NMAC 20.2.74.304)

The owner or operator of the proposed major stationary source or major modification shall provide an analysis of the impact that would occur as a result of the source or modification and general commercial, residential, industrial, and other growth associated with the source or modification. This analysis is in addition to the Class I analysis, but may use some of the same techniques that were used in the Class I analysis. The analysis required for a National Environmental Policy Act (NEPA) review may work to satisfy some requirements of this section.

- Visibility Analysis: A Class II Visibility Analysis is required to determine impact the facility will have upon Class II areas. Analyze the change in visibility of a nearby peak or mountain for this analysis. In the absence of nearby mountains, analyze the visibility of clear sky from nearby state or local parks.
- Soils analysis: What changes will occur to soil pH, toxicity, susceptibility to erosion, or other soil characteristics as a result of the project and indirect growth related to the project?
- Vegetation analysis: What changes will occur to type, abundance, vulnerability to parasites, or other vegetation characteristics as a result of the project and indirect growth related to the project? The owner or operator need not provide an analysis of the impact on vegetation having no significant commercial or recreational value.
- Growth analysis: The owner or operator shall also provide an analysis of the air quality impact projected for the area as a result of general commercial, residential, industrial, and other growth associated with the source or modification.

7.6.4 Increment Analysis

- If the facility produces ambient concentrations greater than the significance levels in Table 6, then the Class II PSD increment analysis for the facility must use the inventory of all increment consuming sources near the facility. Sources in other states should be obtained from the agency in the surrounding state.
- If there is a Class I area within 100 km of the facility (or any distance, if requested by the FLM), then receptors must be located at the Class I area.
- If the facility produces ambient concentrations greater than the Class I significance levels in Table 6 in a Class I area, then the increment analysis for the Class I areas should use the inventory of all increment consuming sources near the Class I area, including those sources in other states. Sources in other states should be obtained from the agency in the surrounding state.

7.6.5 Emission Inventories

- The most current inventory of sources must be used. It should contain all sources currently under review by the Bureau that would be located within the appropriate inventory area. The applicant should check with the modeling staff to ensure that the inventory is up to date.

7.6.6 BACT analysis

- The analysis must follow current EPA procedures and guidelines.

7.7 Step 7: Write Modeling Report

A narrative report describing the modeling performed for the facility is required to be submitted with the permit application using Universal Application form 4 (UA4). This report should be written to provide the

public and the Bureau with sufficient information to determine that the proposed construction does not cause or contribute to exceedances of air quality standards. The report needs to contain enough information to allow a reviewer to determine that modeling was done in a manner consistent and defensible with respect to available modeling guidance. Do not include raw modeling output in the report, only summaries and descriptions of the output or input.

This outline may be used as a checklist to determine if the analysis is complete.

I. Applicant and consultant information
   a. Name of facility and company.
   b. Permit numbers currently registered for the facility.
   c. Contact name, phone number, and e-mail address for the Bureau to call in case of modeling questions.

II. Facility and operations description
   a. A narrative summary of the purpose of the proposed construction, modification, or revision.
   b. Brief physical description of the location.
   c. Duration of time that the facility will be located at this location.
   d. A map showing UTM coordinates and the location of the proposed facility, on-site buildings, emission points, and property boundaries. Include UTM zone and datum.

III. Modeling requirements description
   a. List of pollutants at this facility requiring NAAQS and/or NMAAQS modeling.
   b. AQCR facility is located in and resulting list of pollutants requiring PSD increment (Class I and II) modeling. Include distances to Class I areas in discussion.
   c. List of State Air Toxic pollutants requiring modeling.
   d. PSD, NSPS, and NESHAP applicability and any additional modeling requirements that result if those regulations are applicable to the facility.
   e. State whether or not the facility is in a federal Nonattainment area, and any special modeling requirements or exemptions due to this status.
   f. Any special modeling requirements, such as streamline permit requirements.

IV. Modeling inputs
   a. General modeling approach
      i. The models used and the justification for using each model.
      ii. Model options used and why they were considered appropriate to the application.
      iii. Ozone limiting model options discussion, if used for NO_2 impacts.
      iv. Background concentrations.
   b. Meteorological data
      i. A discussion of the meteorological data, including identification of the source of the data.
      ii. Discussion of how missing data were handled, how stability class was determined, and how the data were processed, if the Bureau did not provide the data.
   c. Receptor and terrain discussion
      i. Description of the spacing of the receptor grids.
      ii. List fence line coordinates and describe receptor spacing along fence.
      iii. PSD Class I area receptor description.
      iv. Flat and complex terrain discussion, including source of elevation data.
   d. Emission sources
      i. Description of sources at the facility, including:

1. A cross-reference from the model input source numbers/names to the sources listed in the permit application for the proposed facility.
2. Determination of sigma-Y and sigma-Z for fugitive sources.
3. Description and list of PSD increment consuming sources, baseline sources, and retired baseline sources.
4. Describe treatment of operating hours
5. Particle size characteristics, if plume depletion is used.
6. If the modeled stack parameters are different from the stack parameters in the application, an explanation must be provided as to what special cases are being analyzed and why.
7. Partial operating loads analysis description.
8. Flare calculations used to determine effective stack parameters.
9. In-stack NO_2/NO_X ratio determination, if using OLM or PVMRM.

ii. Surrounding sources:

1. The date of the surrounding source retrieval.
2. Details of any changes or corrections that were made to the surrounding sources.
3. Description of adjacent sources eliminated from the inventory.

e. Building downwash

i. Dimensions of buildings

V. Modeling files description

a. A list of all the file names in the accompanying CD and description of these files.
b. Description of the scenarios represented by each file.

VI. Modeling results

a. A discussion of the radius of impact determination.
b. A summary of the modeling results including the maximum concentrations, location where the maximum concentration occurs, and comparison to the ambient standards.
c. Source, cumulative, and increment impacts.
d. Class I increment impact.
e. A table showing concentrations and standards corrected for elevation.
f. If ambient standards are exceeded because of surrounding sources, please include a culpability analysis for the source and show that the contribution from your source is less than the significance levels for the specific pollutant.
g. Toxics modeling results, if needed.

VII. Summary/conclusions

a. A statement that modeling requirements have been satisfied and that the permit can be issued.

Ask the modeling section or check the web page for a sample modeling reports. The modeling report documents details the standard format for the modeling report.

7.8 Step 8: Submit Modeling Analysis

Submit the following materials to the Bureau:

A CD containing the following:

I. An electronic copy (in MS Word format) of the modeling report.
II. Input and output files for all model runs. Include BEEST, ISC-View, or BREEZE files, if available.
III. Building downwash input and output files.

IV. Fence line coordinates.
V. Meteorological data, if not Bureau-supplied.
VI. A list of the surrounding sources at the time the facility was modeled.
VII. An electronic copy of the approved modeling protocol.

Do not include paper copies of modeling input and output files.

8.0 List of Abbreviations

Table 30: List of Abbreviations

ACRONYM	DESCRIPTION
AQB	Air Quality Bureau
AQCR	Air Quality Control Region
AQCR	Air Quality Control Regulation (CURRENTLY NOT USED)
AQRV	Air Quality Related Values
ARM2	Ambient Ratio Method 2
BACT	Best Available Control Technology
CO	Carbon monoxide
DEM	Digitized Elevation Model
EPA	Environmental Protection Agency
FLAG	**F**ederal **L**and **M**anagers' **A**ir Quality Related Values Work **G**roup
FEM	Federal Equivalent Method
FRM	Federal Reference Method
GEP	Good Engineering Practice
H_2S	Hydrogen sulfide
ISCST3	Industrial Source Complex Short Term Model version 3
NAAQS	National Ambient Air Quality Standards
NED	National Elevation Dataset
NO_2	Nitrogen dioxide
NO_X	Nitrogen oxides
NMAAQS	New Mexico Ambient Air Quality Standards
NMAC	New Mexico Administrative Code
O_3	Ozone
OEL	Occupational Exposure Level
OLM	Ozone limiting method
Pb	Lead
PDF	Probability density function
$PM_{2.5}$	Particulate matter equal to or under 2.5 μm in aerodynamic diameter
PM_{10}	Particulate matter equal to or under 10 μm in aerodynamic diameter
PPM	Parts per million (volume ratio)
PSD	Prevention of Significant Deterioration
PVMRM	Plume Volume Molar Ratio Method
ROI	Radius of Impact
SO_2	Sulfur dioxide
TSP	Total suspended particulates
UTM	Universal Trans Mercator
VOC	Volatile organic compounds

9.0 References

Ensor, D.S. and M.J., Pilat (1971). Calculation of smoke plume opacity from particulate air pollutant properties. J.Air Poll.Cont.Assoc. 21(8): 496-501.

EPA (1995). User's Guide for the Industrial Source Complex (ISC3) Dispersion Model, Volume I - User Instructions. EPA-454/B-95-003a. September 1995.

Joseph A. Tikvart (1993). "MEMORANDUM: Proposal for Calculating Plume Rise for Stacks with Horizontal Releases or Rain Caps for Cookson Pigment, Newark, New Jersey", Joseph A. Tikvart (Model Clearinghouse), July 9, 1993.

SCREEN3 Model User's Guide (1995). SCREEN3 Model User's Guide, EPA-454/B-95-004, September, 1995. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Emissions, Monitoring, and Analysis Division, Research Triangle Park, NC.

NSR Workshop Manual, Chapter D – Air Quality Related Values

Federal Land Manager (FLM) Resources for Permit Applicants: https://www.nps.gov/subjects/air/permitresources.htm

New Mexico Administrative Code (NMAC) Air Quality Regulations: http://www.srca.nm.gov/chapter-2-air-quality-statewide/

EPA, 1995d*: User's Guide for the Industrial Source Complex (ISC3) Dispersion Models*, EPA-454/B-95-003a, September, 1995. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Emissions, Monitoring, and Analysis Division, Research Triangle Park, NC.

Texas 1999: ***Air Quality Modeling Guidelines***, TNRCC-New Source Review Permits Division, RG-25 (Revised), February 1999

"The Plume Volume Molar Ratio Method [(PVMRM)] for Determining NO_2/NOx Ratios in Modeling", by Pat Hanrahan of the Oregon DEQ. The paper appeared in the November 1999 issue of the AWMA journal.

Links:

Environmental Protection Agency, 40 CFR Part 51, Revision to the Guideline on Air Quality Models Appendix W: https://www.epa.gov/sites/production/files/2020-09/documents/appw_17.pdf

Support Center for Regulatory Atmospheric Modeling (SCRAM): https://www.epa.gov/scram

10.0 INDEX

Appendix A: Recent changes to the NM Modeling Guidelines

Note of changes made in 2020:

October 26, 2020:
Reference to old EPA Modeling Guideline was updated to 2017 version.
Clarification that PSD increment modeling is not normally an applicable requirement for Title V.
Sources within 20 km from the center of Albuquerque or El Paso should include both modeled sources and monitored concentrations (changed from 10 km because the cities are larger than 10 km in radius).
Option to use monitored background in lieu of surrounding sources for PSD increment presented.
Language was changed to reflect that capped and horizontal point sources are no longer beta options and do not need stack-tip downwash turned off.
Cool stack section added to explain the modeling of sources at ambient temperature.
Obsolete references and links were updated.

Note of changes made in 2019:

February 7, 2019: An error in summary Table 6C was corrected to make it match the full text in section 2.6.4.4.

Note of changes since 2016 version:

Source definition was changed to better match EPA definitions.
Original:

> Modeling significance levels are thresholds below which the source is not considered to contribute to any predicted exceedance of air quality standards or PSD increments. The definition of 'source' can apply to the whole facility or to the modifications at the facility. In cases where a particular averaging period has not been modeled for a pollutant, or was modeled, but predicted concentrations were above 95% of air quality standards or PSD increments, then NMED considers the entire facility to be the 'source' for those pollutants and periods. For other cases, 'source' includes only the modification described in the current application plus all contemporaneous emissions increases in the past 5 years since the entire facility was last modeled.

New:

> Modeling significance levels are thresholds below which the source is not considered to contribute to any predicted exceedance of air quality standards or PSD increments. The definition of 'source' can apply to the whole facility or to the modifications at the facility. For a new facility or an unpermitted facility, NMED considers the entire facility to be the 'source'. For other cases, 'source' includes only the new equipment or new emissions increases described in the current application. Equipment that replaces other equipment is part of the new equipment.

Meteorological data recommendations have changed to reflect recent data. AQB has processed new meteorological data and has retired some old data that may be out of date. The processed data is available on the meteorological data webpage (https://www.env.nm.gov/air-quality/meteorological-data/). At the time of this writing, Substation has replaced Bloomfield data for permitting sources to be located in unknown locations (portable source relocation modeling). This change was based on a comparison of modeling results for existing sets of meteorological data.

NO_2 conversion using Ambient Ratio Method (ARM) has been replaced with Ambient Ratio Method 2 (ARM2). EPA no longer mentions the use of ARM in Appendix W. Instead, that appendix described

details about what ratios can be used for the ARM2 method, which is now built into AERMOD as a default option.

Title V sources that have not demonstrated compliance with NAAQS or PSD increments are required to model for these standards and increments or produce a compliance plan to come into compliance.

SO_2 background concentrations were added for the annual averaging period.

PM2.5 Class I significance levels were updated.

TSP standards were repealed November 30, 2018.

Background concentrations were updated to 2015-2017.

Areas Where Streamlined Permits Are Restricted were updated.

Secondary formation of ozone and PM2.5 were updated to reflect current Appendix W and MERP guidance.

Note of changes that were made in 2016:

1-hour NO_2 and SO_2 modeling is now required for all sizes of facilities with NO_2 or SO_2 emissions.

ARM2 method of NO_2 modeling has been added to the approved options.

AERMOD output is considered to be expressed at Standard Temperature and Pressure (STP), eliminating most of the need for concentration conversion.

Emission rates for the very small emission rate modeling waivers have changed.

The modeling report form, Universal Application 4 (UA4), is available.

Background concentrations have been updated to 2013-2015 monitoring results.

(Hobbs PM2.5 background concentration was corrected from the July 8, 2016 version).
(September 1, 2016: PM2.5 annual standard was corrected in Table 5F)

Errors in summary Tables 6A and 6C that did not match the instructions in the pollutant-specific standards sections were corrected.

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CAREER QUALIFICATIONS

Experience: federal and NM air quality regulations; Clean Air Act; conducting hiring interviews; technical training; supervising staff; peer review; administrative and technical analysis; complex calculations using science, math and chemistry; developing guidance documents and policies; writing federally and practically enforceable permits; cross-training and coordinating with other sections at AQB; collaborating with legal staff; attending public meetings; testifying as an expert witness in public hearings; internal and external customer service; outlining objectives and developing plans to streamline procedures; data entry; and computer software including daily use of Microsoft Office

Skills: organization, communicating with clarity and accuracy, problem solving, attention to detail, technical writing, reviewing and editing documents, maintaining quality notes for reference, time management, and professional demeanor

PROFESSIONAL DEVELOPMENT AND TRAINING COURSES

APTI 454 Effective Permit Writing; APTI 452 Air Pollution Control; APTI 400 Introduction to Hazardous Air Pollutants; APTI 427 Combustion Evaluation; WESTAR Intermediate NSR/PSD Training; NACT Courses on Engines, NOx Control Technology, CAM, Turbines/Power Plants, Asphalt Facilities, Coatings, and Baghouses; ProMax Training BRE 101, 102, 121; H_2S Safety Training; Bleiker Training on Citizen Participation for Public Officials and Other Professionals Serving the Public; NMED Civil Rights Training; and site visits to a range of industrial sources of air pollution

EMPLOYMENT HISTORY

Environmental Scientist & Specialist – Supervisor NM Environment Department Air Quality Bureau (4/21 - present)

- Managing staff in all aspects of the NSR construction permit program
- Regularly meeting with staff to provide guidance and explore various means of complex problem solving
- Reviewing work products of permitting staff to ensure quality and consistency
- Managing assigned staff in the Minor Source Program in operational activities including planning and direction of the Program and coordinating with other sections in the Bureau
- Managing assigned staff in the Minor Source Program in regulatory and technical activities including providing consultation to other program managers and staff, the Bureau chief, legal staff, consultants, industry, citizens, and the EPA regarding questions pertaining to Minor Source Permitting procedures, permitting actions, regulations, applicability determinations, and technical analyses
- Tracking regulatory deadlines and ensuring staff meet regulatory deadlines
- Creating and improving guidance documents and Department forms

- Providing technical training to staff and managing staff trainings
- Preparing staff for public hearings based on my recent experience
- Establishing policy and procedures
- Determination and implementation of Minor Source program requirements
- Cooperation with PSD and Title V operating permit program managers and Technical Services manager
- Coordinating with various stakeholders including the public, industry, consultants, Bureau staff, and other regulatory agencies
- Assigning, tracking, and reviewing special projects and deliverables to achieve organizational goals
- Reviewing lists of candidates for hiring
- Approving time reporting and completing staff evaluations
- Attending management trainings, including Strategies for Positive Management and Managing Employee Performance
- Maintaining familiarity with federal and New Mexico air quality regulations, including Clean Air Act
- Interface with EPA and upper management

<u>Environmental Scientist & Specialist – Advanced, NM Environment Department Air Quality Bureau (1/18 - 4/21)</u>

- Perform technical and regulatory review of multiple complex Minor Source Air Quality Bureau permit applications within regulatory deadlines by checking completeness; verifying the accuracy of calculations of pollutants using science, math and chemistry; writing applicability determinations for federal regulations and state regulations; and drafting legally enforceable air permits and technical support documents with standardized Air Quality Bureau templates and protocols
- Develop solutions and strategies to complex Minor Source problems through analysis and evaluation of the facts, distinguishing issues and circumstances that make each case distinct, formulating alternative solutions, and balancing the relative benefits and consequences of possible courses of action
- Serve as Acting Minor Source manager to supervise staff and serve as the point of contact for daily operations when the manager is unavailable
- Provide technical training and mentoring for internal staff and develop guidance documents to assist new team members with the details of various permitting action types, regulations, and Air Quality Bureau policies
- Provide peer review for new or inexperienced staff to support their learning and ensure they have the necessary resources to deliver a quality product
- Coordinate with various stakeholders including public citizens, industry, consultants, applicants, Air Quality Bureau staff, EPA, and other regulatory agencies to provide quality customer service and aid in the permitting process
- Attend public meetings, open houses, and public hearings to represent the Department

- Promptly enter data and attach documents into the Air Quality Bureau database in accordance with standard operating procedures, guidelines, and policies to compile a quality administrative record using multiple computer applications
- Perform special assignments to achieve organizational goals for the Air Quality Bureau
- Attend trainings and tour industrial sites to gain knowledge in specific topics including regulations, equipment, and how to make permits federally and practically enforceable
- Respond to IPRA requests

Environmental Scientist & Specialist – Operational, NM Environment Department Air Quality Bureau (5/12 – 1/18)

- Performed technical and regulatory review of multiple complex Air Quality Bureau permit applications within regulatory deadlines by checking completeness; verifying the accuracy of calculations of pollutants using science, math and chemistry; determining applicable federal regulations and state regulations; and drafting legally enforceable air permits and technical support documents with standardized Air Quality Bureau templates and protocols
- Assisted in developing the GCP-6, a new general construction permit to provide industry with additional timely and cost-effective options for obtaining federally enforceable emissions limits while increasing the Air Quality Bureau's efficiency
- Coordinated with various stakeholders including the public, industry, consultants, Air Quality Bureau staff, and other regulatory agencies to provide quality customer service and aid in the permitting process
- Performed special assignments to achieve organizational goals for the Air Quality Bureau
- Promptly entered data and attach documents into the Air Quality Bureau database in accordance with SOP's, guidelines, policies, and standards to compile a quality administrative record
- Attended trainings and site tours to gain knowledge in specific topics including regulations, equipment, and how to make permits federally and practically enforceable
- Trained new or inexperienced staff on the details of various permitting action types, regulations, and Air Quality Bureau policies

Environmental Scientist & Specialist – Basic, NM Environment Department Air Quality Bureau (6/08 – 5/12)

- Performed technical and regulatory review of multiple complex Air Quality Bureau permit applications within regulatory deadlines. This review included checking completeness, verifying the accuracy of emissions calculations, determining applicable federal regulations and state regulations, and drafting legally enforceable air permits and technical support documents with standardized Air Quality Bureau templates and protocols
- Coordinated with various stakeholders including the public, industry, consultants, Air Quality Bureau staff, and other regulatory agencies to provide quality customer service and aid in the permitting process
- Performed special assignments to achieve organizational goals for the Air Quality Bureau, as assigned

- Promptly entered data and attach documents into the Air Quality Bureau database in accordance with SOP's, guidelines, policies, and standards to compile a quality administrative record
- Attended trainings to gain knowledge in specific topics including regulations, equipment, and how to make permits federally and practically enforceable
- Assessed annual fees for the Title V Permitting Program
- Wrote meeting minutes for weekly Minor Source staff meetings and distributed them to staff, for their records

Manager of Seed Department, Plants of the Southwest, Santa Fe, NM (2/03 – 6/08)

- Managed seed department for multi-location retail and mail-order nursery including stocking, ordering, organizing, packaging and shipping of seeds
- Evaluated projects ranging from backyard gardens to wildlife management and protecting water resources
- Hired seasonal employees and trained them in standard operating procedures
- Followed requirements to obtain permits and performed tests to assure USDA compliance and certification
- Developed annual seed department budget and processed department's financial documents, including operating budgets and fiscal reports
- Provided customer service in identifying appropriate native species and seeding rates
- Coordinated with various entities including the public, industry, staff, and seed companies to customize seed orders based on location, cost, area, and seeding rate calculations
- Monitored asset inventory and coordinated procurement, stocking, shipping, and off-site collection of seeds
- Revised and updated annual seed catalog and employee guidelines

Assistant (part-time), Hydra Aquatic, Tijeras, NM (2/03 – 5/04)

- Sole employee of a busy, family-owned plant propagation and installation company
- Installed wetland and riparian plants for reclamation projects, treating water resources, and wildlife management in NM, CO, and CA
- Maintained nursery stock, facilities, grounds, and equipment
- Packaged and shipped mail orders based on contractual agreements

Maintenance Crew Member, WaterWise Landscapes, Inc., Albuquerque, NM (7/01 – 2/03)

- Installed, inspected, and maintained residential landscapes based on contractual agreements

Manager of Greenhouse, Rocky Mountain Native Plants Co., Rifle, CO (1/99 – 6/01)

- Supervised 5-10 employees
- Trained employees in standard operating procedures and team communication
- Treated and sowed native seed for reclamation jobs based on germination protocols and production schedules
- Organized orders for customers based on contractual agreements and monitored inventory
- Led elementary school tours and developed accompanying educational curricula

Nursery Assistant, Siskiyou Rare Plant Nursery, Medford, OR (7/98 – 12/98)

- Propagated plants by division, cuttings, and seed; and applied biocontrol techniques to minimize pests

Crop Technician, Colorado Greenhouse – Estancia Division, Estancia, NM (1/98 – 6/98)

- Monitored water quality, viruses, diseases, and insect populations in hydroponic tomato plants
- Implemented biocontrol program to minimize pests

Lab Assistant, NMSU Plant Physiology Lab, Las Cruces, NM (1/96 – 12/97)

- Technical analysis of chile samples for vitamin A research and tocopherol research
- Technical analysis of onion samples for onion pungency research
- Coordinated ordering lab supplies from distributors for graduate student research

EDUCATION

New Mexico State University, Las Cruces, NM
Bachelor of Science in Agriculture, December 1997
MAJOR: Horticulture, MINOR: Biology
Dean's Award of Excellence (April 1997), Crimson Scholar (1993 – 1997), Dean's List (1993 – 1997), Regents Scholarship (1993 – 1997)

COMMUNITY INVOLVEMENT

President of Carlos Gilbert Elementary School's PTK (Parents, Teachers, Kids) Board (May 2020-present)
Volunteer for Carlos Gilbert PTK (2014-May 2020)
Secretary position on Board of Directors – Garcia Street Club (2013-2016)
Volunteer – Many Mothers (2007-2008)

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATIONS OF XTO ENERGY, INC. – BULLDOG COMPRESSOR STATION, LONGHORN COMPRESSOR STATION, SPARTAN COMPRESSOR STATION, TIGER COMPRESSOR STATION JAYHAWK COMPRESSOR STATION, MAVERICK COMPRESSOR STATION, AND COWBOY CENTRAL DELIVERY POINT

AND OF CRESTWOOD NEW MEXICO PIPELINE, LLC – WILLOW LAKE GAS PROCESSING PLANT
FOR AIR QUALITY PERMITS **AQB 21-31 to 21-41**

TECHNICAL TESTIMONY OF JAMES NELLESSEN

I. INTRODUCTION

My name is James Nellessen. I am the Supervisor of the Prevention of Significant Deterioration Unit ("PSD Unit") within the Major Source Permitting Section of the Air Quality Bureau ("AQB" or "Bureau") of the New Mexico Environment Department ("NMED" or "Department"). I present this written testimony on behalf of the Department for the public hearing on the permit applications submitted by XTO Energy Inc. ("XTO") for their Bulldog Compressor Station ("Bulldog CS"), Longhorn Compressor Station ("Longhorn CS"), Spartan Compressor Station ("Spartan CS"), Tiger Compressor Station ("Tiger CS"), Jayhawk Compressor Station ("Jayhawk CS"), Maverick Compressor Station ("Maverick CS"), and Cowboy Central Delivery Point ("Cowboy CDP"); and for the application submitted by Crestwood New Mexico Pipeline, LLC ("Crestwood") for their Willow Lake Gas Processing Plant ("Willow Lake"). WildEarth Guardians ("WEG") challenges the Department's issuance of these Air Quality Permits.

My testimony will address the following topics: my qualifications, and two (2) categories of comments submitted by WEG: 1) SSM and HAPs, and 2) Title V Operating Permits.

II. QUALIFICATIONS

I have worked for the AQB for a total of 14 years. My current term of employment in Permitting began in 2012 as a major source Permit Specialist in the PSD Unit. As a Permit Specialist, I perform technical and regulatory reviews of the most complex AQB permit applications within regulatory deadlines. I verify emissions calculations; determine applicable federal and state regulations; coordinate with various stakeholders including the public, industry, consultants, and AQB staff; write legally enforceable air permits and technical support documents for the administrative record and entered data into the AQB database. The AQB uses standardized template language and monitoring protocols, which are consistent within similar types of facilities. Unique permitting conditions are often required for site specific operations and equipment, and the results of air dispersion modeling. I have completed numerous special projects to achieve AQB goals, including improvements to AQB templates such as the Statement of Basis and Database Summary and studying and implementing monitoring protocols for US EPA's recent New Source Performance Standards (NSPS) OOOO and OOOOa. I have worked on the most complex PSD permitting applications, including conducting complete Best Available Control Technology (BACT) analyses for gas processing plants.

For approximately 1.5 years (2015-2016) I worked in the AQB Enforcement Section where I was responsible for determining whether "areas of concern" (AOI), written up by field inspectors or compliance reports inspectors, warranted further investigation into writing up Notices of Violation (NOV), which I did on numerous occasions. NOVs result in Notices of Corrective Actions as well as penalties and fee assessments and may involve settlement agreements.

From 1994 to 1999 I worked in the AQB Control Strategies Section (under Planning). During these five years I worked extensively on New Mexico's State Implementation Plan (SIP)

with the US EPA. This work involved bringing numerous rule revisions and new rules before the New Mexico Environmental Improvement Board (EIB) to meet SIP requirements. I was lead staff person in conducting the emissions inventory for the then existing marginal ozone nonattainment area in Sunland Park, NM. I wrote and assembled the SIP package for submission to US EPA.

In May of 2021 I began my current position as Supervisor of the PSD Unit. My full background and qualifications are set forth in my resume. **[NMED Exhibit 18]**.

III. RESPONSES TO SELECT COMMENTS RECEIVED ON APPLICATIONS

The Air Quality Bureau received public comments from WEG on these applications (specific dates of receipt of comments can be found in testimonies of individual permit writers). The following section presents the Bureau's responses to two (2) categories of comments submitted in either set of WEG comments on these applications in the format of the comment followed by the response from AQB. The two comment categories are as follows:

- SSM and HAPs;
- Title V operating permit applications.

SSM and HAPs Permit Comments:

Comments - Bulldog CS, Longhorn CS, Jayhawk CS, Wildcat CS, Cowboy CDP, and Willow Lake (as quoted within each WEG letter for each facility, except for substituting the name of the facility): "We are finally concerned that the proposed SSM and malfunction limits do not address emissions of hazardous air pollutants (HAPs). All the proposed SSM and malfunction limits include VOC emissions, which indicates hazardous air pollutants, such as benzene, toluene,

ethylbenzene, xylene, and hexane, will also be released during SSM and malfunction events. The permit, however, imposes no SSM or malfunction limits for HAPs. Although this suggests there should be 0 pounds or tons of HAPs emissions, this is simply not possible given nature of VOC emissions. This raises concerns that the total potential emission rate for HAPs is underestimated and that the (*name of facility:* Bulldog Compressor Station, Longhorn Compressor Station, Jayhawk Compressor Station, Wildcat Compressor Station, Cowboy CDP, and Willow Lake Gas Processing Plant) may actually be a major source of HAPs. Indeed, with no limit on the frequency or duration of SSM and malfunction events, HAP emissions could easily exceed major source thresholds. The permit either needs to address HAP emissions during SSM and malfunction events and recalculate total potential emission rates or establish HAP limits during SSM and malfunction limits if the (*name of facility:* Bulldog, Longhorn, Jayhawk, and Wildcat Compressor Stations, Cowboy CDP, and Willow Lake Gas Processing Plant) is going to avoid major classification." **[AR No. 10 of AQB 21-31, AR No. 10 of AQB 21-33, AR No. 17 of AQB 21-32, AR No. 17 of AQB 21-35, AR No. 93 of AQB 21-34, AR No. 17 of AQB 21-38]**.

Response – All Applications: Air Quality permits do not contain emission limits for Hazardous Air Pollutants (HAPs) because there are no ambient air quality standards for HAPs. The Department cannot set limits that would ensure compliance with an air quality standard when there is no standard. Under the Clean Air Act (CAA), the federal government regulates the emissions of HAPs through National Emission Standards for Hazardous Air Pollutants (NESHAP, under 40 CFR 61 and 40 CFR 63). The U.S Environmental Protection Agency (EPA) initially started to address HAPs on an individual basis by developing the NESHAPs (under 40 CFR 61). But because there are so many HAPs (187), EPA changed their strategy to control technology standards called

Maximum Achievable Control Technology (MACT) standards. This technology approach by EPA to reduce emissions of HAPs into the atmosphere was implemented in a much shorter time frame than would be required to develop ambient air quality standards for the 187 HAP compounds. MACT standards are placed under 40 CFR 63. Hence MACT standards are used for many types of equipment at oil and gas facilities. For example, engines are subject to MACT ZZZZ and glycol dehydrators to MACT HH. The Department regulates HAPs by incorporating all applicable NESHAP and MACT into permits. The Department therefore mirrors the EPA in its approach to HAP regulation.

For Bulldog CS, Longhorn CS, Jayhawk CS, and Wildcat CS, all of these facilities are already major sources of HAPs based on calculations in their applications and as summarized in Table 102.B of each of draft permits 8153M1, 8349M2, 8152M1, and 7474M2, respectively **[AR No. 8 of AQB 21-31, AR No. 8 of AQB 21-33, AR No. 14 of AQB 21-32, AR No. 19 of AQB 21-35]**. For example, Bulldog CS and Longhorn CS, are major for the single HAP formaldehyde (19.4 tpy) which is mostly from the combustion engines and major for total HAPs (28.8 tpy); and Wildcat CS is also major for the single HAP formaldehyde (20.5 tpy) which is mostly from the combustion engines and major for total HAPs (28.1 tpy). The majority of HAPs from these types of facilities are also classified as VOC. This includes the benzene, toluene, ethylbenzene, xylene (collectively termed BTEX), and hexane mentioned in the comment. Hence, when a VOC limit of 10 tpy is set for SSM, that also limits HAPs. Further, controls for VOC also control HAPs and monitoring conditions for VOC are also indirectly monitoring HAPs that are a subset of VOC. HAPs are also a typical component of the facility's gas analysis and is a base source for estimating

and calculating potential HAPs emissions. SSM HAPs are limited and controlled through the SSM monitoring conditions.

Willow Lake and Cowboy CDP are minor sources of HAPs based on calculations in their respective applications and as summarized in Table 102.B of each draft permits 5142M8 and 7877M1, respectively **[AR No. 14 and 15 of AQB 21-38, AR No. 2 of AQB 21-34]**. The majority of HAPs from these facilities are also classified as VOC. This includes the benzene, toluene, ethylbenzene, xylene (collectively termed BTEX), and hexane mentioned in the comment. Hence, when a VOC limit of 10 tpy is set for SSM, that also limits HAPs. Further, controls for VOC also control HAPs and monitoring conditions for VOC are also indirectly monitoring HAPs that are a subset of VOC. SSM HAPs are limited and controlled through the SSM monitoring conditions. Emissions calculations are included in Section 6 of the applications, which are based on the HAPs content of the gas, and the values summarized in application Table 2-I demonstrate that the facilities are minor sources of HAPs. Table 2-I includes HAP emissions associated with SSM and malfunction; both flares, with SSM/M, and with PIGGING are included in the table.

Title V (TV) Operating Permit Comments:

Comments - Bulldog CS, Longhorn CS, and Jayhawk CS (as quoted within each WEG letter for each facility, except for substituting the name of the facility): "Additionally, according to its application for the (*name of facility:* Bulldog, Longhorn, and Jayhawk) facility, XTO has not secured a Title V operating permit, as required under federal regulation 40 C.F.R. § 70.5(a)(1)(i), even though XTO continues to operate the facility. This compliance issue was not reported in the Department's Statement of Basis. Based on these compliance issues, Guardians requests the

Department deny the proposed air quality permit for the (*name of facility:* Bulldog Compressor Station, Longhorn Compressor Station, and Jayhawk Compressor Station). If the Department declines this request, Guardians further requests the Department explain whether or not it is appropriate for XTO to operate the (*name of facility:* Bulldog Compressor Station, Longhorn Compressor Station, and Jayhawk Compressor Station) without a Title V permit and, if not, whether it would be appropriate for the Department to authorize the proposed modification." **[AR No. 10 of AQB 21-31, AR No. 10 of AQB 21-33, AR No. 17 of AQB 21-32]**

Comments – Tiger CS, Spartan CS, and Maverick CS (as quoted within each WEG letter for each facility, except for substituting the name of the facility, and substituting date first permitted for each facility): "We are further concerned that issuance of the proposed permit will not meet applicable standards, rules, or requirements under the New Mexico Air Quality Control Act or the federal Clean Air Act. In particular, it appears that approval of the modification would authorize XTO to operate the (*name of facility:* Tiger Compressor Station, Spartan Compressor Station, and Maverick Compressor Station), even though XTO is currently prohibited from operating the facility. Here, the (*name of facility:* Tiger Compressor Station, Spartan Compressor Station, and Maverick Compressor Station) was first permitted in (*date for facility:* May 2018 for Tiger CS, June 2018 for Spartan CS, and March 2018 for Maverick CS) as a major source for operating permit requirements, also known as Title V permitting requirements under the Clean Air Act. This original permit was subsequently modified in February 2019, maintaining the major source status of the (*name of facility:* Tiger Compressor Station, Spartan Compressor Station, and Maverick Compressor Station). Under applicable standards, rules, and requirements, XTO was required to submit an application for an initial operating permit application within 12 months of commencing operation of the (*name of facility:* Tiger, Spartan, and Maverick) Compressor Station.

20.2.70.300(B)(1) NMAC. Under state and federal laws and regulations, if a source does not submit a timely operating permit application, it is not authorized to operate after the time required to submit an application. 20.2.70.201(A)(2)." **[AR No. 12 of AQB 21-41, AR No. 12 of AQB 21-40, AR No. 16 of AQB 21-39]**

Response – All Applications: Title V applications are due 12 months after a facility begins operating as a major source, not 12 months after it is permitted as a major source. Applicants must submit the initial TV application within 12 months after the source commences operation as a Part 70 Source. The citation for timeliness is:

20.2.70.300 NMAC PERMIT APPLICATIONS:

A. Duty to apply. For each Part 70 source, the owner or operator shall submit a timely and complete permit application in accordance with this part.

B. Timely application. A timely application for a source applying for a permit under this part is: (1) for first time applications, one that is submitted within twelve (12) months after the source **commences operation as a Part 70 source** (*emphasis added*);

After the NSR Construction Permit is issued, it takes several months or sometimes years of construction and installment of equipment to operate at the Part 70 Source, or Major Source, emission threshold. Please see the Major Source definition citation below from 20.2.70.7.R NMAC DEFINITIONS:

(2) A major stationary source of air pollutants that directly emits or has the potential to emit, 100 or more tons per year of any air pollutant subject to regulation.

The paragraph (2) wording above for major source is the same as used in the federal operating permit program at 40 CFR 71.2 Definitions and definitions in Section 302 of the CAA.

There are conditions in the NSR permit for the facility which includes requirements to notify AQB when units are commencing operation. AQB is notified when each piece of equipment starts up [NSR General Condition B110.B(1) and (3)]. Also, AQB receives results of initial compliance tests for units, which are completed within 60-180 days of startup [NSR General Condition B111.A.2]. In addition, AQB also conducts periodic inspections of the facilities. For these facilities the following TV applications have been received:

Bulldog CS, AQB received a Title V application on September 7, 2021;

Longhorn CS, AQB received a Title V application on September 7, 2021.

Tiger CS, AQB received a Title V application on September 7, 2021;

Spartan CS, AQB received a Title V application on September 7, 2021;

Cowboy CDP, AQB received a Title V application on September 27, 2021;

Maverick CS, AQB received a Title V application on June 24, 2021;

Wildcat CS, AQB received a Title V application on December 14, 2020.

IV. CONCLUSION

Bureau staff have completed technical reviews of these applications, including SSM and HAPs. Title V applications for several facilities have recently been received. The comments received by the Bureau on these permits have been responded to in this testimony. The responses demonstrate that the comments do not raise any substantive issues that indicate these permits should not be issued. The permits comply with all air quality regulations and contain demonstrations of compliance for all conditions and emission limits to ensure compliance with Ambient Air Quality Standards. The Air Quality Bureau recommends that the Secretary uphold the Department's decision to approve issuance of these permits.

RESUME
James E. Nellessen, Ph.D.
Supervisor – PSD Unit in Major Source Permit Section

New Mexico Environment Department - Air Quality Bureau
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Office: 505-476-4315 /Cell: 505-629-6283 /ABQ Main: 505-476-4300
Office e-mail: james.nellessen@state.nm.us

Brief Summary of Professional Profile:

My entire career has been devoted to understanding, conserving, and protecting our natural environment. I have worked for the New Mexico Environment Department Air Quality Bureau (NMED-AQB) for over 14 years, 8 in permitting, 1.5 in Enforcement, and 5 in Planning/Control Strategies. For 12 years I worked as a consultant conducting NEPA reviews for environmental compliance surveys and reporting for a variety of agencies involving work on: threatened and endangered species assessments, wetland delineations, Waters of the US determinations, multi-year monitoring of aquatic habitats for macro-invertebrate populations, invasive plant species management planning, and baseline biological surveys. For 12 years I conducted vegetation monitoring, data collection, and analysis for reclaimed coal surface mine lands. Worked on two database projects for the US EPA compiling data on the uptake, accumulation, and biotransformation of environmental contaminants in plants, and another database on chemicals toxic to plants. I have a BS Biology from the University of Minnesota, an MS in Plant Pathology from Virginia Tech (studying ozone impacts to vegetation), and a Ph.D. from Ohio University (studying natural revegetation in abandoned surface coal mines). In summary my background is in air quality regulations, air permitting, air enforcement, air pollution research impacts to vegetation, assembling data on environmental contaminants, conducting field surveys and research, botany, plant ecology, plant pathology, entomology, teaching at colleges and universities, giving presentations at scientific meeting, and publishing scientific papers.

Professional Experience:

Environmental Scientist and Specialist - Supervisor, PSD Unit of Major Source Permitting Section, Air Quality Bureau, New Mexico Environment Department, May 2021 to Present. 525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505.

Manage the Prevention of Significant Deterioration (PSD) Unit within the Major Source Permitting Section of AQB. Manage up to three staff members who work on some of the most complex and difficult permitting actions. Provide guidance and instruction to staff, review their work and provide feedback. Interact with other managers in permits program and within all of AQB. Interact with regulated industry and the general public.

Environmental Scientist and Specialist, Major Source Permitting Section, Air Quality Bureau, New Mexico Environment Department, 2012 to May 2021. 525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505.

Major source (Title V) and PSD permit writer for sources emitting more than 100 tpy of a criteria pollutant (and 250 tpy for PSD). Permits are for various types of facilities, but mostly oil and gas, with some landfills and state/federal facilities. Review permit applications for thoroughness, completeness, and correctness. Write thorough statement of bases for each permit. Write conditions for numerous types of equipment with the objective of ensuring that the national and state ambient air quality standards are met. Conditions need to be written carefully so that they are implemented in a practical manner for the facility, but also be enforceable towards keeping the air clean. PSD major sources: I have made several prevention of significant deterioration (PSD) applicability determinations comparing baseline actual emissions to projected emissions to determine whether PSD thresholds have been exeeded. I have written two PSD permits for brand new gas plant facilities. These facilities had to achieve best available control technology (BACT) and I performed the full BACT analysis for submission to US EPA. I mentored junior staff for many years. Work on special projects such as follows: Learning, understanding, and implementing new EPA rules NSPS OOOO and NSPS OOOOa applicable to the oil and gas industry (these are 40 CFR 60 regulations). I have given presentations to the Bureau on OOOOa. I have years of experience making applicability determinations under 40 CFR 60, 40 CFR 63, and 40 CFR 64 regulations. I have worked on Improving Permitting tasks in the Bureau, have been the tracking person for our Document Change Request system, and worked on our Performance Standards Committee. Finally, as a scientific specialist in air pollutant impacts affect vegetation, I have given several presentations for the Bureau on this topic.

Environmental Scientist and Specialist, Compliance and Enforcement Section, Air Quality Bureau, New Mexico Environment Department, August 2014 - December 2015. 525 Camino de los Marquez, Suite 1, Santa Fe, NM 87505.

Enforce air quality statutes, rules, regulations, and the permits that various facilities are issued, for the purpose of maintaining and keeping New Mexico's air clean for all of its citizens. When field inspectors or compliance reports inspectors find discrepancies in the requirements that permitted facilities must meet or observe equipment that is not permitted or not functioning properly, these become "areas of concern" (or potential violations). Areas of concern are written up and passed over to enforcement. We verify whether a violation has truly occurred, substantiate the evidence (i.e., data/observations), and then issue Notices of Violation (NOV). An NOV leads to corrective action, or leads to a settlement offer phase, and is negotiated to a final settlement and stipulated final compliance order, which may include a penalty. During negotiations tolling agreements may be needed. The objective of C&E is to enforce state/federal rules, continue monitoring facility operations, and protect air quality (ambient air standards), prevent deterioration of air quality, protect public health, and health of the natural environment. Mentor junior staff. Work on special projects at various times. I continued to be the Bureau lead in understanding US EPA rules, NSPS Quad O (OOOO/OOOOa) which set

new standards for the oil and gas industry. I also worked on the process improvement group within compliance and enforcement.

Senior Scientist, Taschek Environmental Consulting/Parametrix, 2000-2012. (Taschek Environmental Consulting combined with Parametrix in early 2008.)
8801 Jefferson, NE, Bldg. B, Albuquerque, NM 87113.

Provided planning for environmental compliance surveys to meet National Environmental Policy Act (NEPA) requirements. Provided consultation services towards meeting a wide variety of agency regulations and requirements. Designed and implemented surveys for threatened and endangered species assessments, wrote biological evaluations, biological assessments, and assisted in Section 7 consultation.

Extensive experience in wetland delineation, Waters of the U.S. determination, Section 404/401 permitting, wetland functional assessments, mitigation planning, and in June 2010 took a Wetlands Training Institute course on the design of constructed wetlands.

Understand rangeland health assessments and was trained in joint USDA-NRCS and BLM guidelines.

Managed a revegetation monitoring project for McKinley Coal Mine (northwest of Gallup, NM), providing professional consulting services. Designed and implemented surveys for vegetation data collection and analysis for reclaimed lands, assess for standards compliance, rangeland condition, provide assistance with husbandry grazing capacity, seed mix evaluations, seedling planting program success, liability releases, and evaluations of vegetation requirements in the permit.

Routinely utilized GPS equipment in the field for recording biological resources. Routinely uploaded collected GPS data into ArcGIS (ArcView) for mapping. Created and managed shape-files of a wide variety of biological resources for mapping.

<u>Accomplishments and Key Contributions:</u>

- McKinley Mine Revegetation Project, Gallup, NM, client: Chevron Mining, Inc. Led efforts in an ongoing multi-year project (for 12 consecutive years) for reclamation, revegetation, and restoration compliance assessment at McKinley Coal Mine. Regulatory compliance has required consultation with the federal Office of Surface Mining, the New Mexico Energy Minerals and Natural Resources Department, and the Navajo Nation. Revegetation success standards must be met prior to liability and bond release for the reclaimed lands. I have designed project activities involving the field collection of vegetation data for cover, production, woody stem density, and species diversity. I performed extensive statistical analyses of these vegetation parameters on an annual basis and evaluated multi-year trends dating back to 1997. Recommendations from findings have included seed mix composition, the seedling planting program, husbandry grazing practices, species diversity issues, wildlife woody plant

corridor, and treatment plans. Project activities for the 2008-10 time period included data collection and analysis of vegetation for the problematic Settlement Agreement Lands, a comprehensive assessment of forb performance, a basal cover study, sampling of federal interim lands, sampling of acidic soil sites, developing potential treatment plans, and developing long range plans for sampling and eventual liability release.

- Scott Able Aquatic Habitat and Fauna Monitoring, 2001-2005, client: Lincoln National Forest. Managed and led this 5-year monitoring study. The Scott Able Fire burned approximately 14,000 acres on the Lincoln National Forest-Sacramento District in May 2000. The objective of this project was to observe and monitor the recovery of aquatic systems in and around the fire area. Both sites within the fire perimeter and outside the fire perimeter were monitored annually for a period of five years (2001 to 2005). Sixteen sites were initially evaluated, and 12 to 14 sites were regularly sampled depending on water availability. Sites were sampled in both early and late summer. Water quality information included temperature, dissolved oxygen, salinity, conductivity, and pH. Sites were sampled for aquatic macro-invertebrates primarily, although a few sites contained vertebrates (salamanders). Data on species richness, diversity, and density was collected and evaluated. Annual and multi-year trends plotted. Reports were submitted annually to the US Forest Service, culminating in a final summary report.

- Scott Able Fire Forest Health Biological Assessment, immediate client: Mangi Environmental, ultimate client: US Forest Service. Planned and led a field survey for a Biological Assessment for the Lincoln National Forest. The Lincoln National Forest proposed salvage logging of approximately 2000 acres of the 14,000-acre Scott Able Fire that occurred in May 2000. I researched and assessed for potential impacts to several threatened, endangered, and sensitive species. Most of the evaluation focused on the federally threatened Mexican spotted owl and the Forest Service-sensitive (and State-threatened) Sacramento Mountains salamander. I surveyed several parcels of land ranging in size from 7 acres to 200 acres across the entire 14,000-acre fire impact area. Some of the parcels represented the worst-affected burn areas. Some Mexican spotted owl habitat burned during the fire. Field surveys for the Sacramento Mountains salamander resulted in several observations (post-fire). All results were thoroughly tabulated and reported to the US Forest Service. I devised management approaches and wrote recommendations towards avoiding and/or minimizing impacts to rare species and their habitats.

- Valle II Fuels Management Biological Assessment, immediate client: Mangi Environmental, ultimate client: US Forest Service. Planned and led a field biological survey and completed a biological assessment for the Santa Fe National Forest's proposed fuels management project covering approximately 2500 acres. This project was undertaken by the Forest Service to minimize and reduce fire hazards around Los Alamos National Labs and the city of Los Alamos as a result

of the Cerro Grande Fire that occurred in the spring of 2000. I performed official protocol surveys for the threatened Mexican spotted owl during the spring and early summer of 2001. I conducted official time-constrained field surveys for the rare Jemez Mountains salamander. Although no spotted owls were detected, the Jemez Mountains salamander was detected in several locations, as well the northern goshawk (a species of concern). An assessment was made of the potential impacts to rare species that may occur as a result of proposed stand thinning and salvage logging. A report was submitted to the US Forest Service. I devised management approaches and wrote recommendations to avoid and/or minimize impacts to rare species and their habitats.

- US 62/180 Reconstruction, Carlsbad, NM, to the Texas State Line, immediate client: Souder-Miller, ultimate client: NM Dept. of Transportation. Led the planning efforts and completed the biological survey and preparation of the biological evaluation. The primary biological issues addressed in this project involved several endangered and sensitive plant species, several State of New Mexico listed noxious weed species, numerous bird nests, numerous Waters of the U.S., and a few wetlands. State endangered Scheer's pincushion cacti (*Coryphantha scheeri* var. *scheeri*) were transplanted out of the project corridor, some to protected sites elsewhere, and some were utilized by another permitted botanist in a scientific research study. A special aspect of this project included salvaging a wide variety of common cacti species along the corridor. I wrote and obtained a grant from the National Fish and Wildlife Foundation for $10,000 for the Native Plant Society of New Mexico (NPSNM). I coordinated approximately 50 volunteers from the NPSNM in a substantial effort to rescue and salvage more than 2000 plants (mostly cacti) from the impact area. Rescued plants went to a variety of locations including state and city parks and the Rio Grande Botanic Gardens.

- I-10/ I-25 Interchange, Las Cruces, NM, immediate client: Molzen Corbin & Associates, ultimate client: NM Dept. of Transportation. An important component of this project involved the rescue and transplantation of the state endangered sand dune prickly pear cactus (*Opuntia arenaria*) out of the I-10 highway corridor between Las Cruces and the Texas state line. Involved agency coordination and working through permitting procedures for transplantation. Obtained a state endangered plant permit, removed 17 sand dune prickly pear cacti from the corridor and delivered them to another contractor who would tend them in a nursery. After spending more than a month in a nursery, these plants were out-planted onto protected sites on Bureau of Land Management (BLM) land. Some rescued plants were moved to the Rio Grande Botanic Gardens in Albuquerque. Coordination of the transplantation was arranged through Mike Howard, BLM botanist in Las Cruces. A one-year monitoring results report was sent to the state. I also assisted in review of the Section 404 permit application for this project.

- I-40 Pedestrian Bridge, Albuquerque, NM, immediate client: Bohannan Huston, ultimate client: NM Dept. of Transportation. Designed and led the completion of

a biological survey and preparation of a biological assessment (BA). The focal species of concern for this project was the federally endangered Rio Grande silvery minnow. This required Section 7 consultation with the U.S. Fish and Wildlife Service. Potential impacts to the silvery minnow were thoroughly assessed by collecting the most recent information and consulting with agency fish experts. Secondary species included in the BA were the bald eagle and the southwestern willow flycatcher. Wetlands in the project area were delineated, impacts assessed, and a report was written to supplement the Section 404/401 permit application.

- Angel Fire Section 404/Wetlands Permit, Angel Fire, NM, immediate client: Bohannan Huston, ultimate client: Village of Angel Fire. Led efforts in assembling a US Army Corps Section 404/401 permit for a Public Improvement District infrastructure improvement project. Developed a methodology for rating the functionality of wetlands. I field inspected the wetlands within the project area and rated each wetland site to make an overall assessment of wetland functions for this project. Compared the functions of wetlands anticipated to be lost versus the functions of wetlands where restoration could take place. Assembled information on the project background, project description, and scope of the analysis. Developed a proposed wetland mitigation plan and assisted in the joint Section 404/401 application process. Minimized total potential impacts to wetlands for this project, but cumulative impacts needed to be assessed for this infrastructure development project.

- Spaceport Corridor Study, Engle, New Mexico, immediate client: Molzen Corbin & Associates, ultimate client: NM Dept. of Transportation (NMDOT). Planned and performed the biological survey and evaluation for this project which involved assessing and avoiding impacts to isolated desert wetland pools that were inhabited by plains leopard frogs. Project plans were to improve an existing dirt road, Sierra County Road A013, which would serve as the north entrance to the planned Spaceport America. Proposed improvements to this county road were implemented by the NMDOT. I was involved in some of the preliminary assessment of biological conditions and potential Waters of the U.S. for the south entrance road. Currently, the north entrance road has been constructed and Spaceport America is under construction. Virgin Galactic is a major sponsor for the spaceport.

- Chaco Roads, Chaco Canyon, New Mexico, immediate client: URS, ultimate client: NMDOT. Led the biological survey and writing of the biological evaluation. The project corridor was surveyed for threatened and endangered species and other biological issues. Focal species and issues included the presence of Gunnison's prairie dogs, potential habitat for mountain plovers, and fencing concerns on the mobility of pronghorn. Several state listed noxious weed populations were also discovered and management recommendations were developed. The biological evaluation involved coordination with the Bureau of Land Management, National Park Service, and Navajo Nation Department of

Natural Resources. Paving this road into Chaco Canyon was an especially sensitive issue for both the National Park Service and Native American communities.

- Moriarty Waste Water Treatment Plant, Moriarty, NM, client: Bohannan Huston. Modeled potential hydrogen sulfide (H2S) and volatile organic compound (VOC) emissions from proposed expansion of the wastewater treatment plant. Used the estimated emissions to model ambient air concentrations for comparative purposes to state air quality regulations for H2S and VOC.

- North Treatment Plant and Lift Station EID, Sunland Park, NM, client: Molzen Corbin & Associates. Modeled potential hydrogen sulfide (H2S) and volatile organic compound (VOC) emissions from proposed expansion of the wastewater treatment plant. Used the estimated emissions to model ambient air concentrations for comparative purposes to state air quality regulations for H2S and VOC.

- Rio Rancho Water Line Expansion, Montoyas Arroyo, Rio Rancho, NM, immediate client: Wilson & Company, ultimate client: City of Rio Rancho. Devised and resolved management approaches for what initially appeared to be straightforward water line installation. The City of Rio Rancho wanted to place a water reuse line inside Montoyas Arroyo. The primary objective for this project was to obtain an individual Section 404 permit from the US Army Corps of Engineers. I conducted the biological field survey and discovered burrowing owls and bank swallows living in the arroyo. I wrote a biological evaluation and the Section 404 permit application for the Army Corps. This required assembling an extensive amount of supporting documentation and involved frequent consultation and coordination with the Army Corps. I devised a bird monitoring and mitigation plan. I devised protective fence installation instructions, devised bird monitoring procedures to be implemented during water line installation, and wrote a long-term (5-year) bird monitoring plan. All of this was ultimately approved by the Army Corps.

Environmental Specialist, New Mexico Department of Transportation. Environmental Design Section, 1999-2000.

Provided planning for environmental compliance surveys to meet National Environmental Policy Act (NEPA) requirements. Design and implement surveys for threatened and endangered species assessments, wetland delineations, Waters of the U.S. determination, noxious weed surveys, and baseline biological surveying.

<u>Accomplishments and Key Contributions</u>

- Managed on-call environmental consultants, monitored and reviewed their work products towards meeting NMDOT objectives.
- Planned and conducted field surveys for biological resources and wrote reports, assessments, and categorical exclusion documents.

- Served as the noxious weed coordinator and developed weed management guidelines for the NMDOT.
- Spoke at the Resource Advisory Council of the Bureau of Land Management. I discussed the New Mexico State Highway and Transportation Department's Noxious Weed Management Plans and Guidelines. Lordsburg, New Mexico.

Environmental Analyst, New Mexico Environment Department, Air Quality Bureau, Control Strategy Section (Planning), Santa Fe, NM 87505, 1994-1999.

Implemented air quality regulations and standards and adapted US EPA regulations at the state level as part of the State Implementation Plan (SIP) for US EPA.

Accomplishments and Key Contributions

- Worked on numerous air quality rule changes/revisions and provided technical testimony before the NM Environmental Improvement Board (EIB).
- Conducted the emissions inventory for the Sunland Park Ozone nonattainment area as part of the State Implementation Plan (SIP) for US EPA.
- Worked on the state air toxics program.
- Developed a wildland fire natural events policy.
- Participated in the Western Regional Air Partnership (WRAP). Participation involved developing New Mexico's smoke management plans (pertaining to controlled forest burns), regional issues with smoke management, and addressing the larger issue of regional haze. Assisted in the development of policies for managing regional haze.

Instructor, Santa Fe Community College. Santa Fe, NM, 1996-1997. Served as an instructor in Environmental Science and Field Ecology classes part-time.

Researcher and Assistant Curator to the University Herbarium, University of Oklahoma. Department of Botany and Microbiology, Norman, OK, 1989-1994. Conducted post-doctoral research work on two major U.S. Environmental Protection Agency projects.

Accomplishments and Key Contributions

- Assembled a computer database on all of the published literature on the uptake and accumulation of heavy metals and organic chemicals into plant tissues.
- Evaluated a US EPA pesticide residue nomogram, an instrument for estimating pesticide residues on plants.
- Utilized the PHYTOTOX database to predict the impact of aerial overspray of herbicides onto non-target plant communities in the vicinity of agro-ecosystems.
- Taught botany courses part-time.
- Served as assistant curator to the university herbarium for approximately 6 months.

- Published research papers and presented at scientific meetings.

Instructor, Rose State College, Midwest City, Oklahoma, 1993. Taught classes in Botany, General Biology and Chemistry Lab.

Researcher/Graduate Assistant, Ohio University, Department of Botany, Athens, OH, 1983-1989. Research work focused on the ecological characteristics of broomsedge grass (*Andropogon virginicus*).

Accomplishments and Key Contributions

- Studied the ecology, life history, and natural tendency of this grass species to colonize abandoned surface coal mine sites in Ohio.
- Research focused on the plant's physiology and relationship to the soil, including mineral and metal uptake and accumulation.
- Reciprocal transplants were performed, a uniform garden was established, and physiological studies were performed to evaluate for potential ecotypic differentiation between old field populations and mine-site populations.
- Taught botany, biology, and ecology classes.
- Published results and presented at scientific meetings.

Researcher/Graduate Assistant, Virginia Tech. Department of Plant Pathology, Physiology, and Weed Science. Blacksburg, VA, 1980-1983. Worked on my Master's degree in plant pathology and air pollution research.

Accomplishments and Key Contributions

- Studied the effects of ozone air pollution on pine seedlings.
- Assisted the professor and other students on numerous air pollution research projects.
- Conducted a field survey of ozone injury to woody plants in Shenandoah National Park.
- Served as an instructor in plant pathology labs part-time.
- Strong background in entomology. From undergraduate to graduate education I took several courses in entomology/invertebrates: invertebrate zoology, general entomology, economic entomology, lepidopterology, plant-animal interactions, and two semesters of integrated pest management.

Herbarium Assistant, College of Biological Sciences, University of Minnesota, St. Paul, MN, 1979. Worked in the university herbarium for one year assisting in mapping the distributions of plant species.

Summer Camp Ecology Director and Merit Badge Counselor, Boy Scouts of America, Tomahawk Scout Camp, Wisconsin, 1978-1979. Directed the summer camp ecology program and counseled Boy Scouts on merit badges.

Fish Population Surveyor, Environmental Research and Technology (ENSR) and NUS Corporation, MN, 1977. Surveyed fish populations near power plants on the Mississippi River.

Education:

- Post-Doctoral research work, 1989-1994, University of Oklahoma, Department of Botany and Microbiology.
- Ph.D., Botany, 1989, Ohio University. Department of Botany.
- M.S., Plant Pathology, 1983, Virginia Tech, Department of Plant Pathology, Physiology, and Weed Science.
- B.S., Biology (major Botany), 1979, University of Minnesota, College of Biological Sciences.

Professional Certifications (previous certifications):

- U.S. Fish and Wildlife Service Endangered Species survey permit including listed rare plants. Trained for surveys in Mexican spotted owls, southwestern willow flycatchers, and the Chiricahua leopard frog. Permit included all listed plant species in New Mexico.
- State of New Mexico Endangered Plant Scientific Collection Permit. Specialized and current State of New Mexico Endangered Plant Transplant Permit (for *Opuntia arenaria*).
- U.S. Forest Service Region 3 Plant Collection Permit
- Mine Safety and Health Administration (MSHA) trained and certified.

Memberships (previous and current):

- American Society of Mining and Reclamation
- New Mexico Rare Plant Technical Council
- Native Plant Society of New Mexico (Conservation Chair 2000-2010)
- American Institute of Biological Sciences
- Association of Southwestern Naturalists
- Society for Ecological Restoration
- Society of Environmental Toxicology and Chemistry (SETAC)
- Botanical Society of America
- Ecological Society of America
- American Phytopathological Society
- American Association for the Advancement of Science
- Society for Economic Botany

Publications:

2000 to 2012

Native Plant Society of New Mexico. Newsletter (quarterly). Conservation Corner. As the Conservation Chair of the society I have published numerous articles over the years.

2006

USDA Forest Service Rocky Mountain Region (Region 2): Species Assessment Project. Wrote two plant species assessments: 1) Nellessen, J.E. (2006, May 8). *Viburnum opulus* L. var. *americanum* (Mill.) Ait. (American cranberrybush): a technical conservation assessment. [Online]. USDA Forest Service, Rocky Mountain Region. 68 pp. 2) Nellessen, J.E. (2006, August 3). *Eleocharis elliptica* Kunth (elliptic spikerush): a technical conservation assessment. [Online]. USDA Forest Service, Rocky Mountain Region. 55 pp. Both available via Internet access at: http://www.fs.fed.us/r2/projects/scp/assessments/index.shtml

2004

USDA Forest Service: Wrote monographs for 13 native U.S. shrub species for inclusion in both hard copy and web-based book/manual. Nellessen, J.E. 2004. In: J.K. Francis (editor), Wildland Shrubs of the United States and its Territories: Thamnic Descriptions: Volume 1. General Technical Report IITF-WB-1. San Juan, PR: U.S. Department of Agriculture, Forest Service, International Institute of Tropical Forestry, and Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 830 pp. The species: *Larrea tridentata* (creosote bush), pp. 419-424; *Ledum groenlandicum* (Labrador tea), pp. 429-431; *Penstemon ambiguous* (sand penstemon), pp. 545-547; *Psorothamnus scoparius* (broom dalea), pp. 600-601; *Quercus havardii* (Havard shin oak), pp. 613-616; *Rhus microphylla* (little-leaf sumac), pp. 631-633; *Salix exigua* (coyote willow), pp. 664-667; *Senecio flaccidus* (threadleaf groundsel), pp. 691-693; *Senecio spartioides* (many-headed groundsel), pp. 694-695; *Suaeda suffrutescens* (desert seepweed), pp. 739-741; *Ziziphus obtusifolia* (graythorn), pp. 803-805. Species still in press: *Chilopsis linearis* (desert willow), and *Robinia neomexicana* (New Mexico locust). Reports are also available via Internet access at: http://www.fs.fed.us/global/iitf/wildland_shrubs.htm

1997

State of New Mexico, Air Quality Bureau, Environment Department. New Mexico Air Quality 1994-1996. NMED/AQB-97/1. (J. Nellessen listed as providing technical support, support was provided for several components of this publication meant for distribution to the general public).

1994

Fletcher, J.S., J.E. Nellessen, and T.G. Pfleeger. Literature review and evaluation of the EPA food-chain (Kenaga) nomogram, an instrument for estimating pesticide residues on plants. Environmental Toxicology and Chemistry 13:1383-1391.

1993

Nellessen, J.E. and J.S. Fletcher. Assessment of published literature on the uptake, accumulation, and translocation of heavy metals by vascular plants. Chemosphere 27(9):1669-1680.

Nellessen, J.E. and J.S. Fletcher. Assessment of published literature pertaining to the uptake/accumulation, translocation, adhesion and biotransformation of organic chemicals by vascular plants. Environmental Toxicology and Chemistry 12:2045-2052.

Nellessen, J.E. and I.A. Ungar. Physiological comparisons of old-field and coal-mine-spoil populations of *Andropogon virginicus* L. (broomsedge). American Midland Naturalist 130:90-105.

1992

Nellessen, J.E. and J.S. Fletcher. UTAB: A computer database on residues of xenobiotic organic chemicals and heavy metals in plants. Journal of Chemical Information and Computer Science 32(2):144-148.

1991

Nellessen, J.E. and J.S. Fletcher. UTAB User's Manual: Microcomputer Version, 1st Edition.

1990

Nellessen, J.E. and J.S. Fletcher. Use of the PHYTOTOX database to estimate the influence of herbicide drift on natural habitats in agro-ecosystems. In: Measurement of Toxic and Related Air Pollutants. Proceedings of the 1990 EPA/A&WMA International Symposium, Raleigh, North Carolina.

Nellessen, J.E. Minesite-adapted broomsedge bluestem outperforms oldfield-adapted ecotype on mine reclamation sites (Ohio). Restoration and Management Notes 8(2):129.

1989

Winner, W.E., A.S. Lefohn, I.S. Cotter, C.S. Greitner, J. Nellessen, L.R. McEvoy, Jr., R.L. Olson, C.J. Atkinson, and L.D. Moore. Plant responses to elevational gradients of

O3 exposures in Virginia. Proceedings of the National Academy of Science, U.S.A., 86:8828-8832.

Nellessen, J.E. – Ph.D. Dissertation: Population Differentiation in *Andropogon virginicus* L. between Abandoned Coal Strip Mine Spoil and Old Field Habitats in Ohio, 1989. Department of Botany, Ohio University.

1984

Skelly, J.M., Y.S. Yang, B.I. Chevone, S.J. Long, J.E. Nellessen, and W.E. Winner. Ozone concentrations and their influence on forest species in the Blue Ridge Mountains of Virginia. Proceedings of a Symposium on Air Pollution and the Productivity of the Forest, Oct. 4-6, 1983. Sponsored by the Isaac Walton League, pp. 143-159.

1983

Nellessen, J.E. and J.M. Skelly. Seed orchard stocks of white pine Christmas tree seedlings found tolerant to ozone. American Christmas Tree Journal 27 (3):17-19.

Duchelle, S.F., J.M. Skelly, T.L. Sharik, B.I. Chevone, Y.S. Yang, and J.E. Nellessen. Effects of ozone on the productivity of natural vegetation in a high meadow of the Shenandoah National Park of Virginia. Journal of Environmental Management 17:299-308.

1981

Nellessen, J.E. – M.S. Thesis: Screening White Pine Christmas Tree Seedlings for Ozone Sensitivity, 1981. Department of Plant Pathology and Physiology, Virginia Polytechnic Institute and State University.

Meeting Presentations:

- 2018. Native Plant Society of New Mexico, Albuquerque Chapter. "Vegetation, Air Pollution, and Climate Change" Albuquerque, New Mexico, September.
- 2009. Native Plant Society of New Mexico, Albuquerque Chapter. "Plant Conservation in New Mexico: What Does it Mean?" Albuquerque, New Mexico, September.
- 2008. Parametrix Natural Resources Symposium. "Revegetaton Monitoring and Assessment at McKinley Mine, New Mexico." Seattle, Washington, October.
- 2000. Resource Advisory Council of the Bureau of Land Management. I spoke about the New Mexico State Highway and Transportation Department's Noxious Weed Management Plans and Guidelines. Lordsburg, New Mexico.
- 1998. Southwest Fire Council (SWFCO). I talked about EPA's new wildland fire policy, the new particulate matter standards, regional haze, visibility monitoring, and current progress in the Western Regional Air Partnership. Santa Fe, New Mexico.

- 1994-1999. Presented oral technical testimony at (14+) public hearings before the New Mexico Environmental Improvement Board. These hearings were about air quality regulations and I spoke as a representative of the New Mexico Environment Department, Air Quality Bureau.
- 1996. 28th Air Pollution Workshop. "Air quality in New Mexico, with a focus on ozone." Raleigh, North Carolina. (poster)
- 1994. Society of Environmental Toxicology and Chemistry. "Classification of wetland plant species as accumulators, potential accumulators, and non-accumulators of heavy metals." Denver, Colorado.
- 1992. Society of Environmental Toxicology and Chemistry. "Use of the UTAB database in estimating expected pesticide residues on plants." Cincinnati, Ohio.
- 1991. Society of Environmental Toxicology and Chemistry. "The use of the UTAB database to estimate food chain contamination in ecosystem restoration." Seattle, Washington.
- 1991. American Society of Surface Mining and Reclamation. "UTAB: A new computer database for information on heavy metal data in plants." Durango, Colorado. (poster).
- 1990. Society of Environmental Toxicology and Chemistry, South Central and Ozark Prairie Chapters. "The use of the PHYTOTOX database in assessing the impact of herbicide drift onto non-target wild plant species." Oklahoma State University, Stillwater, Oklahoma.
- 1990. Society of Environmental Toxicology and Chemistry. "UTAB: A new computer database for information on xenobiotic organic chemical and heavy metal data in plants." Arlington, Virginia.
- 1988. Ohio Academy of Science. "Physiological and developmental differences between coal spoil and old field populations of *Andropogon virginicus* L." The Ohio State University, Newark, Ohio.
- 1987. Ecological Society of America. "Developmental and physiological differences between mine spoil and old field populations of *Andropogon virginicus* L." The Ohio State University, Columbus, Ohio.
- 1983. 7th Shenandoah Research Symposium. "Geographic extent of air pollution injury in Shenandoah National Park." Shenandoah National Park, Virginia.
- 1982. American Phytopathological Society - Potomac Division. "Effects of ozone on foliar symptom expression and cumulative height growth of seven forest tree species native to the Shenandoah National Park, Virginia." University of Delaware, Newark, Delaware.
- 1981. Virginia Christmas Tree Growers Association. "Screening white pine Christmas tree seedlings for ozone sensitivity." Virginia Polytechnic Institute and State University, Blacksburg, Virginia.
- 1981. American Phytopathological Society - Potomac Division. "Screening white pine Christmas tree seedlings for ozone sensitivity." University of Maryland, College Park, Maryland.

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF TEN (10) APPLICATIONS OF XTO ENERGY, INC. – BULLDOG COMPRESSOR STATION, LONGHORN COMPRESSOR STATION, SPARTAN COMPRESSOR STATION, TIGER COMPRESSOR STATION JAYHAWK COMPRESSOR STATION, MAVERICK COMPRESSOR STATION, AND COWBOY CDP;

OF CONOCOPHILLIPS COMPANY– ZIA HILLS CENTRAL FACILITY;

AND OF CRESTWOOD NEW MEXICO PIPELINE, LLC – WILLOW LAKE GAS PROCESSING PLANT

FOR AIR QUALITY PERMITS **AQB 21-31 to 21-41**

TECHNICAL TESTIMONY OF KIRBY OLSON

I. INTRODUCTION

My name is Kirby Olson. I am Major Sources Permitting Program Manager of the Air Quality Bureau ("AQB" or "Bureau") of the New Mexico Environment Department ("NMED" or "Department"). I present this written testimony on behalf of the Department for the public hearing on ten (10) permit applications permit applications. These applications include seven (7) applications submitted by XTO Energy Inc. ("XTO") for their Bulldog Compressor Station ("Bulldog CS"), Longhorn Compressor Station ("Longhorn CS"), Spartan Compressor Station ("Spartan CS"), Tiger Compressor Station ("Tiger CS"), Jayhawk Compressor Station ("Jayhawk CS"), Maverick Compressor Station ("Maverick CS"), and Cowboy Central Delivery Point ("Cowboy CDP"); for the application submitted by Crestwood New Mexico Pipeline, LLC ("Crestwood") for their Willow Lake Gas Processing Plant ("Willow Lake"), and for ConocoPhillips Company for the Zia Hills Central Facility. WildEarth Guardians ("WEG") challenges the Department's issuance of these Air Quality Permits. My testimony will address the following topics: my qualifications, the publication of the hearing notice, the structure of permit

conditions, and two (2) comments submitted by WEG: one comment on whether emissions from other facilities adjacent to the permitted facility should be included as part of the source, and one comment on the reduction of fugitive emissions in the Cowboy CDP proposed permit.

II. QUALIFICATIONS

I have been an employee of the Bureau since 2014 for approximately seven years. I worked as a Permit Specialist for three and a half years performing technical and regulatory review of Air Quality Bureau permit applications verifying emissions calculations; determining applicable state regulations and federal regulations, and writing legally enforceable air permits and technical support documents for the administrative record. For the last three and a quarter years I have been in my current position as Major Sources Permitting Program Manager. In this position I review all permits developed by the Major Sources Section for appropriateness of requirements, demonstrations of compliance with emission limits, and compliance with regulations. I also develop new permit condition templates and changes to monitoring protocols. My full background and qualifications are set forth in my resume. **[NMED Exhibit 20]**.

III. HEARING NOTICE

The Notice of Hearing was written per requirements in 20.1.4 NMAC. The Notice of Hearing was translated into Spanish by Ana Maria MacDonald, Translation Program Manager for NMED, and received by AQB on September 20, 2021. On September 21, 2021, Notices of Hearing in English and in Spanish were posted on NMED's Docketed Matters page under the Cabinet Secretary dropdown, in the link for the docket number and facility name. The notice was also posted on NMED's public notice website under the Lea or Eddy County dropdown, in the link for each of the facilities included in the hearing. The Notice of Hearing was published in English and in Spanish in three newspapers. Both Notices were published in the *Carlsbad*

Current-Argus on September 22, 2021. **[Bulldog CS AR No. 13-14; Longhorn CS AR No. 13-14; Jayhawk CS AR No. 20-21; Wildcat CS AR No. 32 and 33; Zia Hills AR No. 203-204; Maverick CS AR No. 20-21; Willow Lake AR No. 20-21; Tiger CS AR No. 16-17; Spartan CS AR No. 16-17; Cowboy CDP AR No. 119-120]**. Both Notices were published in the *Albuquerque Journal* on September 23, 2021. **[Bulldog CS AR No. 15-16; Longhorn CS AR No. 15-16; Jayhawk CS AR No. 22-23; Wildcat CS AR No. 34 and 35; Zia Hills AR No. 205-206; Maverick CS AR No. 22-23; Willow Lake AR No. 22-23; Tiger CS AR No. 18-19; Spartan CS AR No. 18-19; Cowboy CDP AR No. 121-122]** Both Notices were published in the *Hobbs Daily News-Sun* on September 24, 2021 **[Bulldog CS AR No. 41-42; Longhorn CS AR No. 41-42; Jayhawk CS AR No. 24 and 25; Wildcat CS AR No. 43 and 44; Zia Hills AR No. 207-209; Maverick CS AR No. 24 and 25; Willow Lake AR No. 52-53; Tiger CS AR No. XX; Spartan CS AR No. XX; Cowboy CDP AR No. 129-130]**.

On September 22, 2021, emails with the Notices of Hearing in English and in Spanish attached were sent to individuals and groups that had been previously directly notified about one of the permit applications or that submitted comments on a permit application. For Cowboy CDP, the notices were sent to the State of Texas, Carlsbad Caverns National Park, the Bureau of Land Management, the Lea County Manager, the Eddy County Manager, the State of NM Land Office, the US EPA, and both J. Nichols and M. Nykiel from WEG **[Cowboy CDP AR No. 114-117]**. For Zia Hills, the notices were sent to M. Nykiel from WEG, the State of Texas, the Bureau of Land Management, the Lea County Manager, the Eddy County Manager, and US EPA **[Zia Hills AR No. 195-201]**. For Wildcat Compressor Station, these notices were sent to the State of Texas, the Bureau of Land Management, the Lea County Manager, the Eddy County Manager, the State of NM Land Office, the US EPA, New Energy Economy, the Rio Grande chapter of the Sierra Club,

the Western Environmental Law Center, and both J. Nichols and M. Nykiel from WEG **[Wildcat CS AR No. 40 and 41]**. For Jayhawk Compressor Station the notices were sent to the Bureau of Land Management, the Lea County Manager, the Eddy County Manager, the State of NM Land Office, the US EPA, the New Mexico Environmental Law Center, the Center for Biological Diversity, the Western Environmental Law Center, and both J. Nichols and M. Nykiel from WEG **[Jayhawk CS AR No. 35-37]**. For Maverick Compressor Station the notices were sent to the Bureau of Land Management, the Lea County Manager, the Eddy County Manager, the State of NM Land Office, the US EPA, the State of Texas, and both J. Nichols and M. Nykiel from WEG. **[Maverick CS AR No. 34-36]**. For Willow Lake the notices were sent to the Bureau of Land Management, the Lea County Manager, the Eddy County Manager, the State of NM Land Office, the US EPA, the State of Texas, Carlsbad Caverns National Park, Carlsbad Department of Development (CDD), the Village of Loving, and both J. Nichols and M. Nykiel from WEG. **[Willow Lake AR No. 36-39]**. For the permit for Bulldog Compressor Station the notices were sent to the Bureau of Land Management, the Lea County Manager, the Eddy County Manager, the State of NM Land Office, the US EPA, the State of Texas, Carlsbad Caverns National Park, and both J. Nichols and M. Nykiel from WEG. **[Bulldog CS AR No. 27 to 30]**. For the permit Longhorn Compressor Station the notices were sent to the Bureau of Land Management, the Lea County Manager, the Eddy County Manager, the State of NM Land Office, the US EPA, the State of Texas, Carlsbad Caverns National Park, and both J. Nichols and M. Nykiel from WEG. **[Longhorn CS AR No. 27-30]**. For the permit for Tiger Compressor Station the notices were sent to the Bureau of Land Management, the Lea County Manager, the Eddy County Manager, the State of NM Land Office, the US EPA, the State of Texas, Carlsbad Caverns National Park, and both J. Nichols and M. Nykiel from WEG. **[Tiger CS AR No. 31-34]**. For the permit for Spartan

Compressor Station the notices were sent to the Bureau of Land Management, the Lea County Manager, the Eddy County Manager, the State of NM Land Office, the US EPA, the State of Texas, Carlsbad Caverns National Park, and both J. Nichols and M. Nykiel from WEG. **[Spartan CS AR No. 31-34]**. These emails included a message informing the recipients the Notices of Hearing along with other information were available for review on NMED's public notice website https://www.env.nm.gov/public-notices-2/ under the Eddy or Lea County dropdown, in the link with the name of this facility.

Public service announcements for the hearing were sent October 5, 2021 to Carlsbad radio KZOR FM radio in Hobbs, NM, and KENW New Mexico PBS station serving Lea and Eddy Counties **[Bulldog CS AR No. 17-19; Longhorn CS AR No. 17-19; Jayhawk CS AR No. 38-40; Wildcat CS AR No. 36-38; Zia Hills AR No. 210-215; Maverick CS AR No. 37-39; Willow Lake AR No. 24-26; Tiger CS AR No. 20-22; Spartan CS AR No. 20-22; Cowboy CDP AR No. 123-128].**

IV. STRUCTURE OF CONDITIONS IN CONSTRUCTION PERMITS UNDER 20.2.72 NMAC

NSR permits are coordinated under 20.2.72 NMAC, per 20.2.72.201 NMAC. NMED's authority to specify conditions in a permit is stated in 20.2.72.210 NMAC. 20.2.72.201.D. states that "Any term or condition imposed by the department on a permit or permit revision is enforceable to the same extent as a regulation of the board". Permit conditions are written in a box format; each box contains a requirement for certain units, followed by the monitoring, recordkeeping, and reporting mandated to demonstrate compliance with the requirement. The order of requirements in a permit is based on a common template used across facilities. This template is available on the AQB website at https://www.env.nm.gov/air-quality/permitting-

section-procedures-and-guidance/. The individual requirements for the equipment are chosen based on AQB Monitoring Protocols. These protocols, which are available on the AQB website at https://www.env.nm.gov/air-quality/permitting-section-procedures-and-guidance/ , include the criteria used by permit writers to determine requirements for various equipment and processes that emit air pollutants. The criteria are based on various factors, including the capacity of the equipment, the amount of pollutants emitted by the unit, and the applicability the federal New Source Performance Standards (NSPS) under 40 CFR Part 60 or requirements under 40 CFR Part 63. As an example, a Reciprocating Internal Combustion Engine (RICE) unit in a construction permit may have a requirement box for an initial compliance test (for a new unit), periodic emissions testing to ensure it complies with emission limits in the permit, and a requirement to comply with 40 CFR 60 Subpart JJJJ or 40 CFR Part 63 Subpart ZZZZ if those federal regulations apply. Additional requirements in a permit will include requirements to maintain installation of control equipment, to route emissions to certain control devices, and to calculate emissions for units such as flares on an hourly and 12 month basis.

V. RESPONSES TO COMMENTS FROM WILD EARTH GUARDIANS

Comment: A concern expressed in the comments was whether the proposed permit encompassed all point sources of pollution that are a part of the single source subject to permitting including emissions from oil and gas wells that feed the facility and are adjacent for new source review permitting purposes.

AQB Response: This comment was received on the proposed permits for Cowboy CDP, Willow Lake Gas Plant, Tiger Compressor Station, Spartan Compressor Station, and Maverick Compressor Station. **[Cowboy CDP AR No. 92-93; Willow Lake AR No. 16; Tiger CS AR No. 12; Spartan CS AR No. 12; Maverick CS AR No. 16]**. All these facilities are a major source

under Title V. The definition of a major source under 20.2.70 NMAC appears at 20.2.70.7.R., which includes as follows " "Major source" means any stationary source (or any group of stationary sources that are located on one or more contiguous or adjacent properties, and are under common control of the same person(s)) in which all of the pollutant emitting activities at such source belong to the same major group (i.e., all have the same two-digit code), as described in the standard industrial classification manual, 1987". These major source criteria are listed in 40 C.F.R. § 71.2. All the criteria must be met for a source or group of sources to be considered a part of the same stationary source. AQB has responded to the general form of this comment requesting why facilities are not aggregated with surrounding production wells in its 2011 response to EPA's Order granting petition for objection to permit on the Sims Mesa permit **[Exhibit 36]**. That response discusses that the oil and gas industry consist of multiple facilities connected by pipelines for the purpose of transporting products. Due to differences in ownership and contractual agreements, gathering companies do not typically dictate or control the production operations at oil and natural gas wells. These wells are therefore not considered part of the facility. EPA rejected a separate petition with the same request by WEG to instruct the Colorado Department of Health and the Environment to aggregate oil production wells with the Frederick Compressor Station **[Exhibit 37]**. In the instance where this comment does not mention specific facilities WEG asserts should be combined and isn't specific to the individual permits, the response was provided by AQB and EPA in these previous actions.

The only instance in which this comment mentioned specific facilities which WEG stated should be aggregated occurred in the comments on the Cowboy CDP proposed permit. That comment stated that Cowboy CDP should be aggregated with the Cowboy Pump Station. However, the comment erroneously stated that these two facilities operate under the same two

digit SIC code. As shown in their respective applications to AQB, the SIC codes are different for Cowboy CDP (SIC code 13) and Cowboy Pump Station (SIC code 46).

Comment: A concern expressed in the comments regarding only the Cowboy CDP application requested a legal basis for NMED's allowance of a 75% reduction to the natural gas processing portion of the Cowboy CDP's fugitive emissions and that additional public notice should have been done based on the assertion that the fugitive emissions changed during the course of the application review.

Response: AQB reviews guidance from US EPA and from other states when establishing control efficiencies for many types of air pollution controls. Based on these reviews, AQB specifies allowable control efficiencies for VRUs, flares, and other equipment. 20.2.72.7.C NMAC defines air pollution control equipment as: "Any device, equipment**, process** [emphasis added] or combination thereof, the operation of which would limit, capture, reduce, confine, or otherwise control regulated air pollutants or convert for the purposes of control any regulated air pollutant to another form, another chemical or another physical state." Leak Detection and Repair (LDAR) programs are a process that reduces fugitives leaks from equipment and pipes by reducing the number of leaks and the length of time that the leak continues. In addition, the Federal NSPS regulations 40 CFR 60 Subpart OOOOa applies to the fugitive emissions at Cowboy CDP as shown in condition A209A. Subpart OOOOa includes an LDAR programs to reduce the quantity and frequency of fugitive emissions; for an onshore natural gas processing plant under Subpart OOOOa, the facility must meet the requirements of 40 CFR 60 Subpart VVa [60.5400a(a)]. Therefore Cowboy CDP must meet the requirements under Subpart VVa Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry (SOCMI). Under the fugitive emissions monitoring protocol, AQB allows reductions in

fugitive emissions for refineries or SOCMI units which are also subject to Subpart VVa. This is consistent with the US EPA approach in the 1995 Protocol for Equipment Leak Emission Estimates (available online at https://www3.epa.gov/ttnchie1/efdocs/equiplks.pdf) which allowed lower estimates of fugitive emissions from facilities subject to Subpart VVa.

To support allowing a control efficiency to reduce the fugitive emissions at Cowboy CDP, AQB developed an additional practically enforceable LDAR condition specific to this facility. This condition is condition A209D in the proposed permit. The requirements for this condition were based on a review of the program required under 40 CFR Part 60 Subpart OOOOa and on state LDAR programs. Both Colorado's Regulation 7 (available at the Regulation 7 link online at https://cdphe.colorado.gov/aqcc-regulations) and the Texas Commission on Environmental Quality (TCEQ) Air Permit Technical Guidance for Chemical Sources Fugitive Guidance (Section II in the guidance document available online at https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/fugitive-guidance.pdf) allow reductions in fugitive emissions based on the frequency of inspection of equipment and the type of monitoring used for the inspections. AQB reviewed the inspection requirements and the allowable control efficiencies under the Colorado and Texas programs. Condition A209D in the proposed permit for Cowboy CDP requires weekly audio-visual-olfactory inspections for leaks, monthly instrument inspections for leaks, annual counts of components, and a requirement to repair leaks within 5 to 15 days. These requirements are similar to the Subpart OOOOa LDAR program in Colorado and the 28VHP LDAR program in Texas. In condition A209D AQB allowed a 75% reduction in fugitive emissions for Cowboy CDP, which credits less of a reduction to fugitive emissions than Colorado or Texas allow for their similar LDAR inspection and detection program and (Appendix A Table V of TCEQ's

Fugitive Guidance at https://www.tceq.texas.gov/assets/public/permitting/air/Guidance/NewSourceReview/fugitive-guidance.pdf) and section 7 p.4 of Colorado's Form APCD-203 at https://cdphe.colorado.gov/apens-and-air-permits/air-permits-for-fugitive-component-leaks). In response to the concern regarding public notice, after accounting for the fugitive emissions reductions due to the LDAR program, the total proposed emissions at Cowboy CDP do not exceed the emissions included in the public notice. Therefore, there is no need for AQB to publish a revised public notice.

VI. CONCLUSION

Bureau staff have completed technical reviews of these applications. The comments received by the Bureau on these permits have been responded to in this testimony and the testimony of the permit writers. The responses demonstrate that the comments do not raise any substantive issues that indicate these permits should not be issued. The permits comply with all air quality regulations and contain demonstrations of compliance for all conditions and emission limits to ensure compliance with Ambient Air Quality Standards. The Air Quality Bureau recommends that the Secretary uphold the Department's decision to approve issuance of these permits.

Kirby Sue Olson, Ph.D.
Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505

Experience Highlights: Five years of experience in air quality permitting including 2.5 years of experience managing the Major Sources Permitting Program. Ten years of experience as an environmental consultant analyzing environmental data and writing investigation reports for facilities regulated under RCRA Hazardous Waste Regulations. Five years' experience with Hazardous Waste Bureau of the New Mexico Environment Department reviewing corrective actions and investigation reports submitted under RCRA regulations. One year of experience in development of air quality regulations for New Mexico. Two years' experience investigating chemical spills and analyzing Toxic Release Inventory data for the State of Georgia. Ph.D. in biological oceanography from the Massachusetts Institute of Technology/Woods Hole Oceanographic Institution Joint Program.

NMED Air Quality Bureau, Major Sources Permitting Program Manager

Start Date: 8-11-2018

End date: current position

525 Camino de Los Marquez, Santa Fe, NM 87505

I manage the air permitting program for all major sources in New Mexico. I review and edit all the operating (Title V) and NSR (construction) permits for over 150 major source facilities. I directly supervise two ESS-Supervisors and review the work of six ESS-A positions. I am also responsible developing guidance and policy for the permitting section. I meet with representatives from industry to guide them through the application process and explain how the Clean Air Act and state regulations apply to their proposed projects.

NMED Air Quality Bureau, ESS-A

Start Date: 12-20-2014

End date: 8-10-2018

525 Camino de Los Marquez, Santa Fe, NM 87505

As an ESS-A with the Major Sources permitting section I reviewed complex calculations of air emissions, evaluated equipment and emissions for compliance with state regulations and the Clean Air Act, wrote the operating and construction permits for facilities, and worked with applicants to ensure they understood the regulations. I also trained new permit writers in procedure and how to write permits.

Senior Process Engineer, iBeam Materials, Inc:

Start Date: 2-24-2012

Kirby Sue Olson, Ph.D.
Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505

End date: 12-14-2014

2778A Agua Fria St. Santa Fe, NM 87507

In this position I oversaw development and laboratory production of substrates for new superconductors. I was responsible for ordering laboratory supplies, laboratory experiments to develop new materials, and disposal of hazardous waste. I also wrote reports on research results for funding agencies. I worked 16-32 hrs/wk depending on project needs.

Part Time Risk Assessor, Portage Inc:

Start Date: 5-23-2011

End date:12-12-2014

1075 S Utah Ave Suite 200 Idaho Falls, ID 83402

As Human health risk assessor and ecological risk assessor I delineated extent of contamination and soil/water cleanup levels for numerous sites, including PCBs in an aquatic site at Tyndall Air Force Base in Florida. I also wrote and reviewed human health and ecological risk assessments for numerous sites, including soil and water areas at a uranium mine (Ross Island, Alaska). In this position I worked 10-20 hrs/k as needed for projects

Senior Risk Assessor, Portage Inc.

Start Date: 5-14-2007

End date: 6-18-2010

146B Eastgate DR, Los Alamos, NM 87544

I conducted numerous human health and ecological risk assessments for RCRA/CERCLA sites throughput the US, including Los Alamos National Laboratory and DOE's uranium production facility at Paducah. KY. I headed a work group to update human health and wildlife risk assessment guidance that included EPA representatives, state regulators, and DOE. I developed screening/cleanup levels for soil and water for chemical and radionuclides. I also developed plans for sampling and cleanup of contaminated sites. I supervised a staff of 3 employees developing reports of extent of contamination and requirements for remediation of sites.

Human Health and Ecological Risk Assessor, Neptune and Company Inc.

Start Date: 3-10-2003

End date: 4-30-2007

1505 15th St. Suite B, Los Alamos, NM 87544

Kirby Sue Olson, Ph.D.
Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505

I analyzed and interpreted data on contamination in soil and water for ten sites and wrote RCRA investigation reports for each site. These reports included determining distribution of contaminants, calculating exposure concentrations for humans and wildlife species, and comparisons of contaminant concentrations to regulatory standards and levels of concern. I worked on sites for Los Alamos National Laboratory, a naval base in San Francisco, and Cerrillos Hills State Park in NM. I developed Excel spreadsheets to calculate risks to humans and wildlife at contaminated sites. I supervised one employee assisting me with writing site investigation reports. Part of my work was also to interpret the results of field studies of effects of soil and water contamination on plants and animals in two canyon systems (Mortandad and Pajarito Canyons in Los Alamos) and write report summarizing the results and findings. These field studies included effects on aquatic insects in ephemeral streams in Los Alamos, NM.

Human Health and Ecological Risk Assessor, NMED Hazardous Waste Bureau

Start Date: 6-27-1998

End date: 3-7-2003

2905 Rodeo Park Dr East Bldg 1, Santa Fe, NM 87505

I reviewed over 20 site investigation and risk assessment reports for contaminated sites under RCRA (technical documents are very similar to CERCLA). These sites evaluated included DOE National Labs, military bases, and private industrial facilities. I developed screening and cleanup levels based on human health and ecological risk for chemicals, Total Polycyclic Aromatic Hydrocarbons (TPH),and radionuclides. I headed a multi-agency workgroup (EPA, CDC, NMED, DOE, NM Dept of Health, Pueblos, and citizen advocacy groups). I presented result of that workgroup risk assessment at public meetings and developed press release for media.

ESS-A Air Quality Bureau

Start Date: 5-1-1997

End date: 6-26-1998

2048 Galisteo St, Santa Fe, NM 87504

In this position I drafted new air quality regulations for New Mexico, including research of regulations, public outreach, and presented testimony before the Environmental Improvement Board on technical issues related to the regulations.

Georgia DNR Environment Protection Division

Start Date:5-16-1994

Kirby Sue Olson, Ph.D.
Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505

End date: 6-28-1996

7 Martin Luther King Jr Drive, Suite 439, Atlanta, GA 30334

My job involved emergency spill response: traveling to spill site to document release, issue fines for regulations, and direct cleanup of sites. My position also involved compiling data and authoring state report for Toxic release Inventory (TRI) of routine chemical releases throughout Georgia. I developed a toxicity index to better explain risks of releases to public. I also conducted interviews with media as well as working with responsible parties to cleanup spills/releases of chemicals.

Postdoctoral Fellow, Georgia State University

Start Date: Jan 2,1991

End date: December 31. 1993

Georgia State University, University Plaza, S.E. Atlanta, GA 30303

As a postdoctoral researcher, I carried out several hundred laboratory biochemical assays of the binding of radioactive amino acids to sensory tissues in the Florida lobster. I authored three scientific papers published in peer-reviewed scientific journals. I planned and lead three field expeditions to collect tissue from Florida lobsters for laboratory work (2000-10,000 samples collected per expedition).

EDUCATION:

Doctorate degree in Biological Oceanography awarded - 2/1991

Massachusetts Institute of Technology and Woods Hole Oceanographic Institution Join Program,

Cambridge and Woods Hole, MA US

Doctoral research on Maine lobsters involved fishery culturing of lobsters in lab including maintaining breeding stock, preparing feed, culturing animals through 4 larval stages to adult lobsters

Bachelor's Degree in Biology with Honors awarded- 5/1984

Eckerd College, St. Petersburg, FL US

Bachelor’s thesis on sampling and analyzing concentrations of heavy metals in Florida mullet

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF XTO ENERGY, INC. – BULLDOG COMPRESSOR STATION
FOR AN AIR QUALITY PERMIT **AQB 21-31**

TECHNICAL TESTIMONY OF URSHULA BAJRACHARYA

I. INTRODUCTION

My name is Urshula Bajracharya. I am a Permit Specialist in the Major Source – Prevention of Significant Deterioration Unit ("PSD Unit") of the Permitting Section of the Air Quality Bureau ("AQB" or "Bureau") of the New Mexico Environment Department ("NMED" or "Department"). I present this written testimony on behalf of the Department for the public hearing on the permit application submitted by XTO Energy Inc. ("XTO") for their Bulldog Compressor Station ("Bulldog CS") ("Application 8153M1").

My testimony will address the following topics: my qualifications, a summary of Application 8153M1, my administrative review of Application 8153M1, the technical review of Application 8153M1, AQB's public outreach efforts throughout various stages of this permitting action, and the basis for conditions in the 2021.05.28 version of Draft Permit 8153M1 for XTO's proposed facility.

II. QUALIFICATIONS

I have been an employee of the Bureau since 2019 for approximately two years, working as a Permit Specialist. As a Permit Specialist, I perform technical and regulatory review of complex Air Quality Bureau permit applications within regulatory deadlines. I verify emissions calculations; determine applicable state regulations and federal regulations; coordinate with various stakeholders including the public, industry, consultants, and AQB staff; write legally

enforceable air permits and technical support documents for the administrative record; enter data into the AQB database; and complete various special projects to achieve AQB goals.

My full background and qualifications are set forth in my resume. **[NMED Exhibit 26]**.

III. SUMMARY OF APPLICATION 8153M1

XTO's Bulldog CS is presently located at 607470 m UTME, 3602719 m UTMN, Zone 13, Datum WGS84, approximately 22 miles north-east of Carlsbad, New Mexico. With this application, XTO proposes the following: modification of eleven (11) compressor engines, three (3) reboilers, two (2) flares, one (1) still vent emission, two (2) skim tanks, four (4) condensate tanks, two (2) produced water tanks, two (2) vapor recovery units, three (3) TEG dehydrator units, low pressure separator, truck loading and fugitive emissions.

IV. ADMINISTRATIVE REVIEW

Application 8153M1 was received by the New Mexico Environment Department on September 25, 2020. Pursuant to 20.2.72.207(A) NMAC, the Department had 30 days to review the application and determine whether it was administratively complete.

The administrative review of an application is not a technical review, but a review of the presence of the required parts of the application, including the applicant's modeling analysis and the applicant's proof of public notice. All required contents of the application are listed in 20.2.72.203 NMAC. Upon receipt of Application 8153M1, I provided the applicant's modeling files to AQB Modeling Manager, Mr. Sufi Mustafa, for assignment. On October 19, 2020, Mr. Mustafa sent me an e-mail confirming Application 8153M1 could be ruled complete from a modeling perspective. The modeling for this project was assigned to Ms. Angela Raso **[AR No. 20, Bates 0387].**

I calculated the permit fee for XTO's Application 8153M1 based on fee units in 20.2.75 NMAC and application regulations and AQB's administrative staff generated an invoice for the permit fee. On October 23, 2020, I ruled the application 8153M1 administratively complete [**AR No. 2, Bates 0243-0247**]. I sent the completion determination letter, including a copy of the Department's Legal Notice, and the invoice for the permit fee to the applicant on October 23, 2020. On October 23, 2020, I sent the Department's Legal Notice and Affected Party letter to Carlsbad Caverns National Park, as required by regulation. The Department's Legal Notice and permit Application 8153M1 was posted on the AQB website on October 23, 2020 **[AR No. 21, Bates 0388-0389]** and published in the *Carlsbad Current Argus* on October 27, 2020 **[AR No. 4, Bates 0249-0251]**. WEG submitted their first comments on November 24, 2020 **[AR No. 9, Bates 0333-0340]**. The first citizen letter was sent to WEG on December 7, 2020 and the application and public notice were moved from the primary AQB public notice web-site over to the AQB web-site for Permit Applications with Public Interest, Public Meetings, or Public Hearing **[AR No. 22, Bates 0390-0391]**. After the draft permit and analysis were complete, they were emailed to WEG on May 28, 2021, along with the second citizen letter and simultaneously the draft documents were posted on the AQB web-site May 28, 2021 **[AR No. 25, Bates 0395-0396]**. A second round of comments on the draft permit and analysis were submitted by WEG on June 28, 2021. **[AR No. 10, Bates 0341-0346]**.

V. TECHNICAL REVIEW

I began the technical review of XTO's application 8153M1 after I determined it was administratively complete. The technical review requires verification of emissions calculations and a determination of applicable federal regulations and state regulations.

I verified emissions calculations by confirming the correct emission factors and formulas were used in calculating emissions for all sources. If methods were unclear, I asked the consultant for further explanation or updates, as necessary. Also, I verified the emissions totals from the calculations matched the emissions totals in Section 2 of the application.

I requested some of these updates while doing an initial review of calculations. I requested other updates if discrepancies in the application became apparent while writing Draft Permit 8153M1. The Department has reviewed the emission calculations submitted in the application for all regulated equipment and the emission factors relied upon in those calculations. The facility emissions were calculated using Excel spreadsheets using manufacturer's data sheet emission factors, TCEQ emission factors, or US EPA's AP-42 Compilation of Air Emission Factors, including EPA's Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017), as well as oil and gas industry software, such as ProMax®**.**

I summarized my review in the Statement of Basis. **[AR No. 7, Bates 0273-0278].** The Statement of Basis is a permitting record that includes a description and history of the facility, a regulatory applicability review and compliance discussion, any public response received by the Department, and summarizes any unique conditions in the permit.

VI. PUBLIC OUTREACH

Once the public notice was published, interested persons were allowed thirty (30) days to express an interest in writing in the permit application per 20.2.72.206(A)(5) NMAC. The public notice was published in the newspaper on October 27, 2020, and the end of the 30-day comment period was November 26, 2020. **[AR No. 4, Bates 0249-0251]**. WEG initial comment letter was received by the Department November 24, 2020 **[AR No. 9, Bates 0333-0340]**. Upon completion

of the analysis and draft permit, the documents were published on the AQB web-site for "Permit Applications with Public Interest, Public Meeting, or Public Hearing" on May 28, 2021 **[AR No. 25, Bates 0395-0396]**. On May 28, 2021, the second citizen letter was emailed to WEG **[AR No. 12, Bates 0351]**. This started the second 30-day comment period with an end date of June 27, 2021. The Department received additional comments from WEG on June 28, 2021. **[AR No. 10, Bates 0341-0346]** The NMED Cabinet Department Secretary had already determined on February 11, 2021, that this permit would go to a hearing so responses to the June 28, 2021 comments are included with this testimony. **[AR No. 26, Bates 0397-0399]**.

VII. BASIS FOR PERMIT CONDITIONS

The Department's authority to include conditions in an Air Quality permit is stated in 20.2.72.210 NMAC Permit Conditions. If a permit is issued, it will specify what equipment is authorized to be installed and operated, will place limits on air pollutants, and place requirements on how equipment will be operated. A permit is an enforceable legal document, and will include emission limits, methods for determining compliance on a regular basis, and will place monitoring, recordkeeping, and reporting requirements to ensure and verify compliance with the requirements of the permit.

Conditions in Part A of the permit are Facility Specific Requirements, unique to the facility. They are site-specific and based on information provided in the application. Conditions in Part B of the permit are General Conditions and standard language which generally apply to all sources. Part C is also standard language about supporting on-line documents, definitions, and acronyms which apply to all sources.

A draft permit is a dynamic working document subject to updates throughout the review process. Draft Permit 8153M1 began with standardized language in an AQB permit template and

standardized AQB monitoring protocols added as necessary for the sources of emissions and control devices at XTO's proposed facility revisions for Bulldog CS. Since this was a modification to XTO's existing permit 8153 many conditions were already in place but required revision to address XTO's facility changes. I wrote both standard monitoring conditions as well as some unique permitting conditions for site specific operations and equipment, based on information provided in the application.

Permit conditions establish ongoing testing and monitoring requirements for processes and pieces of equipment to ensure the equipment is operating in accordance with the permitted emission limits.

VIII. RESPONSES TO COMMENTS RECEIVED ON APPLICATION

The Air Quality Bureau received public comments from WildEarth Guardians ("WEG") on this application on November 24, 2020 of the 30-day comment period following publication of the Bureau's newspaper public notice on October 27, 2020. On May 28, 2021, the Bureau started the 30-day analysis period on the draft permit. The draft permit and draft Statement of Basis were sent directly to WEG via email (on May 28, 2021). On June 28, 2021, AQB received a second set of comments from WEG (that also incorporated by reference the initial comments of WEG). The following section presents the Bureau's responses to all comments submitted in either set of comments on this application in the format of the comment followed by the response from AQB. The comments are presented in the order of topic as follows: public notice; startup, shutdown, maintenance, and malfunction emissions (SSM); SSM and HAPs; inclusion of adjacent and surrounding facilities; inclusion of all point sources within the source; gas-actuated pneumatic controllers; environmental justice concerns; compliance with Toxic Air Pollutant (TAP)

permitting; Title V operating permit applications; air quality regulatory compliance status of the facility; air dispersion modeling results; and meeting 8-hour ozone NAAQS in southeast NM. Responses to comments regarding air dispersion modeling are in the written testimony presented by the technical witnesses for the modeling section. The hearing determination signed February 11, 2021 stated that the hearing would be **granted only as to issues not addressed in EIB Nos. 20-21(A) and 20-33(A) [AR No. 26, Bates 0397-0399]**. Therefore, comments related to ozone concentrations in southeastern New Mexico and attainment status of that area are not included in these responses.

Comment: As an initial matter, we note that the Department's Legal Notice and Preliminary Determination for an Air Quality Permit for XTO's Bulldog facility, published on October 23, 2020, limited public comment submissions to mailing hardcopy comments to NMED's physical address. Due to the COVID-19 pandemic and New Mexico's public health emergency order, some members of the public may have health risk factors that preclude them from obtaining postage and submitting comments to the Department at the address provided in the legal notice. The omission of instructions for how the public could submit comments electronically and an explanation that the Department would accept comments in this format may well have prevented or dissuaded some members of the public with health risks from commenting and informing the Department's review of this permit application. Similarly, because the Department's public notice incorrectly limited public comment to hardcopy mail submissions so, too, did the applicant's public notices it published in local media in Lea County. The application for this proposed permit indicates the public in Lea County was informed it could only participate in the public review process for this permit by mailing hardcopy comments despite the fact that doing so during the COVID-19

Pandemic could have public health risks. For purposes of XTO's present permit application, we request the Department consider re-issuing the legal notice, with the addition of an explanation of how the public can submit comments via email, and provide another 30-day review period for members of the public to notify the Department of their interest. Although Guardians figured out that e-mailing comments was acceptable, other members of the public may not have the experience or the expertise to understand that this option exists. A sufficient legal notice is critical for ensuring NMED effectively informs and engages the public, provides a meaningful opportunity for the public to weigh in, and meets its environmental justice objectives under Executive Order 2005-056 **[AR No. 10, Bates 0341-0346]**.

Response: The applicant's public notice met all regulatory requirements in 20.2.72.203.C NMAC and the requirements in the AQB Public Notice Guidelines. Applicant public notices are conducted prior to submission of the application to the Bureau. At that time, a permit writer has not been assigned and therefore their email address cannot be included in the applicant's notice. While the standard text for the applicant's notice states that comments should be submitted in writing, it also provides a toll-free phone number that would allow any interested party to reach the Bureau with questions. That provides an opportunity to register an objection or concern to mailing comments, and to request an alternative submission method. No phone calls making such a request were received on this permit. In response to the concern about the AQB notice specifying comments must be submitted in writing, AQB's re-publication of the public notice for several other permits did not generate any additional public interest from any other party for those permits. That result on the other permits indicates that WildEarth Guardians assertion that the omission of an email address prevented other interested parties from providing comment is unlikely to be correct.

Comment: We request the Department update its legal notices for air quality permit proposals, so that future legal notices include a publishing date or comment deadline to inform the general public when comments must be submitted and when proposed permits have been reopened for public comment. For purposes of XTO's present permit application, we request the Department consider re-issuing the legal notice, with the addition of an explanation of how the public can submit comments via email, the date those comments are due, and provide another 30-day review period for members of the public to notify the Department of their interest. Although Guardians figured out that e-mailing comments was acceptable, other members of the public may not have the experience or the expertise to understand that this option exists. A sufficient legal notice is critical for ensuring NMED effectively informs and engages the public, provides a meaningful opportunity for the public to weigh in, and meets its environmental justice objectives under Executive Order 2005-056 **[AR No. 10, Bates 0341-0346]**.

Response: The start date for an initial public notice begins on the day that the public notice appears in the newspaper [20.2.72.206.A.(3) NMAC]. The Bureau publishes notices and drafts on its website as soon as practicable, but publication on the website does not start the 30-day comment period. The text of the legal notice does not contain the date of the start of the comment period because once a notice is submitted to the newspaper there is a window of several days in which the notice may publish. The exact date of publication is unavailable prior to submission of the final copy to the newspaper. The date on the newspaper in which the notice publishes is the start of the 30-day comment period. For this permit, the date of the start of the 30-day analysis period for comments on the draft, which is determined by when the Bureau sends the draft to interested persons who have commented on the public notice [20.2.72.206.B(2) NMAC], was posted on the AQB website listed in red font above the links to the draft documents at

https://www.env.nm.gov/air-quality/permit-applications-with-public-interest-public-meeting-or-public-hearing/. A citizen letter sent to commenters with the draft also informs them that the 30-day analysis period has begun.

Comment: The annual 10 ton/year VOC limit for malfunction emissions resulting from the venting of gas due to malfunction is also unenforceable as a practical matter. Similar to our concerns above, while Condition A107.D requires calculation of VOC emissions based on inlet gas analysis and volume of gas vented, it is not clear how the volume of vented gas is actually measured during malfunctions **[AR No. 10, Bates 0341-0346]**.

Response: The malfunction condition requires tracking of the VOC emissions based on the inlet gas analysis (% VOC) and the volume of gas released during the malfunction. Malfunctions result in venting to depressurize the portion of the facility experiencing a malfunction. The volume is calculated based on the gas volume within the equipment which is de-pressurized. The permit authorizes 10 tpy of malfunction to reduce the reporting of very small releases allowing the Department to focus on investigating malfunctions that result in large releases.

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measured. There is no indication that a meter or other means of volumetric measurements will be utilized to actually accurately measure vented gas. In the list of equipment in Table 104.A, the SSM unit has no identified rated or permitted capacity that would indicate the volume of gas vented could actually be measured on an MMscf basis **[AR No. 10, Bates 0341-0346]**.

Response: For these SSM activities, the VOC releases are determined based on the gas composition, the volume of gas released during an activity, and the number of activities. For compressor blowdowns, the volume of gas from compressor blowdowns is based on the known interior gas volume within the compressor and the number of times the compressor blows down (releases pressure). Pigging equipment blowdowns are based on the amount of gas pushed out of the end of the line as the pig travels through a segment of gas line. The amount of gas is determined from the volume within the line being serviced and the gas composition. The same approach is used for other miscellaneous SSM activities. Because SSM represents various activities, SSM does not have a single volume or capacity. The volumes used in the calculations are based on engineering knowledge of the individual equipment undergoing the startup, shutdown, or maintenance.

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potential to emit. Indeed, based on the hourly limits in the permit, the facility has the potential to emit 2,369 tons/year of NOx, 4,734 tons of carbon monoxide, and 4,349 tons of VOCs. These emission rates are all above prevention of significant deterioration (PSD) major source thresholds, meaning XTO must apply for a PSD permit and cannot be issued the permit as proposed.

Although we understand the presumption is that the annual limits set forth at Table 107.A will restrict SSM emissions, as a practical matter, with no limitation on the duration or number of instances of SSM emissions, this cannot be the case. While the permit may impose annual emission limits during instances of SSM, it also permits the facility to operate in a way that will exceed these limits. As a result, the annual SSM limits will not serve as an actual, enforceable limit to the Bulldog Compressor Station's potential to emit **[AR No. 10, Bates 0341-0346]**.

Response: Establishment of hourly emission limits in any permit does not imply that these emissions are permitted for every hour of the year. Both hourly and annual emission limits are enforceable in an air quality permit. The Bureau establishes hourly limits to ensure compliance with short-term air quality standards and annual emission limits to ensure compliance with long-term air quality standards. For the SSM flaring referred to in this comment, condition A107.C requires that the flare be operated in accordance with conditions A206.A and A206.B. Condition A206.B monitoring requires that a flowmeter be installed to measure and record the volume of gas going to the flare. Condition A206.A requires that the flare operate with no visible emissions, which ensures the flare meets its 98% destruction efficiency. The recordkeeping section of condition A107.C requires calculation of hourly and annual emissions using the gas analysis, volume of gas sent to the flare, and destruction efficiency of the flare. This recordkeeping section requires keeping spreadsheet of the emissions and maintaining "monthly rolling 12-month totals".

These monthly rolling totals ensure that the annual limits are not exceeded during any 12 month period so compliance is demonstrated with annual emission limits.

Comment: We are concerned that XTO's application and the proposed permit does not address emissions from gas-actuated pneumatic controllers at the Bulldog Compressor Station. Gas-actuated pneumatic controllers are point sources of air pollution and cumulatively release large amounts of VOC emissions. NMED must disclose the number of gas-actuated pneumatic controllers at the Bulldog Compressor Station and estimate total VOC emissions from these pollutant emitting activities **[AR No. 10, Bates 0341-0346]**.

Response: The applicant, XTO Energy, Inc verified through email to AQB that all pneumatic controllers at their facility are run on 'instrument air'. This means the pneumatic controller uses compressed air to activate and does not release any natural gas when it activates. Instrument air powered controllers are therefore not sources of regulated pollutants and there is no requirement to report them in an application for an air quality permit. At Bulldog CS, there is an emergency system that would switch these instrument air controllers to using natural gas in emergency failure of instrument air. That situation is not part of normal operations (not covered by allowable emissions in Table 106.A) nor SSM emissions (Table 107.A limits) but represents a malfunction at the plant and the releases would be required for inclusion under malfunction emissions accounted for in the permit or as excess emissions. The natural gas actuated controllers qualify as "low bleed" under 40 CFR 60 Subpart OOOOa and would release no more than 6 standard cubic feet per hour under §60.5365a(d)(1) and §60.5390a(c)(1) if they were used during the emergency **[AR No. 35, Bates 0417-0418]**.

Comment: Guardians requests that NMED provide an explanation for how the proposed permit modification and associated increase in air pollution will not disproportionately impact low-income communities and communities of color, pursuant to New Mexico Executive Order 2005-056. Guardians was unable to identify a discussion of these considerations in the documents NMED released in support of the proposed permit **[AR No. 10, Bates 0341-0346]**.

Response: NMED Policy 07-13, Public Participation delineates the approach used by NMED to address these concerns. For each permitting action, NMED uses the EPA EJSCREEN tool to evaluate demographic information for an area around the facility; the area is a 4-mile circle around the facility except smaller within urbanized areas. Data from EPA EJSCREEN is evaluated by the permit writer and their manager to evaluate if any additional outreach needs to be done beyond the regulatory requirements. This assessment includes factors such as number of households, per capita income, percent of Linguistically Isolated Households, and percent minority population. Past involvement by the public in air permitting for the facility is also reviewed.

Comment: We are finally concerned that NMED and XTO have not demonstrated compliance with toxic air pollutant permitting requirements at 20.2.72.400-499 NMAC. While XTO asserts in its application that it is not subject to these requirements and that toxic air pollutants are not emitted or will remain unchanged, this does not appear to be the case. Given that the Bulldog Compressor Station releases VOCs, it is likely the facility releases a number of toxic air pollutants listed at 20.2.72.502 that are frequently part of VOC emission streams from the oil and gas sector. These toxic air pollutants include, but are not limited to, cyclohexane, hexene, nonane, trimethylbenzene, and likely many others. Many of these substances have been explicitly identified as VOC species associated with the oil and gas sector. *See* Exhibit 2, U.S. Environmental Protection Agency, "Advancing Understanding of Emissions from Oil and Natural Gas Production Operations to Support EPA's Air Quality Modeling

of Ozone Non-Attainment Areas," Final Summary Report (Sept. 6, 2016) **[AR No. 9, Bates 0333-0340]**.

Response: Compressor Stations are not a gas processing plant or a refinery and, therefore, meet the definition of an oil and gas production facility, per 20.2.72.401.F NMAC. As an oil and gas production facility, it is exempt (in 20.2.72.402.C NMAC) to applicability and any requirements of 20.2.72.400 NMAC - 20.2.72.405 NMAC for toxic air pollutants.

Comment: Guardians requests that NMED explain whether or not XTO's Bulldog facility is in compliance with the laws and rules that govern its air quality permitting. This facility was first permitted in 2019, but no compliance tests have been performed since that time, according to NMED's Statement of Basis. Guardians requests the Department explain why no compliance tests have been conducted and whether this omission complies with the applicable legal requirements **[AR No. 10, Bates 0341-0346]**.

Response: The AQB Compliance and Enforcement Section response on January 6, 2021, stated that there were no outstanding notice of violation and no settlement agreement for which all actions have not been complete. This information has been included in the draft of the Statement of Basis **[AR No. 23, Bates 0392-0393]**.

IX. CONCLUSION

The Bureau has completed a technical review of this application. The facility, as represented in the application, demonstrates compliance with all federal and state regulations. The facility's operations, as represented in this application, do not cause nor significantly contribute to any exceedances of applicable air quality standards. These results are based on the modeling

analysis and emissions calculations for Carbon Monoxide (CO), Nitrogen Dioxide (NO2), Particulate Matter 10 micrometers or less in aerodynamic diameter (PM10), Particulate Matter (2.5 microns or less) (PM2.5), and Sulfur Dioxide (SO2). The comments received by the Bureau on this permit have been responded to in this testimony. The responses demonstrate that the comments do not raise any substantive issues that indicate this permit should not be issued. The permit complies with all air quality regulations and contains demonstrations of compliance for all conditions and emission limits to ensure compliance with Ambient Air Quality Standards. The Air Quality Bureau recommends that the Secretary uphold the Department's decision to approve issuance of this Permit.

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF XTO ENERGY, INC. – LONGHORN COMPRESSOR STATION
FOR AN AIR QUALITY PERMIT **AQB 21-33**

TECHNICAL TESTIMONY OF URSHULA BAJRACHARYA

I. INTRODUCTION

My name is Urshula Bajracharya. I am a Permit Specialist in the Major Source – Prevention of Significant Deterioration Unit ("PSD Unit") of the Permitting Section of the Air Quality Bureau ("AQB" or "Bureau") of the New Mexico Environment Department ("NMED" or "Department"). I present this written testimony on behalf of the Department for the public hearing on the permit application submitted by XTO Energy Inc. ("XTO") for their Longhorn Compressor Station ("Longhorn CS") ("Application 8349M2").

My testimony will address the following topics: my qualifications, a summary of Application 8349M2, my administrative review of Application 8349M2, the technical review of Application 8349M2, AQB's public outreach efforts throughout various stages of this permitting action, and the basis for conditions in the 2021.05.28 version of Draft Permit 8349M2 for XTO's proposed facility.

II. QUALIFICATIONS

I have been an employee of the Bureau since 2019 for approximately two years, working as a Permit Specialist. As a Permit Specialist, I perform technical and regulatory review of complex Air Quality Bureau permit applications within regulatory deadlines. I verify emissions calculations; determine applicable state regulations and federal regulations; coordinate with various stakeholders including the public, industry, consultants, and AQB staff; write legally

enforceable air permits and technical support documents for the administrative record; enter data into the AQB database; and complete various special projects to achieve AQB goals.

My full background and qualifications are set forth in my resume. **[NMED Exhibit 26]**.

III. SUMMARY OF APPLICATION 8349M2

XTO's Longhorn CS is presently located at 607520 m UTME, 3582220 m UTMN, Zone 13, Datum WGS84, approximately 15 miles north-east of Loving, New Mexico. With this application, XTO proposes the following: modification of eleven (11) compressor engines, three (3) reboilers, two (2) flares, one (1) still vent emission, two (2) skim tanks, four (4) condensate tanks, two (2) produced water tanks, two (2) vapor recovery units, three (3) TEG dehydrator units, low pressure separator, truck loading and fugitive emissions.

IV. ADMINISTRATIVE REVIEW

Application 8349M2 was received by the New Mexico Environment Department on September 30, 2020. Pursuant to 20.2.72.207(A) NMAC, the Department had 30 days to review the application and determine whether it was administratively complete.

The administrative review of an application is not a technical review, but a review of the presence of the required parts of the application, including the applicant's modeling analysis and the applicant's proof of public notice. All required contents of the application are listed in 20.2.72.203 NMAC. Upon receipt of Application 8349M2, I provided the applicant's modeling files to AQB Modeling Manager, Mr. Sufi Mustafa, for assignment. On October 15, 2020, Mr. Mustafa sent me an e-mail confirming Application 8349M2 could be ruled complete from a

modeling perspective. The modeling for this project was assigned to Mr. Rhett Zyla **[AR No. 20, Bates 0930].**

I calculated the permit fee for XTO's Application 8349M2 based on fee units in 20.2.75 NMAC and application regulations and AQB's administrative staff generated an invoice for the permit fee. On October 30, 2020, I ruled the application 8349M2 administratively complete [**AR No. 2, Bates 0223-0227**]. I sent the completion determination letter, including a copy of the Department's Legal Notice, and the invoice for the permit fee to the applicant on October 30, 2020. On October 30, 2020, I sent the Department's Legal Notice and Affected Party letter to the State of Texas, as required by regulation. The Department's Legal Notice and permit Application 8349M2 was posted on the AQB website on October 30, 2020 **[AR No. 21, Bates 0931-0932]** and published in the *Carlsbad Current Argus* on November 3, 2020 **[AR No. 4, Bates 0230-0232]**. The Parties submitted their first comments on December 3, 2020 **[AR No. 9, Bates 0312-0883]**. The first citizen letter was sent to The Parties on December 23, 2020 and the application and public notice were moved from the primary AQB public notice web-site over to the AQB web-site for Permit Applications with Public Interest, Public Meetings, or Public Hearing **[AR No. 22, Bates 0933]**. After the draft permit and analysis were complete, they were emailed to The Parties on May 28, 2021, along with the second citizen letter and simultaneously the draft documents were posted on the AQB web-site May 28, 2021 **[AR No. 25, Bates 0937-0938]**. A second round of comments on the draft permit and analysis were submitted by WEG on June 28, 2021. Although WEG was the sole signatory on this second set of comments, the initial comments of The Parties were incorporated by reference. **[AR No. 10, Bates 0884-0889]**.

V. TECHNICAL REVIEW

I began the technical review of XTO's application 8349M2 after I determined it was administratively complete. The technical review requires verification of emissions calculations and a determination of applicable federal regulations and state regulations.

I verified emissions calculations by confirming the correct emission factors and formulas were used in calculating emissions for all sources. If methods were unclear, I asked the consultant for further explanation or updates, as necessary. Also, I verified the emissions totals from the calculations matched the emissions totals in Section 2 of the application.

I requested some of these updates while doing an initial review of calculations. I requested other updates if discrepancies in the application became apparent while writing Draft Permit 8349M2. The Department has reviewed the emission calculations submitted in the application for all regulated equipment and the emission factors relied upon in those calculations. The facility emissions were calculated using Excel spreadsheets using manufacturer's data sheet emission factors, TCEQ emission factors, or US EPA's AP-42 Compilation of Air Emission Factors, including EPA's Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017), as well as oil and gas industry software, such as ProMax®.

I summarized my review in the Statement of Basis **[AR No. 7, Bates 0252-0258].** The Statement of Basis is a permitting record that includes a description and history of the facility, a regulatory applicability review and compliance discussion, any public response received by the Department, and summarizes any unique conditions in the permit.

VI. PUBLIC OUTREACH

Once the public notice was published, interested persons were allowed thirty (30) days to express an interest in writing in the permit application per 20.2.72.206(A)(5) NMAC. The public notice was published in the newspaper on November 3, 2020, and the end of the 30-day comment period was December 3, 2020. **[AR No. 4, Bates 0230-0232]**. The Parties initial comment letter was received by the Department December 3, 2020 **[AR No. 9, Bates 0312-0883]**. Upon completion of the analysis and draft permit, the documents were published on the AQB web-site for "Permit Applications with Public Interest, Public Meeting, or Public Hearing" on May 28, 2021 **[AR No. 25, Bates 0937-0938]**. On May 28, 2021, the second citizen letter was emailed to The Parties **[AR No. 12, Bates 0894]**. This started the second 30-day comment period with an end date of June 27, 2021. The Department received additional comments from WEG on June 28, 2021 (WEG was sole signatory on the second comments but incorporated the initial comments of The Parties by reference) **[AR No. 10, Bates 0884-0889].** The NMED Cabinet Department Secretary had already determined on February 11, 2021, that this permit would go to a hearing so responses to the June 28, 2021, comments are included with this testimony**.**

VII. BASIS FOR PERMIT CONDITIONS

The Department's authority to include conditions in an Air Quality permit is stated in 20.2.72.210 NMAC Permit Conditions. If a permit is issued, it will specify what equipment is authorized to be installed and operated, will place limits on air pollutants, and place requirements on how equipment will be operated. A permit is an enforceable legal document, and will include emission limits, methods for determining compliance on a regular basis, and will place monitoring,

recordkeeping, and reporting requirements to ensure and verify compliance with the requirements of the permit.

Conditions in Part A of the permit are Facility Specific Requirements, unique to the facility. They are site-specific and based on information provided in the application. Conditions in Part B of the permit are General Conditions and standard language which generally apply to all sources. Part C is also standard language about supporting on-line documents, definitions, and acronyms which apply to all sources.

A draft permit is a dynamic working document subject to updates throughout the review process. Draft Permit 8349M2 began with standardized language in an AQB permit template and standardized AQB monitoring protocols added as necessary for the sources of emissions and control devices at XTO's proposed facility revisions for Longhorn CS. Since this was a modification to XTO's existing permit 8349M1 many conditions were already in place but required revision to address XTO's facility changes. I wrote both standard monitoring conditions as well as some unique permitting conditions for site specific operations and equipment, based on information provided in the application.

Permit conditions establish ongoing testing and monitoring requirements for processes and pieces of equipment to ensure the equipment is operating in accordance with the permitted emission limits.

VIII. RESPONSES TO COMMENTS RECEIVED ON APPLICATION

The Air Quality Bureau received public comments from WildEarth Guardians ("WEG") and three co-signing parties, New Mexico Environmental Law Center ("NMELC"), Center for Biological Diversity ("CBD"), and Western Environmental Law Center ("WELC") (collectively

"The Parties") on this application on December 3, 2020, on the last day of the 30-day comment period following publication of the Bureau's newspaper public notice on November 3, 2020. On May 28, 2021, the Bureau started the 30-day analysis period on the draft permit. The draft permit and draft Statement of Basis were sent directly to The Parties via email (on May 28, 2021). On June 28, 2021, AQB received a second set of comments from WEG (that also incorporated by reference the initial comments of The Parties). The following section presents the Bureau's responses to all comments submitted in either set of comments on this application in the format of the comment followed by the response from AQB. The comments are presented in the order of topic as follows: public notice; startup, shutdown, maintenance, and malfunction emissions (SSM); SSM and HAPs; inclusion of adjacent and surrounding facilities; inclusion of all point sources within the source; gas-actuated pneumatic controllers; environmental justice concerns; compliance with Toxic Air Pollutant (TAP) permitting; Title V operating permit applications; air quality regulatory compliance status of the facility; air dispersion modeling results; and meeting 8-hour ozone NAAQS in southeast NM. Responses to comments regarding air dispersion modeling are in the written testimony presented by the technical witnesses for the modeling section. The hearing determination signed February 11, 2021 stated that the hearing would be **granted only as to issues not addressed in EIB Nos. 20-21(A) and 20-33(A) [AR No. 26, Bates 0939-0941]**. Therefore, comments related to ozone concentrations in southeastern New Mexico and attainment status of that area are not included in these responses.

Comment: Similarly, because the Department's public notice incorrectly limited public comment to hardcopy mail submissions so, too, did the applicant's public notices it published in local media in Lea County. The application for this proposed permit indicates the public in Lea County was

informed it could only participate in the public review process for this permit by mailing hardcopy comments despite the fact that doing so during the COVID-19 Pandemic could have public health risks. For purposes of XTO's present permit application, we request the Department consider re-issuing the legal notice, with the addition of an explanation of how the public can submit comments via email, and provide another 30-day review period for members of the public to notify the Department of their interest. Although Guardians figured out that e-mailing comments was acceptable, other members of the public may not have the experience or the expertise to understand that this option exists. A sufficient legal notice is critical for ensuring NMED effectively informs and engages the public, provides a meaningful opportunity for the public to weigh in, and meets its environmental justice objectives under Executive Order 2005-056 **[AR No. 10, Bates 0884-0889]**.

Response: The applicant's public notice met all regulatory requirements in 20.2.72.203.C NMAC and the requirements in the AQB Public Notice Guidelines. Applicant public notices are conducted prior to submission of the application to the Bureau. At that time, a permit writer has not been assigned and therefore their email address cannot be included in the applicant's notice. While the standard text for the applicant's notice states that comments should be submitted in writing, it also provides a toll-free phone number that would allow any interested party to reach the Bureau with questions. That provides an opportunity to register an objection or concern to mailing comments, and to request an alternative submission method. No phone calls making such a request were received on this permit. In addition, AQB's re-publication of the public notice for several other permits did not generate any additional public interest from any other party for those permits. That result on the other permits indicates that WildEarth Guardians assertion that the omission of an email address prevented other interested parties from providing comment is unlikely to be correct.

Comment: We request the Department update its legal notices for air quality permit proposals, so that future legal notices include a publishing date or comment deadline to inform the general public when comments must be submitted and when proposed permits have been reopened for public comment. For purposes of XTO's present permit application, we request the Department consider re-issuing the legal notice, with the addition of an explanation of how the public can submit comments via email, the date those comments are due, and provide another 30-day review period for members of the public to notify the Department of their interest. Although Guardians figured out that e-mailing comments was acceptable, other members of the public may not have the experience or the expertise to understand that this option exists. A sufficient legal notice is critical for ensuring NMED effectively informs and engages the public, provides a meaningful opportunity for the public to weigh in, and meets its environmental justice objectives under Executive Order 2005-056 **[AR No. 10, Bates 0884-0889]**.

Response: The start date for an initial public notice begins on the day that the public notice appears in the newspaper [20.2.72.206.A.(3) NMAC]. The Bureau publishes notices and drafts on its website as soon as practicable, but publication on the website does not start the 30-day comment period. The text of the legal notice does not contain the date of the start of the comment period because once a notice is submitted to the newspaper there is a window of several days in which the notice may publish. The exact date of publication is unavailable prior to submission of the final copy to the newspaper. The date on the newspaper in which the notice publishes is the start of the comment period. For this permit, the initial 30-day comment period had concluded [insert # weeks/months] before this comment was received. Therefore, the newspaper notice was not republished and another 30-day comment initial notice was not done for these permits. AQB's re-

publication of the public notice for several other permits did not generate any additional public interest from any other party for those permits. That result on the other permits indicates that WildEarth Guardians assertion that the omission of an email address prevented other interested parties from providing comment is unlikely to be correct. For this permit, the date of the start of the 30-day analysis period for comments on the draft, which is determined by when the Bureau sends the draft to interested persons who have commented on the public notice [20.2.72.206.B(2) NMAC], was posted on the AQB website listed in red font above the links to the draft documents at https://www.env.nm.gov/air-quality/permit-applications-with-public-interest-public-meeting-or-public-hearing/. A citizen letter sent to commenters with the draft also informs them that the 30-day analysis period has begun.

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Response: For these SSM activities, the VOC releases are determined based on the gas composition, the volume of gas released during an activity, and the number of activities. For compressor blowdowns, the volume of gas from compressor blowdowns is based on the known

interior gas volume within the compressor and the number of times the compressor blows down (releases pressure). Pigging equipment blowdowns are based on the amount of gas pushed out of the end of the line as the pig travels through a segment of gas line. The amount of gas is determined from the volume within the line being serviced and the gas composition. The same approach is used for other miscellaneous SSM activities. Because SSM represents various activities, SSM does not have a single volume or capacity. The volumes used in the calculations are based on engineering knowledge of the individual equipment undergoing the startup, shutdown, or maintenance.

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at the plant and the releases would be required for inclusion under malfunction emissions accounted for in the permit or as excess emissions. The natural gas actuated controllers qualify as "low bleed" under 40 CFR 60 Subpart OOOOa and would release no more than 6 standard cubic feet per hour under §60.5365a(d)(1) and §60.5390a(c)(1) if they were used during the emergency **[AR No. 35, Bates 0959-0960]**.

Comment: Guardians requests that NMED provide an explanation for how the proposed permit modification and associated increase in air pollution will not disproportionately impact low-income communities and communities of color, pursuant to New Mexico Executive Order 2005-056. Guardians was unable to identify a discussion of these considerations in the documents NMED released in support of the proposed permit [**AR No. 10, Bates 0884-0889]**.

Response: NMED Policy 07-13, Public Participation delineates the approach used by NMED to address these concerns. For each permitting action, NMED uses the EPA EJSCREEN tool to evaluate demographic information for an area around the facility; the area is a 4-mile circle around the facility except smaller within urbanized areas. Data from EPA EJSCREEN is evaluated by the permit writer and their manager to evaluate if any additional outreach needs to be done beyond the regulatory requirements. This assessment includes factors such as number of households, per capita income, percent of Linguistically Isolated Households, and percent minority population. Past involvement by the public in air permitting for the facility is also reviewed.

Comment: We are finally concerned that NMED and XTO have not demonstrated compliance with toxic air pollutant permitting requirements at 20.2.72.400-499 NMAC. While XTO asserts in its application that it is not subject to these requirements and that toxic air pollutants are not emitted

or will remain unchanged, this does not appear to be the case. Given that the Longhorn Compressor Station releases VOCs, it is likely the facility releases a number of toxic air pollutants listed at 20.2.72.502 that are frequently part of VOC emission streams from the oil and gas sector. These toxic air pollutants include, but are not limited to, cyclohexane, hexene, nonane, trimethylbenzene, and likely many others. Many of these substances have been explicitly identified as VOC species associated with the oil and gas sector. See Exhibit 2, U.S. Environmental Protection Agency, "Advancing Understanding of Emissions from Oil and Natural Gas Production Operations to Support EPA's Air Quality Modeling of Ozone Non-Attainment Areas," Final Summary Report (Sept. 6, 2016) [**AR No. 9, Bates 0312-0883]**.

Response: Compressor Stations are not a gas processing plant or a refinery and, therefore, meet the definition of an oil and gas production facility, per 20.2.72.401.F NMAC. As an oil and gas production facility, it is exempt (in 20.2.72.402.C NMAC) to applicability and any requirements of 20.2.72.400 NMAC - 20.2.72.405 NMAC for toxic air pollutants.

Comment: Guardians requests that NMED explain whether or not XTO's Longhorn facility is in compliance with the laws and rules that govern its air quality permitting. This facility was first permitted in 2019, but no compliance tests have been performed since that time, according to NMED's Statement of Basis. Guardians requests the Department explain why no compliance tests have been conducted and whether this omission complies with the applicable legal requirements [**AR No. 10, Bates 0884-0889]**.

Response: The AQB Compliance and Enforcement Section response on January 7, 2021, stated that there were no outstanding notice of violation and no settlement agreement for which all actions

have not been complete. This information has been included in the draft of the Statement of Basis **[AR No. 23, Bates 0934-0935]**.

IX. CONCLUSION

The Bureau has completed a technical review of this application. The facility, as represented in the application, demonstrates compliance with all federal and state regulations. The facility's operations, as represented in this application, do not cause nor significantly contribute to any exceedances of applicable air quality standards. These results are based on the modeling analysis and emissions calculations for Carbon Monoxide (CO), Nitrogen Dioxide (NO2), Particulate Matter 10 micrometers or less in aerodynamic diameter (PM10), Particulate Matter (2.5 microns or less) (PM2.5), and Sulfur Dioxide (SO2). The comments received by the Bureau on this permit have been responded to in this testimony. The responses demonstrate that the comments do not raise any substantive issues that indicate this permit should not be issued. The permit complies with all air quality regulations and contains demonstrations of compliance for all conditions and emission limits to ensure compliance with Ambient Air Quality Standards. The Air Quality Bureau recommends that the Secretary uphold the Department's decision to approve issuance of this Permit.

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF XTO ENERGY, INC. – SPARTAN COMPRESSOR STATION
FOR AN AIR QUALITY PERMIT **AQB 21-40**

TECHNICAL TESTIMONY OF URSHULA BAJRACHARYA

I. INTRODUCTION

My name is Urshula Bajracharya. I am a Permit Specialist in the Major Source – Prevention of Significant Deterioration Unit ("PSD Unit") of the Permitting Section of the Air Quality Bureau ("AQB" or "Bureau") of the New Mexico Environment Department ("NMED" or "Department"). I present this written testimony on behalf of the Department for the public hearing on the permit application submitted by XTO Energy Inc. ("XTO") for their Spartan Compressor Station ("Spartan CS") ("Application 7681M2").

My testimony will address the following topics: my qualifications, a summary of Application 7681M2, my administrative review of Application 7681M2, the technical review of Application 7681M2, AQB's public outreach efforts throughout various stages of this permitting action, and the basis for conditions in the 2021.06.11 version of Draft Permit 7681M2 for XTO's proposed facility.

II. QUALIFICATIONS

I have been an employee of the Bureau since 2019 for approximately two years, working as a Permit Specialist. As a Permit Specialist, I perform technical and regulatory review of complex Air Quality Bureau permit applications within regulatory deadlines. I verify emissions calculations; determine applicable state regulations and federal regulations; coordinate with various stakeholders including the public, industry, consultants, and AQB staff; write legally

enforceable air permits and technical support documents for the administrative record; enter data into the AQB database; and complete various special projects to achieve AQB goals.

My full background and qualifications are set forth in my resume. **[NMED Exhibit 26]**.

III. SUMMARY OF APPLICATION 7681M2

XTO's Spartan CS is presently located at 609512 m UTME, 3563566 m UTMN, Datum WGS 84, approximately 13.5 miles east of Malaga, New Mexico. With this application, XTO proposes the following: revise compressor engine emissions rates, remove two (2) heaters, remove two (2) compressor engines, increase glycol circulation rate, decrease glycol dehydrator reboiler capacities, increase dehydrator Startup, Shutdown and Malfunction ("SSM") hours, add SSM for dehydrator flash tank vapors, increase flare purge gas rate, update to flare height, update to tank throughput, decrease condensate truck loading, add inlet gas flaring, increase steady state flaring associated with tank throughput and glycol circulation rate, change sources that vent to vapor combustor, update low pressure separator pressure and add volatile organic compounds ("VOC") malfunction emission.

IV. ADMINISTRATIVE REVIEW

Application 7681M2 was received by the New Mexico Environment Department on March 8, 2021. Pursuant to 20.2.72.207(A) NMAC, the Department had 30 days to review the application and determine whether it was administratively complete.

The administrative review of an application is not a technical review, but a review of the presence of the required parts of the application, including the applicant's modeling analysis and the applicant's proof of public notice. All required contents of the application are listed in

20.2.72.203 NMAC. Upon receipt of Application 7681M2, I provided the applicant's modeling files to AQB Modeling Manager, Mr. Sufi Mustafa, for assignment. On March 30, 2021, Mr. Mustafa sent me an e-mail confirming Application 7681M2 could be ruled complete from a modeling perspective. The modeling for this project was assigned to Ms. Angela Raso **[AR No. 23, Bates 433 - 435].**

I calculated the permit fee for XTO's Application 7681M2 based on fee units in 20.2.75 NMAC and application regulations and AQB's administrative staff generated an invoice for the permit fee. On April 6, 2021, I ruled the application 7681M2 administratively complete [**AR No. 2, Bates 288 - 292**]. I sent the completion determination letter, including a copy of the Department's Legal Notice, and the invoice for the permit fee to the applicant on April 6, 2021. On April 6, 2021, I sent the Department's Legal Notice and Affected Party letter to Carlsbad Caverns National Park and the State of Texas, as required by regulation. The Department's Legal Notice and permit Application 7681M2 was posted on the AQB website on April 7, 2021 **[AR No. 24, Bates 436]** and initially published in the *Carlsbad Current Argus* on April 8, 2021 **[AR No. 6, Bates 297 - 299]** and a revised public notice published in the *Carlsbad Current Argus* on April 24, 2021 **[AR No. 7, Bates 300 - 302]** to update the method for contacting permit writers for submission of comments. WEG submitted first comments on May 24, 2021 **[AR No. 12, Bates 388 - 392]**. The first citizen letter was sent to WEG June 2, 2021 **[AR No. 42, Bates 471 - 472]**, and the application and public notice were then moved from the primary AQB public notice web-site over to the AQB web-site for Permit Applications with Public Interest, Public Meetings, or Public Hearing **[AR No. 26, Bates 438]**. After the draft permit and analysis were complete, they were emailed to WEG on June 10, 2021, along with the second citizen letter **[AR No. 15, Bates 397]**. The draft documents were then posted on the AQB web-site June 11, 2021 **[AR No. 29,**

Bates 444]. WEG subsequently submitted a second round of comments on the draft permit and analysis on July 12, 2021 **[AR No. 13, Bates 393 - 396]**.

V. TECHNICAL REVIEW

I began the technical review of XTO's application 7681M2 after I determined it was administratively complete. The technical review requires verification of emissions calculations and a determination of applicable federal regulations and state regulations.

I verified emissions calculations by confirming the correct emission factors and formulas were used in calculating emissions for all sources. If methods were unclear, I asked the consultant for further explanation or updates, as necessary. Also, I verified the emissions totals from the calculations matched the emissions totals in Section 2 of the application.

I requested some of these updates while doing an initial review of calculations. I requested other updates if discrepancies in the application became apparent while writing Draft Permit 7681M2. The Department has reviewed the emission calculations submitted in the application for all regulated equipment and the emission factors relied upon in those calculations. The facility emissions were calculated using Excel spreadsheets using manufacturer's data sheet emission factors, TCEQ emission factors, or US EPA's AP-42 Compilation of Air Emission Factors, including EPA's Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017), as well as oil and gas industry software, such as ProMax®.

I summarized my review in the Statement of Basis **[AR No. 10, Bates 327 - 333].** The Statement of Basis is a permitting record that includes a description and history of the facility, public response received by the Department, a regulatory compliance discussion, and unique conditions in the permit.

VI. PUBLIC OUTREACH

Once the public notice was published, interested persons were allowed thirty (30) days to express an interest in writing in the permit application per 20.2.72.206(A)(5) NMAC. The public notice was published in the newspaper on April 8, 2021 **[AR No. 6, Bates 297 - 299]** and re-published again on April 24, 2021, the end of the 30-day comment period was May 24, 2021. **[AR No. 7, Bates 300 - 302]**. The initial WEG comment letter was received by the Department May 4, 2021**[AR No. 12, Bates 388 - 392]**. Upon completion of the analysis and draft permit, the documents were published on the AQB web-site for "Permit Applications with Public Interest, Public Meeting, or Public Hearing" on June 11, 2021 **[AR No. 29, Bates 444]**. On June 10, 2021, the second citizen letter and a copy of the permit documents were emailed to WEG **[AR No. 15, Bates 397]**. This started the second 30-day comment period. The Department received additional comments from WEG on July 12, 2021 **[AR No. 13, Bates 393 - 396]**. The Department Secretary signed a hearing determination June 4, 2021 that the application for Tiger Compressor Station would go to hearing. Therefore, responses to the July 12, 2021 comments are included in this testimony.

VII. BASIS FOR PERMIT CONDITIONS

The Department's authority to include conditions in an Air Quality permit is stated in 20.2.72.210 NMAC Permit Conditions. If a permit is issued, it will specify what equipment is authorized to be installed and operated, will place limits on air pollutants, and place requirements on how equipment will be operated. A permit is an enforceable legal document, and will include emission limits, methods for determining compliance on a regular basis, and will place monitoring,

recordkeeping, and reporting requirements to ensure and verify compliance with the requirements of the permit.

Conditions in Part A of the permit are Facility Specific Requirements, unique to the facility. They are site-specific and based on information provided in the application. Conditions in Part B of the permit are General Conditions and standard language which generally apply to all sources. Part C is also standard language about supporting on-line documents, definitions, and acronyms which apply to all sources.

A draft permit is a dynamic working document subject to updates throughout the review process. Draft Permit 7681M2 began with standardized language in an AQB permit template and standardized AQB monitoring protocols added as necessary for the sources of emissions and control devices at XTO's proposed facility revisions for Spartan CS. Since this was a modification to XTO's existing permit 7681M1 many conditions were already in place but required revision to address XTO's facility changes. I wrote both standard monitoring conditions as well as some unique permitting conditions for site specific operations and equipment, based on information provided in the application.

Permit conditions establish ongoing testing and monitoring requirements for processes and pieces of equipment to ensure the equipment is operating in accordance with the permitted emission limits.

VIII. RESPONSES TO COMMENTS RECEIVED ON APPLICATION

The Air Quality Bureau received public comments from WEG on this application on May 24, 2021, on the last day of the 30-day comment period following publication of the Bureau's initial newspaper public notice on April 8, 2021, and revised public notice on April 24, 2021. On

June 11, 2021, the Bureau started the 30-day analysis period on the draft permit. The draft permit and draft Statement of Basis were sent directly to WEG via email (on June 11, 2021). On July 12, 2021, AQB received a second set of comments from WEG. The following section presents the Bureau's responses to all comments submitted in either set of comments on this application in the format of the comment followed by the response from AQB. The comments are presented in the order of topic as follows: public notice; startup, shutdown, maintenance, and malfunction emissions; inclusion of adjacent and surrounding facilities; inclusion of all point sources within the source; gas-actuated pneumatic controllers; environmental justice concerns; compliance with Toxic Air Pollutant (TAP) permitting; Title V operating permit applications; air quality regulatory compliance status of the facility; and air dispersion modeling results. Responses to comments regarding air dispersion modeling are in the written testimony presented by the technical witnesses for the modeling section. The hearing determination signed February 11, 2021 stated that the hearing would be **granted only as to issues not addressed in EIB Nos. 20-21(A) and 20-33(A) [AR No. 27, Bates 439]**. Therefore, comments related to ozone concentrations in southeastern New Mexico and attainment status of that area are not included in these responses.

Comment: Despite the Department's revision to the public notice, we continue to have concerns about the adequacy of the public process regarding the public review of this proposed permit. For example, although the revised public notice was published in several local newspapers that had publication dates associated with them, the Department did not update the date of the revised public notice on its webpage. As a result, individuals who depend on the Department's webpage to understand when public comments on proposed air quality permits are due would have been unable to tell that NMED had reopened the public comment period for this permit and set a new comment

deadline. The public notices for the proposed permit that the applicant published in different forms of media did not identify NMED's revisions to the public notice and maintained the requirement that comments would only be accepted in hardcopy writing mailed to NMED's offices. The application for this proposed permit does not indicate the revised public notice was published pursuant to NMED regulations. We request the Department update its legal notices for air quality permit proposals, so that future legal notices include a publishing date or comment deadline to inform the general public when comments must be submitted and when proposed permits have been reopened for public comment. For purposes of XTO's present permit application, we request the Department consider re-issuing the legal notice, with the addition of an explanation of how the public can submit comments via email, the date those comments are due, and provide another 30-day review period for members of the public to notify the Department of their interest. Although Guardians was able to use the publication date of the newspaper in which NMED's revised public notice was published to determine the new public comment deadline for the Spartan facility, other members of the public may have interpreted the comment deadline to have ended 30 days from April 8, 2021, which is the publication date of the public notice for the Spartan facility currently listed on the Department's public notice webpage **[AR No. 12, Bates 388 - 392].**

Response: The start date for an initial public notice begins on the day that the public notice appears in the newspaper [20.2.72.206.A.(3) NMAC]. The Bureau publishes notices and draft on its website as soon as practicable, but publication on the website does not start the 30-day comment period. The text of the legal notice does not contain the date of the start of the 30-day comment period because once a notice is submitted the newspaper there is a window of several days in which the notice may publish. The exact date of publication is unavailable prior to submission of the final copy to the newspaper. The date on the newspaper in which the notice publishes is the start

of the 30-day comment period. For this permit, the date of the start of the 30-day analysis period for comments on the draft, is determined by when the Bureau sends the draft to interested persons who have commented on the public notice [[20.2.72.206.B(2) NMAC], and this date was posted on the AQB website listed in red font above the links to the draft documents at https://www.env.nm.gov/air-quality/permit-applications-with-public-interest-public-meeting-or-public-hearing/. A citizen letter sent to commenters with the draft also informs them that the 30-day analysis period has begun. The applicant's public notice met all regulatory requirements in 20.2.72.203.C NMAC and the requirements in the AQB Public Notice Guidelines. Applicant public notices are conducted prior to submission of the application to the Bureau. At that time, a permit writer has not been assigned and therefore their email address cannot be included in the applicant's notice. While the standard text for the applicant's notice states that comments should be submitted in writing, it also provides a toll free phone number that would allow any interested party to reach the Bureau with questions. That provides an opportunity to register an objection or concern to mailing comments, and to request an alternative submission method. No phone calls making such a request were received on this permit. In addition, AQB's re-publication of the public notice for this permit did not generate any additional public interest from any other party.

Comment: The annual 10 ton/year VOC limit for malfunction emissions resulting from the venting of gas due to malfunction is also unenforceable as a practical matter. Similar to our concerns above, while Condition A107D requires calculation of VOC emissions based on inlet gas analysis and volume of gas vented, it is not clear how the volume of vented gas is actually measured during malfunctions **[AR No. 13, Bates 393 - 396].**

Response: The malfunction condition requires tracking of the VOC emissions based on the inlet gas analysis (% VOC) and the volume of gas released during the malfunction. Malfunctions result in venting to depressurize the portion of the facility experiencing a malfunction. The volume is calculated based on the gas volume within the equipment which is de-pressurized. The permit authorizes 10 tpy of malfunction to reduce the reporting of very small releases allowing the Department to focus on investigating malfunctions that result in large releases.

Comment: The annual SSM volatile organic compound (VOC) limit for venting from compressor blowdowns, pigging equipment blowdowns, and miscellaneous SSM activities is unenforceable as a practical matter as the permit does not require actual monitoring of vented VOC emissions during these SSM events. Although Condition A107.C requires a facility inlet gas analysis to be completed every year, it is unclear how this inlet gas analysis is used to calculate SSM VOC emissions. While the Condition seems to indicate that VOC emissions will be calculated based on the total gas vented in MMscf, it is not clear how the volume of gas vented during SSM is actually measured. There is no indication that a meter or other means of volumetric measurements will be utilized to actually accurately measure vented gas. In the list of equipment in Table 104.A, the SSM unit has no identified rated or permitted capacity that would indicate the volume of gas vented could actually be measured on an MMscf basis **[AR No. 13, Bates 393 - 396].**

Response: For these SSM activities, the VOC releases are determined based on the gas composition, the volume of gas released during an activity, and the number of activities. For compressor blowdowns, the volume of gas from compressor blowdowns is based on the known interior gas volume within the compressor and the number of times the compressor blows down (releases pressure). Pigging equipment blowdowns are based on the amount of gas pushed out of

the end of the line as the pig travels through a segment of gas line. The amount of gas is determined from the volume within the line being serviced and the gas composition. The same approach is used for other miscellaneous SSM activities. Because SSM represents various activities, SSM does not have a single volume or capacity. The volumes used in the calculations are based on engineering knowledge of the individual equipment undergoing the startup, shutdown, or maintenance.

Comment: In addition, we are concerned that the SSM VOC limit for routing emissions to the reboilers is unenforceable as a practical matter because although the permit limits these emissions based on a maximum number of hours per year, that threshold does not ensure the annual VOC and SO2 emission limits will not be violated. Here too, the associated permit conditions at A107.E do not clarify how VOCs and SO2 from these emission units will be measured or controlled to ensure compliance with the annual limit [**AR No. 13, Bates 393 - 396].**

Response: The maximum hour emissions from the dehydrator still vent were the input to the reboiler, then a 70% destruction efficiency was assumed. Because the maximum amount per hour from the dehy was used to calculate the hourly emissions from the reboiler for the SSM emission limit, restricting the number of hours does demonstrate compliance with the annual limit because the annual limit is based on (maximum possible per hour)times the number of hours per year (300 hours/year, Condition A107.E **[AR No. 11, Bates 334 - 387]**, and as calculated in Section 6 of the application, page 58, DEHYDRATOR 1-3 VAPORS ROUTED TO REBOILER – SSM **[AR No. 1, Bates 001 - 287]**). The maximum possible per hour from the dehydrator is restricted by its capacity and by the glycol circulation rate limit in condition A202.B. Compliance with the

emission limit for the routing of dehydrator emissions to the reboiler is demonstrated using conditions A107.E and A202.B.

Comment: We are also concerned that the proposed permit does not include a limit on the number or duration of SSM flaring emissions to ensure compliance with applicable annual limits. Provision A107 of the proposed permit authorizes SSM flaring emissions in the form of hundreds of pounds per hour of nitrogen oxide (NOx) emissions, volatile organic compound (VOC) and carbon monoxide emissions, but the permit does not restrict the frequency or duration of these emissions. Without any such restriction, the proposed permit authorizes SSM emissions beyond the yearly limits set forth at Condition A107 of the proposed permit, as well as beyond the facility's potential to emit. Indeed, based on the hourly limits in the permit, the facility has the potential to emit 2,094 tons/year of NOx, 4,182 tons of carbon monoxide, and 3,760 tons of VOCs. These emission rates are all above prevention of significant deterioration (PSD) major source thresholds, meaning XTO must apply for a PSD permit and cannot be issued the permit as proposed.

Although we understand the presumption is that the annual limits set forth at Table 107.A will restrict SSM emissions, as a practical matter, with no limitation on the duration or number of instances of SSM emissions, this cannot be the case. While the permit may impose annual emission limits during instances of SSM, it also permits the facility to operate in a way that will exceed these limits. As a result, the annual SSM limits will not serve as an actual, enforceable limit to the Spartan Compressor Station's potential to emit **[AR No. 13, Bates 393 - 396].**

Response: Establishment of hourly emission limits in any permit does not imply that these emissions are permitted for every hour of the year. Both hourly and annual emission limits are enforceable in an air quality permit. The Bureau establishes hourly limits to ensure compliance

with short-term air quality standards and annual emission limits to ensure compliance with long-term air quality standards. For the SSM flaring referred to in this comment, condition A107.F requires that the flare be operated in accordance with conditions A206A and A206.B (and calculations per A206.C) **[AR No. 11, Bates 334 - 387]**. Condition A206.B monitoring requires that a flowmeter be installed to measure and record the volume of gas going to the flare. Condition A206A requires that the flare operate with no visible emissions, which ensures the flare meets its 98% destruction efficiency. The recordkeeping section of condition A107.F requires calculation of hourly and annual emissions using the gas analysis, volume of gas sent to the flare, and destruction efficiency of the flare. This recordkeeping section requires keeping spreadsheet of the emissions and maintaining "monthly rolling 12-month totals". These monthly rolling totals ensure that the annual limits are not exceeded during any 12-month period so compliance is demonstrated with annual emission limits.

Comment: We are concerned that XTO's application and the proposed permit does not address emissions from gas-actuated pneumatic controllers at the Spartan Compressor Station. Gas-actuated pneumatic controllers are point sources of air pollution and cumulatively release large amounts of VOC emissions. NMED must disclose the number of gas-actuated pneumatic controllers at the Spartan Compressor Station and estimate total VOC emissions from these pollutant emitting activities **[AR No. 13, Bates 393 - 396].**

Response: The applicant, XTO Energy, Inc verified through email to AQB that all pneumatic controllers at their facility are run on 'instrument air". This means the pneumatic controller uses compressed air to activate and does not release any natural gas when it activates. Instrument air powered controllers are therefore not sources of regulated pollutants and there in no requirement

to report them in an application for an air quality permit. At Spartan CS, there is an emergency system that would switch these instrument air controllers to using natural gas in emergency failure of instrument air. That situation is not part of normal operations (not covered by allowable emissions in Table 106.A) nor SSM emissions (Table 107.A limits) **[AR No. 11, Bates 334 - 387]** but represents a malfunction at the plant and the releases would be required for inclusion under malfunction emissions accounted for in the permit or as excess emissions. The emergency natural gas-actuated controllers qualify as "low bleed" under 40 CFR 60 Subpart OOOOa and would release no more than 6 standard cubic feet per hour under §60.5365a(d)(1) and §60.5390a (c)(1) if they were used during the emergency **[AR No. 40, Bates 468 - 469]**.

Comment: Guardians requests that NMED provide an explanation for how the proposed permit modification and associated increase in air pollution will not disproportionately impact low-income communities and communities of color, pursuant to New Mexico Executive Order 2005-056. Guardians was unable to identify a discussion of these considerations in the documents NMED released in support of the proposed permit **[AR No. 12, Bates 388 - 392]**.

Response: NMED policy 07-13, Public Participation delineates the approach used by NMED to address these concerns. For each permitting action, NMED uses the EPA EJSCREEN tool to evaluate demographic information for an area around the facility; the circular area a 4-mile radius except smaller within urbanized areas. Data from EPA EJSCREEN is evaluated by the permit writer and their manager to evaluate if any additional outreach needs to be done beyond the regulatory requirements. This assessment includes factors such as number of households, per capita income, percent of Linguistically Isolated Households, and percent minority population., Past involvement by the public in air permitting for the facility is also reviewed.

Comment: How the proposed permit modification will comply with toxic air pollutant permitting requirements at 20.2.72.400-499 NMAC, despite the likelihood that toxic air pollutants including cyclohexane, hexene, nonane, trimethylbenzene may be emitted as part of the applicant's VOC emission stream **[AR No. 12, Bates 388 - 392].**

Response: Compressor Stations are not a gas processing plant or a refinery and, therefore, meet the definition of an oil and gas production facility, per 20.2.72.401.F NMAC. As an oil and gas production facility, it is exempt (in 20.2.72.402.C NMAC) to applicability and any requirements of 20.2.72.400 NMAC - 20.2.72.405 NMAC for toxic air pollutants.

Comment: Whether the proposed permit properly encompasses all point sources of pollution that are a part of the single source subject to permitting. We are concerned that the permit does not address a number of other pollutant-emitting activities that are part of the Spartan Compressor Station, including: Compressor engine blowdowns and/or maintenance activities; Pigging operations; Liquid loadout operations; **[AR No. 12, Bates 388 - 392].**

Response: Compressor engine (for units ENG1-9 and ENG11-2) and associated piping blowdowns (for VOC only) are part of the SSM emission limits (Table 107.A) set at 10 tpy of VOC **[AR No. 11, Bates 334 - 387]**. The monitoring condition is at A107.C. Other maintenance (SSM) activities beyond the 10 tpy VOC compressor blowdown limit is addressed with the flare emission limits in Table 107.A, with monitoring requirements at Condition A107.F. Pigging was not reported as an activity or as an emission source for this facility. The emissions for liquid loadout operation are calculated and documented in Section 6 of the application (Calculations)

[AR No. 1, Bates 001 - 287]. VOC Loadout limits are set in Table 106.A (Unit LOAD) with monitoring Condition at A203.C.

Comment: The applicability of Texas Commission of Environmental Quality emission factors; **[AR No. 12, Bates 388 - 392].**

Response: The Department has evaluated the TCEQ emission factors and determined that these factors are acceptable. TCEQ emission factors were used for NOx and CO. The TCEQ emission factors that were used were for flares are: NOx is 0.138 lb/MMBtu and CO is 0.2755 lb/MMBtu **[AR No. 48, Bates 484 - 486]**. The emission factors were used from TCEQ publication RG-360A/09, version January 2010, Table A-6 TCEQ Air Permits Flare Emission Factors table for air or unassisted type flares.

Comment: Guardians requests that NMED explain whether or not XTO's Spartan facility is in compliance with the laws and rules that govern its air quality permitting. This facility was first permitted in 2018, but as of June 11, 2021 NMED had not been able to verify the facility's compliance and enforcement status, according to the Department's Statement of Basis **[AR No. 13, Bates 393 - 396].**

Response: The AQB Compliance and Enforcement Section response on July 20, 2021 stated that there were no outstanding notice of violation and no settlement agreement for which all actions have not been complete **[AR No. 30, Bates 445 - 446]**. This information will be included in an updated draft of the Statement of Basis.

IX. CONCLUSION

The Bureau has completed a technical review of this application. The facility, as represented in the application, demonstrates compliance with all federal and state regulations. The facility's operations, as represented in this application, do not cause nor significantly contribute to any exceedances of applicable air quality standards. These results are based on the modeling analysis and emissions calculations for Carbon Monoxide (CO), Nitrogen Dioxide (NO2), Particulate Matter 10 micrometers or less in aerodynamic diameter (PM10), Particulate Matter (2.5 microns or less) (PM2.5), and Sulfur Dioxide (SO2). The comments received by the Bureau on this permit have been responded to in this testimony. The responses demonstrate that the comments do not raise any substantive issues that indicate this permit should not be issued. The permit complies with all air quality regulations, and contains demonstrations of compliance for all conditions and emission limits to ensure compliance with Ambient Air Quality Standards. The Air Quality Bureau recommends that the Secretary uphold the Department's decision to approve issuance of this Permit.

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF XTO ENERGY, INC. – TIGER COMPRESSOR STATION
FOR AN AIR QUALITY PERMIT **AQB 21-41**

TECHNICAL TESTIMONY OF URSHULA BAJRACHARYA

I. INTRODUCTION

My name is Urshula Bajracharya. I am a Permit Specialist in the Major Source – Prevention of Significant Deterioration Unit ("PSD Unit") of the Permitting Section of the Air Quality Bureau ("AQB" or "Bureau") of the New Mexico Environment Department ("NMED" or "Department"). I present this written testimony on behalf of the Department for the public hearing on the permit application submitted by XTO Energy Inc. ("XTO") for their Tiger Compressor Station ("Tiger CS") ("Application 7623M2").

My testimony will address the following topics: my qualifications, a summary of Application 7623M2, my administrative review of Application 7623M2, the technical review of Application 7623M2, AQB's public outreach efforts throughout various stages of this permitting action, and the basis for conditions in the 2021.06.11 version of Draft Permit 7623M2 for XTO's proposed facility.

II. QUALIFICATIONS

I have been an employee of the Bureau since 2019 for approximately two years, working as a Permit Specialist. As a Permit Specialist, I perform technical and regulatory review of complex Air Quality Bureau permit applications within regulatory deadlines. I verify emissions calculations; determine applicable state regulations and federal regulations; coordinate with various stakeholders including the public, industry, consultants, and AQB staff; write legally

enforceable air permits and technical support documents for the administrative record; enter data into the AQB database; and complete various special projects to achieve AQB goals.

My full background and qualifications are set forth in my resume. **[NMED Exhibit 26]**.

III. SUMMARY OF APPLICATION 7623M2

XTO's Tiger CS is presently located at 603170 m UTME, 3554060 m UTMN, Zone 13, Datum NAD83, approximately 12 miles southeast of Malaga, New Mexico. With this application, XTO proposes the following: removal of two (2) compressor engines and two (2) heaters, modification of eleven (11) compressor engines, three (3) glycol dehydrators and their respective reboilers, three (3) flares, four (4) condensate tanks, two (2) produced water tanks, two (2) vapor recovery units (VRU), the low-pressure separator, the condensate truck loading and start-up, shutdown and maintenance (SSM). The facility is proposing to add two new emissions sources: truck loading and Malfunction emissions.

IV. ADMINISTRATIVE REVIEW

Application 7623M2 was received by the New Mexico Environment Department on March 8, 2021. Pursuant to 20.2.72.207(A) NMAC, the Department had 30 days to review the application and determine whether it was administratively complete.

The administrative review of an application is not a technical review, but a review of the presence of the required parts of the application, including the applicant's modeling analysis and the applicant's proof of public notice. All required contents of the application are listed in 20.2.72.203 NMAC. Upon receipt of Application 7623M2, I provided the applicant's modeling files to AQB Modeling Manager, Mr. Sufi Mustafa, for assignment. On April 6, 2021, Mr. Mustafa sent me an e-mail confirming Application 7623M2 could be ruled complete from a modeling

perspective. The modeling for this project was assigned to Mr. Eric Peters **[AR No. 23, Bates 432 - 434].**

I calculated the permit fee for XTO's Application 7623M2 based on fee units in 20.2.75 NMAC and application regulations and AQB's administrative staff generated an invoice for the permit fee. On April 7, 2021, I ruled the application 7623M2 administratively complete [**AR No. 2, Bates 289 - 293**]. I sent the completion determination letter, including a copy of the Department's Legal Notice, and the invoice for the permit fee to the applicant on April 7, 2021. On April 7, 2021, I sent the Department's Legal Notice and Affected Party letter to Carlsbad Caverns National Park and the State of Texas, as required by regulation. The Department's Legal Notice and permit Application 7623M2 was posted on the AQB website on April 8, 2021 **[AR No. 24, Bates 435]** and initially published in the *Carlsbad Current Argus* on April 9, 2021 **[AR No. 6, Bates 298 - 300]** and a revised public notice published in the *Carlsbad Current Argus* on April 24, 2021 **[AR No. 7, Bates 301 - 303]** to update the method for contacting permit writers for submission of comments. WEG submitted their first comments on May 24, 2021 **[AR No. 12, Bates 387 - 391]**. The first citizen letter was sent to WEG on June 2, 2021 **[AR No. 42, Bates 470 - 471]**, and the application and public notice were then moved from the primary AQB public notice web-site over to the AQB web-site for Permit Applications with Public Interest, Public Meetings, or Public Hearing **[AR No. 26, Bates 437]**. After the draft permit and analysis were complete, they were emailed to WEG, along with the second citizen letter on June 11, 2021 **[AR No. 15, Bates 396]**. The draft documents were then posted on the AQB web-site June 11, 2021 **[AR No. 29, Bates 422-423]**. WEG subsequently submitted a second round of comments on the draft permit and analysis on July 12, 2021 **[AR No. 13, Bates 392 - 395]**.

V. TECHNICAL REVIEW

I began the technical review of XTO's application 7623M2 after I determined it was administratively complete. The technical review requires verification of emissions calculations and a determination of applicable federal regulations and state regulations.

I verified emissions calculations by confirming the correct emission factors and formulas were used in calculating emissions for all sources. If methods were unclear, I asked the consultant for further explanation or updates, as necessary. Also, I verified the emissions totals from the calculations matched the emissions totals in Section 2 of the application.

I requested some of these updates while doing an initial review of calculations. I requested other updates if discrepancies in the application became apparent while writing Draft Permit 7623M2. The Department has reviewed the emission calculations submitted in the application for all regulated equipment and the emission factors relied upon in those calculations. The facility emissions were calculated using Excel spreadsheets using manufacturer's data sheet emission factors, TCEQ emission factors, or US EPA's AP-42 Compilation of Air Emission Factors, including EPA's Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017), as well as oil and gas industry software, such as ProMax®.

I summarized my review in the Statement of Basis **[AR No. 10, Bates 326 - 332].** The Statement of Basis is a permitting record that includes a description and history of the facility, a regulatory applicability review and compliance discussion, any public response received by the Department, and summarizes any unique conditions in the permit.

VI. PUBLIC OUTREACH

Once the public notice was published, interested persons were allowed thirty (30) days to express an interest in writing in the permit application per 20.2.72.206(A)(5) NMAC. The initial

public notice was published in the newspaper on April 8, 2021 **[AR No. 6, Bates 298 - 300]**, and the revised public notice published again on April 24, 2021, the end of the 30-day comment period was May 24, 2021. **[AR No. 7, Bates 301 - 303]**. The initial WEG comment letter was received by the Department May 24, 2021 **[AR No. 12, Bates 387 - 391]**. Upon completion of the analysis and draft permit, the documents were published on the AQB web-site for "Permit Applications with Public Interest, Public Meeting, or Public Hearing" on June 11, 2021**[AR No. 29, Bates 422-423]**. On June 11, 2021, the second citizen letter and a copy of the permit documents were emailed to WEG **[AR No. 15, Bates 396]**. This started the second 30-day comment period with an end date of July 11, 2021. The Department received additional comments from WEG on July 12, 2021 **[AR No. 13, Bates 392 - 395]**. The Department Secretary signed a hearing determination June 4, 2021 that the application for Tiger Compressor Station would go to hearing. Therefore, responses to the July 12, 2021 comments are included in this testimony.

VII. BASIS FOR PERMIT CONDITIONS

The Department's authority to include conditions in an Air Quality permit is stated in 20.2.72.210 NMAC Permit Conditions. If a permit is issued, it will specify what equipment is authorized to be installed and operated, will place limits on air pollutants, and place requirements on how equipment will be operated. A permit is an enforceable legal document, and will include emission limits, methods for determining compliance on a regular basis, and will place monitoring, recordkeeping, and reporting requirements to ensure and verify compliance with the requirements of the permit.

Conditions in Part A of the permit are Facility Specific Requirements, unique to the facility. They are site-specific and based on information provided in the application. Conditions in Part B

of the permit are General Conditions and standard language which generally apply to all sources. Part C is also standard language about supporting on-line documents, definitions, and acronyms which apply to all sources.

A draft permit is a dynamic working document subject to updates throughout the review process. Draft Permit 7623M2 began with standardized language in an AQB permit template and standardized AQB monitoring protocols added as necessary for the sources of emissions and control devices at XTO's proposed facility revisions for Tiger CS. Since this was a modification to XTO's existing permit 7623M1 many conditions were already in place but required revision to address XTO's facility changes. I wrote both standard monitoring conditions as well as some unique permitting conditions for site specific operations and equipment, based on information provided in the application.

Permit conditions establish ongoing testing and monitoring requirements for processes and pieces of equipment to ensure the equipment is operating in accordance with the permitted emission limits.

VIII. RESPONSES TO COMMENTS RECEIVED ON APPLICATION

The Air Quality Bureau received public comments from WEG on this application on May 24, 2021, on the last day of the 30-day comment period following publication of the Bureau's initial newspaper public notice on April 8, 2021, and revised public notice on April 24, 2021. On June 11, 2021, the Bureau started the 30-day analysis period on the draft permit. The draft permit and draft Statement of Basis were sent directly to WEG via email (on June 11, 2021). On July 12, 2021, AQB received a second set of comments from WEG. The following section presents the Bureau's responses to all comments submitted in either set of comments on this application in the

format of the comment followed by the response from AQB. The comments are presented in the order of topic as follows: public notice; startup, shutdown, maintenance, and malfunction emissions; inclusion of adjacent and surrounding facilities; inclusion of all point sources within the source; gas-actuated pneumatic controllers; environmental justice concerns; compliance with Toxic Air Pollutant (TAP) permitting; Title V operating permit applications; air quality regulatory compliance status of the facility; and air dispersion modeling results. Responses to comments regarding air dispersion modeling are in the written testimony presented by the technical witnesses for the modeling section. The hearing determination signed February 11, 2021 stated that the hearing would be **granted only as to issues not addressed in EIB Nos. 20-21(A) and 20-33(A) [AR No. 27, Bates 438 - 440]**. Therefore, comments related to ozone concentrations in southeastern New Mexico and attainment status of that area are not included in these responses.

Comment: Despite the Department's revision to the public notice, we continue to have concerns about the adequacy of the public process regarding the public review of this proposed permit. For example, although the revised public notice was published in several local newspapers that had publication dates associated with them, the Department did not update the date of the revised public notice on its webpage. As a result, individuals who depend on the Department's webpage to understand when public comments on proposed air quality permits are due would have been unable to tell that NMED had reopened the public comment period for this permit and set a new comment deadline. The public notices for the proposed permit that the applicant published in different forms of media did not identify NMED's revisions to the public notice and maintained the requirement that comments would only be accepted in hardcopy writing mailed to NMED's offices. The application for this proposed permit does not indicate the revised public notice was published

pursuant to NMED regulations. We request the Department update its legal notices for air quality permit proposals, so that future legal notices include a publishing date or comment deadline to inform the general public when comments must be submitted and when proposed permits have been reopened for public comment. For purposes of XTO's present permit application, we request the Department consider re-issuing the legal notice, with the addition of an explanation of how the public can submit comments via email, the date those comments are due, and provide another 30-day review period for members of the public to notify the Department of their interest. Although Guardians was able to use the publication date of the newspaper in which NMED's revised public notice was published to determine the new public comment deadline for the Tiger facility, other members of the public may have interpreted the comment deadline to have ended 30 days from April 8, 2021, which is the publication date of the public notice for the Tiger facility currently listed on the Department's public notice webpage. A sufficient legal notice is critical for ensuring NMED effectively informs and engages the public, provides a meaningful opportunity for the public to weigh in, and meets its environmental justice objectives under Executive Order 2005-056 **[AR No. 12, Bates 387 - 391].**

Response: The start date for an initial public notice begins on the day that the public notice appears in the newspaper [20.2.72.206.A.(3) NMAC]. The Bureau publishes notices and drafts on its website as soon as practicable, but publication on the website does not start the 30-day comment period. The text of the legal notice does not contain the date of the start of the 30-day comment period because once a notice is submitted to the newspaper there is a window of several days in which the notice may publish. The exact date of publication is unavailable prior to submission of the final copy to the newspaper. The date on the newspaper in which the notice publishes is the start of the 30-day comment period. For this permit, the date of the start of the 30-day analysis

period for comments on the draft, is determined by when the Bureau sends the draft to interested persons who have commented on the public notice [20.2.72.206.B(2) NMAC], and this date was posted on the AQB website listed in red font above the links to the draft documents at https://www.env.nm.gov/air-quality/permit-applications-with-public-interest-public-meeting-or-public-hearing/. A citizen letter sent to commenters with the draft also informs them that the 30-day analysis period has begun. The applicant's public notice met all regulatory requirements in 20.2.72.203.C NMAC and the requirements in the AQB Public Notice Guidelines. Applicant public notices are conducted prior to submission of the application to the Bureau. At that time, a permit writer has not been assigned and therefore their email address cannot be included in the applicant's notice. While the standard text for the applicant's notice states that comments should be submitted in writing, it also provides a toll-free phone number that would allow any interested party to reach the Bureau with questions. That provides an opportunity to register an objection or concern to mailing comments, and to request an alternative submission method. No phone calls making such a request were received on this permit. In addition, AQB's re-publication of the public notice for this permit did not generate any additional public interest from any other party.

Comment: The annual 10 ton/year VOC limit for malfunction emissions resulting from the venting of gas due to malfunction is also unenforceable as a practical matter. Similar to our concerns above, while Condition A107.D requires calculation of VOC emissions based on inlet gas analysis and volume of gas vented, it is not clear how the volume of vented gas is actually measured during malfunctions **[AR No. 13, Bates 392 - 395]**.

Response: The malfunction condition requires tracking of the VOC emissions based on the inlet gas analysis (% VOC) and the volume of gas released during the malfunction. Malfunctions result

in venting to depressurize the portion of the facility experiencing a malfunction. The volume is calculated based on the gas volume within the equipment which is de-pressurized. The permit authorizes 10 tpy of malfunction to reduce the reporting of very small releases allowing the Department to focus on investigating malfunctions that result in large releases.

Comment: The annual SSM volatile organic compound (VOC) limit for venting from compressor and associated piping blowdowns is unenforceable as a practical matter as the permit does not require actual monitoring of vented VOC emissions during these SSM events. Although Condition A107E requires a facility inlet gas analysis to be completed every year, it is unclear how this inlet gas analysis is used to calculate SSM VOC emissions. While the Condition seems to indicate that VOC emissions will be calculated based on the total gas vented in MMscf, it is not clear how the volume of gas vented during SSM is actually measured. There is no indication that a meter or other means of volumetric measurements will be utilized to actually accurately measure vented gas. In the list of equipment in Table 104.A, the SSM unit has no identified rated or permitted capacity that would indicate the volume of gas vented could actually be measured on an MMscf basis **[AR No. 13, Bates 392 - 395]**.

Response: For these SSM activities, the VOC releases are determined based on the gas composition, the volume of gas released during an activity, and the number of activities. For compressor blowdowns, the volume of gas from compressor blowdowns is based on the known interior gas volume within the compressor and the number of times the compressor blows down (releases pressure). Pigging equipment blowdowns are based on the amount of gas pushed out of the end of the line as the pig travels through a segment of gas line. The amount of gas is determined from the volume within the line being serviced and the gas composition. The same approach is

used for other miscellaneous SSM activities. Because SSM represents various activities, SSM does not have a single volume or capacity. The volumes used in the calculations are based on engineering knowledge of the individual equipment undergoing the startup, shutdown, or maintenance.

Comment: In addition, we are concerned that the SSM VOC limit for routing emissions to the reboilers is unenforceable as a practical matter because although the permit limits these emissions based on a maximum number of hours per year, that threshold does not ensure the annual VOC and SO2 emission limits will not be violated. Here too, the associated permit conditions at A107.E do not clarify how VOCs and SO2 from these emission units will be measured or controlled to ensure compliance with the annual limit **[AR No. 13, Bates 392 - 395]**.

Response: The maximum hour emissions from the dehydrator still vent were the input to the reboiler, then a 70% destruction efficiency was assumed. Because the maximum amount per hour from the dehydrator was used to calculate the hourly emissions from the reboiler for the SSM emission limit, restricting the number of hours does demonstrate compliance with the annual limit because the annual limit is based on (maximum possible per hour) times the number of hours per year (300 hours/year, Condition A107.E **[AR No. 11, Bates 333 - 386]**, and as calculated in Section 6 of the application, page 58, DEHYDRATOR 1-3 VAPORS ROUTED TO REBOILER – SSM **[AR No. 1, Bates 001 - 288]**). The maximum possible per hour from the dehydrator is restricted by its capacity and by the glycol circulation rate limit in condition A202.B. Compliance with the emission limit for the routing of dehydrator emissions to the reboiler is demonstrated using conditions A107.E and A202.B.

Comment: We are also concerned that the proposed permit does not include a limit on the number or duration of SSM flaring emissions to ensure compliance with applicable annual limits. Provision A107 of the proposed permit authorizes SSM flaring emissions in the form of hundreds of pounds per hour of nitrogen oxide (NOx) emissions, volatile organic compound (VOC) and carbon monoxide emissions, but the permit does not restrict the frequency or duration of these emissions. Without any such restriction, the proposed permit authorizes SSM emissions beyond the yearly limits set forth at Condition A107 of the proposed permit, as well as beyond the facility's potential to emit. Indeed, based on the hourly limits in the permit, the facility has the potential to emit 2,094 tons/year of NOx, 4,182 tons of carbon monoxide, and 3,761 tons of VOCs. These emission rates are all above prevention of significant deterioration (PSD) major source thresholds, meaning XTO must apply for a PSD permit and cannot be issued the permit as proposed.

Although we understand the presumption is that the annual limits set forth at Table 107.A will restrict SSM emissions, as a practical matter, with no limitation on the duration or number of instances of SSM emissions, this cannot be the case. While the permit may impose annual emission limits during instances of SSM, it also permits the facility to operate in a way that will exceed these limits. As a result, the annual SSM limits will not serve as an actual, enforceable limit to the Tiger Compressor Station's potential to emit **[AR No. 13, Bates 392 - 395]**.

Response: Establishment of hourly emission limits in any permit does not imply that these emissions are permitted for every hour of the year. Both hourly and annual emission limits are enforceable in an air quality permit. The Bureau establishes hourly limits to ensure compliance with short-term air quality standards and annual emission limits to ensure compliance with long-term air quality standards. For the SSM flaring referred to in this comment, condition A107.F requires that the flare be operated in accordance with conditions A206.A and A206.B (and

calculations per A206.C) **[AR No. 11, Bates 333 - 386]**. Condition A206.B monitoring requires that a flowmeter be installed to measure and record the volume of gas going to the flare. Condition A206.A requires that the flare operate with no visible emissions, which ensures the flare meets its 98% destruction efficiency. The recordkeeping section of condition A107.F requires calculation of hourly and annual emissions using the gas analysis, volume of gas sent to the flare, and destruction efficiency of the flare. This recordkeeping section requires keeping a spreadsheet of the emissions and maintaining "monthly rolling 12-month totals". These monthly rolling totals ensure that the annual limits are not exceeded during any 12-month period so compliance is demonstrated with annual emission limits.

Comment: We are concerned that XTO's application and the proposed permit does not address emissions from gas-actuated pneumatic controllers at the Tiger Compressor Station. Gas-actuated pneumatic controllers are point sources of air pollution and cumulatively release large amounts of VOC emissions. NMED must disclose the number of gas-actuated pneumatic controllers at the Tiger Compressor Station and estimate total VOC emissions from these pollutant emitting activities **[AR No. 13, Bates 392 - 395]**.

Response: The applicant, XTO Energy, Inc verified through email to AQB that all pneumatic controllers at their facility are run on 'instrument air'. This means the pneumatic controller uses compressed air to activate and does not release any natural gas when it activates. Instrument air powered controllers are therefore not sources of regulated pollutants and there is no requirement to report them in an application for an air quality permit. At Tiger CS, there is an emergency system that would switch these instrument air controllers to using natural gas in emergency failure of instrument air. That situation is not part of normal operations (not covered by allowable

emissions in Table 106.A) nor SSM emissions (Table 107.A limits) **[AR No. 11, Bates 333 - 386]** but represents a malfunction at the plant and the releases would be required for inclusion under malfunction emissions accounted for in the permit or as excess emissions. The emergency natural gas actuated controllers qualify as "low bleed" under 40 CFR 60 Subpart OOOOa and would release no more than 6 standard cubic feet per hour under §60.5365a(d)(1) and §60.5390a(c)(1) if they were used during the emergency **[AR No. 40, Bates 467 - 468]**.

Comment: Guardians requests that NMED provide an explanation for how the proposed permit modification and associated increase in air pollution will not disproportionately impact low-income communities and communities of color, pursuant to New Mexico Executive Order 2005-056. Guardians was unable to identify a discussion of these considerations in the documents NMED released in support of the proposed permit **[AR No. 12, Bates 387 - 391].**

Response: NMED Policy 07-13, Public Participation delineates the approach used by NMED to address these concerns. For each permitting action, NMED uses the EPA EJSCREEN tool to evaluate demographic information for an area around the facility; the circular area a 4-mile radius except smaller within urbanized areas. Data from EPA EJSCREEN is evaluated by the permit writer and their manager to evaluate if any additional outreach needs to be done beyond the regulatory requirements. This assessment includes factors such as number of households, per capita income, percent of Linguistically Isolated Households, and percent minority population. Past involvement by the public in air permitting for the facility is also reviewed.

Comment: How the proposed permit modification will comply with toxic air pollutant permitting requirements at 20.2.72.400-499 NMAC, despite the likelihood that toxic air pollutants including

cyclohexane, hexene, nonane, trimethylbenzene may be emitted as part of the applicant's VOC emission stream **[AR No. 12, Bates 387 - 391].**

Response: Compressor Stations are not a gas processing plant or a refinery and, therefore, meet the definition of an oil and gas production facility, per 20.2.72.401.F NMAC. As an oil and gas production facility, it is exempt (in 20.2.72.402.C NMAC) to applicability and any requirements of 20.2.72.400 NMAC - 20.2.72.405 NMAC for toxic air pollutants.

Comment: Whether the proposed permit properly encompasses all point sources of pollution that are a part of the single source subject to permitting. We are concerned that the permit does not address a number of other pollutant-emitting activities that are part of the Tiger Compressor Station, including: Compressor engine blowdowns and/or maintenance activities; Pigging operations; Liquid loadout operations; **[AR No. 12, Bates 387 - 391].**

Response: Compressor engine (for units ENG1-9 and ENG11-2) and associated piping blowdowns (for VOC only) are part of the SSM emission limits (Table 107.A) set at 10 tpy of VOC **[AR No. 11, Bates 333 - 386]**. The monitoring condition is at A107.C. Other maintenance (SSM) activities beyond the 10 tpy VOC compressor blowdown limit is addressed with the flare emission limits in Table 107.A, with monitoring requirements at Condition A107.F. Pigging was not reported as an activity or as an emission source for this facility. The emissions for liquid loadout operation are calculated and documented in Section 6 of the application (Calculations) **[AR No. 1, Bates 001 - 288]**). VOC Loadout limits are set in Table 106.A (Unit LOAD) with monitoring Condition at A203.C.

Comment: The applicability of Texas Commission of Environmental Quality emission factors; **[AR No. 12, Bates 387 - 391].**

Response: The Department has evaluated the TCEQ emission factors and determined that these factors are acceptable. The TCEQ emission factors that were used were those for NOx and CO for flares. The TCEQ emission factors used for the flares are: NOx at 0.138 lb/MMBtu and CO at 0.2755 lb/MMBtu **[AR No. 1, Bates 001 - 288]**. The emission factors were used from TCEQ publication RG-360A/09, version January 2010, Table A-6 TCEQ Air Permits Flare Emission Factors table for air or unassisted type flares.

Comment: Guardians requests that NMED explain whether or not XTO's Tiger facility is in compliance with the laws and rules that govern its air quality permitting. This facility was first permitted in 2018, but as of June 11, 2021 NMED had not been able to verify the facility's compliance and enforcement status, according to the Department's Statement of Basis **[AR No. 13, Bates 392 - 395]**.

Response: The AQB Compliance and Enforcement Section response on July 20, 2021 stated that there were no outstanding notice of violation and no settlement agreement for which all actions have not been complete **[AR No. 30, Bates 486 - 487]**. This information will be included in an updated draft of the Statement of Basis.

IX. CONCLUSION

The Bureau has completed a technical review of this application. The facility, as represented in the application, demonstrates compliance with all federal and state regulations. The facility's operations, as represented in this application, do not cause nor significantly contribute to

any exceedances of applicable air quality standards. These results are based on the modeling analysis and emissions calculations for Carbon Monoxide (CO), Nitrogen Dioxide (NO2), Particulate Matter 10 micrometers or less in aerodynamic diameter (PM10), Particulate Matter (2.5 microns or less) (PM2.5), and Sulfur Dioxide (SO2). The comments received by the Bureau on this permit have been responded to in this testimony. The responses demonstrate that the comments do not raise any substantive issues that indicate this permit should not be issued. The permit complies with all air quality regulations and contains demonstrations of compliance for all conditions and emission limits to ensure compliance with Ambient Air Quality Standards. The Air Quality Bureau recommends that the Secretary uphold the Department's decision to approve issuance of this Permit.

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF CRESTWOOD NEW MEXICO PIPELINE, LLC – WILLOW LAKE GAS PROCESSING PLANT
FOR AN AIR QUALITY PERMIT **AQB 21-38**

TECHNICAL TESTIMONY OF URSHULA BAJRACHARYA

I. INTRODUCTION

My name is Urshula Bajracharya. I am a Permit Specialist in the Major Source – Prevention of Significant Deterioration Unit ("PSD Unit") of the Permitting Section of the Air Quality Bureau ("AQB" or "Bureau") of the New Mexico Environment Department ("NMED" or "Department"). I present this written testimony on behalf of the Department for the public hearing on the permit application submitted by Crestwood New Mexico Pipeline, LLC ("Crestwood") ("Application 5142M8").

My testimony will address the following topics: my qualifications, a summary of Application 5142M8, my administrative review of Application 5142M8, the technical review of Application 5142M8, AQB's public outreach efforts throughout various stages of this permitting action, and the basis for conditions in the most recent 2021.09.21 version of Draft Permit 5142M8 for Crestwood's proposed facility**.**

II. QUALIFICATIONS

I have been an employee of the Bureau since 2019 for approximately two years, working as a Permit Specialist. As a Permit Specialist, I perform technical and regulatory review of complex Air Quality Bureau permit applications within regulatory deadlines. I verify emissions calculations; determine applicable state regulations and federal regulations; coordinate with

various stakeholders including the public, industry, consultants, and AQB staff; write legally enforceable air permits and technical support documents for the administrative record; enter data into the AQB database; and complete various special projects to achieve AQB goals.

My full background and qualifications are set forth in my resume **[NMED Exhibit 26]**.

III. SUMMARY OF APPLICATION 5142M8

Crestwood's Willow Lake Gas Processing Plant is located approximately 2.67 miles Southwest of Malaga, New Mexico in Eddy County. With this application, Crestwood proposes addition of three (3) compressor engines, one (1) Vapor Recovery Unit (VRU), one (1) produced water/condensate tank, one (1) TEG glycol dehydrator and one (1) reboiler, increase in throughput to tanks and truck loading, update to control efficiency for seven existing engines, revision to flare emission calculation to accommodate new equipment, revision to tank calculation based on estimated increase in throughput, update to fugitive components, update to unit name changes and control device unit name changes. This application was updated by the applicant during AQB review; the most recent update to the application was received September 14, 2021. This latest update included higher limits for throughput for condensate and truck loading, but offset those emissions with additional controls so that overall facility emissions decreased from the previous versions of the application.

IV. ADMINISTRATIVE REVIEW

Application 5142M8 was received by the New Mexico Environment Department on February 19, 2021. Pursuant to 20.2.72.207(A) NMAC, the Department had 30 days to review the application and determine whether it was administratively complete.

The administrative review of an application is not a technical review, but a review of the presence of the required parts of the application, including the applicant's modeling analysis and the applicant's proof of public notice. All required contents of the application are listed in 20.2.72.203 NMAC. Upon receipt of Application 5142M8, I provided the applicant's modeling files to the assigned AQB modeling staff member, Angela Raso, for her review. On March 8, 2021 Sufi Mustafa sent me an e-mail confirming Application 5142M8 could be ruled complete from a modeling perspective. The modeling for this project was assigned to Ms. Angela Raso **[AR No. 27, Bates 549 - 550].**

After I calculated the permit fee for Crestwood's application 5142M8 based on fee units in 20.2.75 NMAC and applicable regulations, AQB's administrative staff generated an invoice for the permit fee. On March 18, 2021, I ruled application 5142M8 administratively complete [**AR No. 4, Bates 345 - 349**]. I sent the completion determination letter, including a copy of the Department's Legal Notice, and the invoice for the permit fee to the applicant on March 18, 2021. I also sent the Department's Legal Notice to EPA Region 6; Erica LeDoux at EPA, the air permit contact for the State of Texas, and the Chief of Resource Stewardship and Science Division at Carlsbad Caverns National Park on March 18, 2021 [**AR No. 6 and 7, Bates 352 and 354**]. The Department's Legal Notice was posted on the AQB website on the page with all public notices of permitting actions [**AR No. 28, Bates 551**] and initially published in the *Carlsbad Current Argus* on March 20, 2021 [**AR No. 8, Bates 356 - 360**], and a revised public notice published in the *Carlsbad Current Argus* on April 22, 2021 **[AR No. 9, Bates 361 - 363]** to update the method for contacting permit writers for submission of comments. WEG submitted first comments on April 16, 2021 **[AR No. 16, Bates 500 - 503]**. The first citizen letter was sent to WEG April 16, 2021 **[AR No. 18, Bates 510 - 512]**, and the application and public notice were then moved from the

primary AQB public notice web-site over to the AQB web-site for Permit Applications with Public Interest, Public Meetings, or Public Hearing **[AR No. 30, Bates-554]**. After the draft permit and analysis were complete, they were emailed to WEG on May 27, 2021, along with the second citizen letter **[AR No. 19, Bates-513]**. The draft documents were then posted on the AQB web-site May 27, 2021. WEG subsequently submitted a second round of comments on the draft permit and analysis on June 28, 2021 **[AR No. 17, Bates 504 - 509]**.

V. TECHNICAL REVIEW

I began the technical review of Crestwood's application 5142M8 after I determined it was administratively complete. The technical review requires verification of emissions calculations and a determination of applicable federal regulations and state regulations.

I verified emissions calculations by confirming the correct emission factors and formulas were used in calculating emissions for all sources. If methods were unclear, I asked the consultant for further explanation or updates, as necessary. Also, I verified the emissions totals from the calculations matched the emissions totals in Section 2 of the application.

Per my inquiries and proposed changes to the facility operations, Moshe Wolf with Crestwood submitted several updates to the original Willow Lake Gas Processing Plant application 5142M8. The application was updated September 14, 2021 [**AR No. 3, Bates no. 313 - 343**] to include increases in condensate throughput and additional tank and fugitive VOC emissions**.**

I requested some of these updates while doing an initial review of calculations. I requested other updates if discrepancies in the application became apparent while writing Draft Permit 5142M8. The Department has reviewed the emission calculations submitted in the application for all regulated equipment and the emission factors relied upon in those calculations. The emission

factors used in those calculations are based upon the US EPA's AP-42 Compilation of Air Emission Factors for engines, heaters and reboilers. Emission factors for tanks, dehydrators, condensate loading for flares came from ProMax, GRI-GlyCalc 4.0, and TNRCC RG-109. Emission factors for fugitives came from Table 2-4 of EPA Protocol for Equipment Leak Emission Estimates (1995).

On September 14, 2021, Crestwood revised their application to add a new VRU, increase throughput of the tanks and truck loading; the emissions of which were offset by additional control devices (additional VRU) and changes to routing of emissions to various existing control devices. The application was reviewed, calculations reviewed and approved. The new changes were incorporated in a new draft of the permit Part A (only) **[AR No. 15, Bates 466 - 499]** and new draft of the Statement of Basis (version 2021.9.21) **[AR No. 13, Bates 400 - 412].**

I summarized my review in the Statement of Basis - revised version 2021.9.21 **[AR No. 13, Bates 400 - 412].** The Statement of Basis is a permitting record that includes a description and history of the facility, public response received by the Department, a regulatory applicability review, and summarizes any unique conditions in the permit.

VI. PUBLIC OUTREACH

Once the public notice was published, interested persons were allowed thirty (30) days to express an interest in writing in the permit application per 20.2.72.206(A)(5) NMAC. The public notice was published in the newspaper on March 20, 2021 **[AR No. 8, Bates 356 - 360]** and republished again on April 22, 2021, the end of the 30-day comment period was May 22, 2021 **[AR No. 9, Bates 361 - 363].** On April 16, 2021, AQB received a comment letter on this application from WildEarth Guardians **[AR No. 16, Bates 500 - 503].** In response to a comment

in this letter expressing concern that the COVID-19 pandemic may be restricting the public's ability to comment on the application, AQB published the initial newspaper public notice again, including text allowing comments for the record to be submitted by email. The revised notice was published April 22, 2021, and the new 30-day comment period ended May 22, 2021. No additional comments were received in response to this revised notice allowing email submission **[AR No. 9, Bates 361 - 363].**

On April 16, 2021, AQB sent an Initial Citizen letter to WildEarth Guardians by email **[AR No. 18, Bates 510 - 512]**. The Initial Citizen letter is a template letter developed to comply with requirements in 20.2.72.206.B(1) NMAC. The letter confirms citizens' written comments will be included as part of the permit application record. The letter also provides general information about the permit process, the pending availability of the Department's analysis, and the option to request a public hearing. The comments submitted April 16, 2021 requested a hearing on the permit. Based on significant public interest and a citizen's request for a hearing, on June 4, 2021, Cabinet Secretary James C. Kenney approved AQB's recommendation that a public hearing be held for Crestwood's application 5142M8**.** Copies of the hearing determination were sent to Crestwood and to WEG on Monday June 7, 2021 by Melinda Owens, Title V Sources Manager for AQB **[AR No. 31, Bates 555]**.

On May 28, 2021 Kirby Olson, the Major Source Program Manager, emailed the second citizen letter, a copy of the draft permit, and the draft Statement of Basis to both Mr. Nichols and Mr. Nykiel at WildEarth Guardians **[AR No. 19, Bates 513]**. The Second Citizen letter is a template letter to notify citizens the Department's analysis is available for review. The letter had a link to the Department's analysis, including the Statement of Basis and modeling review report, which were also posted on the section of the AQB web page for permit applications with public

interest. Per 20.2.72.206.B(2) NMAC, the proposed permit could not be issued until at least 30 days after the Department's analysis was available for review. The 30-day analysis period began May 28, 2021 and ended June 27, 2021. On June 28, 2021, the Department received a second set of comments from WildEarth Guardians. Permit 5142M8 was already scheduled for a hearing based on the request for hearing in the first set of comments, so the second set of comments was included as part of the administrative record **[AR No. 17, Bates 504 - 509]** and responses to those comments are included with this written testimony.

Due to the facility updates mentioned above (under Technical Review), the draft permit and statement of basis were revised. The newly revised draft permit was sent to WEG for review on September 21, 2021 **[AR No. 51, Bates 620].** The new revised documents were also posted on the AQB website with the other documents on September 22, 2021 **[AR No. 34, Bates 560 - 565].**

VII. BASIS FOR PERMIT CONDITIONS

The Department's authority to include conditions in an Air Quality permit is stated in 20.2.72.210 NMAC Permit Conditions. If a permit is issued, it will specify what equipment is authorized to be installed and operated, will place limits on air pollutants, and place requirements on how equipment will be operated. A permit is an enforceable legal document, and will include emission limits, methods for determining compliance on a regular basis, and will place monitoring, recordkeeping, and reporting requirements to ensure and verify compliance with the requirements of the permit.

Conditions in Part A of the permit are Facility Specific Requirements, unique to the facility. They are site-specific and based on information provided in the application. Conditions in Part B of the permit are General Conditions and standard language which generally apply to all sources.

Part C is also standard language about supporting on-line documents, definitions, and acronyms which apply to all sources.

A draft permit is a dynamic working document subject to updates throughout the review process. Draft Permit 5142M8 began with standardized language in an AQB permit template and standardized AQB monitoring protocols added as necessary for the sources of emissions and control devices at Crestwood's proposed facility. Permit conditions establish ongoing testing and monitoring requirements for processes and pieces of equipment to ensure the equipment is operating in accordance with the permitted emission limits.

VIII. RESPONSES TO COMMENTS RECEIVED ON APPLICATION

The Air Quality Bureau (AQB) received public comments on this application on April 16, 2021 during the 30 day comment period following publication of the Bureau's newspaper public notice on March 20, 2021. These comments were submitted by Matt Nykiel with WildEarth Guardians. To be responsive to concerns on the public notice expressed in these comments, AQB revised and republished the initial public notice on April 22, 2021 and provided 30 additional days from that date in the initial public comment period. On May 28, 2021 the Bureau started the 30 day analysis period on the draft permit. The draft permit and draft Statement of Basis were sent directly to Matt Nykiel and Jeremy Nichols with WildEarth Guardians. On June 28, 2021 AQB received a second set of comments from Matt Nykiel with WildEarth Guardians. The following section presents the Bureau's responses to all comments submitted in either set of comments on this application in the format of the comment followed by the response from AQB. The comments are presented in the order of topic: public notice; startup, shutdown, maintenance, and malfunction emissions, including HAPs; inclusion of adjacent and surrounding facilities; inclusion of all point

sources within the source; potential impacts to National Ambient Air Quality Standards (NAAQS) with particular reference to the 8-hour ozone standard; gas-actuated pneumatic controllers; environmental justice concerns; compliance with Toxic Air Pollutant (TAP) permitting; air quality regulatory compliance status of the facility; and questions on specific permit conditions. Responses to comments regarding air dispersion modeling are in the written testimony presented by the technical witnesses for the modeling section. The hearing determination signed February 11, 2021 stated that the hearing would be **granted only as to issues not addressed in EIB Nos. 20-21(A) and 20-33(A) [AR No. 31, Bates 555]**. Therefore, comments related to ozone concentrations in southeastern New Mexico and attainment status of that area are not included in these responses.

Comment: At minimum, we request the Department update its legal notices for air quality permit proposals, so that future legal notices include an email address for comment submissions, in recognition of the public health risks of COVID-19. For purposes of Crestwood's present permit application, we request the Department consider re-issuing the legal notice, with the addition of an explanation of how the public can submit comments via email, and provide another 30-day review period for members of the public to notify the Department of their interest.

Response: In response to this comment, AQB republished the newspaper notice including an email address to which the public could submit written comments on the permit and restarted the 30-day initial public comment period. This second initial 30-day notice period started April 22, 2021 and ended May 22, 2021. No comments from any other party were received by AQB during the second initial 30-day notice.

Comment: Despite the Department's revision to the public notice, we continue to have concerns about the adequacy of the public process regarding the public review of this proposed permit. For example, the public notices for the proposed permit that the applicant published in different forms of media did not identify NMED's revisions to the public notice and maintained the requirement that comments would only be accepted in hardcopy writing mailed to NMED's offices.1

Similarly concerning is NMED's omission of a comment deadline in the revised public notice it posted on its air permit webpage. Currently, the revised public notice for the Willow Lake Gas Processing Plant is dated on NMED's webpage as March 16, 2021 – the date the initial and incorrect version of the public notice was published. And, because the revised public notice itself is not dated and does not include a comment deadline members of the public could not determine from NMED's webpage that the Department had authorized a new public comment period or the deadline for submitting a comment. For purposes of Crestwood's present permit application, we request the Department direct Crestwood to publish the revised public notice in accordance with NMED's public notice regulations, and provide another 30-day review period for members of the public to notify the Department of their interest. A sufficient legal notice is critical for ensuring NMED effectively informs and engages the public, provides a meaningful opportunity for the public to weigh in, and meets its environmental justice objectives under Executive Order 2005-056.

Response: The public notices published in the newspaper by the applicant are published prior to submission of the application and proof that publication has already occurred is required as part of the application [20.2.72.203.B.(2) NMAC]. The notices published by Crestwood for this application met all the regulatory criteria for applicants listed in 20.2.72.203.C NMAC and AQB's

current public notice guidelines. There is no regulatory basis for requiring the applicant to republish their notice for this application. The start date for an initial public notice begins on the day that the public notice appears in the newspaper [20.2.72.206.A.(3) NMAC]. The Bureau publishes notices and draft on its website as soon as practicable, but publication on the website does not start the 30-day comment period. The text of the legal notice does not contain the date of the start of the comment period because once a notice is submitted the newspaper there is a window of several days in which the notice may publish. The exact date of publication is unavailable prior to submission of the final copy to the newspaper. The date on the newspaper in which the notice publishes is the start of the comment period. For this permit, the date of the start of the 30 day analysis period for comments on the draft, which is determined by when the Bureau sends the draft to interested persons who have commented on the public notice [20.2.72.206.B(2) NMAC], was posted on the AQB website listed in red font above the links to the draft documents at https://www.env.nm.gov/air-quality/permit-applications-with-public-interest-public-meeting-or-public-hearing/. A citizen letter sent to commenters with the draft also informed them that the 30-day analysis period has begun.

Comment: We are also concerned that the proposed permit does not include a limit on the number or duration of SSM flaring for Unit WL1-FL emissions to ensure compliance with applicable annual limits. Provision A107 of the proposed permit authorizes SSM flaring emissions in the form of many pounds per hour of nitrogen oxide (NOx) emissions, volatile organic compound (VOC) and carbon monoxide emissions, but the permit does not restrict the frequency or duration of these emissions. Without any such restriction, the proposed permit authorizes SSM emissions beyond the yearly limits set forth at Condition A107 of the proposed permit, as well as beyond the

facility's potential to emit. Indeed, it's unclear from the proposed permit and Statement of Basis why NMED is proposing to require limits on the number of flaring events for Unit WL2-FL and not Unit WL1-FL. Even with the limit on the number of flaring events from Unit WL2-FL, without a limit on the duration of such events the proposed permit cannot ensure compliance with the annual emission limit.

Response: Establishment of hourly emission limits in any permit does not imply that these emissions are permitted for every hour of the year. Both hourly and annual emission limits are enforceable in an air quality permit. The Bureau establishes hourly limits to ensure compliance with short-term air quality standards and annual emission limits to ensure compliance with long-term air quality standards. For the SSM flaring referred to in this comment, conditions A107D and A107E require that flare WL1-FL be operated in accordance with conditions A206.A and A206.B. Condition A206.A requires that the flare operate with no visible emissions, which ensures the flare meets its 98% destruction efficiency. Flare WL1-FL controls emissions from multiple tanks and dehydrators, so condition A206.B requires a flowmeter to continuously measure the amount of gas flowing to each flare so the volume of gas combusted in the flare is known. The recordkeeping section of condition A107.D requires calculation of hourly and annual emissions using the gas analysis, volume of gas sent to the flare, and destruction efficiency of WL1-FL. This recordkeeping section requires keeping a spreadsheet of the emissions and maintaining hourly and "monthly rolling 12-month totals". These monthly rolling totals ensure that the annual limits are not exceeded during any 12-month period so compliance is demonstrated with annual emission limits. Flare WL2-FL does not have a flowmeter because it serves primarily to control known emissions from a single process (see condition A206.E in the permit). Without a flowmeter, compliance with the hourly and annual emission limits for use of the flare to control SSM

emissions is demonstrated by limiting the number of events and the volume released per event. Condition A107.E requires similar hourly and annual calculations for WL2-FL.

Comment: The annual SSM volatile organic compound (VOC) and H2S limit for venting from compressor blowdowns, pigging equipment blowdowns, and miscellaneous SSM activities is unenforceable as a practical matter as the permit does not require actual monitoring of vented VOC and H2S emissions during these SSM events. Although Condition A107.C requires a facility inlet gas analysis to be completed every year, it is unclear how this inlet gas analysis is used to calculate SSM VOC and H2S emissions. While the Condition seems to indicate that VOC emissions will be calculated based on the total gas vented in MMscf, it is not clear how the volume of gas vented during SSM is actually measured. There is no indication that a meter or other means of volumetric measurements will be utilized to actually accurately measure vented gas. In the list of equipment in Table 104.A, the SSM unit has no identified rated or permitted capacity that would indicate the volume of gas vented could actually be measured on an MMscf basis.

Response: For these SSM activities, the VOC releases are determined based on the gas composition, the volume of gas released during an activity, and the number of activities. For compressor blowdowns, the volume of gas from compressor blowdowns is based on the known interior gas volume within the compressor and the number of times the compressor blows down (releases pressure). Pigging equipment blowdowns are based on the amount of gas pushed out of the end of the line as the pig travels through a segment of gas line. The amount of gas is determined from the volume within the line being serviced and the gas composition. The same approach is used for other miscellaneous SSM activities. Because SSM represents various activities, SSM does not have a single volume or capacity. The volumes used in the calculations are based on

engineering knowledge of the individual equipment undergoing the startup, shutdown, or maintenance. Condition A107.C requires monthly calculation of the amount of VOCs released over the last twelve (12) months for comparison to the annual emission limit. This condition also limits the H2S content of the vented gas and requires calculation of H2S emissions if the volume of gas vented exceeds the volume used to establish the H2S emission limit. Volumes of gas released from different types of maintenance and shutdown are variable, so calculating the total volume over time provides a more accurate demonstration of compliance than limiting the number of events. Condition A107.F requires monthly calculation of the amount of VOCs released from pigging operations over the last twelve (12) months for comparison to the annual emission limit. Volumes of gas released during pigging operations vary with the area undergoing the pigging operation as shown in the chart from Section 6 of the application **[AR No. 1, Bates 001 - 247]**, so calculating the total volume over time provides a more accurate demonstration of compliance than limiting the number of events.

Comment: We are concerned that Crestwood's application and the proposed permit does not address emissions from gas-actuated pneumatic controllers at the Willow Lake Gas Processing Plant. Gas-actuated pneumatic controllers are point sources of air pollution and cumulatively release large amounts of VOC emissions. NMED must disclose the number of gas-actuated pneumatic controllers at the Willow Lake facility and estimate total VOC emissions from these pollutant emitting activities.

Response: The applicant, Crestwood, verified through a conference call with AQB and in their latest revision to the application for this permit, all pneumatic controllers at their facility are run on 'instrument air". This means the pneumatic controller uses compressed air to activate and does

not release any natural gas when it activates. Instrument air powered controllers are therefore not sources of regulated pollutants and there in no requirement to report them in an application for an air quality permit **[AR No. 3, Bates 313 - 343]**.

Comment: Guardians requests that NMED provide an explanation for how the proposed permit modification and associated increase in air pollution will not disproportionately impact low-income communities and communities of color, pursuant to New Mexico Executive Order 2005-056. Guardians was unable to identify a discussion of these considerations in the documents NMED released in support of the proposed permit.

Response: NMED policy 07-13, Public Participation delineates the approach used by NMED to address these concerns. For each permitting action, NMED uses the EPA EJSCREEN tool to evaluate demographic information for an area around the facility; the area is a 4-mile circle around the facility except smaller within urbanized areas. Data from EPA EJSCREEN is evaluated by the permit writer and their manager to evaluate if any additional outreach needs to be done beyond the regulatory requirements. This assessment includes factors such as number of households, per capita income, percent of Linguistically Isolated Households, and percent minority population., Past involvement by the public in air permitting for the facility is also reviewed.

Comment: How the proposed permit modification will comply with toxic air pollutant permitting requirements at 20.2.72.400-499 NMAC, despite the likelihood that toxic air pollutants including cyclohexane, hexene, nonane, trimethylbenzene may be emitted as part of the applicant's VOC emission stream;

Response: Willow Lake extracts NGLs and therefore meets the definition of a gas processing plant. Willow Lake is subject to TAPs permitting under 20.2.72.401.F NMAC. 20.2.72.402.B NMAC only requires TAPs permitting for TAPs emitted at rates exceeding the emissions in pounds per hour shown in 20.2.72.502 NMAC Tables A and B including any stack height correction factors from Table C. NMED only requires reporting of TAPs in the application that exceed the emission rates that make those compounds subject to TAP permitting in accordance with 20.2.72.403.A.(1) NMAC The language in 20.2.72.402.B NMAC states that total potential emissions of a toxic air pollutant into the ambient air is the amount used for comparison to the threshold, so emissions that are controlled (by a VRU or a tank flare) are not included. At Willow Lake the dehydrator emissions and tank emissions are controlled 95-98% by VRUs and process flares. Review of gas analyses for this facility showed cyclohexane and octane were the only TAPs identified in the extended gas analysis. Cyclohexane is present in the gas analyzed for Willow Lake in a mole fraction of 0.002% and a weight percent of 0.008%. The estimated emissions of cyclohexane from the facility provided by Crestwood are 4 lb/hr. The threshold screening level of cyclohexane in 20.2.72.502 NMAC is 70 lbs/hr. Octane is present in the gas analyzed for Willow Lake in a mole fraction of 0.032% and a weight percent of 0.174%. The estimated emissions of octane from the facility provided by Crestwood are also 4 lb/hr. The threshold screening level of octane in 20.2.72.502 NMAC is 96.7 lbs/hr. The estimated emissions of both TAPs are below the threshold requiring a TAP permit under 20.2.72.402.B NMAC. TAPs at emission rates less than the thresholds screening levels are not required to be reported in NSR applications [20.2.72.203.A(3) NMAC].

Comment: Whether the proposed permit properly encompasses all point sources of pollution that are a part of the single source subject to permitting. We are concerned that the permit does not address a number of other pollutant-emitting activities that are part of the Willow Lake gas facility, including: Compressor engine blowdowns and/or maintenance activities; Pigging operations; Liquid loadout operations; gas actuated pneumatic controllers; and emissions from oil and gas wells that feed the facility and are adjacent for new source review permitting purposes.

Response: Draft permit 5142M8 for Willow Lake Gas Processing Plant includes liquid loadout emissions under units ATM LOAD and NGL LOAD in Table 104.A. Emission limits for VOCs for these units are include in Table 106.A. Emissions from compressor blowdowns are routed to flare WL1-FL and WL2-FL. These emissions are accounted for in the Table 107.A emission limits for unit "WL1-FL Blowdown" and "WL2-FL Blowdown". Emissions from pigging operations are accounted for in the Table 107.A emission limits for unit "PIGGING". Gas-actuated pneumatic controllers and emissions from oil and gas wells that feed the facility are covered under other responses in this section of the written testimony **[AR No. 15, Bates 466 - 499]**.

Comment: We are also concerned that the proposed permit does not include a limit on the number or duration of pigging operations to ensure compliance with applicable annual limits.

Response: For these SSM activities, the VOC releases are determined based on the gas composition, the volume of gas released during an event, and the number of activities. The chart in section 6 shows this calculation under unit "PIGGING" **[AR No. 1, Bates 001 - 247]**. As shown in that chart, the volume released per event varies with the area at which the event occurs. Therefore, Condition A107.F requires monthly calculation and recording of the total VOC

emissions over the preceding twelve months to ensure compliance with the annual emission limit for unit PIGGING in Table 107.A **[AR No. 15, Bates 466 - 499]**.

Comment: NMED's Statement of Basis for the Willow Lake Gas Processing Plant indicates that NMED has not yet received a compliance verification for this facility. Guardians requests this permit not be granted until this information is secured and the public has an opportunity to consider it. Alternatively, we request NMED explain the legal basis that would authorize NMED to issue this permit without this information.

Response: All final enforcement actions are maintained in AQB's electronic database and reviewed prior to the issuance of the permit. This review ensures that any permitting requirements associated with resolution of any violations or investigations are addressed in the permit before it is issued. The updated Statement of Basis show that the AQB Compliance and Enforcement Section responded with the statement: There is no outstanding notice of violation and no settlement agreement for which all actions have not been completed **[AR No. 35, Bates 557 - 559]**.

Comment: Guardians requests an explanation for why the Draft Permit at A110A authorizes the Willow Lake facility to combust natural gas containing as much as 5 grains of total sulfur per 100 dry standard cubic feet rather than a maximum of 3.8 grains, which is the standard typically authorized for this type of facility. Barring a reasonable justification, we request NMED correct provision A110A to authorize a maximum of only 3.8 grains of total sulfur per 100 dry standard cubic feet.

Response: There is no standard for grains of total sulfur per 100 dry standard cubic feet of natural gas. The sulfur content will vary depending on whether the equipment burns pipeline quality

natural gas or the field gas that enters the facility. Sulfur content will also vary between field gas from one facility to another. The sulfur content of gas can vary between different pieces of equipment at the same facility, as some equipment may use pipeline gas and some may use field gas. The SO2 emissions from the facility depend on the amount of sulfur in the fuel. Therefore, the allowable sulfur content in the fuel is restricted in the permit to the amount that was used in the calculations submitted with the application. This ensures compliance with the SO2 emission limits in the permit for the equipment combusting natural gas. Sulfur content in natural gas used in combustion equipment at oil and gas facilities may be close to 0 or up to 20 grains. The definition of natural gas in the Part C general conditions of the permit includes up to 20 grains of total sulfur per 100 dry standard cubic feet.

Comment: Guardians requests an explanation for why the Draft Permit at A202B authorizes quarterly monitoring of the circulation rate for glycol dehydrators rather than monthly monitoring, which is the standard monitoring frequency. Barring a reasonably justification, we request NMED correct provision A202B to require monthly monitoring of the circulation rate for glycol dehydrators.

Response: The Department uses a monitoring protocol to determine the monitoring frequency for glycol dehydrators. This protocol flow decision tree **[AR No. 54; Bates d627]** requires quarterly monitoring for almost all dehydrators. Only dehydrators that are permitted to operate at less than maximum capacity are required to conduct monitoring every month. The high frequency of monitoring for dehydrators permitted below their maximum capacity serves to ensure the dehydrator operates at the permitted circulation rate than the maximum circulation rate. Emissions from the dehydrator are proportional to the glycol circulation rate. As shown in Table 104.A of

draft permit 5142M8 and Table 2-A of the application for that permit, the dehydrators at Willow Lake are all permitted at their maximum capacity. Under the AQB monitoring protocol, these dehydrators are subject to quarterly monitoring instead of monthly monitoring.

IX. CONCLUSION

The Bureau has completed a technical review of this application. The facility, as represented in the application, demonstrates compliance with all federal and state regulations. The facility's operations, as represented in this application, do not cause nor significantly contribute to any exceedances of applicable air quality standards. These results are based on the modeling analysis and emissions calculations for Carbon Monoxide (CO), Nitrogen Dioxide (NO2), Particulate Matter 10 micrometers or less in aerodynamic diameter (PM10), Particulate Matter (2.5 microns or less) (PM2.5), and Sulfur Dioxide (SO2). The comments received by the Bureau on this permit have been responded to in this testimony. The responses demonstrate that the comments do not raise any substantive issues that indicate this permit should not be issued. The permit complies with all air quality regulations and contains demonstrations of compliance for all conditions and emission limits to ensure compliance with Ambient Air Quality Standards. The Air Quality Bureau recommends that the Secretary uphold the Department's decision to approve issuance of this Permit.

Urshula Bajracharya

Email: Urshula.Bajracharya@state.nm.us Phone number: 505-629-8883

Education:

(1) Master's Degree in Earth Science – Dartmouth College

- Department of Earth Science, Dartmouth College, Hanover, NH.
- Year: December 2017

(2) Bachelor's Degree in Environmental Science – Kathmandu University

- Department of Environmental Science and Engineering, Kathmandu University, Nepal
- Year: October 2010

Experiences:

(1) Major Source Permit Writer and Specialist, Air Quality Bureau NMED (2019 - Current):

- Review of oil and gas permit application
- Review of emissions calculations, maps, etc.
- Review of applicability of state and federal regulations
- Review of modeling calculations like ProMax, GriGlyCal, etc.
- Preparation of Public involvement plan and Limited English proficiency documents.
- Communication with other adjoining states, Indian Tribes, Pueblos, Nations, State parks, National Parks, Class I areas and general public regarding Major source and Title V permits.
- Preparing and writing Prevention of Significant Deterioration (PSD) permits for oil and gas facilities
- Preparing and writing New source review (NSR) permits for oil and gas facilities
- Preparing and writing Title V permits for oil and gas facilities.
- Communication with oil and gas permit applicants for application submission, revisions, draft permit revisions, etc.

(2) Compliance Officer, Drinking Water Bureau NMED (2018 - 2019):

- Perform sanitary survey for public water systems to inspect physical, chemical and administrative conditions.
- Take necessary action during water system crisis such as water outage, well pump failures in water system, E Coli outbreak etc.
- Review water chemistry and biological conditions for the assigned water systems monthly.
- Issue notice of violation to non-compliant water systems for various reasons such as exceedance of minimum contamination level (MCL), total coliform positive, non-compliance on sanitary surveys, etc.
- Perform customer service and answer question about water systems and their issues.
- Communicate with water system operators about regulations and deficiencies.

(3) Environmental Scientist Operational, DOE Oversight Bureau NMED (2017 - 2018):

- Collect environmental samples to monitor historic and present discharge from Department of Energy (DOE) run facilities in order to protect environmental and human health.
- Collect or assist in collection of ground water, storm water, sediment, precipitation, air particle, fish tissue samples, direct penetrating radar (DPR), etc.
- Lead the project for fish and biota monitoring program in and along the Rio Grande River.
- Co-lead on precipitation sampling program around Los Alamos county.
- Write proposal for DOE funding for fish and biota monitoring program.
- Planning for budget allocation, sample schedule/ season, technique for sampling and sample transportation, sample location, select analytes to be monitored, timeline for project, data handling, equipment maintenance etc.
- Maintained various instruments including precipitation sampler, ISCOS stormwater sampler, single stage air monitors, HACH colorimeter, YSI etc.
- Write public involvement plant (PIP) for all DOE-Oversight bureau public activities.
- Trained on use, maintenance and data management for online public data record platform for DOE-Oversight bureau-Intellus nm.

(4) Teaching Assistant/Lab Assistant, Dartmouth College (NH) (2013 – 2017):

- Teaching assistant:
    - Assist the professors with teaching and classes during normal business hours.
    - Involved with preparation for classes, grading of exams/ homework, holding class review sessions, prepare and manage laboratory classes and field work
    - Data management for some of the field work, as they were ongoing long-term environmental research that students get involved with.
- Research Assistant:
    - Tasked with running and maintenance of Delta+ Advantage isotope ratio mass spectrometer (IRMS) for analysis of carbon -13 isotope and nitronge-15 isotope.
    - Preparation of samples, analysis, data QA/QC, maintenance of machine, maintenance of necessary supplies, etc.
    - Assisting research students with analysis of soil and water samples for measurement of various isotopes using Isotope ratio mass spectrometer for carbon, nitrogen, deuterium and oxygen isotopes.
    - Analysis of various analytes for research purposes such as pH, phosphorus, copper, nitrogen.

(5) Environment Consultant, CEPAD Hydro Consultancy (Nepal) (2011):

- Identify, assess and report environmental and socio-economic impacts during construction phase and operation phase of hydro-power projects in Nepal.
- Conduct site visits to identify various factors that could potentially impact the environment negatively during construction and operation of hydro-power plant such as

possibility of landslide, soil erosion, flooding, displacement of wildlife, impact to endangered species, etc.
- Collect data for socio-economic impact study, in order to provide proper compensation to displaced families living in the proposed site. The collected data was analyzed for socio-economic background, living wage and cost of displacement, land ownership, income generation source etc.
- Writing the Environmental Impact Assessment (EIA) report and submitting it to the client in a timely manner.

(6) Lab Assistant, Aquatic Ecology Center (Nepal) (2010):

- Perform laboratory analysis of soil and water samples that are submitted for analysis.
- Test soil for pH, soil texture, soil organic matter (SOM), nitrogen, phosphorus, potassium and cation exchange capacity.
- Test water or assist in testing for pH, biological oxygen demand (BOD), chemical oxygen demand (COD), heavy metal analysis, etc.

State and Federal Regulations practiced:

(1) State Regulations:

- Drinking Water NMAC 20.7.10
- Air Quality NMAC 20.2.70 (Operating Permit)
- Air Quality NMAC 20.2.72 (Construction Permit)
- Air Quality NMAC 20.2.74 (Prevention of Significant Deterioration)

(2) Federal Regulations:

- Safe Drinking Water Act (Title XIV)
- Clean Air Act 40 CFR 60
- Clean Air Act 40 CFR 61
- Clean Air Act 40 CFR 63
- Clean Air Act 40 CFR 64

Other Relevant Skills:

(1) Instruments:

- Delta+ Advantage IRMS
- Direct Mercury Analyzer (DMA)
- Agilent 8800 Inductively coupled plasma-mass spectrometer (ICP-MS)
- Apollo 9000 TOC combustion analyzer
- pH meter
- Lamotte 1911 Smart Digital Colorimeter water tester
- LI-840A CO2/ H2O Analyzer

- ISCOS stormwater sampler
- Single stage air monitors
- HACH colorimeter
- YSI

(2) Programming and Statistics:

- R
- Matlab
- JMP
- Intellus

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION OF XTO ENERGY, INC. FOR AN AIR QUALITY PERMIT FOR COWBOY CDP **AQB 21-34**

TECHNICAL TESTIMONY OF VANESSA SPRINGER

I. INTRODUCTION

My name is Vanessa Springer. I am a Permit Specialist in the Title V Unit of the Permitting Section of the Air Quality Bureau ("AQB" or "Bureau") of the New Mexico Environment Department ("NMED" or "Department"). I present this written testimony on behalf of the Department for the public hearing on the permit application submitted by XTO Energy, Inc. ("XTO") for their facility called Cowboy Central Delivery Point ("Cowboy CDP"). WildEarth Guardians ("WEG") challenges the Department's issuance of Air Quality Permit No. 7877-M1 to XTO Energy, Inc. for the facility Cowboy CDP, located in Eddy County, New Mexico.

My testimony will address the following topics: my qualifications, a summary of Application 7877-M1, the administrative review of Application 7877-M1, the technical review of Application 7877-M1, AQB's public outreach efforts throughout various stages of this permitting action, and the basis for conditions in the September 16, 2021 version of Draft Permit 7877-M1 for XTO's Cowboy CDP. My testimony will also address several of the issues mentioned in the public comments received by the Department regarding this permit application.

II. QUALIFICATIONS

I have been an employee of the Bureau for approximately two and a half years, working as a Permit Specialist. As a Permit Specialist, I perform technical and regulatory review of complex Air Quality Bureau permit applications within regulatory deadlines. I verify emissions calculations; determine applicable state regulations and federal regulations; coordinate with

various stakeholders including the public, industry, consultants, and AQB staff; write legally enforceable air permits and technical support documents for the administrative record; enter data into the AQB database; and complete various special projects to achieve AQB goals. I have worked on approximately 80 permitting actions for the Bureau. My full background and qualifications are set forth in my resume. **[NMED Exhibit 28]**.

III. SUMMARY OF APPLICATION 7877-M1

XTO Energy Inc.'s Cowboy Central Delivery Point is not yet constructed, but will be located at UTM Zone 13; 609,230 UTM E; 3,558,750 UTM N. **[AR No. 1]**. With this application, XTO proposes the following changes: addition of selective catalytic reduction to two stabilization heaters and two cryo heaters; removal of two stabilization heaters; reduction of the size and capacity of four internal floating roof tanks from 250,000 bbl to 100,000 bbl; addition of truck loading of slop oil; increase in stabilizer overhead and cryogenic blowdown startup, shutdown, and maintenance (SSM) emissions; updated speciation profiles for several sources; updated fugitive counts and calculations; updated tank throughputs; addition of four emergency generators; updated equipment nomenclature and unit numbers; addition and representation of electric compressors as subject to NSPS Subpart OOOOa; consolidation of MSS floating roof tank landings under general SSM VOC emissions at a rate of 10 tpy; addition of 10 tpy VOC Malfunction emissions; and increase of the flare purge gas flow rates. Cowboy CDP has had an air quality permit to construct at this location since November 16, 2018, the date that NSR Permit 7877 was issued **[AR No. 7, Bates 0442-0487]**. The new permit 7877-M1 would replace the existing permit, incorporate the changes listed above, and add and update conditions and requirements for monitoring, testing, recordkeeping, and reporting.

IV. ADMINISTRATIVE REVIEW

Application 7877-M1 was received by the New Mexico Environment Department on April 29, 2020 **[AR No. 8, Bates 0488]**. Pursuant to 20.2.72.207(A) NMAC, the Department had 30 days to review the application and determine whether it was administratively complete.

The administrative review of an application is not a technical review, but a review of the presence of the required parts of the application, including the applicant's modeling analysis and the applicant's proof of public notice. All required contents of the application are listed in 20.2.72.203 NMAC. As part of the Administrative Review, I provided the applicant's modeling files to the assigned AQB modeling staff member, Eric Peters, for his review. On May 18, 2020, Eric sent me an e-mail confirming Application 7877-M1 could be ruled complete from a modeling perspective **[AR No. 12, Bates 0846-0848]**. I also sent an email request for verification of compliance to AQB's Enforcement Section **[AR No. 11, Bates 0845]**, and I received a response on May 20, 2020 verifying that the facility had no outstanding notices of violation or settlement agreements for which all actions had not been completed **[AR No. 13, Bates 0849-0850]**. Prior to ruling the application administratively complete, I had numerous emails with XTO and their consultant clarifying questions concerning the application. Eventually, a revised application correcting errors was submitted. This revised application was relabeled "original" and was used to review and create the draft permit documents. **[AR No. 14, Bates 0851-0859]**.

I calculated the permit fee for XTO's Application 7877-M1 based on fee units in 20.2.75 NMAC and applicable regulations, and AQB's administrative staff generated an invoice for the permit fee. On May 29, 2020, I ruled Application 7877-M1 administratively complete **[AR No. 19, Bates 0878-0883]** and I sent the completion determination letter, including a copy of the Department's Legal Notice, and the invoice for the permit fee to the applicant **[AR No. 18, Bates**

0877]. I sent the Department's Legal Notice to EPA Region 6 and Erica LeDoux at EPA **[AR No. 16, Bates 0870-0975]**, and to Texas Commission on Environmental Quality **[AR No. 17, Bates 0876]** along with the Affected Program letter **[AR No. 20, Bates 0884]**. The Department's Legal Notice was posted on the AQB website page with all public notices of permitting actions **[AR No. 21, Bates 0885-0886]**. AQB's administrative staff sent the Department's Legal Notice to the *Carlsbad Current Argus* for publication, and it was published on June 2, 2020. **[AR No. 22, Bates 0887-0889]**.

A second 30-day comment period commenced on February 23, 2021 with a posting on the AQB website **[AR No. 86, Bates 3208-3211]**. The same day, a second citizen letter was emailed to WEG with instructions on how to access the draft permit documents **[AR No. 84, Bates 3206]**. WEG subsequently submitted a second round of comments on the draft permit and analysis on March 25, 2021 **[AR No. 92, Bates 3264]**.

V. TECHNICAL REVIEW

I began the technical review of XTO's Application 7877-M1 after I determined it was administratively complete. The technical review requires verification of emissions calculations and a determination of applicable federal regulations and state regulations.

I verified emissions calculations by confirming the correct emission factors and formulas were used in calculating emissions for all sources. If methods were unclear, I asked the consultant and air permit contact for further explanation or updates, as necessary. I also verified the emissions totals from the calculations matched the emissions totals in Section 2 of the application. The Department has reviewed the emission calculations submitted in the application for all regulated equipment and the emission factors relied upon in those calculations. The approved calculated emission rates were used as inputs into the Department's air dispersion modeling analysis. The air

dispersion model predicts concentrations of the National Ambient Air Quality Standards (NAAQS) based upon the approved emission rates. Eric Peters completed the modeling report for Cowboy CDP, which used the most up to date modeling and emissions calculations in the application, on September 23, 2021 **[AR No. 6, Bates 0431-0441]**.

Throughout my technical review of the application, I corresponded with consultant Evan Tullos and XTO employees including Benjamin Schneider, Raymond Tole, and Engineering Supervisor Ethan Boor. Per my inquiries and requests for clarification, the consultant and XTO employees submitted additional updates to the original Application 7877-M1. I requested some of these updates while doing an initial review of calculations. I requested other updates if discrepancies in the application became apparent while writing Draft Permit 7877-M1. XTO and the consultant submitted various corrections during the course of processing the application, with a final version being submitted on February 18, 2021 [**AR No. 1, Bates 0001-0348**].

I summarized my review in the Statement of Basis ("SOB") **[AR No. 4, Bates 0405-0418]**. The Statement of Basis is a permitting record that includes a description and history of the facility, public response received by the Department, a regulatory compliance discussion, and unique conditions in the permit.

In response to comments submitted by WEG on March 25, 2021 concerning the floating roof tank SSMs, I revised two conditions in the permit. The revised draft permit and SOB were emailed to WEG on September 16, 2021 **[AR No. 112, Bates 3484-3485]** and published on the AQB website on September 22, 2021 **[AR No. 113, Bates 3486]**.

VI. PUBLIC OUTREACH

Once the Department's public notice was published, interested persons were allowed thirty (30) days to express an interest in writing in the permit application per 20.2.72.206(A)(5) NMAC.

Because the public notice was published in the newspaper on June 2, 2020, the end of the 30-day comment period was July 2, 2020 **[AR No. 22, Bates 0887-0889]**. On June 20, 2020 I received comments and a request for hearing via email from Jeremy Nichols of WildEarth Guardians **[AR No. 24, Bates 0891-0893]**. Upon receiving the letter, I contacted XTO to inform them of the comment and request for hearing regarding Application 7877-M1 **[AR No. 28, Bates 0933-0934]**. On June 29, 2020, the application and the Department's Legal Notice were posted on the AQB website page specifically for permits with public interest **[AR No. 29, Bates 0935-0936]**.

On June 30, 2020, AQB sent an Initial Citizen letter **[AR No. 33, Bates 0961-0964]** to Jeremy Nichols of WildEarth Guardians, who was the only citizen who had expressed an interest in writing up to that date **[AR No. 32, Bates 0957-0960]**. The Initial Citizen letter is a template letter developed to comply with requirements in 20.2.72.206.B(1) NMAC. The letter confirms citizens' written comments will be included as part of the permit application record. The letter also provides general information about the permit process, the pending availability of the Department's analysis, and the option to request a public hearing.

On February 23, 2021, AQB sent a Second Citizen letter **[AR No. 85, Bates 3207]** to Jeremy Nichols of WildEarth Guardians, who was still the only citizen who had expressed an interest in writing up to that date **[AR No. 84, Bates 3206]**. The Second Citizen letter is a template letter to notify citizens the Department's analysis is available for review. The letter had a link to the Department's analysis, including the Statement of Basis and modeling review report, which were posted on the AQB web page for permit applications with public interest, under Cowboy CDP **[AR No. 86, Bates 3208-3211]**. Per 20.2.72.206.B(2) NMAC, the proposed permit could not be issued until at least 30 days after the Department's analysis was available for review. On March 25, 2021, the 30th day after the Department's analysis became available for review, I received a

comment and request for hearing **[AR No. 93, Bates 3265-3270]** from Matthew Nykiel of WildEarth Guardians **[AR No. 92, Bates 3264]**.

VII. BASIS FOR PERMIT CONDITIONS

The Department's authority to include conditions in an Air Quality permit is stated in 20.2.72.210 NMAC Permit Conditions. If a permit is issued, it will specify what equipment is authorized to be installed and operated, will place limits on air pollutants, and place requirements on how equipment will be operated. A permit is an enforceable legal document, and will include emission limits, methods for determining compliance on a regular basis, and will place monitoring, recordkeeping, and reporting requirements to ensure and verify compliance with the requirements of the permit.

Conditions in Part A of the permit are Facility Specific Requirements, unique to the facility **[AR No. 2, Bates 0349-0382]**. They are site-specific and based on information provided in the application **[AR No. 1, Bates 0001-0348]**. Conditions in Part B of the permit are General Conditions and standard language which generally apply to all sources. Part C is also standard language about supporting on-line documents, definitions, and acronyms which apply to all sources **[AR No. 3, Bates 0383-0404]**.

A draft permit is a dynamic working document that is subject to updates throughout the review process. Draft Permit 7877-M1 began with standardized language in an AQB permit template and standardized AQB monitoring protocols added as necessary for the sources of emissions and control devices at XTO's proposed facility. I wrote unique permitting conditions for site specific operations and equipment, based on information provided in the application. For example, I wrote a specific condition for the floating roof tank SSMs. The facility's scenario is

fairly unusual for AQB. I included a requirement for oil analysis and the methodology to calculate the emissions **[AR No. 1, Bates 0001-0348]**.

Permit conditions establish ongoing testing and monitoring requirements for processes and pieces of equipment to ensure the equipment is operating in accordance with the permitted emission limits.

VIII. RESPONSES TO COMMENTS RECEIVED ON APPLICATION

The Air Quality Bureau received public comments on this application on June 20, 2020 **[AR No. 24, Bates 0891-0893]** during the 30-day comment period following publication of the Bureau's newspaper public notice on June 2, 2020 **[AR No. 22, Bates 0887-0889]**. These comments were submitted by Jeremy Nichols of WildEarth Guardians. On February 23, 2021 the Bureau started the 30-day analysis period on the draft permit and notified Jeremy Nichols of WildEarth Guardians that the Department's analysis was available on the AQB website **[AR No. 85, Bates 3207]**. On March 25, 2021 AQB received a second set of comments from Matthew Nykiel of WildEarth Guardians **[AR No. 93, Bates 3265-3270]**.

The following section presents the Bureau's responses to several of the comments submitted in either set of comments on this application, in the format of the comment followed by the response from AQB. The comments are presented in the order of topic: public notice; startup, shutdown, maintenance, and malfunction emissions; gas-actuated pneumatic controllers; notice to Carlsbad Caverns National Park; and environmental justice concerns. Responses to comments regarding air dispersion modeling are in the written testimony presented by the technical witnesses for the modeling section.

Comment: At minimum, we request the Department update its legal notices for air quality permit proposals, so that future legal notices include an email address for comment submissions,

in recognition of the public health risks of COVID-19. For purposes of XTO Energy Inc.'s present permit application, we request the Department consider re-issuing the legal notice, with the addition of an explanation of how the public can submit comments via email, and provide another 30-day review period for members of the public to notify the Department of their interest.

Response: For this permit, the initial 30-day comment period had concluded on July 2, 2020, over 8 months before this comment was received. Therefore, the newspaper notice was not re-published and another 30-day comment initial notice was not done for the permit action. AQB's re-publication of the public notice for several other permits did not generate any additional public interest from any other party for those permits. These results suggest that WildEarth Guardians' assertion that the omission of an email address prevented other interested parties from providing comment is unlikely to be correct. The public notice from the first comment period and the draft documents for the 30-day analysis period were posted to AQB's website on February 23, 2021 and therefore were available to the public **[AR No. 86, Bates 3208-3211]**. The Department has updated its legal notices for air quality permit proposals, so that future legal notices include an email address for comment submissions, in recognition of the public health risks of COVID-19.

Comment: The annual SSM volatile organic compound (VOC) limit for the floating roof tank landing is unenforceable as a practical matter as the permit does not require actual monitoring of VOC emissions during SSM events. Although Condition A107C requires a facility inlet gas analysis to be completed every year, it is unclear how this inlet gas analysis is used to calculate SSM VOC emissions. While the Condition seems to indicate that VOC emissions will be calculated based on the total gas vented in MMscf, it is not clear how the volume of gas vented during SSM is actually measured. There is no indication that a meter or other means of volumetric measurements will be utilized to actually accurately measure vented gas. In the list of equipment

in Table 104.A, the SSM unit has no identified rated or permitted capacity that would indicate the volume of gas vented could actually be measured on an MMscf basis.

Response: The 8 oil tanks (IFR1-8) have floating roofs. The purpose of a floating roof is to minimize the vapors within the tank by minimizing the space between the liquid surface and the tank roof. Use of floating roofs is considered an acceptable control under the NSPS that applies to these tanks (40 CFR 60 Subpart Kb, as well as under 20.2.38.110 NMAC and under 20.2.38.112 NMAC. A roof landing occurs when the floating roof descends to the level that it lands on the supports that prevent it from contacting the bottom of the tank. Emissions of VOCs increase when the roof has landed, which occurs when the tank is mostly empty during SSM. These emissions occur around the edge of the seals between the floating roof and the walls of the tank.

In order to address these comments, AQB has revised the tank SSM condition in the draft permit **[AR No. 2, Bates 0349-0382]**. The revised condition requires the applicant to take an oil sample at the inlet annually and use the resulting oil analysis to calculate tank SSM emissions.

Comment: We are similarly concerned that the annual 10 ton/year VOC limit for malfunction emissions resulting from the venting of gas due to malfunction is also unenforceable as a practical matter. Similar to our concerns above, while Condition A107F requires calculation of VOC emissions based on inlet gas analysis and volume of gas vented, it is not clear how the volume of vented gas is actually measured during malfunctions.

Response: The malfunction condition requires tracking of the VOC emissions based on the inlet gas analysis (% VOC) and the volume of gas released during the malfunction. Malfunctions result in venting to depressurize the portion of the facility experiencing a malfunction. The volume is calculated based on the gas volume within the equipment which is de-pressurized. The permit authorizes 10 tpy of malfunction to reduce the reporting of very small

releases allowing the Department to focus on investigating malfunctions that result in large releases.

Comment: We are also concerned that the proposed permit does not include a limit on the number or duration of SSM emissions from Stabilizer Overhead and Cryo Blowdown to ensure compliance with applicable annual limits. Provision A107 of the proposed permit authorizes SSM emissions from Stabilizer Overhead and Cryo Blowdown in the form of hundreds of pounds per hour of nitrogen oxide (NOx) emissions, thousands of pounds per hour of volatile organic compound (VOC) and carbon monoxide emissions, and dozens of pounds per hour of particulate matter, but the permit does not restrict the frequency or duration of these emissions. Without any such restriction, the proposed permit authorizes SSM emissions beyond the yearly limits set forth at Condition A107 of the proposed permit, as well as beyond the facility's potential to emit. Indeed, based on the hourly limits in the permit, the facility has the potential to emit 2,141 tons/year of NOx, 4,274 tons of carbon monoxide, 7,053 tons of VOCs, and 279 tons of PM10 and PM2.5. These emission rates are all above prevention of significant deterioration (PSD) major source thresholds, meaning XTO Energy must apply for a PSD permit and cannot be issued the permit as proposed. Although we understand the presumption is that the annual limits set forth at Table 107.A will restrict SSM emissions, as a practical matter, with no limitation on the duration or number of instances of SSM emissions, this cannot be the case. While the permit may impose annual emission limits during instances of SSM, it also permits the facility to operate in a way that will exceed these limits. As a result, the annual SSM limits will not serve as an actual, enforceable limit to the Cowboy CDP's potential to emit.

Response: Establishment of hourly emission limits in any permit does not imply that these emissions are permitted for every hour of the year. Both hourly and annual emission limits are

enforceable in an air quality permit. The Bureau establishes hourly limits to ensure compliance with short-term air quality standards and annual emission limits to ensure compliance with long-term air quality standards. For the SSM flaring referred to in this comment, condition 107C requires that the flare be operated in accordance with conditions A206A, B, and C **[AR No. 2, Bates 0349-0382]**. The SSM flaring is done with the high-pressure side of the flare. For this side of the flare, condition A206C monitoring requires that a flowmeter be installed to measure and record the volume of gas going to the flare. Condition A206A requires that the flare operate with no visible emissions, which ensures the flare meets its 98% destruction efficiency. The recordkeeping section of condition A107C requires calculation of hourly and annual emissions using the gas analysis, volume of gas sent to the flare, and destruction efficiency of the flare. This recordkeeping section requires keeping a spreadsheet of the emissions and maintaining "monthly rolling 12-month totals." These monthly rolling totals ensure that the annual limits are not exceeded during any 12-month period, so compliance is demonstrated with annual emission limits.

Comment: We are concerned that XTO's application and the proposed permit does not address emissions from gas-actuated pneumatic controllers at the Cowboy CDP. Gas-actuated pneumatic controllers are point sources of air pollution and cumulatively release large amounts of VOC emissions. NMED must disclose the number of gas-actuated pneumatic controllers at the Cowboy CDP and estimate total VOC emissions from these pollutant emitting activities.

Response: The applicant, XTO Energy, Inc., verified to AQB that all pneumatic controllers at their facility are run on 'instrument air." This means the pneumatic controller uses compressed air to activate and does not release any natural gas when it activates. Instrument air powered controllers are therefore not sources of regulated pollutants and there in no requirement to report them in an application for an air quality permit.

Comment: The database summary indicates that NMED failed to notify an agency representative with Carlsbad Caverns National Park (CCNP) of the proposal to authorize XTO Energy Inc.'s modified emissions pursuant to 20.2.72.206.A.(7) NMAC. This provision of the New Mexico Administrative Code requires that NMED mail a copy of the public notice at the same time it is sent for publication to the appropriate agency in the following locations if the emission source will locate within 50 kilometers of the boundary of other states, Bernalillo County, or a Class I area. As indicated by NMED's Air Dispersion Modeling Summary for Permit No. 7877M1 at page 6, the Cowboy CDP is 49.9 km from CCNP, a Class I area. However, NMED only notified the State of Texas of the proposed emissions, as referenced at page 2 of the data base summary. CCNP depends on NMED's consultation and collaboration to address poor air quality conditions that exist in the park due to ozone, nitrogen deposition, and sulfur deposition.2 Guardians requests NMED notify CCNP of the proposed modification to emissions at the Cowboy CDP, and re-open the proposed permit for a 30-day public comment period.

Response: Carlsbad Caverns National Park (CCNP) is 49.9 miles, 30.6 Km from the facility. This places the park right at the edge of the notification distance. After receiving this comment, on March 26, 2021, NMED provided notice and the permit application, modeling summary, and draft documents to CCNP for a 30-day comment period **[AR No. 95, Bates 3275-3288]**. Rodney Horrocks at Carlsbad Caverns National Park sent an email acknowledging receipt of the documents on March 30, 2021. The 30-day comment period for Carlsbad Caverns National Park ended on April 26, 2021. No comments were submitted by CCNP **[AR No. 98, Bates 3299-3308]**.

Comment: Guardians requests that NMED provide an explanation for how the proposed permit modification and associated increase in air pollution will not disproportionately impact low-

income communities and communities of color, pursuant to New Mexico Executive Order 2005-056. Guardians was unable to identify a discussion of these considerations in the documents NMED released in support of the proposed permit.

Response: NMED policy 07-13, Public Participation delineates the approach used by NMED to address these concerns. For each permitting action, NMED uses the EPA EJSCREEN tool to evaluate demographic information for an area around the facility; the area is a 4-mile radius circle around the facility except smaller within urbanized areas. Data from EPA EJSCREEN is evaluated by the permit writer and their manager to evaluate if any additional outreach needs to be done beyond the regulatory requirements. This assessment includes factors such as number of households, per capita income, percent of Linguistically Isolated Households, and percent minority population. Past involvement by the public in air permitting for the facility is also reviewed.

IX. CONCLUSION

The Bureau has completed a technical review of this application. The facility, as represented in the application, demonstrates compliance with all federal and state regulations. The facility's operations, as represented in this application, do not cause nor significantly contribute to any exceedances of applicable air quality standards. These results are based on the modeling analysis and emissions calculations for Carbon Monoxide (CO), Nitrogen Dioxide (NO2), Particulate Matter 10 micrometers or less in aerodynamic diameter (PM10), Particulate Matter (2.5 microns or less) (PM2.5), and Sulfur Dioxide (SO2). The comments received by the Bureau on this permit have been responded to in this testimony. The responses demonstrate that the comments do not raise any substantive issues that indicate this permit should not be issued. The permit complies with all air quality regulations and contains demonstrations of compliance for all conditions and emission limits to ensure Ambient Air Quality Standards. The Air Quality Bureau

recommends that the Secretary uphold the Department's decision to approve issuance of this permit.

VANESSA LAUREL SPRINGER

Environmental Scientist & Specialist ● she/her/hers

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SKILLS

Environmental & Regulatory Analysis ● Project & Data Management
Grant Writing ● Quantitative Ecology ● Interdisciplinary Research
Facilitation & Communication ● Social Media Marketing & Outreach
Spanish Language ● Leadership & Mentorship ● Curriculum Design

EDUCATION

Cornell University, Ithaca, NY — *M.S. Natural Resources* (December 2018)

Specializations: Wildlife Conservation & Management, Community Science, Quantitative Ecology, Leadership

- Served as Coordinator for Doris Duke Conservation Scholars Program (DDCSP) — Taught weekly sessions for undergraduate students on leadership, diversity and inclusion, research skills, and professional skills.
- Conducted research funded by the National Science Foundation, U.S. Geological Survey, International Association for Bear Research & Management, and Cornell's Latin American Studies Program.

University of Arizona, Tucson, AZ — *B.S. Natural Resources* (May 2016)

Specializations: Wildlife Conservation & Management, Biostatistics, Environmental Leadership & Equity

- Completed the Doris Duke Conservation Scholars Program, a two-year program for BIPOC students pursing conservation careers. Completed two summers of paid research experience and coursework on leadership.
- University of Arizona Honors College student.

Pontificia Universidad Católica de Chile, Santiago, Chile — *Certificate in International Sustainable Resources Development* (December 2014)

Specializations: Natural Resource Development, Mining Engineering, Marine Conservation, Agronomy, Spanish

- Completed Obama's *100,000 Strong in the Americas* Exchange Program.

CURRENT POSITION

Environmental Scientist, New Mexico Environment Department, Santa Fe, NM (March 2019-Present)

- Reviews complex environmental permit applications by determining applicability of state and federal regulations, verifying air emissions calculations, and performing public engagement steps.
- Writes legally enforceable air permits in order to ensure compliance with applicable state and federal regulations and air quality standards.
- Formal training in conflict resolution & facilitation, technical permit writing, and environmental regulations.

PREVIOUS PROFESSIONAL & SERVICE ENGAGEMENTS

Commissioner, City of Santa Fe River Commission, Santa Fe, NM (May 2019-July 2021)

- Evaluated issues affecting the city's watershed and advised the Mayor and Governing Body on said issues.
- Coordinated efforts to engage community members in river conservation efforts.

Legislative Tracking Coordinator, New Mexico Environment Department, Santa Fe, NM (Dec. 2020-Mar. 2021)

- Worked in the Legislative Tracking Office to review introduced bills during the 2021 Legislative Session and evaluate potential relevance to the New Mexico Environment Department (NMED).
- Coordinated between Bureau Chiefs, Division Directors, and the Cabinet Secretary's Office to ensure expedient analysis of introduced bills germane to NMED.

Grant Advisor, Doris Duke Charitable Foundation (DDCF), Remote (February-December 2020)

- Committee member for DDCF's *Building an Inclusive Conservation Movement* Program, which allocated over $1 million in grant funds to Black, Indigenous, and people of color-led conservation organizations.
- Designed and evaluated the grant-making process to ensure transparency, inclusivity, and accountability.

Curriculum Developer, Doris Duke Conservation Scholars Program (DDCSP), Remote (April-June 2019)

- Developed a handbook for DDCSP graduate mentors, who support students from underrepresented backgrounds in conservation. Handbook included undergraduate lesson plans and curriculum on topics such as leadership development, diversity and inclusion, communication skills, public speaking, and research skills.

Graduate Research and Teaching Assistant, Cornell University, Ithaca, NY (August 2016-August 2018)

- Collaborated with the National Science Foundation's Computational Sustainability Network to manage and analyze data for a multi-year research project on spatial ecology of Andean bears and design of a socio-ecological corridor between ecological reserves in Ecuador.
- Organized and led weekly lab sessions for an undergraduate Field Biology course. Taught research methods and plant/fish/wildlife identification in classroom and field settings.

Sustainability Engagement Coordinator, University of Arizona, Tucson, AZ (August 2015-May 2016)

- Liaised with community organizations in the sustainability sector and built connections between these groups and the University of Arizona Office of Sustainability.
- Developed and improved the volunteer and internship opportunities of various local nonprofits, and helped the organizations engage college students in their work.

TRAINING & LEADERSHIP PROGRAMS

***Conflict, Communication, and Change* Workshop** (October 2019)

- Workshop on communication and conflict resolution. Learned and practiced skills including de-escalation, negotiation, managing disagreements, maintaining an inclusive workplace, and empathetic communication.

***Making Moves: Creating Conservation Movements* Workshop** (January-February 2019)

- Explored behavioral change, communication, strategic planning, and implementation of social movements that support conservation efforts.

Environmental Leadership Program – DDCSP Alumni Leadership Cohort (March-August 2018)

- Participated in a week-long retreat and 6-month online leadership program. Explored leadership topics including diversity, equity and inclusion; changing behaviors and organizations; and network development.

***Identity in STEM Fields* Workshop** (March 2017)

- Workshop that examined how identity affects an individual's experiences and success in STEM fields. Explored methods for promoting authentic diversity and inclusion in academia.

Intergroup Dialogue Project - Graduate Student Course (January 2017)

- Two-week course that examined how identity shapes professional choices, teaching and learning styles, and the way people communicate across difference. Built capacity for meaningful, empathetic communication.

Doris Duke Conservation Scholars Program (DDCSP) – DDCSP Collaborative (2014-2016)

- Two-year undergraduate program for students from underrepresented backgrounds in the field of conservation. One-week training at the U.S. Fish & Wildlife Service's National Conservation Training Center that covered subjects including fish and wildlife research and sampling techniques, leadership, and communication. Online coursework over three semesters on leadership, communication, diversity and equity topics. Two summers of paid fish and wildlife research experiences.

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF CONOCOPHILLIPS COMPANY- ZIA HILLS CENTRAL FACILITY
FOR AN AIR QUALITY PERMIT **AQB 21-36**

TECHNICAL TESTIMONY OF ASHELEY CORIZ

I. INTRODUCTION

My name is Asheley Coriz. I am a Permit Specialist in the Minor Source Unit of the Permitting Section of the Air Quality Bureau ("AQB" or "Bureau") of the New Mexico Environment Department ("NMED" or "Department"). I present this written testimony on behalf of the Department for the public hearing on the permit application submitted by ConocoPhillips Company ("CPC"). WildEarth Guardians ("WEG") challenged the Department's issuance of Air Quality Permit No. 7746M8 to ConocoPhillips Company for the Zia Hills Central Facility in Lea County, New Mexico. CPC's air permit application 7746M8 ("Application 7746M8") for its Zia Hills Central Facility was received by the New Mexico Environment Department on January 11, 2021.

II. QUALIFICATIONS

I have been an employee of the Bureau for approximately three years, working as a Permit Specialist. As a Permit Specialist, I perform technical and regulatory review of complex Air Quality Bureau permit applications within regulatory deadlines. I verify emissions calculations; determine applicable state regulations and federal regulations; coordinate with various stakeholders including the public, industry, consultants, and AQB staff; write legally enforceable air permits and technical support documents for the administrative record; enter data into the AQB database; and complete various special projects to achieve AQB goals. I have worked on over 215 permitting actions for the Bureau and trained new staff on application review requirements and

procedures for various permitting action types, regulations, and Bureau policies. My full background and qualifications are set forth in my resume.

As a Permit Writer, it is my responsibility to conduct a complete and thorough review of an air quality permit application, including an administrative review and a technical review. I coordinate with various stakeholders including the public, industry, consultants, Air Quality Bureau staff, and other regulatory agencies to provide quality customer service and aid in the permitting process. If parts of the application are incomplete or inaccurate, it is my responsibility to contact the applicant and request clarifications or corrections, as necessary. Updates to the original application are often required, and it is my responsibility to review all updates for completeness and accuracy. I write technical support documents and a legally enforceable air permit, initially based on standardized AQB template language and monitoring protocols. The template language and monitoring protocols are consistent for similar types of facilities. Unique permitting conditions or modifications to standard template language are typically required for site specific operations and equipment, based on information provided in the application. I customize the permit to the specifics of the application with site specific conditions and the recommendations of the air dispersion modeling staff to ensure the facility will operate as represented in the company's application and comply with all applicable state and federal regulations and ambient air quality standards.

My testimony will address the following topics: my qualifications, a summary of Application 7746M8, my administrative review of Application 7746M8, the technical review of Application 7746M8, AQB's public outreach efforts throughout various stages of this permitting action, the basis for conditions in the 05.06.2021 version of Draft Permit 7746M8 for CPC's proposed facility, and responses to comments received for this permitting action.

III. SUMMARY OF APPLICATION 7746M8

CPC's Zia Hills Central Facility is located at: From Malaga, drive south on Highway 285 for 30.3 miles and go left on RM 652E (Farm to Mkt.). Drive 17 miles to continue onto J-1/Orla Rd. Drive 2.0 miles and go left on Battle Axe Rd. Drive 0.8 miles and to the left into the site area. With this application, CPC proposes an increase in oil production to 18,503 barrels of oil per day (BOPD) and an increase in gas production to 120 million standard cubic feet per day (MMscfd) requiring two additional triethylene glycol dehydrators (DEHY3-DEHY4) and full time usage of another stabilizer (STAB3). Zia Hills Central Facility has an air quality General Construction Permit for Oil and Gas Facilities (GCP-O&G) to operate at this location. The new permit would replace the existing GCP-O&G for this facility. The air dispersion modeling was reviewed by Angela Raso. **[AR No. 6, Bates 0346 - 0355]**.

IV. ADMINISTRATIVE REVIEW

Application 7746M8 was received by the New Mexico Environment Department on January 11, 2021. **[AR No. 1, Bates 0001 - 0257]**. Pursuant to 20.2.72.207(A) NMAC, the Department had 30 days to review the application and determine whether it was administratively complete.

The administrative review of an application is not a technical review, but a review of the presence of the required parts of the application, including the applicant's modeling analysis and the applicant's proof of public notice. All required contents of the application are listed in 20.2.72.203 NMAC. Upon receipt of Application 7746M8, I provided the applicant's modeling files to the assigned AQB modeling staff manager, Sufi Mustafa, for his review. **[AR No. 154, Bates 1164 - 1165]**. On January 26, 2021, I sent an e-mail to CPC's consultant, Evan Tullos, and CPC's Environmental Specialist and air permit contact, Vivian C. Bermudez. **[AR No. 25, Bates**

0532 - 0533]. My e-mail laid out clarification needed in Sections 1 and 3 on an NMAC citation for why Application 7746M8 had been submitted to the Department, clarification on the annual gas throughput, and further information to support Section 9, Proof of Public Notice. Mr. Tullos responded twice on January 27, 2021 with the requested updates, including additional delivery receipts for certified mail slips and a map showing land ownership with ½ mile distance of Zia Hills Central Facility that shows they meet the 20.2.72.203.B.1(b) NMAC public notice requirements. **[AR Nos. 26-29, Bates 0534 - 0549]**. Although, I was in the administrative review process, I began to conduct a technical review of the engines. February 1, 2021, I sent an e-mail to CPC to request information regarding the emission factors gathered from the test data for the engines as well as clarification needed on the engines' applicability to the 20.2.77 NMAC rule. **[AR No. 30, Bates 0550 - 0552]**. On February 1, 2021, I confirmed with the Lea County Assessor's Office there was no tax information for federal land in Lea County. **[AR No. 31, Bates 0553 - 0556]**. On February 1, 2021, Mr. Tullos the consultant for CPC responded with the requested information and updated 20.2.77 NMAC applicability in Section 13 of the application. **[AR Nos. 32-33, Bates 0557 - 0565]**. On February 8, 2021, Sufi sent me an e-mail confirming Application 7746M8 could be ruled complete from a modeling perspective and that Angela Raso had been assigned as the air dispersion modeler for this application. **[AR No. 156, Bates 1167]**. On February 9, 2021, I sent an email to CPC to request clarification on the oil throughput in Table 2-L as well as further clarification on the engine emissions calculations. **[AR No. 34, Bates 0566 - 0570]**.

After I calculated the permit fee for CPC's Application 7746M8 based on fee units in 20.2.75 NMAC and applicable regulations, AQB's administrative staff generated an invoice for the permit fee. On February 10, 2021, I ruled application 7746M8 administratively complete. I

sent the completion determination letter, including a copy of the Department's Legal Notice, and the invoice for the permit fee to the applicant on February 10, 2021. **[AR Nos. 35-37, Bates 0571 - 0577]**. I also sent the Department's Legal Notice to EPA Region 6; Erica LeDoux at EPA, and to the State of Texas. **[AR Nos. 178-182, Bates 1246 - 1252]**. On February 10, 2021, Vivian C. Bermudez at CPC e-mailed me to request clarification on how the Department calculated the general review fee. **[AR No. 38, Bates 0578]**. On February 10, 2021, I responded to Ms. Bermudez at CPC via e-mail to provide the excel calculation spreadsheet of the Department's fee calculator. **[AR Nos. 39-40, Bates 0579 - 0580]**. Mr. Tullos also sent an email to me on February 10, 2021 to notify AQB that CPC was still working on responses regarding the stack tests for engines**. [AR No. 41, Bates 0581]**. The Department's Legal Notice and Application 7746M8 was posted on the AQB website on the page with all public notices of permitting actions. **[AR Nos. 183-184, Bates 1253 - 1254]**. AQB's administrative staff sent the Department's Legal Notice to *Hobbs-News Sun* for publication, and it was published in that newspaper on February 17, 2021. **[AR No. 185, Bates 1255 - 1256]**.

V. TECHNICAL REVIEW

I continued to conduct the technical review after the application was ruled administratively complete. The technical review requires verification of emissions calculations and a determination of applicable federal and state regulations. I sent an email on February 11, 2021 and again on February 16, 2021 to CPC requesting further clarification on the engines' calculations. **[AR Nos. 42-43, Bates 0582 - 0583]**. On February 17, 2021, Mr. Tullos sent an e-mail regarding the engine emissions calculations and/or test data information. **[AR No. 45, Bates 0585 - 0586]**. E-mail correspondence continued throughout the technical review and can be seen with the following updates listed further below. **[AR Nos. 46-153, Bates 0587 - 1163]**.

I verified emissions calculations by confirming Department accepted emission factors and formulas were used in calculating emissions for all sources. If methods were unclear, I asked the consultant for further explanation or updates, as necessary. Also, I verified the emissions totals from the calculations matched the emissions totals in Section 2 of the application.

Per my inquiries and requests for clarification, Evan Tullos, the consultant for CPC, as well as Vivian C. Bermudez, CPC, submitted several updates to the original CPC Application 7746M8. Below is a list of dates of application updates:

1/27/21	First page of Registration, Section 1-C, Section 3, Section 9
2/1/21	Section 13
2/22/21	Tables 2E and 2I
3/15/21	Tables 2C, 2D, 2E, 2F, 2I
3/16/21	Highlighted information in Tables 2C, 2D, 2E, 2F, and 2I
3/19/21	Test summary pages corrected for ENG5 and ENG6 and CPC's corrected test data summary page
3/31/21	Tables 2C, 2D, 2F, 2I
4/16/21	Tables 2D, 2E and Section 10
4/20/21	Table 2J
4/21/21	Tables 2A and 2C, pedigree letters for ENG7 and ENG8, and the initial compliance testing for ENG8
4/27/21	Sections 13 and 17
4/28/21	Section 17
8/31/21	Sections 3 and 10
9/20/21	Section 3

[AR Nos. 26-29, Bates 0534 – 0549; AR Nos. 32-33, Bates 0557 – 0565; AR Nos. 49-59, Bates 0592 – 0826; AR Nos. 61-63, Bates 0828 – 0859; AR Nos. 68-69, Bates 0866 – 0871; AR Nos. 73-74, Bates 0875 – 0886; AR Nos. 86-88, Bates 0904 – 0909; AR Nos. 90-91, Bates 0912 – 0920; AR Nos. 95-96, Bates 0924 – 0932; AR Nos. 99-100, Bates 0935 – 0936; AR Nos. 104-109, Bates 0942 – 0952; AR Nos. 111-112, Bates 0954 – 0955; AR Nos. 114-115, Bates 0957 – 0959; AR Nos. 120-121, Bates 1015 – 1017; AR Nos. 147-148, Bates 1153 – 1155; AR Nos. 150-151, Bates 1157 - 1159].

I requested some of these updates while doing an initial review of calculations. I requested other updates if discrepancies in the application became apparent while writing Draft Permit 7746M8. I also requested some final updates after the Final Permit was written and signed, but rescinded by the Department via telephone. The Department has reviewed the emission calculations submitted

in the application for all regulated equipment and the emission factors relied upon in those calculations. The facility emissions were calculated using Excel spreadsheets using manufacturer's data sheet emission factors, engine test stack data that was submitted to the Department, US EPA's AP-42 Compilation of Air Emissions Factors, or Texas Commission on Environmental Quality (TCEQ) Air Emissions Factors, including TCEQ document RG-360A/11(February 2012), as well as oil and gas industry software. (https://www.tceq.texas.gov/assets/public/comm_exec/pubs/rg/rg360/rg36011/appendix_a.pdf)

The emission factors used in the calculations are appropriate for this source type and are, thus, approved by the Department. The approved calculated emission rates were used as inputs into the Department's air dispersion modeling analysis. The air dispersion model predicts concentrations of the National Ambient Air Quality Standards (NAAQS) based upon the approved emission rates.

I summarized my review in the Statement of Basis. **[AR No. 2, Bates 0258 - 0266]**. The Statement of Basis is a permitting record that includes a description and history of the facility, public response received by the Department, a regulatory compliance discussion, and unique conditions in the permit.

The Department sent a Draft Permit A version 04.27.21 via e-mail to CPC for review and comments on April 27, 2021. **[AR Nos. 116-118, Bates 0960 - 1013]**. AQB requested that CPC respond with comments no later than noon on May 4, 2021 via e-mail. On May 4, 2021, CPC submitted comments on the Draft Permit A version 04.27.21 to AQB via e-mail. **[AR Nos. 122-123, Bates 1018 - 1049]**. AQB provided responses to CPC with clarification and/or updates that were made to the Draft Permit A version 04.27.21 before this version was passed up to upper management internally at AQB. **[AR No. 124, Bates 1050-1051]**. CPC requested a last minute

change to the draft permit and the Department responded that it was too late in the permitting process to accommodate this request. **[AR No. 125, Bates 1052 - 1055]**. After changes were amended and finalized by AQB staff, the final Draft Permit A version 05.06.21 was the one signed by Elizabeth Kuehn and issued on May 11, 2021. **[AR Nos. 126-127, Bates 1056 - 1108]**.

VI. PUBLIC OUTREACH

On February 10, 2021, Application 7746M8 and the Legal Notice were posted on the AQB public notice webpage. **[AR Nos. 183-184, Bates 1253 - 1254]**. Once the Legal Notice was published in the *Hobbs-News Sun*, interested persons were allowed thirty (30) days to express an interest in writing in the permit application per 20.2.72.206(A)(5) NMAC. **[AR No. 185, Bates 1255 - 1256]**. Because the first public notice was published in the newspaper on February 17, 2021, the end of the 30-day comment period was March 19, 2021.

Due to public interest regarding Zia Hills Central Facility and other facilities, the Department re-published a revised Legal Notice to include my email address as an additional option for submitting written comments. AQB's administrative staff sent the Department's Legal Notice to *Albuquerque Journal* for publication, and it was published on May 22, 2021. **[AR No. 188, Bates 1259 - 1260]**. Since the 30-day comment period was re-started as of this published date, the end of the comment period was June 21, 2021.

During May 18th-21st, 2021, the Department worked diligently to ensure several of the associated documents for Zia Hills Central Facility were posted on AQB's public interest website to including the revised Legal Notice. Other documents such as the Original Application, Calculation Updates, Application Updates, Modeling Report, All Test Data Information and/or Reports, Draft Statement of Basis, Draft Permit Part A, Draft Permit Parts B and C, as well as the Legal Notice for Zia Hills Central Facility was posted on AQB's webpage.

The revised Draft Statement of Basis was posted on the Zia Hills section of the AQB's public interest webpage on May 21, 2021. The revised Legal Notice was posted to the AQB's webpage on May 21, 2021. On May 21, 2021, after the update of the Draft Statement of Basis and the new revised Legal Notice were posted, screenshots of what was posted on AQB's public notice and public interest webpages were documented. **[AR Nos. 186-187, Bates 1257 - 1258]**.

Because WEG had expressed an interest in the application in writing, on May 21, 2021, the Department sent an Initial Citizen letter to Matt Nykiel at WEG via email and hard copy through the United States Postal Service. **[AR Nos. 167-168, Bates 1226 - 1230]**. The Initial Citizen letter is a template letter developed to comply with requirements in 20.2.72.206.B(1) NMAC. The letter confirms citizens' written comments will be included as part of the permit application record. The letter also provides general information about the permit process, the pending availability of the Department's analysis, and the option to request a public hearing.

AQB submitted a Public Hearing Request Determination for WEG Related Permit Applications based upon WEG's request as stated in the March 12, 2021 comments that were submitted to the Department. On June 7, 2021, the Melinda Owens from AQB notified both WEG and CPC via e-mail of the NMED Cabinet Secretary Public Hearing Request Determination for Zia Hills Central Facility. **[AR Nos. 169-170, Bates 1231 - 1234]**. It was granted and signed on June 4, 2021.

On June 18, 2021, the Department sent a Second Citizen letter to Matt Nykiel at WEG via email and hard copy through the United States Postal Service. **[AR Nos. 171-172, Bates 1235 - 1236]**. The Second Citizen letter is a template letter to notify citizens the Department's analysis is available for review. The letter had a link to the Department's analysis, including the Statement of Basis, the Draft Permit, and modeling review report, which were posted on the Zia Hills section

of the AQB public interest webpage. Per 20.2.72.206.B(2) NMAC, the proposed permit could not be issued until at least 30 days after the Department's analysis was available for review.

On June 24, 2021, NMED Cabinet Secretary Kenney ordered a hearing and appointed the Hearing Officer. NMED continued to take action to ensure information pertaining to the Zia Hills Central Facility was posted online and made available to the public. On July 2, 2021, AQB updated the public interest webpage with an updated red bold font language notifying the second 30 day comment period had started. **[AR Nos. 189-190, Bates 1261 - 1262]**. On July 8, 2021, I gathered the screenshots of the information from the Department's online Events Calendar, available to the public, that included the start/end of the 30 day comment period as well as the start/end of the 30 day analysis period for Zia Hills Central Facility. **[AR No. 191, Bates 1263 - 1269]**. On July 16, 2021, WEG submitted their second comments to the Department via email. **[AR Nos. 175-177, Bates 1239 - 1245]**. On July 20, 2021, the Scheduling Order was filed, setting the start date for the public hearing as October 25, 2021.

On July 30, 2021, Governor Michelle Lujan Grisham entered Executive Order 2021-046 *Amended Order Requiring State Employees To Comply With Certain Public Health Requirements.* As stated in the Order Amending Scheduling Order, the finding in this executive order is such as "one such highly-transmissible variant, B.1.617.2, commonly known as the Delta variant, now accounts for the majority of new infections; the State has recorded a significant increase in new COVID-19 cases in recent weeks, with cases expected to rise even further in the Fall and Winter months; the further spread of COVID-19 in the State of New Mexico poses a threat to the health, safety, and wellbeing of all New Mexicans." The opportunity of a hybrid virtual hearing would limit the potential exposure of COVID-19 while granting the opportunity for public participation regardless of vaccination status.

On August 6, 2021, an Order Amending the Scheduling Order was filed to include notification that a hybrid virtual hearing would be held to accommodate members of the public who do not have access to a computer or an internet connection. The Department would provide a public space for members of the public to view and participate in the virtual hearing and provide wi-fi connections to those members of the public who bring their own devices.

On August 16, 2021, the Department launched a new website design and the documents for Zia Hills Central Facility can now be found at www.env.nm.gov/public-notices-2/ under the Lea County dropdown, in the link for ConocoPhillips – Zia Hills. The link to this new webpage is included in the Department's Notice of Hearing.

On August 31, 2021, the AQB public interest webpage was updated to include the Draft Statement of Basis (08/27/21) version. **[AR No. 192, Bates 1270]**. On September 8, 2021, the AQB public interest webpage was updated to include the Application Updates (08/31/21) version. **[AR No. 193, Bates 1271]**. On September 22, 2021, the AQB public interest webpage was updated to include the Application Updates received through September 21, 2021, the NMED Events Calendar, and the Notice of Hearing. **[AR No. 194, Bates 1272 - 1273]**.

VII. BASIS FOR PERMIT CONDITIONS

The Department's authority to include conditions in an Air Quality permit is stated in 20.2.72.210 NMAC Permit Conditions. If a permit is issued, it will specify what equipment is authorized to be installed and operated, will place limits on air pollutants, and place requirements on how equipment will be operated. A permit is an enforceable legal document, and will include emission limits, methods for determining compliance on a regular basis, and will place monitoring, recordkeeping, and reporting requirements to ensure and verify compliance with the requirements of the permit.

Conditions in Part A of the permit are Facility Specific Requirements, unique to the facility. They are site-specific and based on information provided in the application. Conditions in Part B of the permit are General Conditions and standard language which generally apply to all sources. Part C is also standard language about supporting on-line documents, definitions, and acronyms which apply to all sources. **[AR No. 10, Bates 0461 - 0512]**.

A draft permit is a dynamic working document subject to updates throughout the review process. Draft Permit 7746M8 began with standardized language in an AQB permit template and standardized AQB monitoring protocols added as necessary for the sources of emissions and control devices at CPC's proposed facility. I wrote unique permitting conditions for site specific operations and equipment, based on information provided in the application. As stated in the Draft Statement of Basis, some conditions were crafted and utilized from previously issued permits that contained permit language that were Department approved.

Permit conditions establish ongoing testing and monitoring requirements for processes and pieces of equipment to ensure the equipment is operating in accordance with the permitted emission limits.

VIII. RESPONSES TO COMMENTS RECEIVED ON APPLICATION

The Air Quality Bureau received public comments on this application on March 12, 2021 during the 30 day comment period following publication of the Bureau's newspaper public notice on February 17, 2021. **[AR Nos. 164-166, Bates 1219 - 1225]**. These comments were submitted by Matt Nykiel/ WildEarth Guardians (WEG). The Department published a revised public notice on May 22, 2021 to include my e-mail address as an additional means of submitting comments to the Department. **[AR No. 188, Bates 1259 - 1260]**. On June 22, 2021 the Bureau started the 30 day analysis period on the draft permit. On July 16, 2021 AQB received a second set of comments

from Matt Nykiel/ WEG. **[AR Nos. 175-177, Bates 1239 - 1245]**. The following section presents the Bureau's responses to all comments submitted in either set of comments on this application in the format of the comment followed by the response from AQB. The comments are presented in the order of topic: public notice; startup, shutdown, maintenance, and malfunction emissions; gas-actuated pneumatic controllers; environmental justice concerns; compliance with Toxic Air Pollutant (TAP) permitting; inclusion of all point sources within the source; and air quality regulatory compliance status of the facility. Responses to comments regarding air dispersion modeling are in the written testimony presented by the technical witnesses for the modeling section.

Comment: At minimum, we request the Department update its legal notices for air quality permit proposals, so that future legal notices include an email address for comment submissions, in recognition of the public health risks of COVID-19. For purposes of ConocoPhillips' present permit application, we request the Department consider re-issuing the legal notice, with the addition of an explanation of how the public can submit comments via email, and provide another 30-day review period for members of the public to notify the Department of their interest. **[AR No. 165, Bates 1221]**.

Response: In response to this comment, AQB republished the newspaper notice including an email address to which the public could submit written comments on the permit and restarted the 30 day initial public comment period. No comments from any other party were received by AQB. The Department published the following legal notices with the respective dates as follows:

1st legal notice- February 17, 2021

2nd legal notice- May 22, 2021

Comment: The annual 10 ton/year VOC limits for compressor and associated piping blowdowns during routine and predictable SSM and venting gas due to SSM events, as well as venting gas due to malfunction emissions are also unenforceable as a practical matter. Similar to our concerns above, while Condition A107.D and E requires calculation of VOC emissions based on inlet gas analysis and volume of gas vented, it is not clear how the volume of vented gas is actually measured during malfunctions. **[AR No. 176, Bates 1241]**.

Response: The annual 10 ton/year VOC limit only applies to malfunctions. SSM for compressor and associated piping blowdowns are permitted at 3.5 tons/year, separately from malfunctions. The SSM and malfunction conditions require tracking of the VOC emissions based on the inlet gas analysis (% VOC) and the volume of gas released during the SSM or malfunction events. The draft permit also requires monitoring and recordkeeping for all SSM and malfunction events. Malfunctions result in venting to depressurize the portion of the facility experiencing a malfunction. The volume is calculated based on the gas volume within the equipment which is de-pressurized. The permit authorizes 10 tpy of malfunction to reduce the reporting of very small releases allowing the Department to focus on investigating malfunctions that result in large releases.

Comment: The annual emission limits for venting gas due to compressor downtime, blowdowns, and starter vents, as well as for venting gas due to VRU downtime are unenforceable as a practical matter as the permit does not require actual monitoring of vented emissions during these venting events. Although Condition A107.C requires hourly and annual emission recordkeeping, it is unclear how the volume of gas vented during SSM is actually measured. There is no indication that a meter or other means of volumetric measurements will be utilized to actually accurately measure vented gas. In the list of equipment in Table 104.A, the SSM unit has no identified rated

or permitted capacity that would indicate the volume of gas vented could actually be measured on an MMscf basis. In addition, it's unclear why Condition A107.C indicates it is only applicable to Unit FL1 and not to Units FL2/FL3. **[AR No. 176, Bates 1241]**.

Response: For these SSM activities, the releases are determined based on the gas composition, the volume of gas released during an activity, and the number of activities. For compressor blowdowns, the volume of gas from compressor blowdowns is based on the known interior gas volume within the compressor and the number of times the compressor blows down (releases pressure). The amount of gas is determined from the volume within the line being serviced and the gas composition. The same approach is used for other miscellaneous SSM activities. Because SSM represents various activities, SSM does not have a single volume or capacity. The volumes used in the calculations are based on engineering knowledge of the individual equipment undergoing the startup, shutdown, or maintenance. Condition A206.C requires one or more gas flowmeters equipped with a chart recorder or data logger to monitor the flow of gas sent to FL1. Condition A206.C also requires model estimates using Department approved methods and updates annually based on the current gas analysis, actual tank throughput (Conditions A203.A, A203.B, A203.C, A203.D, and A203.E), and actual VRU downtime to determine flow rates to FL2 and FL3 (Condition A203.F).

Comment: We are also concerned that the proposed permit does not include a limit on the number or duration of SSM flaring emissions to ensure compliance with applicable annual limits. Provision A107 of the proposed permit authorizes SSM flaring emissions in the form of hundreds of pounds per hour of nitrogen oxide (NOx) emissions, volatile organic compound (VOC) and carbon monoxide emissions, but the permit does not restrict the frequency or duration of these emissions. Without any such restriction, the proposed permit authorizes SSM emissions beyond the yearly

limits set forth at Condition A107 of the proposed permit, as well as beyond the facility's potential to emit. Indeed, based on the hourly limits in the permit, the facility has the potential to emit 934 tons/year of NOx, 1,865 tons of carbon monoxide, and 1,650 tons of VOCs. These emission rates are all above prevention of significant deterioration (PSD) major source thresholds, meaning ConocoPhillips must apply for a PSD permit and cannot be issued the permit as proposed. Although we understand the presumption is that the annual limits set forth at Table 107.F will restrict SSM emissions, as a practical matter, with no limitation on the duration or number of instances of SSM emissions, this cannot be the case. While the permit may impose annual emission limits during instances of SSM, it also permits the facility to operate in a way that will exceed these limits. As a result, the annual SSM limits will not serve as an actual, enforceable limit to the Zia Hills Central Facility's potential to emit. **[AR No. 176, Bates 1241]**.

Response: Establishment of hourly emission limits in any permit does not imply that these emissions are permitted for every hour of the year. Both hourly and annual emission limits are enforceable in an air quality permit. The Bureau establishes hourly limits to ensure compliance with short-term air quality standards and annual emission limits to ensure compliance with long-term air permitting limits. Compliance with the annual limits established in Table 107.A are demonstrated by operating in accordance with the requirements in Conditions A206.C and A206.D and completing monitoring and recordkeeping in Conditions A107.C and A107.D. Records of monthly rolling 12-month total emissions demonstrate compliance with annual limits.

Comment: We are concerned that ConocoPhillips' application and the proposed permit does not address emissions from gas-actuated pneumatic controllers at the Zia Hills Central Facility. Gas-actuated pneumatic controllers are point sources of air pollution and cumulatively release large amounts of VOC emissions. NMED must disclose the number of gas-actuated pneumatic

controllers at the Zia Hills Central Facility and estimate total VOC emissions from these pollutant emitting activities. **[AR No. 176, Bates 1242]**.

Response: The applicant, ConocoPhillips, verified through email on August 26, 2021 as well as in their response to comments submitted to AQB on August 18, 2021, verified to AQB that all pneumatic controllers at their facility are "air operated". This means the pneumatic controller uses compressed air to activate and does not release any natural gas when it activates. Instrument air powered controllers are therefore not sources of regulated pollutants and there in no requirement to report them in an application for an air quality permit.

Comment: Guardians requests that NMED provide an explanation for how the proposed permit modification and associated increase in air pollution will not disproportionately impact low-income communities and communities of color, pursuant to New Mexico Executive Order 2005-056. The application fails to explain. **[AR No. 165, Bates 1222]**.

Response: NMED policy 07-13, Public Participation delineates the approach used by NMED to address these concerns. For each permitting action, NMED uses the EPA EJSCREEN tool to evaluate demographic information for an area around the facility; the area is 4 miles except smaller within urbanized areas. Data from EPA EJSCREEN is evaluated by the permit writer and their manager to evaluate if any additional outreach needs to be done beyond the regulatory requirements. This assessment includes factors such as number of households, per capita income, percent of Linguistically Isolated Households, and percent minority population. Past involvement by the public in air permitting for the facility is also reviewed.

Comment: How the proposed permit modification will comply with toxic air pollutant permitting requirements at 20.2.72.400-499 NMAC, despite the likelihood that toxic air pollutants including

cyclohexane, hexene, nonane, trimethylbenzene may be emitted as part of the applicant's VOC emission stream. **[AR No. 165, Bates 1222]**.

Response: Compressor Stations are not a gas processing plant or a refinery and, therefore, meet the definition of an oil and gas production facility, per 20.2.72.401.F NMAC. As an oil and gas production facility, it is exempt (in 20.2.72.402.C NMAC) to applicability and any requirements of 20.2.72.400 NMAC - 20.2.72.405 NMAC for toxic air pollutants.

Comment: Whether the proposed permit properly encompasses all point sources of pollution that are a part of the single source subject to permitting. We are concerned that the permit does not address a number of other pollutant-emitting activities that are part of the Zia Hills Central Facility, including: Compressor engine blowdowns and/or maintenance activities; Pigging operations; Liquid loadout operations; Gas actuated pneumatic controllers; and Emissions from oil and gas wells that feed the Central Facility and are adjacent for new source review permitting purposes. **[AR No. 165, Bates 1222]**.

Response: Compressor engine blowdowns routed to FL1 are included in the emission limits for Unit FL1 in Table 107.A. Maintenance activities not routed to the flare, including pigging operations, are included in the 3.5 VOC tpy limit for Unit SSM in the bottom row of Table 107.A. No liquid loadout operations occur at Zia Hills Central Facility, and no gas actuated pneumatic controllers are operated at Zia Hills Central Facility. The pneumatic controllers at this facility are air operated. No oil and gas wells are adjacent to this facility or feed Zia Hills Central Facility.

Comment: Guardians requests that NMED explain whether or not ConocoPhillips' Spartan facility is in compliance with the laws and rules that govern its air quality permitting, and why

compliance and enforcement status is listed in NMED's Statement of Basis as not applicable. **[AR No. 176, Bates 1242]**.

Response: This comment refers to the Spartan facility but was submitted with the second comments for Zia Hills Central Facility. The compliance status was originally listed as N/A in the draft Statement of Basis for Zia Hills Central Facility. The Statement of Basis language indicates that the AQB Compliance and Enforcement Section has not yet responded to the permitting Section's request for the compliance status of the facility at the time the DRAFT Statement of Basis was released. All final enforcement actions are maintained in AQB's electronic database and reviewed prior to the issuance of the permit. This review ensures that any permitting requirements associated with resolution of any violations or investigations are addressed in the permit before it is issued. In this case, relative to ConocoPhillips' Zia Hills facility, the Statement of Basis was later updated to include a response received from AQB Compliance and Enforcement as of 8/26/2021. The compliance status was noted as "There is no outstanding notice of violation and no settlement agreement for which all actions have not been completed. Conditions from a settlement agreement, do not need to be addressed at the WEG Hearing".

IX. CONCLUSION

The Bureau has completed a technical review of this application. The facility, as represented in the application, demonstrates compliance with all federal and state regulations. The facility's operations, as represented in this application, do not cause nor significantly contribute to any exceedances of applicable air quality standards. These results are based on the modeling analysis and emissions calculations for Carbon Monoxide (CO), Nitrogen Dioxide (NO2), Particulate Matter 10 micrometers or less in aerodynamic diameter (PM10), Particulate Matter (2.5 microns or less) (PM2.5), and Sulfur Dioxide (SO2). The comments received by the Bureau on

this permit have been responded to in this testimony. The responses demonstrate that the comments do not raise any substantive issues that indicate this permit should not be issued. The permit complies with all air quality regulations, and contains demonstrations of compliance for all conditions and emission limits to ensure Ambient Air Quality Standards. The Air Quality Bureau recommends that the Secretary uphold the Department's decision to approve issuance of this Permit.

Asheley M. Coriz
Email: asheley.coriz@state.nm.us
Telephone: 505-216-2955

Profile

Experienced as a permit writer, as was promoted in a short time and currently working in an Advanced position in the Minor Source Section of Permitting within the Air Quality Bureau (AQB) of the State of New Mexico Environment Department.

Education

Bachelor of Science in Forensic Chemistry with a double minor in Biology and Criminal Justice
Sam Houston State University (SHSU), Huntsville, TX; May 2012

Associates of Applied Science (A.A.S.) in General Studies
Santa Fe Community College (SFCC), Santa Fe, NM; 2009

Related Coursework

General Chemistry I and II	Biochemistry	Zoology
Organic Chemistry I and II	Advanced Inorganic Chemistry	Cell Biology
Quantitative Analysis Chemistry	Chemical Literature Seminar	Genetics
Physical Chemistry I	Forensic Chemistry	Microbiology
Instrumental Analytical Chemistry	Botany	Molecular Biology

Work Experience

Environmental Scientist and Specialist- Advanced
New Mexico Department of Environment
Santa Fe, NM
March 2021- Present

- Perform technical and regulatory review of moderately complex air quality permit applications
- Verify emissions calculations for various permitting actions; familiar with the various calculation methods utilized
- Determine applicable state and federal regulations
- Draft legally enforceable permits to include utilizing the department's guidelines, templates, and monitoring protocols
- Coordinate, communicate, and collaborate with bureau staff, the public, and industries to include consultants and other environmental staff within other agencies
- Provide support to the Permit Programs Section of the Air Quality Bureau (AQB)
- Process multiple permitting applications simultaneously within regulatory deadlines while ensuring quality work and attention to detail is instilled within my work ethics

- Assist with multiple special projects to include database maintenance, quality assurance, etc. to assist with the efficiency of the permitting section
- Lead/Project Management of the department's software program of Air Emissions Calculation Tool (AECT); respond to all internal and external customer questions

Environmental Scientist and Specialist- Operational
New Mexico Department of Environment
Santa Fe, NM
October 2018- March 2021

- Performed technical and regulatory review of moderately complex air quality permit applications
- Verified emissions calculations for various permitting actions; familiar with the various calculation methods utilized
- Determined applicable state and federal regulations
- Drafted legally enforceable permits to include utilizing the department's guidelines, templates, and monitoring protocols
- Coordinated, communicated, and collaborated with bureau staff, the public, and industries to include consultants and other environmental staff within other agencies
- Provided support to the Permit Programs Section of the Air Quality Bureau (AQB)
- Processed multiple permitting applications simultaneously within regulatory deadlines while ensuring quality work and attention to detail is instilled within my work ethics
- Assisted with multiple special projects to include database maintenance, quality assurance, etc. to assist with the efficiency of the permitting section
- Lead/Project Management of the department's software program of Air Emissions Calculation Tool (AECT); responded to all internal and external customer questions

Histology Tech
CHRISTUS St. Vincent Hospital
Santa Fe, NM
February 2018- April 2018

- Accessioned/entered information pertaining to specimens received from the OR and outpatient laboratories
- Operated tissue processors for the chemical processing of patient specimens
- Embedded and performed microtomy of various tissue specimens
- Conducted H&E routine staining of histological specimens
- Utilized general laboratory equipment
- Assisted pathologist assistant (PA) and pathologists with all requests
- Performed general laboratory duties to include the handling of biohazardous sharps and waste
- Possessed knowledge of standard safety practices

Histology Technician
Avero Diagnostics

Irving, TX
September 2017- January 2018

- Grossed prostate biopsy specimens
- Operated tissue processors for the chemical processing of patient specimens
- Embedded and performed microtomy of various tissue specimens
- Conducted H&E routine staining of histological specimens
- Performed Immunohistochemistry (IHC) staining
- Performed special stains (PAS, ABPAS, PASF, and Alcian Blue)
- Accountable for documentation, labeling, and distribution of microscopic slides to various clients
- Assisted pathologists with all requests
- Utilized general laboratory equipment
- Prepared/ made chemical solutions for the chemical processing of tissue samples
- Performed various laboratory duties to include formalin neutralization, and the handling of biohazardous sharps and waste

Histotechnologist/ Histology Technician
TriCore Reference Laboratories
Albuquerque, NM
August 2015- August 2017

- Received, processed, organized, documented, prepared, and distributed all patient specimens for histological studies
- Embedded and performed microtomy of all tissue types (ex: skin, gallbladder, cervix, bone) which included biopsies and excisions
- Completed the process of deparaffinization, staining, and cover-slipping of tissue specimens
- Operated tissue processor instrumentations for the chemical processing of patient specimens
- Prepared bone marrow specimens to include decalcification and grossing of biopsies and blood clots
- Assisted pathologist assistants (PAs), biopsy technicians, and pathologists with all requests
- Performed general laboratory duties to include tissue disposal, formalin neutralization, and the handling of biohazardous sharps and waste
- Prepared/ made chemical solutions for the chemical processing of tissue samples
- Utilized general laboratory equipment to include, but not limited to micropipettes, graduated flasks and cylinders, balances, hydrometers, etc.
- Possessed knowledge of standard safety practices
- Received ongoing training, competency, and proficiency to ensure proper quality analysis

Morphology Technician
Office of the Medical Investigator (OMI)
Albuquerque, NM

August 2014- September 2015

- Provided technical morphology lab services to assist and provide general support to pathologists and technical staff regarding hospital and forensic cases
- Assisted attorney legal offices with their requests on behalf of homicide, accidental, suicidal, natural, and undetermined cases
- Shipped biohazardous tissues to the Mayo Clinic, the Centers for Disease Control and Prevention (CDC), and other medical examiner's offices for consult cases
- Reported on microbiology, toxicology, and vitreous results to pathologists
- Processed all requests to include specials, immunoperoxidase, and cytology smears (anal, oral, vaginal, etc.)
- Prepared and assisted with anatomical dissection conferences of tissue organs
- Photographed organs/ specimens to assist with the casework
- Assisted with the process of organ(s) after the dissection examination was complete to include disposal/ cremation, return to funeral home (RH), to be returned to body (RTB), or otherwise stated
- Utilized in-house computer programs to perform clerical duties essential to my job duties
- Possessed knowledge of occupational hazards and standard safety practices

Forensic Technician- Automated Fingerprint Identification System (AFIS) Division
New Mexico Department of Public Safety (DPS)- Law Enforcement Records Bureau (LERB)
Santa Fe, NM
May 2013- July 2014

- Performed quality assurance/quality control (QA/QC) of criminal fingerprint card submissions obtained from Law Enforcement Agencies using the Automated Fingerprint Identification System (AFIS)
- Performed QA/QC of criminal demographic data
- Identified and classified fingerprints
- Concluded fingerprint matching conclusions (hit or no hit regarding a criminal record)
- Possessed knowledge of procedures required for record keeping
- Performed verifications (comparisons of fingerprints for identity theft)
- Performed consolidations of state identification for criminals
- Performed expunging of records as ordered by the courts of law
- Prepared formal reports that identified the findings and conclusions for fingerprint comparisons
- Coordinated with external agencies such as Albuquerque Police Department (APD), New Mexico Corrections Department (NMCD), Metropolitan Forensic Science Center, Bureau of Alcohol, Tobacco, & Firearms (ATF), and the courts of law
- Conducted and instructed fingerprint training classes (presented how to identify/classify fingerprints as well as physically show how to take legible fingerprints) to corrections officers, probation/parole officers, law enforcement, NMSP recruits, and the general public

- Maintained, assured quality analysis and accreditation standards for fingerprint card submissions
- Computed data entry of demographics and scanning of fingerprints
- Taught internal and external customers how to take fingerprints via both ink and electronically (LIVESCAN)

Skills and Qualifications

- Work well under pressure in a fast-paced, multi-tasking environment, with minimal supervision
- Excellent grasp of performing technical and regulatory review of permit applications, but not limited to emissions calculations verification, state and federal regulations applicability, as well as aiding with various special projects to assist with the efficiency of the permitting section
- Strong communication and technical writing skills
- Detailed orientated, reliable, and a quick learner
- Highly responsible and thrive with challenges

Memberships and Awards/Scholarships

- Society of Forensic Science (SFS) Organization
- J.C. Stallings Chemical Society
- Phi Theta Kappa International Honor Society
- TriBeta National Biological Honor Society
- Ronald E. McNair Post-baccalaureate Achievement Program- Cohort IX
- Chemistry Academic Scholarship
- Who's Who's List

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF XTO ENERGY, INC. – JAYHAWK COMPRESSOR STATION
FOR AN AIR QUALITY PERMIT **AQB 21-32**

TECHNICAL TESTIMONY OF JULIA KUHN

I. INTRODUCTION

My name is Julia Kuhn. I am a Title V Permit Specialist of the Major Sources Permitting Section of the Air Quality Bureau ("AQB" or "Bureau") of the New Mexico Environment Department ("NMED" or "Department"). Congress established the Title V Operating Permit Program as part of the 1990 Clean Air Act Amendments. The program was designed to standardize air quality permits and the permitting process for major source facilities across the country. A very brief definition of major source is a facility that directly emits or has the potential to emit, 100 or more tons per year of any air pollutant subject to regulation, or a facility that emits 10 tons or more per year of any single hazardous air pollutant (HAPs) and/or 25 or more tons per year of any combination of HAPs which has been listed pursuant to Section 112 (b) of the federal act.

I present this written testimony on behalf of the Department for the public hearing on the permit application submitted by XTO Energy, Inc. ("XTO") for their Jayhawk Compressor Station. **[AR No. 1, Bates 001-213]**.

My testimony will address the following topics: my qualifications, a summary of Application 8152M1, administrative review of Application 8152M1, technical review of Application 8152M1, AQB's public outreach efforts throughout various stages of this permitting action, and the basis for conditions in the 2021.05.25 version of Draft Permit 8152M1 for the proposed XTO facility modification.

II. QUALIFICATIONS

I have been an employee of the Bureau slightly more than three years working as a Permit Specialist, initially in the Permitting Technical Services section for about one year, and later in the Major Source section for the last two years. As a Permit Specialist, I perform technical and regulatory review of complex Air Quality Bureau permit applications within regulatory deadlines. I verify emissions calculations; determine applicable state regulations and federal regulations; coordinate with various stakeholders including the public, industry, consultants, and AQB staff; write legally enforceable air permits and technical support documents for the administrative record; enter data into the AQB database; and complete various special projects to achieve AQB goals. I have worked on or reviewed multiple NSR and TV permitting actions for the Bureau, in addition to dozens of other types of permits including General Construction Permits for Oil and Gas, Aggregate facilities, Asphalt Plants and Concrete Batch Plants.

My full background and qualifications are set forth in my resume. **[NMED Exhibit 31]**.

III. SUMMARY OF APPLICATION 8152M1

XTO's Jayhawk Compressor Station is presently located at 614061 m UTME, 3605042 m UTMN, Datum WGS 84, approximately 22 miles northeast of Carlsbad, New Mexico. With this application, XTO proposes the following: revising engine emissions rates and control efficiencies; removing two heaters, two engines, and one flare; increasing glycol circulation rates for three dehydrators; decreasing glycol dehydrator reboiler capacities; increasing flare purge gas rate;

updating condensate tank throughput, water tank throughput, condensate truck loading, tank nomenclature, sources venting to the vapor recovery unit (VRU), low pressure separator (LPS) pressure, and facility location coordinates; revising steady state flaring associated with revised tank throughputs and glycol circulation rate; adding Malfunction emissions; increasing flare heights and adding an inlet gas flaring. The facility is currently permitted under NSR 8152, issued May 7, 2019. **[AR No. 15, Bates 526-574]**. The new permit would update conditions and requirements for monitoring, testing, recordkeeping, and reporting.

IV. ADMINISTRATIVE REVIEW

Application 8152M1 was received by the New Mexico Environment Department on September 30, 2020. Pursuant to 20.2.72.207(A) NMAC, the Department had 30 days to review the application and determine whether it was administratively complete.

The administrative review of an application is not a technical review, but a review of the presence of the required parts of the application, including the applicant's modeling analysis, the applicant's proof of public notice, and a notarized certification stating that the information and data submitted in the application is true and accurate. All required contents of the application are listed in 20.2.72.203 NMAC. Upon receipt of the Application 8152M1, the applicant's modeling files are submitted to the AQB Modeling Manager, Mr. Sufi Mustafa, for assignment to an AQB dispersion modeler. On October 26, 2020, I received confirmation via email from Mr. Mustafa stating application 8152M1 may be ruled complete from the modeling perspective. **[AR No. 26,**

Bates 625-626]. Initially, the project was assigned to dispersion modeler Rhett Zyla, and later reassigned to Ms. Angela Raso. **[AR No. 11, Bates 441-450]**.

Based on fee units in 20.2.75 NMAC and applicable regulations, the permit fee for XTO's application 8152M1 was calculated and administrative staff generated the corresponding invoice. **[AR No. 7, Bates 429]**. On October 29, 2020, application 8152M1 was ruled administratively complete. **[AR No 8. X, Bates 430-435]**. The completion determination letter, which includes a copy of the Department's Legal Notice, and the invoice for the permit fee was sent to the applicant on October 29, 2020. There were no Affected Parties identified, as required by regulation, to notify of legal notice publication. Legal notice notification was sent to EPA Region 6 on October 29, 2020. **[AR No. 34, Bates 640-642]**. The Department's Legal Notice was posted on the AQB website on November 3, 2020 and published in the Hobbs News-Sun on November 3, 2020. **[AR No. 10, Bates 439-440]**. WEG submitted the first round of comments on December 3, 2020. **[AR No. 16, Bates 475-582]**. The first citizen letter was sent to WEG and other commenters on December 7, 2020. **[AR No. 18, Bates 589-592]**. The application and public notice were subsequently posted on the AQB website for Permit Applications with Public Interest, Public Meetings, or Public Hearing. **[AR No. 28, Bates 629]**. Upon completion of the draft permit and analysis, copies were emailed to WEG and other commenters, along with the second citizen letter on May 28, 2021. **[AR No. 19, Bates 593]**. The draft documents were posted on the AQB website

on May 27, 2021. **[AR No. 13 and 14, Bates 464-525]**. WEG submitted a second round of comments, on the draft permit and analysis, on June 28, 2021. **[AR No. 17, Bates 583-588]**.

V. TECHNICAL REVIEW

After the application was determined administratively complete, technical review of XTO's application 8152M1 begins. The technical review requires verification of emissions calculations and a determination of applicable federal regulations and state regulations.

Emissions calculations are verified by confirming the correct emission factors and formulas use to calculate emissions for all sources. If methods are unclear, the consultant must provide explanation or updates, as necessary. The emissions totals from the calculations must be in agreement with the emissions totals reported in Section 2 of the application.

In general, I request any updates and/or clarification if discrepancies in the application became apparent while writing Draft Permit 8152M1. Any updates to the application are posted on the NMED website as soon as it is reasonably possible. The Department has reviewed the emission calculations submitted in the application for all regulated equipment and the emission factors relied upon in those calculations. The facility emissions were calculated using Excel spreadsheets using manufacturer's data sheet emission factors, TCEQ emission factors, or US EPA's AP-42 Compilation of Air Emission Factors, as well as oil and gas industry software.

The emission factors used in the calculations are appropriate for this source type and are, thus, approved by the Department. The approved calculated emission rates were used as inputs

into the Department's air dispersion modeling analysis. The air dispersion model predicts concentrations of the National Ambient Air Quality Standards (NAAQS) based upon the approved emission rates.

I summarized my review in the Statement of Basis. **[AR No. 13, Bates 464-473].** The Statement of Basis is a permitting record that includes a description and history of the facility, public response received by the Department, a regulatory compliance discussion, and unique conditions in the permit.

VI. PUBLIC OUTREACH

Once the legal notice was published, interested persons were allowed thirty (30) days to express an interest in writing in the permit application per 20.2.72.206(A)(5) NMAC. Because the legal notice was published in the Hobbs News-Sun newspaper on November 3, 2020, the end of the 30-day comment period was December 3, 2020. **[AR No. 10, Bates 439-440]**. The initial WEG comment letter was received by the Department December 3, 2020. **[AR No. 16, Bates 475-582]**. Upon completion of the analysis and draft permit, the documents were published on the AQB website for "Permit Applications with Public Interest, Public Meeting, or Public Hearing" on May 27, 2021. **[AR No. 13 and 14, Bates 464-525]**. On May 28, 2021, the second citizen letter and a copy of the permit documents were emailed to WEG. **[AR No. 19, Bates 593]**. This started the second 30-day comment period. The Department received additional comments from WEG on June 28, 2021. **[AR No. 17, Bates 583-588]**.

VII. BASIS FOR PERMIT CONDITIONS

The Department's authority to include conditions in an Air Quality permit is stated in 20.2.72.210 NMAC Permit Conditions. When a permit is issued, there is specific information of the authorized equipment to be installed and operated, limits on air pollutants, and requirements on how to operate the equipment. A permit is an enforceable legal document, which includes emission limits and methods for determining compliance on a regular basis. It establishes monitoring, recordkeeping, and reporting requirements to ensure and verify compliance with the terms of the permit.

Conditions in Part A of the permit are Facility Specific Requirements, unique to the facility. They are site-specific and based on information provided in the application. Conditions in Part B of the permit are General Conditions and standard language which generally apply to all sources. Part C is also standard language about supporting online documents, definitions, and acronyms which apply to all sources.

A draft permit is a dynamic working document subject to updates throughout the review process. Draft Permit 8152M1 started with standardized language in an AQB permit template and standardized AQB monitoring protocols added as necessary for the sources of emissions and control devices at proposed facility. Unique permitting conditions for site specific operations and equipment, based on information provided in the application are added to customize accordingly.

Permit conditions establish ongoing testing and monitoring requirements for processes and pieces of equipment to ensure the equipment is operating in accordance with the permitted emission limits.

VIII. RESPONSES TO COMMENTS RECEIVED ON APPLICATION

The Air Quality Bureau received public comments on this application on December 3, 2020 during the 30-day comment period following publication of the Bureau's newspaper public notice on November 3, 2020. [**AR No. 10, Bates 439-440]**. These comments were submitted by Western Environmental Law Center, New Mexico Environmental Law Center, Center for Biological Diversity, and WildEarth Guardians (WEG). On May 28, 2021, the Bureau started the 30-day analysis period on the draft permit. The draft permit and draft Statement of Basis were sent directly to Jeremy Nichols at WEG. [**AR No. 48, Bates 697]**. On June 28, 2020, AQB received a second set of comments from Matt Nykiel at WEG. [**AR No. 50, Bates 699]**. The following section presents the Bureau's responses to all comments submitted in either set of comments on this application in the format of the comment followed by the response from AQB. The comments are presented in the order of topic: public notice; startup, shutdown, maintenance, and malfunction emissions; gas-actuated pneumatic controllers; environmental justice concerns; compliance with Toxic Air Pollutant (TAP) permitting; compliance testing by the facility; and NSR application updates. Responses regarding HAPs emissions and submission of Title V operating permit applications will be presented by James Nellessen. Responses to comments regarding air

dispersion modeling are in the written testimony presented by the technical witnesses for the modeling section.

Comment: As an initial matter, we note that the Department's Legal Notice and Preliminary Determination for an Air Quality Permit for XTO's Jayhawk facility, published on November 3, 2020, limited public comment submissions to mailing hardcopy comments to NMED's physical address. Due to the COVID-19 pandemic and New Mexico's public health emergency order, some members of the public may have health risk factors that preclude them from obtaining postage and submitting comments to the Department at the address provided in the legal notice. The omission of instructions for how the public could submit comments electronically and an explanation that the Department would accept comments in this format may well have prevented or dissuaded some members of the public with health risks from commenting and informing the Department's review of this permit application. [**AR No. 17, Bates 584]**.

Response: For this permit, the initial 30-day comment period had concluded six months before this comment was received. Therefore, the newspaper notice was not republished, and another 30-day comment initial notice was not done for these permits. AQB's re-publication of the public notice for several other permits did not generate any additional public interest from any other party for those permits. That result on the other permits indicates that WildEarth Guardians assertion that the omission of an email address prevented other interested parties from providing comment is unlikely to be correct. The public notice for the first comment period and the draft

documents for the 30-day analysis period were posted to AQB's website on November 3, 2020 and on May 27, 2021, respectively, and therefore were available to the public.

Comment: Similarly, because the Department's public notice incorrectly limited public comment to hardcopy mail submissions so, too, did the applicant's public notices it published in local media in Lea County. The application for this proposed permit indicates the public in Lea County was informed it could only participate in the public review process for this permit by mailing hardcopy comments despite the fact that doing so during the COVID-19 Pandemic could have public health risks. [**AR No. 17, Bates 584]**.

For purposes of XTO's present permit application, we request the Department consider re-issuing the legal notice, with the addition of an explanation of how the public can submit comments via email and provide another 30-day review period for members of the public to notify the Department of their interest. Although Guardians figured out that e-mailing comments was acceptable, other members of the public may not have the experience or the expertise to understand that this option exists. A sufficient legal notice is critical for ensuring NMED effectively informs and engages the public, provides a meaningful opportunity for the public to weigh in, and meets its environmental justice objectives under Executive Order 2005-056. [**AR No. 17, Bates 584]**.

Response: The applicant's public notice met all regulatory requirements in 20.2.72.203.C and the requirements in the AQB Public Notice Guidelines. Applicant public notices are conducted prior to submission of the application to the Bureau. At that time, a permit writer has not been assigned

and therefore their email address cannot be included in the applicant's notice. While the standard text for the applicant's notice states that comments should be submitted in writing, it also provides a toll-free phone number that would allow any interested party to reach the Bureau with questions. That provides an opportunity to register an objection or concern to mailing comments, and to request an alternative submission method. No phone calls making such a request were received on this permit. In addition, AQB's re-publication of the public notice for several other permits did not generate any additional public interest from any other party for those permits. That result on the other permits indicates that WildEarth Guardians assertion that the omission of an email address prevented other interested parties from providing comment is unlikely to be correct.

Comment: We are similarly concerned that the annual 10 ton/year VOC limit for emissions resulting from the venting of gas due to malfunction is also unenforceable as a practical matter. Similar to our concerns above, while Condition A107.D requires calculation of VOC emissions based on inlet gas analysis and volume of gas vented, it is not clear how the volume of vented gas is actually measured during malfunctions. [**AR No. 17, Bates 585]**.

Response: The malfunction condition requires tracking of the VOC emissions based on the inlet gas analysis (% VOC) and the volume of gas released during the malfunction. Malfunctions result in venting to depressurize the portion of the facility experiencing a malfunction. The volume is calculated based on the gas volume within the equipment which is de-pressurized. The permit

authorizes 10 tpy of malfunction to reduce the reporting of very small releases allowing the Department to focus on investigating malfunctions that result in large releases.

Comment: We are also concerned that the proposed permit does not include a limit on the number or duration of SSM flaring emissions to ensure compliance with applicable annual limits. Provision A107 of the proposed permit authorizes SSM flaring emissions in the form of hundreds of pounds per hour of nitrogen oxide (NOx) emissions, volatile organic compound (VOC) and carbon monoxide emissions, but the permit does not restrict the frequency or duration of these emissions. Without any such restriction, the proposed permit authorizes SSM emissions beyond the yearly limits set forth at Condition A107 of the proposed permit, as well as beyond the facility's potential to emit. [**AR No. 17, Bates 585]**.

Indeed, based on the hourly limits in the permit, the facility has the potential to emit 2,369 tons/year of NOx, 4,734 tons of carbon monoxide, and 4,349 tons of VOCs. These emission rates are all above prevention of significant deterioration (PSD) major source thresholds, meaning XTO must apply for a PSD permit and cannot be issued the permit as proposed. [**AR No. 17, Bates 585]**.

Although we understand the presumption is that the annual limits set forth at Table 107.A will restrict SSM emissions, as a practical matter, with no limitation on the duration or number of instances of SSM emissions, this cannot be the case. While the permit may impose annual emission limits during instances of SSM, it also permits the facility to operate in a way that will exceed

these limits. As a result, the annual SSM limits will not serve as an actual, enforceable limit to the Jayhawk Compressor Station's potential to emit. [**AR No. 17, Bates 585]**.

Response: Establishment of hourly emission limits in any permit does not imply that these emissions are permitted for every hour of the year. Both hourly and annual emission limits are enforceable in an air quality permit. The Bureau establishes hourly limits to ensure compliance with short-term air quality standards and annual emission limits to ensure compliance with long-term air quality standards. For the SSM flaring referred to in this comment, condition 107C requires that the flare be operated in accordance with conditions A206A, B, and C. The SSM flaring is done with the high-pressure side of the flare. For this side of the flare, condition A206B monitoring requires that a flowmeter be installed to measure and record the volume of gas going to the flare. Condition A206A requires that the flare operate with no visible emissions, which ensures the flare meets its 98% destruction efficiency. The recordkeeping section of condition A107C requires calculation of hourly and annual emissions using the gas analysis, volume of gas sent to the flare, and destruction efficiency of the flare. This recordkeeping section requires keeping spreadsheet of the emissions and maintaining "monthly rolling 12-month totals". These monthly rolling totals ensure that the annual limits are not exceeded during any 12-month period so compliance is demonstrated with annual emission limits.

Comment: To begin with, the annual SSM volatile organic compound (VOC) limit for venting from compressor and associated piping blowdowns is unenforceable as a practical matter as the

permit does not require actual monitoring of vented VOC emissions during these SSM events. Although Condition A107.C requires a facility inlet gas analysis to be completed every year, it is unclear how this inlet gas analysis is used to calculate SSM VOC emissions. While the Condition seems to indicate that VOC emissions will be calculated based on the total gas vented in MMscf, it is not clear how the volume of gas vented during SSM is actually measured. There is no indication that a meter or other means of volumetric measurements will be utilized to actually accurately measure vented gas. In the list of equipment in Table 104.A, the SSM unit has no identified rated or permitted capacity that would indicate the volume of gas vented could actually be measured on an MMscf basis. [**AR No. 17, Bates 585]**.

Response: For these SSM activities, the VOC releases are determined based on the gas composition, the volume of gas released during an activity, and the number of activities. For compressor blowdowns, the volume of gas from compressor blowdowns is based on the known interior gas volume within the compressor and the number of times the compressor blows down (releases pressure). Pigging equipment blowdowns are based on the amount of gas pushed out of the end of the line as the pig travels through a segment of gas line. The amount of gas is determined from the volume within the line being serviced and the gas composition. The same approach is used for other miscellaneous SSM activities. Because SSM represents various activities, SSM does not have a single volume or capacity. The volumes used in the calculations are based on

engineering knowledge of the individual equipment undergoing the startup, shutdown, or maintenance.

Comment: We are concerned that XTO's application and the proposed permit does not address emissions from gas-actuated pneumatic controllers at the Jayhawk Compressor Station. Gas-actuated pneumatic controllers are point sources of air pollution and cumulatively release large amounts of VOC emissions. NMED must disclose the number of gas-actuated pneumatic controllers at the Jayhawk Compressor Station and estimate total VOC emissions from these pollutant emitting activities. [**AR No. 17, Bates 586]**.

Response: The applicant, XTO Energy, Inc. verified to AQB that all pneumatic controllers at their facility are run on 'instrument air". This means the pneumatic controller uses compressed air to activate and does not release any natural gas when it activates. Instrument air powered controllers are therefore not sources of regulated pollutants and there in no requirement to report them in an application for an air quality permit.

At the Jayhawk Compressor Station, there is an emergency system that would switch these controllers to using natural gas in emergency failure of instrument air. That case is not part of normal operations (covered by allowable emissions in Table 106) nor SSM emissions (Table 107a limits) but represents a malfunction at the plant and the releases would be included under malfunction emissions accounted for in the permit or as excess emissions. The controllers qualify as "low bleed" under 40 CFR 60 Subpart OOOOa and would release no more than 6 standard cubic

feet per hour under §60.5365a(d)(1) and §60.5390a(c)(1) when they were used during the emergency.

Comment: Lastly, Guardians requests that NMED provide an explanation for how the proposed permit modification and associated increase in air pollution will not disproportionately impact low-income communities and communities of color, pursuant to New Mexico Executive Order 2005-056. Guardians was unable to identify a discussion of these considerations in the documents NMED released in support of the proposed permit. [**AR No. 17, Bates 588]**.

Response: NMED policy 07-13, Public Participation delineates the approach used by NMED to address these concerns. For each permitting action, NMED uses the EPA EJSCREEN tool to evaluate demographic information for an area around the facility; the area is a 4-mile circle around the facility except smaller within urbanized areas. Data from EPA EJSCREEN is evaluated by the permit writer and their manager to evaluate if any additional outreach needs to be done beyond the regulatory requirements. This assessment includes factors such as number of households, per capita income, percent of Linguistically Isolated Households, and percent minority population., Past involvement by the public in air permitting for the facility is also reviewed.

Comment: We are finally concerned that NMED and XTO have not demonstrated compliance with toxic air pollutant permitting requirements at 20.2.72.400-499 NMAC. While XTO asserts in its application that it is not subject to these requirements and that toxic air pollutants are not emitted or will remain unchanged, this does not appear to be the case. Given that the Jayhawk Compressor Station

releases VOCs, it is likely the facility releases a number of toxic air pollutants listed at 20.2.72.502 that are frequently part of VOC emission streams from the oil and gas sector. These toxic air pollutants include, but are not limited to, cyclohexane, cyclohexene, nonane, trimethylbenzene, and likely many others. Many of these substances have been explicitly identified as VOC species associated with the oil and gas sector. [**AR No. 16, Bates 581-582]**.

Response: Compressor Stations are not a gas processing plant or a refinery and, therefore, meet the definition of an oil and gas production facility, per 20.2.72.401.F NMAC. As an oil and gas production facility, it is exempt (in 20.2.72.402.C NMAC) to applicability and any requirements of 20.2.72.400 NMAC - 20.2.72.405 NMAC for toxic air pollutants.

Comment: Guardians requests that NMED further explain whether or not XTO's Jayhawk facility is in compliance with the laws and rules that govern its air quality permitting. This facility was first permitted in 2019, but no compliance tests have been performed since that time, according to NMED's Statement of Basis. Guardians requests the Department explain why no compliance tests have been conducted and whether this omission complies with the applicable legal requirements. [**AR No. 17, Bates 587]**.

Response: After the NSR permit issuance, it can take companies several months or a couple of years to install permitted equipment. NSR Permit Condition A111.A(2) states: "Initial compliance tests shall be conducted within sixty (60) days after the unit(s) achieve the maximum normal production rate. If the maximum normal production rate does not occur within one hundred twenty

(120) days of source startup, then the tests must be conducted no later than one hundred eighty (180) days after initial startup of the source." Companies must notify AQB when units commence operation and when each piece of equipment starts up [NSR General Condition B110.B.(1) and (3)]. Also, AQB receives results of initial compliance tests for units, which are completed within 60-180 days of startup (NSR General Condition B111.A.2). In addition, AQB also conducts periodic inspections of the facilities.

Comment: On the Department's webpage for Permit Applications with Public Interest, Public Meeting, or Public Hearing, the Department attached XTO's original and updated permit applications for the Jayhawk Compressor Station. But both versions of XTO's application are dated September 9, 2020, so Guardians is uncertain whether or not it has access to the updated and final version of XTO's permit application for its Jayhawk facility. We request the Department confirm that the updated version currently posted on its webpage is the latest and final version or, if not, provide that version of XTO's application and permit the public additional time to review it. [**AR No. 17, Bates 587]**.

Response: The updated application is not a submission of any changes to the modification of the facility but a request from the permit writer to the applicant for small corrections to reflect consistency between the information submitted in the application and the information used in the calculations. **[AR No. 5, Bates 217-427]**. For example, the original application posted on the NMED website includes an early correction requesting to revise Table 2C to reflect the control

efficiencies of the catalyst according to the manufacture specifications and the calculations provided with the application. **[AR No. 2, Bates 214]**. The updated version of the application includes revisions to table 2H to reflect consistency of information regarding the heater and reboilers temperatures, diameter, and height used in the calculations. **[AR No. 3, Bates 215]**. Corrections to Table 2J reflect changes in heating values to match the calculations values. The initial application and the updated application are fundamentally the same in regard to the modification and emissions. **[AR No. 4, Bates 216]**. The applicant was not required to change the cover sheet to reflect different dates on the application.

IX. CONCLUSION

The Bureau has completed a technical review of this application. The facility, as represented in the application, demonstrates compliance with all federal and state regulations. The facility's operations, as represented in this application, do not cause nor significantly contribute to any exceedances of applicable air quality standards. These results are based on the modeling analysis and emissions calculations for Carbon Monoxide (CO), Nitrogen Dioxide (NO2), Particulate Matter 10 micrometers or less in aerodynamic diameter (PM10), Particulate Matter (2.5 microns or less) (PM2.5), and Sulfur Dioxide (SO2). The comments received by the Bureau on this permit have been responded to in this testimony. The responses demonstrate that the comments do not raise any substantive issues that indicate this permit should not be issued. The permit complies with all air quality regulations and contains demonstrations of compliance for all

conditions and emission limits to ensure Ambient Air Quality Standards. The Air Quality Bureau recommends that the Secretary uphold the Department's decision to approve issuance of this Permit.

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF XTO ENERGY, INC. – MAVERICK COMPRESSOR STATION
FOR AN AIR QUALITY PERMIT **AQB 21-39**

TECHNICAL TESTIMONY OF JULIA KUHN

I. INTRODUCTION

My name is Julia Kuhn. I am a Title V (TV) Permit Specialist of the Major Sources Permitting Section of the Air Quality Bureau ("AQB" or "Bureau") of the New Mexico Environment Department ("NMED" or "Department"). Congress established the Title V Operating Permit Program as part of the 1990 Clean Air Act Amendments. The program was designed to standardize air quality permits and the permitting process for major source facilities across the country. A very brief definition of major source is a facility that directly emits or has the potential to emit, 100 or more tons per year of any air pollutant subject to regulation, or a facility that emits 10 tons or more per year of any single hazardous air pollutant (HAPs) and/or 25 or more tons per year of any combination of HAPs which has been listed pursuant to Section 112 (b) of the federal act.

I present this written testimony on behalf of the Department for the public hearing on the permit application submitted by XTO Energy, Inc. ("XTO") for their Maverick Compressor Station. **[AR No. 1, Bates 001-324]**.

My testimony will address the following topics: my qualifications, a summary of Application 7565M2, administrative review of Application 7565M2, technical review of Application 7565M2, AQB's public outreach efforts throughout various stages of this permitting action, and the basis for conditions in the **2021.06.09** version of Draft Permit 7565M2 for the proposed XTO facility modification.

II. QUALIFICATIONS

I have been an employee of the Bureau slightly more than three years working as a Permit Specialist, initially with the Permitting Technical Services section for about one year, and later in the Major Source section for the last two years. As a Permit Specialist, I perform technical and regulatory review of complex Air Quality Bureau permit applications within regulatory deadlines. I verify emissions calculations; determine applicable state regulations and federal regulations; coordinate with various stakeholders including the public, industry, consultants, and AQB staff; write legally enforceable air permits and technical support documents for the administrative record; enter data into the AQB database; and complete various special projects to achieve AQB goals. I have worked on or reviewed multiple NSR and TV permitting actions for the Bureau, in addition to dozens of other types of permits including General Construction Permits for Oil and Gas, Aggregate facilities, Asphalt Plants, and Concrete Batch Plants.

My full background and qualifications are set forth in my resume. **[NMED Exhibit 31]**.

III. SUMMARY OF APPLICATION 7565M2

XTO's Maverick Compressor Station is presently located at 612768 m UTME, 3553377 m UTMN, Datum WGS 84, approximately 17 miles southeast of Malaga, New Mexico. With this application, XTO proposes the following: revising engine emissions rates and control efficiencies; removing two heaters and two engines; increasing glycol circulation rates for three dehydrators; decreasing glycol dehydrator reboiler capacities; increasing flare purge gas rate; updating condensate tank throughput, water tank throughput, condensate truck loading, tank nomenclature, low pressure separator (LPS) pressure, and facility location coordinates; revising steady state flaring associated with revised tank throughputs and glycol circulation rate; adding Malfunction emissions, revising dehydrators SSM, increasing flare heights and adding an inlet gas flaring. The

facility is currently permitted under NSR 7565M1, issued on February 6, 2019. **[AR No. 15, Bates 725-774]**. The new permit would update conditions and requirements for monitoring, testing, recordkeeping, and reporting.

IV. ADMINISTRATIVE REVIEW

Application 7565M2 was received by the New Mexico Environment Department on March 8, 2021. Pursuant to 20.2.72.207(A) NMAC, the Department had 30 days to review the application and determine whether it was administratively complete.

The administrative review of an application is not a technical review, but a review of the presence of the required parts of the application, including the applicant's modeling analysis, the applicant's proof of public notice, and a notarized certification stating that the information and data submitted in the application is true and accurate. All required contents of the application are listed in 20.2.72.203 NMAC. Upon receipt of the Application 7565M2, the applicant's modeling files were submitted to the AQB Modeling Manager, Mr. Sufi Mustafa, for assignment to an AQB dispersion modeler. On March 18, 2021, I received confirmation via email from Mr. Mustafa application 7565M2 may be ruled complete from the modeling perspective. **[AR No. 26, Bates 821-822]**. The modeling for this project was assigned to Eric Peters. **[AR No. 11, Bates 637-645]**.

Based on fee units in 20.2.75 NMAC and applicable regulations, the permit fee for XTO's application 7565M2 was calculated and administrative staff generated the corresponding invoice. **[AR No. 5, Bates 620]**. On April 7, 2021, application 7565M2 was ruled administratively complete. **[AR No. 6, Bates 621-626]**. The completion determination letter, which includes a copy of the Department's Legal Notice, and the invoice for the permit fee was sent to the applicant on April 7, 2021. The State of Texas was identified as the only Affected Party, as required by regulation, and notified of legal notice publication on April 7, 2021. **[AR No. 8, Bates 630]**. Legal

notice notification was sent to EPA Region 6 on April 7, 2021. **[AR No. 33, Bates 836]**. The Department's Legal Notice was posted on the AQB website on April 7, 2021 and published in the Carlsbad Current Argus on April 9, 2021. **[AR No. 9, Bates 631-633]**. A second legal notice to include the permit writer's email contact information was published on April 20, 2021, and the revised legal notice was subsequently posted on the AQB website. **[AR No. 10, Bates 634-636]**. WEG submitted the first round of comments on May 20, 2021. **[AR No. 16, Bates 775-780]**. The first citizen letter was sent to WEG May 24, 2021. **[AR No. 18, Bates 785-788]**. On June 9, 2021, the application, public notice, draft permit, and draft analysis were posted on the AQB website for Permit Applications with Public Interest, Public Meetings, or Public Hearing. **[AR No. 13 and 14, Bates 661-724]**. Copies of draft permit and analysis were emailed to WEG, along with the second citizen letter on June 9, 2021. **[AR No. 19, Bates 789]**. WEG submitted a second round of comments, on the draft permit and analysis, on July 9, 2021. **[AR No. 17, Bates 781-784]**.

V. TECHNICAL REVIEW

After the application was determined administratively complete, technical review of XTO's application 7565M2 begins. The technical review requires verification of emissions calculations and a determination of applicable federal regulations and state regulations.

Emissions calculations are verified by confirming the correct emission factors and formulas use to calculate emissions for all sources. If methods are unclear, the consultant must provide explanation or updates, as necessary. The emissions totals from the calculations must be in agreement with the emissions totals reported in Section 2 of the application.

In general, I request any updates and/or clarification if discrepancies in the application became apparent while writing Draft Permit 7565M2. Any updates to the application are posted on the NMED website as soon as it is reasonably possible. The Department has reviewed the

emission calculations submitted in the application for all regulated equipment and the emission factors relied upon in those calculations. The facility emissions were calculated using Excel spreadsheets and manufacturer's data sheet emission factors, TCEQ emission factors, or US EPA's AP-42 Compilation of Air Emission Factors, as well as oil and gas industry software.

The emission factors used in the calculations are appropriate for this source type and are, thus, approved by the Department. The approved calculated emission rates were used as inputs into the Department's air dispersion modeling analysis. The air dispersion model predicts concentrations of the National Ambient Air Quality Standards (NAAQS) based upon the approved emission rates.

I summarized my review in the Statement of Basis. **[AR No. 13, Bates 661-670].** The Statement of Basis is a permitting record that includes a description and history of the facility, public response received by the Department, a regulatory compliance discussion, and unique conditions in the permit.

VI. PUBLIC OUTREACH

Once the legal notice was published, interested persons were allowed thirty (30) days to express an interest in writing in the permit application per 20.2.72.206(A)(5) NMAC. Initially, the legal notice was published in the Carlsbad Current Argus newspaper on April 9, 2020. **[AR No. 9, Bates 631-633]**. A second legal notice was published on April 20, 2021, to include the permit writer's email contact information, thus the end of the 30-day comment period was May 20, 2021 **[AR No. 10, Bates 634-636]**. The initial WEG comment letter was received by the Department on May 20, 2021, and a response was emailed to WEG on May 24, 2021. **[AR No. 16, Bates 775-780]**. On June 9, 2021, the application, public notice, draft permit, and draft analysis were posted on the AQB website for Permit Applications with Public Interest, Public Meetings, or Public Hearing.

[AR No. 13 and 14, Bates 661-724] The second citizen letter and a copy of the permit documents were emailed to WEG, on June 9, 2021. **[AR No. 19, Bates 789]**. This started the second 30-day comment period. The Department received additional comments from WEG on July 9, 2021. **[AR No. 17, Bates 781-784]**.

VII. BASIS FOR PERMIT CONDITIONS

The Department's authority to include conditions in an Air Quality permit is stated in 20.2.72.210 NMAC Permit Conditions. When a permit is issued, there is specific information of the authorized equipment to be installed and operated, limits on air pollutants, and requirements on how to operate the equipment. A permit is an enforceable legal document, which includes emission limits and methods for determining compliance on a regular basis. It establishes monitoring, recordkeeping, and reporting requirements to ensure and verify compliance with the terms of the permit.

Conditions in Part A of the permit are Facility Specific Requirements, unique to the facility. They are site-specific and based on information provided in the application. Conditions in Part B of the permit are General Conditions and standard language which generally apply to all sources. Part C is also standard language about supporting online documents, definitions, and acronyms which apply to all sources.

A draft permit is a dynamic working document subject to updates throughout the review process. Draft Permit 7565M2 started with standardized language in an AQB permit template and standardized AQB monitoring protocols added as necessary for the sources of emissions and control devices at proposed facility. Unique permitting conditions for site specific operations and equipment, based on information provided in the application are added to customize accordingly.

Permit conditions establish ongoing testing and monitoring requirements for processes and pieces of equipment to ensure the equipment is operating in accordance with the permitted emission limits.

VIII. RESPONSES TO COMMENTS RECEIVED ON APPLICATION

The Air Quality Bureau received public comments on this application on May 20, 2021, during the 30-day comment period following publication of the Bureau's newspaper legal notice on April 20, 2021. **[AR No. 10, Bates 634-636]**. These comments were submitted by Wildearth Guardians. On June 9, 2021, the Bureau started the 30-day analysis period on the draft permit. On this day, the draft permit and draft Statement of Basis were sent directly to Wildearth Guardians. **[AR No. 48, Bates 888]**. On July 9, 2021, AQB received a second set of comments from Wildearth Guardians. **[AR No. 50, Bates 890]**. The following section presents the Bureau's responses to all comments submitted in either set of comments on this application in the format of the comment followed by the response from AQB. The comments are presented in the order of topic: public notice; startup, shutdown, maintenance, and malfunction emissions; inclusion of all point sources within the source; gas-actuated pneumatic controllers; environmental justice concerns; compliance with Toxic Air Pollutant (TAP) permitting; TCEQ emission factors in emergency flares calculations; proper assessment of the facility location; facility classification as major source for nitrogen oxide under Prevention of Significant Deterioration classification requirements triggered by excess emissions reporting; air quality regulatory compliance status of the facility; and; requirement from the facility to develop a startup, shutdown, and emergency operational plan. Responses regarding emissions from adjacent and surrounding sources; and submission of Title V operating permit applications will be presented by Kirby Olson and James Nellessen, respectively.

Responses to comments regarding air dispersion modeling are in the written testimony will be presented by the technical witnesses for the modeling section.

Comment: Despite the Department's revision to the public notice, we continue to have concerns about the adequacy of the public process regarding the public review of this proposed permit. For example, although the revised public notice was published in several local newspapers that had publication dates associated with them, the Department did not update the date of the revised public notice on its webpage. As a result, individuals who depend on the Department's webpage to understand when public comments on proposed air quality permits are due would have been unable to tell that NMED had reopened the public comment period for this permit and set a new comment deadline. The public notices for the proposed permit that the applicant published in different forms of media did not identify NMED's revisions to the public notice and maintained the requirement that comments would only be accepted in hardcopy writing mailed to NMED's offices. The application for this proposed permit does not indicate the revised public notice was published pursuant to NMED regulations. We request the Department update its legal notices for air quality permit proposals, so that future legal notices include a publishing date or comment deadline to inform the general public when comments must be submitted and when proposed permits have been reopened for public comment. For purposes of XTO's present permit application, we request the Department consider re-issuing the legal notice, with the addition of an explanation of how the public can submit comments via email, the date those comments are due, and provide another 30-day review period for members of the public to notify the Department of their interest. Although Guardians was able to use the publication date of the newspaper in which NMED's revised public notice was published to determine the new public comment deadline for the Maverick facility, other members of the public may have interpreted the comment deadline to have ended 30 days

from April 7, 2021, which is the publication date of the public notice for the Maverick facility currently listed on the Department's public notice webpage.

Response: The start date for an initial public notice begins on the day that the public notice appears in the newspaper [20.2.72.206.A.(3)]. The Bureau publishes notices and draft on its website as soon as practicable, but publication on the website does not start the 30-comment period. The text of the legal notice does not contain the date of the start of the comment period because once a notice is submitted the newspaper there is a window of several days in which the notice may publish. The exact date of publication is unavailable prior to submission of the final copy to the paper. The date on the paper in which the notice publishes is the start of the comment period. For this permit, the date of the start of the 30 day analysis period for comments on the draft, which is determined by when the Bureau sends the draft to interested persons who have commented on the public notice [[20.2.72.206.B(2)], was posted on the AQB website listed in red font above the links to the draft documents at https://www.env.nm.gov/air-quality/permit-applications-with-public-interest-public-meeting-or-public-hearing/. A citizen letter sent to commenters with the draft also informs them that the 30-day analysis period has begun.

Comment: We are similarly concerned that the annual 10 ton/year VOC limit for emissions resulting from the venting of gas due to malfunction is also unenforceable as a practical matter. Similar to our concerns above, while Condition A107.E requires calculation of VOC emissions based on inlet gas analysis and volume of gas vented, it is not clear how the volume of vented gas is actually measured during malfunctions.

Response: The malfunction condition requires tracking of the VOC emissions based on the inlet gas analysis (% VOC) and the volume of gas released during the malfunction. Malfunctions result in venting to depressurize the portion of the facility experiencing a malfunction. The volume is

calculated based on the gas volume within the equipment which is de-pressurized. The permit authorizes 10 tpy of malfunction to reduce the reporting of very small releases allowing the Department to focus on investigating malfunctions that result in large releases.

Comment: The annual SSM volatile organic compound (VOC) limit for venting from compressor and associated piping blowdowns is unenforceable as a practical matter as the permit does not require actual monitoring of vented VOC emissions during these SSM events. Although Condition A107.C requires a facility inlet gas analysis to be completed every year, it is unclear how this inlet gas analysis is used to calculate SSM VOC emissions. While the Condition seems to indicate that VOC emissions will be calculated based on the total gas vented in MMscf, it is not clear how the volume of gas vented during SSM is actually measured. There is no indication that a meter or other means of volumetric measurements will be utilized to actually accurately measure vented gas. In the list of equipment in Table 104.A, the SSM unit has no identified rated or permitted capacity that would indicate the volume of gas vented could actually be measured on an MMscf basis.

Response: For these SSM activities, the VOC releases are determined based on the gas composition, the volume of gas released during an activity, and the number of activities. For compressor blowdowns, the volume of gas from compressor blowdowns is based on the known interior gas volume within the compressor and the number of times the compressor blows down (releases pressure). Pigging equipment blowdowns are based on the amount of gas pushed out of the end of the line as the pig travels through a segment of gas line. The amount of gas is determined from the volume within the line being serviced and the gas composition. The same approach is used for other miscellaneous SSM activities. Because SSM represents various activities, SSM does not have a single volume or capacity. The volumes used in the calculations are based on

engineering knowledge of the individual equipment undergoing the startup, shutdown, or maintenance.

Comment: In addition, we are concerned that the SSM VOC limit for routing emissions to the reboilers is unenforceable as a practical matter because although the permit limits these emissions based on a maximum number of hours per year, that threshold does not ensure the annual VOC emission limit will not be violated. Here too, the associated permit conditions at A107.D do not clarify how VOCs from this emission unit will be measured or controlled to ensure compliance with the annual limit. The 0.0 tpy limit on SO2 also appears to create similar problems in this draft permit.

Response: Condition A107.D refers to SSM Flaring Emissions and it is not associated with the reboilers. Rather, Condition A107.F requires the number of hours per year that the DEHY-1 through DEHY-3 SSMs may be routed to the reboilers. The emissions are calculated based on inputting the maximum hourly emissions from the dehy still vent (flash and condenser vapors) to the reboiler. The combustion device destruction efficiency is assumed to be 70%. Since the maximum amount per hour from the dehydrator is used to calculate the hourly emissions from the reboiler for the SSM emission limit, restricting the number of hours does demonstrate compliance with the annual limit, which is 300 hours per year, combined for all three reboilers, as stated in condition A107F. The maximum possible per hour from the dehy is restricted by its capacity, and by the glycol circulation rate limit in condition A202B. Therefore, compliance with the emission limit for the routing of dehydrator emissions to the reboiler is demonstrated using conditions A107F and A202B.

Table 107A of the draft permit shows the SO2 emission limit for Dehydrator SSM as 0.0 tpy with one decimal place, or 0.03 tpy with two decimal places, as represented in the application. The total

hour restriction at maximum rate along with glycol pump circulation rate in Condition A202.B and the extended gas analysis and software analysis in Condition A202.A establishes the annual VOC and SO2 limits and are enforceable.

Comment: We are also concerned that the proposed permit does not include a limit on the number or duration of SSM flaring emissions to ensure compliance with applicable annual limits. Provision A107 of the proposed permit authorizes SSM flaring emissions in the form of hundreds of pound per hour of nitrogen oxide (NOx) emissions, volatile organic compound (VOC) and carbon monoxide emissions, but the permit does not restrict the frequency or duration of these emissions. Without any such restriction, the proposed permit authorizes SSM emissions beyond the yearly limits set forth at Condition A107 of the proposed permit, as well as beyond the facility's potential to emit. Indeed, based on the hourly limits in the permit, the facility has the potential to emit 2,094 tons/year of NOx, 4,182 tons of carbon monoxide, and 3,760 tons of VOCs. These emission rates are all above prevention of significant deterioration (PSD) major source thresholds, meaning XTO must apply for a PSD permit and cannot be issued the permit as proposed. Although we understand the presumption is that the annual limits set forth at Table 107.A will restrict SSM emissions, as a practical matter, with no limitation on the duration or number of instances of SSM emissions, this cannot be the case. While the permit may impose annual emission limits during instances of SSM, it also permits the facility to operate in a way that will exceed these limits. As a result, the annual SSM limits will not serve as an actual, enforceable limit to the Maverick Compressor Station's potential to emit.

Although we understand the presumption is that the annual limits set forth at Table 107.A will restrict SSM emissions, as a practical matter, with no limitation on the duration or number of instances of SSM emissions, this cannot be the case. While the permit may impose annual emission

limits during instances of SSM, it also permits the facility to operate in a way that will exceed these limits. As a result, the annual SSM limits will not serve as an actual, enforceable limit to the Maverick Compressor Station's potential to emit.

Response: Establishment of hourly emission limits in any permit does not imply that these emissions are permitted for every hour of the year. Both hourly and annual emission limits are enforceable in an air quality permit. The Bureau establishes hourly limits to ensure compliance with short-term air quality standards and annual emission limits to ensure compliance with long-term air quality standards. For the SSM flaring referred to in this comment, Condition A107D requires that the flare be operated in accordance with conditions A206A and A206B. The SSM flaring is done with the high-pressure side of the flare. Condition A206B requires that the flare operate with no visible emissions, which ensures the flare meets its 98% destruction efficiency. The recordkeeping section of condition A107D requires calculation of hourly and annual emissions using the gas analysis, volume of gas sent to the flare, and destruction efficiency of the flare. This recordkeeping section requires keeping spreadsheet of the emissions and maintaining "monthly rolling 12-month totals". These monthly rolling totals ensure that the annual limits are not exceeded during any 12-month period so compliance is demonstrated with annual emission limits.

Comment: Whether the proposed permit properly encompasses all point sources of pollution that are a part of the single source subject to permitting. We are concerned that the permit does not address a number of other pollutant-emitting activities that are part of the Maverick Compressor Station, including: Compressor engine blowdowns and/or maintenance activities; Pigging operations; and Liquid loadout operations. (Gas actuated pneumatic controllers addressed in comment below).

Response: Routine and predictable maintenance VOC venting activities, such as compressor engine blowdown and pigging, are represented in Table A107A, with a demonstration of compliance in Condition A107C. Condensate loadout operations are represented in Table A106.A, with a demonstration of compliance in Condition A203E.

Comment: We are concerned that XTO's application and the proposed permit does not address emissions from gas-actuated pneumatic controllers at the Maverick Compressor Station. Gas-actuated pneumatic controllers are point sources of air pollution and cumulatively release large amounts of VOC emissions. NMED must disclose the number of gas-actuated pneumatic controllers at the Maverick Compressor Station and estimate total VOC emissions from these pollutant emitting activities.

Response: The applicant, verified to AQB that all pneumatic controllers at their facility are run on 'instrument air". This means the pneumatic controller uses compressed air to activate and does not release any natural gas when it activates. Instrument air powered controllers are therefore not sources of regulated pollutants and there in no requirement to report them in an application for an air quality permit. At Maverick Compressor Station, there is an emergency system that would switch these controllers to using natural gas in emergency failure of instrument air. That case is not part of normal operations (covered by allowable emissions in Table 106A) nor SSM emissions (Table 107A limits) but represents a malfunction at the plant and the releases would be included under malfunction emissions accounted for in the permit or as excess emissions. The controllers qualify as "low bleed" under 40 CFR 60 Subpart OOOOa and would release no more than 6 standard cubic feet per hour under §60.5365a(d)(1) and §60.5390a(c)(1) when they were used during the emergency.

Comment: Finally, we also ask that the Department release its full analysis and review of the proposed permit modification because the application fails to explain or ensure: how the proposed permit modification and associated increase in air pollution will not disproportionately impact low-income communities and communities of color, pursuant to New Mexico Executive Order 2005-056.

Response: NMED policy 07-13, Public Participation delineates the approach used by NMED to address these concerns. For each permitting action, NMED uses the EPA EJSCREEN tool to evaluate demographic information for an area around the facility; the area is 4-miles except smaller within urbanized areas. Data from EPA EJSCREEN is evaluated by the permit writer and their manager to evaluate if any additional outreach needs to be done beyond the regulatory requirements. This assessment includes factors such as number of households, per capita income, percent of Linguistically Isolated Households, and percent minority population., Past involvement by the public in air permitting for the facility is also reviewed.

Comment: How the proposed permit modification will comply with toxic air pollutant permitting requirements at 20.2.72.400-499 NMAC, despite the likelihood that toxic air pollutants including cyclohexane, hexene, nonane, trimethylbenzene may be emitted as part of the applicant's VOC emission stream.

Response: Compressor Stations are not a gas processing plant or a refinery and, therefore, meet the definition of an oil and gas production facility, per 20.2.72.401.F NMAC. As an oil and gas production facility, it is exempt (in 20.2.72.402.C NMAC) to applicability and any requirements of 20.2.72.400 NMAC - 20.2.72.405 NMAC for toxic air pollutants.

Comment: The applicability of NOx and CO emissions for SSM/Emergency Flares (FL1-FL3) based on factors from the Texas Commission of Environmental Quality publication RG-360A/09;9.

Response: The Department has evaluated the TCEQ emission factors and determined that these factors are acceptable. TCEQ Emission Factors were used on NOx and CO calculations for the flares (Table A-6. TCEQ Air Permits Flare Emission Factors, page A-51 of 2009 Emission Inventory Guidelines RG-360A/09 January 2010 https://www.tceq.texas.gov/assets/public/comm_exec/pubs/rg/rg360/rg36009/rg-360a.pdf).

Comment: The error in XTO's application indicating the Maverick Compressor Station is not closer than 50 km to other states.

Response: AQB permit writers independently verify distances for the notifications that the Bureau sends. The state of Texas was identified as an affected party because of its proximity to the facility. On April 7, 2021, an email was sent to AIRPERM@tceq.texas.gov to notify the state of Texas of the NSR Construction Permit application received by the Department and publication of the legal notice. **[AR No. 8, Bates 630]**

Comment: The Department must assess whether recently reported excess emissions at the Maverick Compressor Station have now made the facility an actual major source for nitrogen oxide emissions under Prevention of Significant Deterioration requirements. If the facility is currently a major source for NOx, then the proposed modification would represent a major modification because it would lead to a more than 40 ton/year increase, triggering the requirement for XTO to obtain a major source permit for the modification.

Response: AQB reviewed initial and final excess emission reports submitted by XTO for Maverick Compressor Station. on October 16, 2020, a malfunction event of a compressor unit was

reported to AQB within a business day of the discovery. On October 15, 2020, it was discovered an internal flight inspection detected possible excessive emission. An operator was sent to locate and investigate detection site. The final excess emissions report states there were not reportable amounts because no emission limits were exceeded. A second incident corresponding to December 31, 2020, was discovered on March 24, 2021, and reported to AQB on March 25, 2021. The incident involved flares 1, 2, and 3. and a possible exceedance of the 2020 annual emission limit for NOX and CO. After further investigation, the final excess emission report states that no exceedance had occurred. **[AR No. 40, Bates 859-869]**

Comment: Guardians requests that NMED explain whether XTO's Maverick facility is in compliance with the laws and rules that govern its air quality permitting. This facility was first permitted in 2018, but as of June 9, 2021 NMED had not been able to verify the facility's compliance and enforcement status, according to the Department's Statement of Basis.

Response: The Statement of Basis language indicates that the AQB Compliance and Enforcement Section has not yet responded to the permitting Section's request for the compliance status of the facility at the time the DRAFT Statement of Basis was released. However, a response from the Compliance section was received on July 20, 2021, with the following statement: "*There is no outstanding notice of violation and no settlement agreement for which all actions have not been completed."* **[AR No. 29, Bates 827-828]**. All final enforcement actions are maintained in AQB's electronic database and reviewed prior to the issuance of the permit. This review ensures that any permitting requirements associated with resolution of any violations or investigations are addressed in the permit before it is issued.

Comment: Why the permit requirement to develop a startup, shutdown, and emergency operational plan according to 20.2.70.300.D(5)(g) NMAC is not applicable to the Maverick

facility, as indicated by NMED's Statement of Basis. In other NMED Statement of Basis regarding similar facilities, the Department has not indicated this requirement is not applicable.

Response: At the time the Statement of Basis was drafted, the Maverick Compressor Station had not yet submitted the Title V application and therefore, "NA" was indicated in response to the requirement to develop a startup, shutdown, and emergency operational plan according to 20.2.70.300.D(5)(g) NMAC. The department received a TV application for the facility on June 24, 2021, and the application indicates that the facility has developed a startup, shutdown, and emergency operational plan according to 20.2.70.300.D(5)(g) NMAC. The Statement of Basis will be updated to reflect this information.

IX. CONCLUSION

The Bureau has completed a technical review of this application. The facility, as represented in the application, demonstrates compliance with all federal and state regulations. The facility's operations, as represented in this application, do not cause nor significantly contribute to any exceedances of applicable air quality standards. These results are based on the modeling analysis and emissions calculations for Carbon Monoxide (CO), Nitrogen Dioxide (NO2), Particulate Matter 10 micrometers or less in aerodynamic diameter (PM10), Particulate Matter (2.5 microns or less) (PM2.5), and Sulfur Dioxide (SO2). The comments received by the Bureau on this permit have been responded to in this testimony. The responses demonstrate that the comments do not raise any substantive issues that indicate this permit should not be issued. The permit complies with all air quality regulations and contains demonstrations of compliance for all conditions and emission limits to ensure Ambient Air Quality Standards. The Air Quality Bureau recommends that the Secretary uphold the Department's decision to approve issuance of this Permit.

Julia Kuhn, 525 Camino de Los Marquez, Santa Fe, NM 87505, (505) 629-2893, julia.kuhn@state.nm.us

Summary*:* Experienced, goal oriented, professional with over 16 years in the biotechnology industry, public health, and environmental sciences.

Education:

Masters of Science, Biology w/concentration in Biotechnology-University of California, Irvine-2005

Bachelor of Science, Biology-University of California, Irvine-2003

Experience:

New Mexico Environment Department-Air Quality Bureau: 2018-present

Technical and regulatory review of air quality permit applications, emissions calculations/verifications, application of state and federal regulations, issue of legally enforceable air quality permits, use of standardized templates and protocols to process air quality applications, various stakeholder coordination during application review process, and special assignments to achieve the goals of the Air Quality Bureau.

Cereon Biotechnology: 2014-2018

Overview: Cereon seeks to identify promising botanicals of the boreal forest and arctic tundra in order to generate novel proprietary derivative compounds, as well as functional foods to blunt inflammatory and oxidative stress prevalent in the aging brain and diseased central nervous system, with the goal to protect and repair, or salvage cognitive abilities.
Technical Skills: variety of cell-based assays with SH-SY5Y neuroblastoma cells including ROS production measurements upon stressor and compound treatments, lipid peroxidation using TBAR assay, viability/cytotoxicity assessment after compound treatments, antioxidant capacity of botanical extracted compounds, protein complex assembly/functionality assessment, and actin rod formation using dissociated hippocampal neurons. Accurate notebook keeping and documentation, data analysis, reporting experiments usually in Excel format, creating detailed SOP's and Power Point presentations.

University Fairbanks, Alaska: 2015-2018

Overview: Nanodics technology can be used in a cell free system to integrate the membrane protein, NADPH Oxidase (NOX2). Nanodics consist of the scaffold protein MSP1E3D and various lipids. Lipids ratios can be changed to manipulate the lipid bilayer in order to determine how membrane architecture affects NOX2 activity.
Technical Skills: molecular biology techniques including plasmid preparation, transformations, DNA extraction, agarose gel electrophoresis, Western Blot, SDS-PAGE. Protein biochemistry techniques such as protein expression and purification by size exclusion chromatography and his-tagged. Cell culture techniques and cell-based assays. Accurate note-keeping and documentation, data analysis and experiment report usually in Excel format, creating detailed SOP's and Power Point presentations.

Fairbanks North Star Borough-Air Quality Division: 2014-2015

Overview: The EPA designated parts of the Fairbanks North Star Borough, as areas of non-attainment for the 24-hour PM2.5 air quality standard. Fairbanks sits in a valley surrounded by hills and it is susceptible to temperature inversions, in which layers of cold air and pollutants are trapped close to the ground. This type of temperature inversions can last for days or even weeks at a time, leading to periods of poor air quality.
Technical Skills: operation of DataRAM4000 air monitor integrated with GPS and temperature probes for PM2.5 data collection and data analysis utilizing GIS. Additionally, I provide technical and administrative support within the Division such as air quality studies, programs, public education, complaints, and assistance with implementation of the State Air Quality Improvement Program. Revising and formatting old SOPs as well as writing and establishing new SOPs. ArcGIS I and ArcGIS II certified.

Gevo, Inc.: 2011-2014

Overview: Gevo aims to convert renewable raw materials into isobutanol utilizing molecular engineering and biotechnology.
Technical Skill: Characterization of enzyme activity in metabolic pathways by kinetics and endpoint assays utilizing spectrophotometric or HPLC readout, analysis of cell pellets from fermentations for protein levels and activity of relevant enzymes, protein purification, organizing the execution of in-house customer sample submissions, measurements and interpretation of kinetics data, assay development, optimization, establishing, updating and publishing SOPs and formal reports, proper recording and documentation, reviewing/reporting experiments and resulting data, basic microbiology and molecular biology techniques, accurate preparation of reagents.

Alaska State Virology Lab (ASVL): 2009-2011

Overview: The ASVL utilizes molecular biology, virology, and immunology techniques to test for infectious viral diseases. The ASVL is a high complexity CLIA accredited facility and uses sophisticated equipment and specialized confirmatory testing. Some of the many viruses handled at the facility are HIV, hepatitis, rabies, herpes, adenovirus and enterovirus, norovirus, influenza and many other respiratory viruses.
Technical skills: robotics immunoassays and automated molecular platforms for high testing volume, as well as non-automated ELISAs for diagnoistic antibody/antigen detection, viral RNA extractions, RT-PCR antigen detection, amplicor qualitated hybridization assay (HCV). IFA/DFA and other viral isolation utilizing cell culture infections, microscopic analysis and other virology standard techniques. Proficient in BSL-2 and BSL-3 practices. Reviewed records and released sensitive documentation to providers in addition to direct communication with public health agencies and professionals.
Other Responsibilities: ASVL safety officer.

MannKind Corporation: 2007-2009

Technology Overview: Discovery in development of therapeutic drugs in the field of metabolic disorders and oncology.

Technical Skills: Cell-based assay development in drug discovery. All aspects of molecular biology, biochemistry, and cell biology includes RNA studies, protein expression/signaling studies, cell proliferation, apoptosis and cytotoxicity assays. RNA isolation/purification from cell lysis, RT-PCR and Real Time PCR. Also, High-throughput screening of small molecules library (Beckman Coulter Biomek FX robot) and IC^{50} assays of thio and non-thio kinases.
Other Responsibilities: cell-line maintenance, protein lysis/quantification by BCA, SDS-PAGE, Western Blotting, RNA isolation, RT-PCR, DNA electrophoresis, ELISA assays, data analysis, ongoing research presentations (PowerPoint format), purchasing, solution preparation, and general lab duties.

Xencor, Inc: 2006-2007

Technology Overview: Structural and functional optimization of monoclonal antibodies by Fc domain engineering to improve binding affinity and potency of antibodies against tumor cells.
Technical Skills: All aspects of molecular cloning: primer design, quickchange mutagenesis, cut-paste ligation, PCR ligation, DNA extraction/purification, gel quantification, DNA electrophoresis, DNA preps and sequencing, TempliPhi-PCR, sequence clean-up, sequence analysis (Sequencher, Vector NTI), Protein A purification of antibody and receptor purification of GST-fusion and His-tagged proteins. SDS-PAGE,Western Blotting, protein concentration by centrifugation, dialysis, and protein quantification by BCA.

ViaCyte (formerly Novocell, Inc.) 2005-2006

Technology Overview: The coating of islets (insulin-producing cells) with Polyethylene glycol (PEG) technology enables implanted cells to survive subcutaneously. Release of insulin through the porous PEG coating regulates glucose levels in Type 1 diabetic patients and eliminates the need for immunosuppressant drugs upon implantation.
Technical Skills: Human pancreatic islets isolation/encapsulation for cGMP human clinical trials. Tissue/cell maintenance for clinical and research projects. Aseptic gowning/technique and processes in clean room environment (ISO 5, ISO 6, and ISO 7). Prepare/revise SOP's and batch records for Phase I/II Clinical Trials. Familiar with cGMP, GLP and GTP compliance guidelines.

University of California, Irvine-2000-2005

Department of Medicine/Biological Chemistry-Bogi Andersen MD.
Student Researcher: Functional Biology of LMO4 in Breast Cancer.
Project Description: Knockdown of LMO4 expression using short hairpin siRNA constructs transfected into T47D breast cancer cells inhibits cells proliferation. Technical Skills: cloning, transformations, DNA-preps, Western blotting, cell culture, transfections, RNA extraction, RT-PCR, colony formation assays, and soft-agar colony formation assays. Other Technical Skills: luciferase assays, DNA-extractions, genotyping, PCR, histology/staining, light microscopy.

Molecular Biology and Biochemistry Department-Alex McPherson PhD.
Student Researcher: Structural Analysis of TY3.
Project Description: To crystallize the major structural proteins, capsid, nucleocapsid, as well as reverse transcriptase and protease of the TY3 virus by cloning their corresponding encoding genes into expression vectors for protein expression and purification in order to solve their crystal structure at high resolution level using standard x-ray diffraction crystallography. Technical Skills: cloning into cloning vectors, cut/paste into expression vectors, site-directed mutagenesis, DNA-preps, DNA electrophoresis, protein expression using E. coli systems, OD monitoring using spectrophotometer, cells lysis with the use of French-press or sonicator, SDS-PAGE, FPLC (ATKA) operation (affinity chromatography and ion exchange), and dialysis. Other Technical Skills: some exposure to isoelectric focusing combined with SDS-PAGE, capillary electrophoresis, x-ray diffraction and data collection utilizing a synchrotron light source (ALS, Berkeley, CA).

Molecular Biology and Biochemistry Department-Hartmut Luecke PhD.
Student Researcher: Functional Analysis of Calretinin.
Project Description: Expression and purification of Calretinin with the purpose to screen for protein crystallization. Crystals can then be tested using standard methods in x-ray crystallography to solve the structure of Calretinin at high resolution level. Technical Skills: competent cells preparation, transformations, protein expression using E. coli systems, monitoring OD using spectrophotometer, cells lysis with the use of French-press, SDS-PAGE, FPLC (AKTA) (affinity chromatography and size exclusion), dialysis, and crystal growth screening. Other Technical Skills: some exposure to DLS, HPLC, and mass spectrometry.

Teaching Assistant, UCI Molecular Biology & Biochemistry Department
Assignment: General Microbiology Lab: growing a population of organisms and purifying a single organism utilizing media manipulation and biochemistry techniques to identify the isolated organism.
Evaluated lab reports, exams and course work. Assisted students to understand microbiology concepts and experiments, experimental techniques, data analysis, literature searching, reading, scientific writing and presentations.

Coursework:

Protein Struct. & Function
Recombinant DNA tech.
Struct. Biosyn. Nuc. Acids
Adv. Immunology lab
Cancer Development & Clinical cancer
Molecular Bio. & Biochem.
Dev. & Cell Bio.
Eukaryotic genes
Microbio/Pathogen

Other Skills:

Proficient in Microsoft Word, Word Perfect, PowerPoint, Excel, Imaging programs, and Internet navigation
Bilingual: English/Spanish

STATE OF NEW MEXICO
BEFORE THE SECRETARY OF ENVIRONMENT

IN THE MATTER OF THE APPLICATION
OF XTO ENERGY, INC. - WILDCAT COMPRESSOR STATION
FOR AN AIR QUALITY PERMIT **AQB 21-35**

TECHNICAL TESTIMONY OF MELINDA OWENS

I. INTRODUCTION

My name is Melinda Owens. I am the Title V Permit Program Manager of the Permitting Section of the Air Quality Bureau ("AQB" or "Bureau") of the New Mexico Environment Department ("NMED" or "Department"). Congress established the Title V Operating Permit Program as part of the 1990 Clean Air Act Amendments. The program was designed to standardize air quality permits and the permitting process for major source facilities across the country. A very brief definition of major source is a facility that directly emits or has the potential to emit, 100 or more tons per year of any air pollutant subject to regulation, or a facility that emits 10 tons or more per year of any single hazardous air pollutant (HAPs) and/or 25 or more tons per year of any combination of HAPs which has been listed pursuant to Section 112 (b) of the federal act.

I present this written testimony on behalf of the Department for the public hearing on the permit application submitted by XTO Energy, Inc. ("XTO") for their Wildcat Compressor Station. ("Original Application (7474M2)" and "Original Application Section 1" and "Revised Application Pages").

My testimony will address the following topics: my qualifications, a summary of Application 7474M2, my administrative review of Application 7474M2, the technical review of Application 7474M2, AQB's public outreach efforts throughout various stages of this permitting action, and the responses to comments received on the 2021.03.02 version of Draft Permit 7474M2 for the proposed XTO facility modification.

II. QUALIFICATIONS

I have been an employee of the Bureau for approximately fourteen years, working as a Permit Specialist for seven years, then as the TV Permit Program Manager for seven years. As a Permit Specialist and Permit Manager, I perform technical and regulatory review of complex Air Quality Bureau permit applications within regulatory deadlines. I verify emissions calculations; determine applicable state regulations and federal regulations; coordinate with various stakeholders including the public, industry, consultants, and AQB staff; write legally enforceable air permits and technical support documents for the administrative record; enter data into the AQB database; and complete various special projects to achieve AQB goals. Over my 14 years at AQB, I have worked on NSR and TV permitting actions for the Bureau and trained new staff and reviewed their permit documents for various permitting action types, regulations, and Bureau policies.

My full background and qualifications are set forth in my resume. **[NMED Exhibit 35]**.

III. SUMMARY OF APPLICATION 7474M2

XTO's Wildcat Compressor Station is presently located at 615200 m UTME, 3563470 m UTMN, Datum NAD83, approximately 17 miles east of Malaga, in Eddy County. New Mexico. With this application, XTO proposes the following: revising engine emissions rates, removing 2 heaters, removing 2 engines, decrease glycol dehydrator reboiler capacities, increase flare purge gas rate, update condensate tank throughput, water tank throughput, condensate truck loading, adding 2 vapor recovery units, revising steady state flaring associated with revised tank throughputs, adding Startup Shutdown and Maintenance (SSM) flaring, addition Malfunction venting, and increasing flare heights. The facility is currently permitted under NSR 7474-M1, issued February 6, 2019. **[AR No. 1, Bates 001-052]**. The new permit would update conditions

and requirements for monitoring, testing, recordkeeping, and reporting.

IV. ADMINISTRATIVE REVIEW

Application 7474M2 was received by the New Mexico Environment Department on June 8, 2020. Pursuant to 20.2.72.207(A) NMAC, the Department had 30 days to review the application and determine whether it was administratively complete. **[AR No. 2 & 3 , Bates 052-234]**. The application was revised on November 8, 2020. **[AR No. 4, 5, & 6, Bates 235-242]**.

The administrative review of an application is not a technical review, but a review of the presence of the required parts of the application, including the applicant's modeling analysis and the applicant's proof of public notice. All required contents of the application are listed in 20.2.72.203 NMAC. Upon receipt of the Application 7474M2, I provided the applicant's modeling files to the assigned AQB Modeling Manager, Mr. Sufi Mustafa, for assignment. On July 6, 2020, Mr. Mustafa sent me an e-mail confirming Application 7474M2 could be ruled complete from a modeling perspective. **[AR No. 7, Bates 243-245]**. The modeling for this project was assigned to Ms. Angela Raso.

After I calculated the permit fee for XTO's application 7474M2 based on fee units in 20.2.75 NMAC and applicable regulations, AQB's administrative staff generated an invoice for the permit fee. On July 8, 2020, I ruled application 7474M2 administratively complete. **[AR No. 8, Bates 246-252]**. I sent the completion determination letter, including a copy of the Department's Legal Notice, and the invoice for the permit fee to the applicant on July 8, 2020. **[AR No. 9, Bates 253]**. On July 6, 2020, I sent the Department's Legal Notice and Affected Party letter to the State of Texas, as required by regulation. **[AR No. 10, Bates 254]**. The Department's Legal Notice was posted on the AQB website on July 7, 2020 and published in the *Carlsbad Current Argus* on July 17, 2020. **[AR No. 11, Bates 255-257]**. New Energy Economy, Sierra Club: Rio Grande Chapter,

Western Environmental Law Center, and WildEarth Guardians submitted first comments on July 27, 2020. **[AR No. 12, Bates 258-264]**. The first citizen letter was sent to WEG August 8, 2020 and the application and public notice was placed on the AQB website for Permit Applications with Public Interest, Public Meetings, or Public Hearing the same day. **[AR No. 13, Bates 265-268]**. A final permit was issued February 19, 2021, followed by a citizen letter to WEG that the permit had been issued on February 26, 2021. **[AR No. 14, Bates 269-270]**. The permit issuance was withdrawn March 3, 2021 because a proper legal second 30-day comment period was missed. **[AR No. 15, Bates 271]** A second 30-day comment period commenced on March 2, 2021, with a posting on the AQB and an email to WEG with all of the draft permit documents. **[AR No. 16, Bates 272]**. WEG subsequently submitted a second round of comments on the draft permit and analysis on April 1, 2021. **[AR No. 17, Bates 273-277]**.

V. TECHNICAL REVIEW

I began the technical review of XTO's application 7474M2 after I determined it was administratively complete. The technical review requires verification of emissions calculations and a determination of applicable federal regulations and state regulations.

I verified emissions calculations by confirming the correct emission factors and formulas were used in calculating emissions for all sources. If methods were unclear, I asked the consultant for further explanation or updates, as necessary. Also, I verified the emissions totals from the calculations matched the emissions totals in Section 2 of the application.

I requested some of these updates while doing an initial review of calculations. I requested other updates if discrepancies in the application became apparent while writing Draft Permit 7474M2. The Department has reviewed the emission calculations submitted in the application for all regulated equipment and the emission factors relied upon in those calculations. The facility

emissions were calculated using Excel spreadsheets using manufacturer's data sheet emission factors, TCEQ emission factors, or US EPA's AP-42 Compilation of Air Emission Factors, including EPA's Protocol for Equipment Leak Emission Estimates (EPA-453/R-95-017), as well as oil and gas industry software.

The emission factors used in the calculations are appropriate for this source type and are, thus, approved by the Department. The approved calculated emission rates were used as inputs into the Department's air dispersion modeling analysis. The air dispersion model predicts concentrations of the National Ambient Air Quality Standards (NAAQS) based upon the approved emission rates.

I summarized my review in the Statement of Basis (SOB). **[AR No. 18, Bates 278-285].** The Statement of Basis is a permitting record that includes a description and history of the facility, public response received by the Department, a regulatory compliance discussion, and unique conditions in the permit. The SOB contains the conclusion of the AQB modeling report and review. **[AR No. 44, Bates 512-520]**

VI. PUBLIC OUTREACH

Once the public notice was published, interested persons were allowed thirty (30) days to express an interest in writing in the permit application per 20.2.72.206(A)(5) NMAC. The public notice was published in the newspaper on July 17, 2020 and the end of the 30-day comment period was August 16, 2020. **[AR No. 11, Bates 255-257]**. The initial New Energy Economy, Sierra Club: Rio Grande Chapter, Western Environmental Law Center, and WildEarth Guardians comment letter was received by the Department July 27, 2020. **[AR No. 12, Bates 258-264]**. Upon completion of the analysis and draft permit, the documents were published on the AQB website for "Permit Applications with Public Interest, Public Meeting, or Public Hearing" on March 2,

2021. **[AR No. 18, 19, & 20, Bates 278-285, 286-335, 336-345]** On March 2, 2021, the second citizen letter and a copy of the permit documents were emailed to WEG. **[AR No. 16, Bates 272]** This started the second 30-day comment period. The Department received additional comments from WEG on April 1, 2021. **[AR No. 17, Bates 273-277]**.

VII. BASIS FOR PERMIT CONDITIONS

The Department's authority to include conditions in an Air Quality permit is stated in 20.2.72.210 NMAC. If a permit is issued, it will specify what equipment is authorized to be installed and operated, will place limits on air pollutants, and place requirements on how equipment will be operated. A permit is an enforceable legal document, and will include emission limits, methods for determining compliance on a regular basis, and will place monitoring, recordkeeping, and reporting requirements to ensure and verify compliance with the requirements of the permit.

Conditions in Part A of the permit are Facility Specific Requirements, unique to the facility. They are site-specific and based on information provided in the application. Conditions in Part B of the permit are General Conditions and standard language which generally apply to all sources. Part C is also standard language about supporting on-line documents, definitions, and acronyms which apply to all sources.

A draft permit is a dynamic working document subject to updates throughout the review process. Draft Permit 7474M2 utilizes standardized language in an AQB permit template and standardized AQB monitoring protocols, added as necessary for the sources of emissions and control devices at XTO's proposed modified facility.

Permit conditions establish ongoing testing and monitoring requirements for processes and pieces of equipment to ensure the equipment is operating in accordance with the permitted emission limits.

VIII. RESPONSES TO COMMENTS RECEIVED ON APPLICATION

The Air Quality Bureau received public comments on this application on July 27, 2020 during the 30-day comment period following publication of the Bureau's newspaper public notice on July 17, 2020. **[AR No. 11, Bates 255-257]**. These comments were submitted by New Energy Economy, Sierra Club: Rio Grande Chapter, Western Environmental Law Center, and WildEarth Guardians. **[Id.]**. On March 2, 2021 the Bureau started the 30-day analysis period on the draft permit. The draft permit and draft Statement of Basis were sent directly to Jeremy Nichols at WildEarth Guardians. **[AR No. 16, Bates 272, 286-336, 335-345]**. On April 1, 2021 AQB received a second set of comments from Matt Nykiel at WildEarth Guardians. **[AR No. 17, Bates 273-277]**. The following section presents the Bureau's responses to all comments submitted in either set of comments on this application in the format of the comment followed by the response from AQB. The comments are presented in the order of topic: public notice; startup, shutdown, maintenance (SSM), and malfunction emissions; gas-actuated pneumatic controllers; and environmental justice concerns. Responses to comments regarding air dispersion modeling are in the written testimony presented by the technical witnesses for the modeling section. Questions and concerns about meeting 8-hour ozone NAAQS and recently monitored ozone design values in southeast New Mexico are being addressed in the Ozone Attainment Initiative and draft new rule 20.2.50 NMAC going to hearing before the Environmental Improvement Board on September 20, 2021.

Comment: We note that the Department's Legal Notice and Preliminary Determination for an Air Quality Permit for XTO Energy Inc., published on July 7, 2020, limited public comment

submissions to mailing hardcopy comments to NMED's physical address. Due to the COVID-19 pandemic and New Mexico's public health emergency order, some members of the public may have had health risk factors that precluded them from obtaining postage and submitting comments to the Department at the address provided in the legal notice. The omission of instructions for how the public could submit comments electronically and an explanation that the Department would accept comments in this format may well have prevented or dissuaded some members of the public with health risks from commenting and informing the Department's review of this permit application.

At minimum, we request the Department update its legal notices for air quality permit proposals, so that future legal notices include an email address for comment submissions, in recognition of the public health risks of COVID-19. For purposes of XTO Energy Inc.'s present permit application, we request the Department consider re-issuing the legal notice, with the addition of an explanation of how the public can submit comments via email, and provide another 30-day review period for members of the public to notify the Department of their interest. Although WildEarth Guardians figured out that e-mailing comments was acceptable, other members of the public may not have the experience or expertise to understand that this option exists. A sufficient legal notice is critical for ensuring NMED effectively informs and engages the public, provides a meaningful opportunity for the public to weigh in, and meets its environmental justice objectives under Executive Order 2005-056.

Bureau's Response: The applicant's public notice met all regulatory requirements in 20.2.72.203.C and the requirements in the AQB Public Notice Guidelines. Applicant public notices are conducted prior to submission of the application to the Bureau. At that time, a permit writer had not been assigned and therefore their email address cannot be included in the applicant's

notice. While the standard text for the applicant's notice states that comments should be submitted in writing, it also provides a toll-free phone number that would allow any interested party to reach the Bureau with questions. That provides an opportunity to register an objection or concern to mailing comments, and to request an alternative submission method. No phone calls making such a request were received on this permit. In addition, AQB's re-publication of the public notice for several other permits did not generate any additional public interest from any other party for those permits. That result on the other permits indicates that WildEarth Guardians assertion that the omission of an email address prevented other interested parties from providing comment is unlikely to be correct.

Comment: We are similarly concerned that the annual 10 ton/year VOC limit for emissions resulting from the venting of gas due to malfunction is also unenforceable as a practical matter. Similar to our concerns above, while Condition A107.E requires calculation of VOC emissions based on inlet gas analysis and volume of gas vented, it is not clear how the volume of vented gas is actually measured during malfunctions.

Response: The malfunction condition requires tracking of the VOC emissions based on the inlet gas analysis (% VOC) and the volume of gas released during the malfunction. Malfunctions result in venting to depressurize the portion of the facility experiencing a malfunction. The volume is calculated based on the gas volume within the equipment which is de-pressurized. The permit authorizes 10 tpy of malfunction to reduce the reporting of very small releases allowing the Department to focus on investigating malfunctions that result in large releases.

Comment: We are also concerned that the proposed permit does not include a limit on the number or duration of SSM flaring emissions to ensure compliance with applicable annual limits. Provision A107 of the proposed permit authorizes SSM flaring emissions in the form of hundreds

of pounds per hour of nitrogen oxide (NOx) emissions, volatile organic compound (VOC) and carbon monoxide emissions, but the permit does not restrict the frequency or duration of these emissions. Without any such restriction, the proposed permit authorizes SSM emissions beyond the yearly limits set forth at Condition A107 of the proposed permit, as well as beyond the facility's potential to emit.

Indeed, based on the hourly limits in the permit, the facility has the potential to emit 1,697 tons/year of NOx, 3,390 tons of carbon monoxide, and 3,184 tons of VOCs. These emission rates are all above prevention of significant deterioration (PSD) major source thresholds, meaning XTO Energy must apply for a PSD permit and cannot be issued the permit as proposed.

Although we understand the presumption is that the annual limits set forth at Table 107.A will restrict SSM emissions, as a practical matter, with no limitation on the duration or number of instances of SSM emissions, this cannot be the case. While the permit may impose annual emission limits during instances of SSM, it also permits the facility to operate in a way that will exceed these limits. As a result, the annual SSM limits will not serve as an actual, enforceable limit to the Wildcat Compressor Station's potential to emit.

Bureau Response: Establishment of hourly emission limits in any permit does not imply that these emissions are permitted for every hour of the year. Both hourly and annual emission limits are enforceable in an air quality permit. The Bureau establishes hourly limits to ensure compliance with short-term air quality standards and annual emission limits to ensure compliance with long-term air quality standards. For the SSM flaring referred to in this comment, condition 107C requires that the flare be operated in accordance with conditions A206A, B, and C. The SSM flaring is done with the high-pressure side of the flare. For this side of the flare, condition A206C monitoring requires that a flowmeter be installed to measure and record the volume of gas going

to the flare. Condition A206A requires that the flare operate with no visible emissions, which ensures the flare meets its 98% destruction efficiency. The recordkeeping section of condition A107C requires calculation of hourly and annual emissions using the gas analysis, volume of gas sent to the flare, and destruction efficiency of the flare. This recordkeeping section requires keeping spreadsheet of the emissions and maintaining "monthly rolling 12-month totals". These monthly rolling totals ensure that the annual limits are not exceeded during any 12-month period, so compliance is demonstrated with annual emission limits.

Comment: To begin with, the annual SSM volatile organic compound (VOC) limit for venting from compressor blowdowns, pigging equipment blowdowns, and miscellaneous SSM activities is unenforceable as a practical matter as the permit does not require actual monitoring of vented VOC emissions during these SSM events. Although Condition A107.D requires a facility inlet gas analysis to be completed every year, it is unclear how this inlet gas analysis is used to calculate SSM VOC emissions. While the Condition seems to indicate that VOC emissions will be calculated based on the total gas vented in MMscf, it is not clear how the volume of gas vented during SSM is actually measured. There is no indication that a meter or other means of volumetric measurements will be utilized to actually accurately measure vented gas. In the list of equipment in Table 104.A, the SSM unit has no identified rated or permitted capacity that would indicate the volume of gas vented could actually be measured on an MMscf basis.

Bureau Response: For these SSM activities, the VOC releases are determined based on the gas composition, the volume of gas released during an activity, and the number of activities. For compressor blowdowns, the volume of gas from compressor blowdowns is based on the known interior gas volume within the compressor and the number of times the compressor blows down (releases pressure). Pigging equipment blowdowns are based on the amount of gas pushed out of

the end of the line as the pig travels through a segment of gas line. The amount of gas is determined from the volume within the line being serviced and the gas composition. The same approach is used for other miscellaneous SSM activities. Because SSM represents various activities, SSM does not have a single volume or capacity. The volumes used in the calculations are based on engineering knowledge of the individual equipment undergoing the startup, shutdown, or maintenance.

Comment: We are concerned that XTO's application and the proposed permit does not address emissions from gas-actuated pneumatic controllers at the Wildcat Compressor Station. Gas-actuated pneumatic controllers are point sources of air pollution and cumulatively release large amounts of VOC emissions. NMED must disclose the number of gas-actuated pneumatic controllers at the Wildcat Compressor Station and estimate total VOC emissions from these pollutant emitting activities.

Bureau Response: The applicant, XTO Energy, Inc. verified to AQB through email that all pneumatic controllers at their facility are run on 'instrument air". This means the pneumatic controller uses compressed air to activate and does not release any natural gas when it activates. Instrument air powered controllers are therefore not sources of regulated pollutants and there in no requirement to report them in an application for an air quality permit. At the Wildcat Compressor Station, there is an emergency system that would switch these instrument air controllers to using natural gas in emergency failure of instrument air. That case is not part of normal operations (not covered by allowable emissions in Table 106.A) nor SSM emissions (Table 107A limits) but represents a malfunction at the plant and the releases would be required for inclusion under malfunction emissions accounted for in the permit or as excess emissions. The natural gas actuated controllers qualify as "low bleed" under 40 CFR 60 Subpart OOOOa and would release no more

than 6 standard cubic feet per hour under §60.5365a(d)(1) and §60.5390a (c)(1) if they were used during the emergency.

Comment: Lastly, Guardians requests that NMED provide an explanation for how the proposed permit modification and associated increase in air pollution will not disproportionately impact low-income communities and communities of color, pursuant to New Mexico Executive Order 2005-056. Guardians was unable to identify a discussion of these considerations in the documents NMED released in support of the proposed permit.

Bureau Response: NMED policy 07-13, Public Participation delineates the approach used by NMED to address these concerns. For each permitting action, NMED uses the EPA EJSCREEN tool to evaluate demographic information for an area around the facility; the area is a 4-mile circle around the facility except smaller within urbanized areas. Data from EPA EJSCREEN is evaluated by the permit writer and their manager to evaluate if any additional outreach needs to be done beyond the regulatory requirements. This assessment includes factors such as number of households, per capita income, percent of Linguistically Isolated Households, and percent minority population., Past involvement by the public in air permitting for the facility is also reviewed.

IX. CONCLUSION

The Bureau has completed a technical review of this application. The facility, as represented in the application, demonstrates compliance with all federal and state regulations. The facility's operations, as represented in this application, do not cause nor significantly contribute to any exceedances of applicable air quality standards. These results are based on the modeling analysis and emissions calculations for Carbon Monoxide (CO), Nitrogen Dioxide (NO2), Particulate Matter 10 micrometers or less in aerodynamic diameter (PM10), Particulate Matter (2.5

microns or less) (PM2.5), and Sulfur Dioxide (SO2). The comments received by the Bureau on this permit have been responded to in this testimony. The responses demonstrate that the comments do not raise any substantive issues that indicate this permit should not be issued. The permit complies with all air quality regulations and contains demonstrations of compliance for all conditions and emission limits to ensure compliance with Ambient Air Quality Standards. The Air Quality Bureau recommends that the Secretary uphold the Department's decision to approve issuance of this Permit.

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Biography

I was hired in July 2007 by the Air Quality Bureau Permitting Section in July 2007. Over the next 7 years, the complexity of permit applications gradually increased while I issued Notices of Intent, General Construction Permits (GCP) for the construction trade, GCP relocations, initial and modifying New Source Review (NSR) Permits, and initial and modifying TV Operating Permits. In August 2014 I was promoted to the TV Permit Program position. Since then, I have managed 4 permit writers and reviewed all of their Major Source NSR and TV permits.

Technical Skills

- Proficient with Microsoft Word & Excel
- Skilled with a variety of air quality software applications
- Experienced interpretation of New Mexico Administrative Code, Chapter 2-Air Quality
- Knowledge of Code of Federal Regulations, particularly 40 CFR 60 and 40 CFR 63

Experience

New Mexico Environment Department – Air Quality Bureau July 2007 – present
Santa Fe, NM
TV Permit Program Manager

- Established and implemented organizational goals, objectives, and procedures for the Permitting Section and for the Air Quality Bureau
- Collaborated with other Air Quality Bureau environmental scientists and specialists on various air quality issues, such as enforcement, compliance, interpretation of federal and state regulations and how to implement them
- Provide leadership and direction for permitting staff, helping to establish goals and objectives, and when necessary, employee improvement plans
- Prepare and conduct all employee interim and annual evaluations on time. Meet all deadlines on hiring, whether advertising, interviewing, or submitting hiring packages
- Created teamwork throughout the TV Unit and the Permitting Section through effective communication, group problem solving, positive managerial interaction, encouraging collaborative efforts
- Reviewed technical data, calculated emissions, and determined state and federal regulation applicability in New Source Review and Title V air quality permit applications, primarily oil and gas operations
- Successfully achieved deadlines while maintaining multiple air quality permit actions with varying time constraints and complexity, ensured staff complied with all internal and external deadlines, prioritized and organized work activities, with frequently shifting priorities in a deadline intensive environment

- Maintained proper, legal permit file documentation, including applications, statement of basis, database summary, letters, fees, analytical data, electronic files, application regulations, emission calculations
- Reviewed and analyzed NSR and Title V permit applications, processing them to completion
- Computed and determined validity of emission calculations to ensure compliance with state and federal environmental regulations
- Utilized emissions calculations protocols, methodology, and computation software
- Reviewed and implemented environmental technical standards, guidelines, policies, and regulations that meet all appropriate applicable requirements
- Developed appropriate monitoring and permit conditions and Standard Operating Procedures
- Analyzed appropriate applicable regulations and determined required control technology
- Developed proficiency to interpret and implement state and federal regulations, explaining and assisting staff understand and correctly apply the regulations to ensure compliance
- Reviewed proposed operational changes, modifications, or installations to ensure compliance with applicable air regulation and/or permits
- Participated in revision permit templates and monitoring protocols, organizing field trips
- Established and maintained working relationships with companies, consultants, and stakeholders
- Negotiated permit conditions with companies, consultants, and EPA

Education

- Associate in Science in Pre-Engineering, Santa Fe Community College, Santa Fe, NM, December 2002, GPA: 3.81, Graduate with High Honors
- Bachelor of Science in Chemical Engineering, University of New Mexico, Albuquerque, NM, May 2003, GPA: 3.12

BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF
Williams Four Corners, LLC
Sims Mesa Central Delivery Point

Title V Permit Number: P026-R2
Issued by the New Mexico Environment Department
Air Quality Bureau

Petition Number: VI-2011-
Filed by WildEarth Guardians and San Juan Citizens Alliance

RESPONSE OF NEW MEXICO ENVIRONMENT DEPARTMENT, AIR QUALITY BUREAU, TO ORDER GRANTING PETITION FOR OBJECTION TO PERMIT

I. INTRODUCTION

On July 29, 2011, EPA Administrator Jackson issued an Order responding to Petition VI-2011-XX (Petition) filed by WildEarth Guardians and San Juan Citizens Alliance (collectively Petitioners) on April 14, 2010. The Petitioners objected to the New Mexico Environment Department, Air Quality Bureau's (NMED) issuance of Title V Renewal Operating Permit No. P026-R2 (Permit) to Williams Four Corners, LLC (WFC) for its Sims Mesa Central Delivery Point Compressor Station (Sims Mesa). Sims Mesa is a natural gas compression facility located approximately 17 miles Northeast of Blanco, New Mexico in Rio Arriba County.

The Petition was filed pursuant to section 505(b)(2) of the Clean Air Act (CAA or Act), 42 U.S.C. § 7661d(b)(2), requesting that EPA object to issuance of the Permit. The Petitioners claim that the Permit: (1) fails to ensure compliance with the Prevention of Significant Deterioration (PSD) and title V requirements; (2) fails to require prompt reporting of deviations; (3) fails to require sufficient periodic monitoring; and (4) includes a condition that is contrary to applicable requirements.

A. BACKGROUND

Sims Mesa is a natural gas compression facility, as defined under Standard Industrial Classification (SIC) Code 4922 – Natural Gas Transmission. Gas is received from a wellhead gathering point known as a Central Delivery Point (CDP), which is located approximately one-half mile away from the facility. Note that the CDP is not owned or operated by WFC and is not at the same physical location as any compressor station. The Sims Mesa facility performs gravity separation of the inlet gas/water/petroleum condensate stream, recompresses the gas using natural gas fired internal combustion engines, routes the gas through triethylene glycol dehydrators, and sends the gas via pipeline to a WFC-operated natural gas processing plant.

The CDP that currently supplies approximately 7.6 MMscfd of natural gas received at the Sims Mesa inlet is owned and operated by Devon Energy Production Company, L.P. (Devon), and gathers natural gas from the Sims Mesa area of the Northeast Blanco Unit (NEBU) of the San Juan Basin, New Mexico. In the Sims Mesa area of NEBU, Devon operates sixty-one (61) natural gas wells producing from four (4) different geologic formations. The gas is marketable at the wellhead. The gas from each of the 61 wellheads is owned by various combinations of twenty-six (26) different companies, which are collectively known as the NEBU Sims Mesa Working Interest Owners Group (WIO). Devon is a member of the WIO with various percentages of ownership in the gas produced from wellheads located in each of the 4 NEBU Sims Mesa geologic formations. WFC is not a member of the WIO and has no ownership of any of the natural gas collected at the Devon Sims Mesa CDP and routed to the WFC Sims Mesa facility.

On July 23, 2008, WFC submitted an application to NMED for the renewal of the Permit. A copy of the draft Permit was submitted for a 30-day public comment period beginning November 25, 2009. On December 18, 2009, Petitioners submitted comments to NMED raising concerns related to the draft Permit. NMED provided a copy of the proposed Permit to EPA, Region 6, on December 29, 2009. EPA did not object to final issuance of the Permit within the mandatory 45-day review period, in accordance with 40 C.F.R. § 70.8(c). If EPA does not object to a permit on its own initiative, section 505(b)(2) of the CAA provides that any person who provided specific comments during the 30-day public comment period, may petition the Administrator, within 60 days of expiration of EPA's 45-day review period, to object to the permit. NMED prepared a response to comments (RTC) dated March 19, 2010 and issued the Permit on the same day. On April 14, 2010, Petitioners submitted an electronic copy of the Petition to EPA, requesting that EPA object to the issuance of the Permit.

In a July 29, 2011 Order (Order), EPA Administrator Jackson granted the objection as related to specific issues raised by the Petitioners, claiming that the Permit did not comply with 40 C.F.R Part 70. The Petitioners claims are summarized below:

1. The Permit failed to assure compliance with PSD and title V requirements because NMED failed to consider whether emissions from adjacent and interrelated pollutant emitting activities triggered PSD review, specifically the natural gas wells that supply natural gas to Sims Mesa. (Claim I)
2. The Permit failed to include prompt reporting for all deviations in the permit conditions. (Claim II)
3. The Permit failed to require adequate periodic monitoring for compliance with nitrogen oxides (NOx) and carbon monoxide (CO) emission limits (Claim III.A.1); the Permit allowed for exemptions to monitoring frequency (Claim III.A.2); and the Permit failed to require any monitoring for compliance with Volatile Organic Compound (VOC) emission limits (Claim III.B).
4. The Permit included a condition that is contrary to applicable requirements related to compliance with the National Ambient Air Quality Standards (NAAQS) (Claim IV).

In the Order, EPA grants request for objection to the above Claims to the extent described below:

Claim I: Source Definition for Purposes of PSD and Other Requirements

EPA determined that the NMED RTC and permit record did not adequately address whether Sims Mesa and the Devon-owned and operated facilities should be considered a single stationary source under the PSD, nonattainment New Source Review, and the title V programs of the CAA. In consideration of a single source determination, the following three criteria must be satisfied: (1) the facilities are located on one or more contiguous or adjacent properties; (2) they share the same two-digit (Major group) SIC code; and (3) they are under common control. Specifically, the Administrator states in the Order:

"I grant the Petitioners' request for an objection to Claim I, and direct NMED to establish a more thorough permit record as described in this section [reference to Claim I of the Order], and to make any appropriate or necessary changes in the permit. If in the course of supplementing its record, NMED determines that Williams [reference to WFC] is indeed under common control with other pollutant-emitting activities, then it will also need to examine whether any of those activities are adjacent to the Sims Mesa CDP [reference to Sims Mesa] in order to complete its source determination. But if NMED reaffirms its decision that no other pollutant-emitting activities are under common control with Sims Mesa CDP [Sims Mesa], it would not need to complete the "contiguous or adjacent" component of its analysis."

Claim II: Prompt Reporting of Deviations

EPA determined that the RTC and permit record did not adequately document or explain conditions in the Permit regarding prompt reporting of deviations. Specifically, the Administrator states in the Order:

"I grant this claim [reference to Claim II"] based on the lack of justification in the permit record for NMED's decisions regarding reporting of permit deviations, in accordance with the requirements of 40 C.F.R § 70.6(a)(3)(iii)(B). I direct NMED *(* to consider whether the permit conditions for reporting of deviations are consistent with the requirements of 40 C.F.R. § 70.6(a)(3)(iii)(B) for all permit deviations and provide further explanation of its conclusions, in the Statement of Basis ("SoB") or elsewhere in the permitting record, to make appropriate changes to the permit to ensure prompt reporting consistent with the Act and implementing regulations"

Claim III.A.1: Frequency of monitoring for NOx and CO emission limits

The Permit requires annual portable analyzer testing for NOx and CO for the internal combustion compressor engines. In addition, the Permit indirectly calls for proper operation and maintenance of the engines, as included in the Startup, Shutdown, and Maintenance (SSM) Plan required by New Mexico State regulation 20.2.7.14.A of the New Mexico Administrative Code (NMAC). This regulation is listed as an applicable requirement in the Permit. The SSM Plan was required for the Sims Mesa facility, effective January 29, 2009, and prior to issuance of the Permit. EPA determined that the RTC does not explain what permit terms or conditions ensure "proper operation and maintenance" of the engines. Specifically, the Administrator states in the Order:

"For the reasons given above, I grant the petition on this issue [reference to Claim III.A.1]. NMED must provide an adequate response to the comment that the annual monitoring in the permit is not adequate for assuring compliance with the engines' CO and NOx limits. In responding to this Order, NMED should respond fully to Petitioners' comment concerning the frequency of the permit's monitoring for NOx and CO. In that regard, NMED should offer further explanation of why it believes that steady state operations and proper operation and maintenance of the units are valid assumptions here, in light of the permit's terms and conditions, or make appropriate changes to the permit to ensure it includes monitoring requirements consistent with the Act and implementing regulations."

Claim III.A.2: Monitoring Exemptions

The Permit contains the following language that allows monitoring to be waived: if an emissions unit operates 25% or less of a monitoring period, monitoring is not required. The maximum number of successive waived monitoring periods cannot exceed two, unless the emissions unit is operated for less than 10% of the period. In this case, the period is not counted as a successive

period. A minimum of one of each type of monitoring activity must be conducted during the five-year term of the title V permit. EPA determined that the SoB for the Permit does not explain the rationale for these monitoring exemptions. Specifically, the Administrator states in the Order:

"Accordingly, I grant the Petitioners' objection on this issue [reference to Claim III.A.2] because the permit lacks adequate justification in the record to explain NMED's decisions regarding the exemptions from compliance monitoring for the compressor engines. In addressing this objection, NMED must discuss the adequacy of the permit monitoring requirements in support of the permit's exemption for low operation periods, or make appropriate changes to the permit to ensure it includes monitoring requirements consistent with the Act and implementing regulations."

Claim III.B: VOC Monitoring

The Permit contains language to the effect that compliance with NOx and CO portable analyzer testing demonstrates compliance with the VOC emission limit for the internal combustion compressor engines. EPA determined that the RTC and permit record did not adequately explain the assertion that NOx and CO emission rates are proper indicators for the VOC emission rates for these engines. Specifically, the Administrator states in the Order:

"Accordingly, I grant the Petitioners' request for an objection on this issue [reference to Claim III.B]. In responding to this Order, NMED must provide a clear rationale and technical basis to justify this surrogacy monitoring, or make appropriate changes to the permit to ensure it includes monitoring requirements consistent with the Act and implementing regulations."

Claims III.A.1, III.A.2, and III.B: Summary

In summary for the above three Claims related to monitoring (Claims III.A.1, III.A.2, and III.B), the Administrator states in the Order:

"In responding to this Order, I direct NMED to ensure it has: (1) satisfied the monitoring requirements of 40 C.F.R § 70.6(a)(3)(i)(A) and (B) and (c)(1); (2) provided a rationale for the monitoring requirements placed in the permit (*see* 40 C.F.R. § 70.7(a)(5)); and (3) responded to significant comments."

Claim IV: Condition 6.1.1 and Applicable Requirements

The Permit contains the following language at Condition 6.1.1:

"For sources that have submitted air dispersion modeling that demonstrates compliance with federal ambient air quality standards, compliance with the terms and conditions of this permit regarding source emissions and operation shall be deemed to be compliance with federal ambient air quality standards specified at 40 CFR 50 NAAQS."

The Permit also contains the following language at Condition 1.8:

"The permittee will continue to comply with all applicable requirements. For applicable requirements that will become effective during the term of the permit, the permittee will meet such requirements on a timely basis. This condition is pursuant to sections 300.D.11.c and 302.G.3 of 20.2.70 NMAC."

EPA determined that the RTC and permit record did not provide adequate response to the Petitioners' claim that NMED automatically concluded that compliance with a title V permit assures compliance with the National Ambient Air Quality Standards (NAAQS). The EPA also determined that the RTC and permit record did not adequately explain the possible conflict between Conditions 6.1.1 and 1.8. Specifically, the Administrator states in the Order:

"In responding to this Order, NMED must fully respond to the Petitioners' comment. In so doing, I also suggest that NMED consider the basis for Condition 6.1.1 and clarify the purpose and scope of Condition 6.1.1, considering whether the term should be removed or revised for clarity, in accordance with the appropriate permit revision requirements. NMED may additionally wish to consider the relationship between Condition 6.1.1 and Condition 1.8, and as necessary, revise the permit to ensure that these terms will not conflict with one another."

II. RESPONSE TO CLAIM I

In accordance with page 9 of the Order, NMED will address only the Common Control issue:

"If in the course of supplementing its record, NMED determines that Williams [reference to WFC] is indeed under common control with other pollutant-emitting activities, then it will also need to examine whether any of those activities are adjacent to the Sims Mesa CDP [reference to Sims Mesa] in order to complete its source determination."

To determine the proper scope of the source for the purpose of Title V, NMED retains its discretion to apply the regulations and to reach different conclusions from EPA guidance. For single source determinations, NMED evaluates the criteria set forth in the memorandum from Gina McCarthy, Assistant Administrator, to Regional Administrators, "Withdrawal of Source Determinations for Oil and Gas Industries" (September 22, 2009).

> Permitting authorities should…rely foremost on the three regulatory criteria for identifying emissions activities that belong to the same "building," "structure," "facility," or "installation." These are (1) whether the activities are under the control of the same person (or person under common control); (2) whether the activities are located on one or more contiguous or adjacent properties; and (3) whether the activities belong to the same industrial grouping. 40 C.F.R. 52.21(b)(6).

The McCarthy memorandum explains that these criteria are evaluated on a case-by-case basis, in which the permitting authority retains the discretion to consider the specific circumstances of the permitted activities. In making this evaluation, EPA has emphasized that the touchstone should be the boundaries established by the D.C. Court of Appeals decision in Alabama Power v. Costle:

> [T]he court in Alabama Power sets the following boundaries on the definition for PSD purposes of the component terms of "source": (1) it must carry out reasonably the purposes of PSD; (2) it must approximate a common sense notion of "plant"; and (3) it must avoid aggregating pollutant-emitting activities that as a group would not fit within the ordinary meaning of "building," "structure," "facility," or "installation."

So the 'common sense notion of a plant' must be the result of applying the 3 criteria in the definition of source.

NMED has adopted a definition (20.2.70.7.Q NMAC) of major source for Title V that is substantially similar to the federal term in 40 C.F.R. 52.21(b)(6):

> Any stationary source (or any group of stationary sources that are located on one or more contiguous or adjacent properties, and are under common control of the same person(s)) in which all of the pollutant emitting activities at such source

belong to the same major group (i.e., all have the same two-digit code), as described in the standard industrial classification manual, 1987.

Under this definition, all criteria must be met for a source or group of sources to be considered a part of the same stationary source. If any one of these criteria is not met, by definition the source or sources are not part of the same stationary source.

After evaluating information contained in attached documents prepared by DCP Midstream (Attachment 1), New Mexico Oil and Gas Association (Attachment 2), and the State of Colorado (Attachment 3) regarding the oil and gas industry, some conclusions are apparent.

The oil and gas industry is unique in terms of applying EPA guidance about single source determinations that places special significance on whether different sources are connected. Whereas in many industries, connections between various activities are a meaningful and distinguishing factor in making a single source determination, oil and gas fields typically are large and complex with convoluted flows of natural gas. Pipes extend from wells through various processing activities to residential and commercial users, and these connections do not imply that any two or more facilities should be considered part of one emission source. Pipeline connections are an inherent part of the industry, so previous EPA case by case determinations that hinge on connectivity in other industries are less likely to be appropriate.

Locations of various oil and gas facilities are more a function of engineering aspects, such as flows and pressures, as well as geographical considerations, such as rights of way and leases, rather than business considerations that would lead to establishment of a single source.

Business relationships between different companies are typically based on contracts that do not provide for one party to control the activities of the other and lead to a conclusion of no common control.

RELEVANT REFERENCES PERTAINING TO NATURAL GAS INDUSTRY

1. **July 14, 2010 Response of Colorado Department of Public Health and Environment (CDPHE) to USEPA regarding Order VIII-2008-02 dated October 8, 2009 granting Petition for Objection.**

Although the primary focus of this document was whether natural gas wells that sent gas to a compressor station were adjacent to the compressor station, the CDPHE response (Colorado Response) addresses important aspects of natural gas production and midstream transmission that are equally applicable to New Mexico. The Colorado Response dated 7/14/10 resulted in a new petition by WEG (Petition 3), which was denied by USEPA in Order VIII-2010-4 dated 2/2/11. NMED reiterates the following portions of the Colorado Response because they reflect the state of the natural gas industry in New Mexico.

"II. UNIQUE COMPLEXITIES OF OIL AND GAS OPERATIONS

In responding to EPA's Order on the Frederick Station Title V permit, it is first useful to consider the unique nature of oil and gas operations and how the characteristics of these operations affect how a stationary source or plant within this industry could be defined. It is also helpful to better understand how emission sources in the oil and gas industry operate and why and where they are located with respect to each other, and how these factors can differ from those associated with emission sources in other regulated industrial sectors, such as power generation and manufacturing..."

"In essence and by definition, the entire natural gas production, gathering, processing and transportation system is connected via a network of pipes. This network of pipes extends from the wells where the gas is initially recovered to the ultimate end-users, i.e., the residential, commercial and industrial customers. Because natural gas would quickly disperse in to the atmosphere if not contained at all times in the process, it must constantly be held through a series of pipes, equipment and storage vessels…"

"Ultimately, the facilities within the natural gas production and delivery system, from a single well in the field to a residential customer's house, are all connected in some way via a set of pipelines. It is inherent to this type of operation, and does not, by itself, establish an unusual circumstance or compelling factor regarding the interdependency of two facilities. For the natural gas production and delivery system, it is not primarily a business decision but rather the nature of the industry; i.e., wells are drilled where the gas resource is found and the support systems like the gas processing and compressor systems are constructed based on gas delivery needs.

Similarly, the locations of natural gas wells and surface facilities are determined by a variety of factors. Many of the factors are not specifically controlled or dictated by the oil and gas production companies that drill and develop the wells and then move and process the gas. Beyond the obvious need to locate gas wells in an area where natural gas reserves are present, the spacing requirements for gas wells are established and regulated by a number of different entities in Colorado, including the Colorado Oil and Gas Conservation Commission on private and state-owned lands, Federal agencies such as the Bureau of Land Management on Federal lands, and Tribal authorities on Tribal lands.

Oil and gas production companies must also negotiate surface use agreements, pipeline agreements and rights-of-way with surface right owners in the areas where wells are being drilled and developed. These agreements, which often focus on minimizing the surface footprint and impact of the oil and gas operations, dictate the locations of surface facilities, minimum offsets from adjoining boundaries and the number of well pads allowed. Geological, topographical and engineering considerations, along with logistical factors such as access restrictions and the availability of power, also drive siting decisions…"

"In addition to the unique set of factors that influence where oil and gas facilities are located, the business relationships between parties involved in oil and gas operations

are highly complex and quite specific to this industry. The ownership structure of the oil and gas resources themselves (i.e., the mineral rights) can take many forms, and for even just one well, can involve the interaction of multiple royalty owners, changes in ownership between geological formations, various working interests in the well, and joint operating agreements ("JOAs") among owners and lessees that dictate the terms and conditions under which the mineral resources will be developed. In some cases, the owner(s) of the mineral rights may extract the resources themselves, and in other cases, a separate party may do so under a lease/royalty arrangement.

JOAs govern how the production activities are conducted for a well, but do not address how the gas produced is gathered and moved through the natural gas delivery system. Separate contracts in the form of gas gathering agreements between exploration and production and gas gathering companies specify how and under what terms and conditions gathering services will be provided. **Based on information received from a number of different oil and gas companies, the Division has concluded that gas gathering companies do not typically dictate or control the production operations at natural gas wells. From a business standpoint, there appears to be a very clear demarcation between oil and gas production and gas gathering functions.** (emphasis added)

In many oil and gas production areas, the surface rights are severed from the mineral rights, meaning that one party owns the surface property and another (or several others) owns the minerals located below the surface. In these cases, agreements must be reached between the surface land owners and the oil and gas exploration and production companies, in order to provide the necessary access and surface facilities to drill wells and produce oil and gas. The distinctions between mineral and surface ownership further add to the complexity of assessing oil and gas sources…"

NMED also reiterates the following excerpt from the Colorado Response:

"The Division has determined that gathering companies generally do not control the operations of oil and gas wells. A gathering company simply accepts the gas provided by the production company, as long as it meets certain quality and other contractual requirements. Except in very limited and unusual circumstances, a gathering company does not control or affect the operations of the wells that are the subject of the gathering contract. It is entirely the decision of the oil and gas production company regarding how and when it operates its wells. For instance, if the production company decides to shut-in a particular well because of market conditions or other reasons, the gathering company cannot override that decision.

The Division also has concluded that, in many instances, oil and gas wells are operated by entities that are unrelated to the gathering company operating the compressor stations and other facilities associated with gathering operations. Because many oil and gas leases have several working interest owners, the operations of a well may be governed by a JOA between these owners and the oil and gas production company/lessee. Additionally, because typical oil and gas leases allow each working interest owner to take

its portion of the produced gas in-kind, the produced gas may be subject to "split stream" gas distribution. In split stream situations, working interest owners may decide to have their gas conveyed via different gathering companies, resulting in one well being connected to more than one gathering system."

2. 29 March 2010, Letter of New Mexico Oil and Gas Association to Sandra Ely, NMED, re: Comments on Western Climate Initiative's Issue Paper on Defining the Reporting Entity and Threshold

Although this letter was written in the context of reporting greenhouse gas emissions, it provides an explanation of the operational aspects of the oil and gas industry in New Mexico, and it supports Colorado's finding that there is not common control when different companies operate wells and compressor stations.

Although there are some differences between the Colorado Wattenberg Field and the New Mexico NEBU, many attributes of the Oil and Gas Industry operations in Colorado are identical or very similar to those in New Mexico. Most importantly:

- Gas from the Sims Mesa area of NEBU is owned by Working Interest Owners (WIOs).
- The midstream compressor station(s) generally accept all of the gas provided by the production company, pursuant to contract with WIOs.
- Gas flow on a wellhead-by-wellhead basis is highly variable. Flow rates at each pipe intersection are continuously adjusted by the production company to ensure downstream pressure is lower than upstream pressure.

ANALYSIS OF SIMS MESA SITE-SPECIFIC OPERATING CONDITIONS AND CIRCUMSTANCES

NMED has performed an in-depth analysis of all contractual information regarding the relationship between the wellhead operator, Devon, and WFC midstream compressor station, Sims Mesa. Relevant facts specific to Sims Mesa:

- Devon operates 61 natural gas wellheads in the Sims Mesa area of NEBU.
- All gas is marketable at the wellhead.
- Ownership of the wellhead and produced natural gas is established at each wellhead.
- The natural gas at each wellhead is owned by various combinations of 26 different companies that collectively comprise the WIO.
- The decision-making body is termed the WIO Advisory Board, and each WIO member has one representative.
- Decisions are made on a wellhead-by-wellhead basis; voting interest is proportional to ownership percentage of the gas at each wellhead. However,

any decision requires a 65% affirmative vote, and such a vote cannot be cast by a single WIO member regardless of the ownership percentage.

- Each WIO member is free to choose either WFC or Enterprise Field Services LLC (Enterprise) for natural gas midstream transmission and gas plant processing. The gas is eventually sold at the tailgate of either a WFC or Enterprise gas plant.
- Devon is contracted by the WIO to operate the wellheads. NMED has thoroughly reviewed these contracts and concludes that there is no existing contractual relationship between Devon and WFC.
- Each member of the WIO has an individual contract with either WFC or Enterprise for gas transmissions and processing.
- Devon is a member of the WIO, but chooses to contract with Enterprise to process 100% of Devon-owned gas. Devon has no direct contract with WFC.
- WFC is not a member of the WIO.

Devon has clarified their overall relationship with WFC in letters sent to NMED dated August 25, 2011 and November 9, 2011 (see Attachment 4). These documents clarify that Devon has some ownership in the gas produced from all four of the primary geologic formations that comprise the Sims Mesa area of NEBU as follows:

Fruitland Coal Formation: ~ 24.79%
Mesa Verde Formation: ~ 5.56%
Dakota Formation: ~ 18.87%
Pictured Cliffs Formation: ~ 32.60%

Devon has estimated that the Fruitland Coal Formation accounts for approximately 90% of the gas received at the Devon CDP, with approximately 52% of the CDP outlet sent to the Enterprise compressor station and 48% sent to the WFC Sims Mesa compressor station. Devon is contracted by the WIO to operate the CDP but has no involvement in the contractual relationships between WFC and individual WIO members.

Devon is responsible to ensure the proper quantity of gas flows to the proper compressor station, as based on the contracts of all 26 companies in the WIO. The flowrate at each wellhead is continuously monitored and a quantity of gas assigned ownership. The flow percentage sent to the WFC and Enterprise compressor stations is adjusted on a monthly basis and reconcilable on an annual basis. Devon maintains continuous records of the flow rate at each wellhead and the percent ownership by each member of the WIO (a 26 x 61 data point spreadsheet, with 1586 separate and continuously-varying gas volumes). The percent ownership of gas at each wellhead for each WIO member is normally specified by contract to the nearest 0.0001%.

In the event of planned routine maintenance or malfunction/emergency events that result in temporary closure of either the WFC Sims Mesa or Enterprise compressor station, the remaining station can accept a portion of the excess gas exiting the Devon CDP. Acceptance of a quantity of gas that exceeds contractual obligations is strictly voluntary on the part of WFC or Enterprise. This is an unwritten reciprocal agreement between Devon, WFC, and Enterprise. The quantity of gas that cannot be received by the active compressor station would force a shut-in of some wellhead production activities. Devon reports to the WIO Advisory Board the quantity of gas that cannot be received; the decision of which wellheads to shut-in is decided by the WIO and is based in part on the flow dynamics of the gathering system occurring at the time of the maintenance/malfunction/emergency event. Only the WIO members with WFC processing/marketing contracts can participate in decisions that determine which wellheads to shut-in during a Sims Mesa shutdown; this is not a singular decision made by Devon, WFC, or Enterprise. The temporary reduced production is integrated into the monthly flow calculation at the Devon CDP, and any adjustments made are ultimately reconciled annually so that each member of the WIO has the proper quantity of gas transmitted and processed by the proper midstream company.

Decisions authorized to be made by the WIO Advisory Board include exploration. Again, ownership of any new wellheads is decided in advance of production. Even if Devon became a partial or full owner of any new site that feeds the Devon CDP, Devon has established a contractual relationship exclusively with Enterprise for gas transmission and processing; therefore Devon could not exert indirect control over the WFC Sims Mesa facility as there is no existing contractual relationship. Conversely, WFC cannot participate in any decision to select Devon-operated wellheads for temporary shut-in, because WFC is not a member of the WIO Advisory Board.

Devon cannot make any decision that would influence production levels at the WFC Sims Mesa facility, because Devon's vote on a wellhead-by-wellhead basis would only apply to those wellheads that have some component of Devon ownership. Devon does not have any wellhead ownership percentage in natural gas that is sent to the WFC Sims Mesa facility. Zero percent of Devon-owned gas is delivered to Sims Mesa and there are no existing contractual relationships between Devon and WFC.

For the Sims Mesa CDP, a different company - Devon Energy - operates the wells, and does not have a contract with WFC. WFC does not exercise control over any equipment owned or operated by any natural gas producer upstream of the Sims Mesa CDP facility. Natural gas producers contract with WFC to transport natural gas from the well head to downstream customers. During periods of emergency, failure or scheduled major maintenance, WFC can request that producers curtail operations on a short term basis. This very limited contractual provision, however, does not meet the level of control anticipated by the EPA in a "same stationary source" determination. WFC otherwise has no control over any upstream natural gas

operation and is contractually obligated to accept the gas volumes that non-WFC producers deliver onto its system.

The contracts do not allow well owner/operators to have any decision making power or control of any kind over environmental compliance measures at Williams' compressor station, nor does Williams have any influence or control over environmental compliance at the owner/operators locations.

Based on the Sims Mesa specific facts, aggregation of the midstream Sims Mesa compressor station with wellhead operations does not conform to the "common sense notion of a plant". As suggested in the letter from EPA Region 8 to Montana DHES, dated March 22, 1990, RE; Comments on the Draft permit for Conoco Coker and Sulfur Recovery Facility,

> **"If the Department's decision is to issue one permit, how will the liability issue be handled should an enforcement action prove necessary as a result of possible violations** (emphasis added) at Karley? For example, if Karley's emissions over exceed permitted limits, would the Department take an enforcement action against Conoco? Will Conoco have the authority to control emissions from the ATS plant such that an existing violation could be eliminated and/or a potential violation could be avoided?"

NMED would find it extremely difficult to address permit violations for more than two dozen companies under one permit.

Consequently, NMED believes that WFC has correctly represented the source as indicated in the Title V application, and no additional sources should be aggregated with Sims Mesa CDP.

NMED CONCLUSIONS – COMMON CONTROL

Based on the above discussion, extensive research, and prior EPA decisions and guidance, NMED makes the following conclusions using the authority under its state implementation plan:

1. Devon and WFC have no direct contractual obligations with each other.
2. The fact that Devon chooses to have 100% of their gas processed by Enterprise means that, on a wellhead-by-wellhead basis, Devon cannot exert any degree of indirect control over the WFC Sims Mesa compressor station.
3. WFC is not a member of the WIO and thus has no authority to exert control of any kind over Devon-operated facilities with respect to wellhead shut-in and other activities.
4. **The new information obtained by NMED from Devon and WFC following issuance of the Order reveals that no conflicting information exists related to WFC common control as suggested by the Petitioners and detailed in the Order beginning at 5. NMED has thoroughly**

researched documents describing the relationship or interaction between WFC and the upstream wells as recommended in the Order at 8. Furthermore, NMED has satisfied the requirements of the Order at 9 by reviewing all relevant contracts and agreements.

NMED therefore concludes that there is no common control, direct or indirect, between WFC and any other pollutant-emitting activity.

NMED furthermore concludes that none of the Devon-operated wellheads nor the Devon CDP should be aggregated with the WFC Sims Mesa facility as a single source for purposes of PSD applicability.

NMED agrees to supplement the Sims Mesa permit record with this discussion of the common control issue. NMED has proposed some changes to the Sims Mesa permit, but not with respect to the aggregation issue of Claim I.

III. RESPONSE TO CLAIM II

NMED Response- Prompt Reporting of Deviations:

The deviation reporting requirements at 20.2.70.302.E NMAC reflect the Department's belief that not all deviations from Title V permit conditions warrant the expeditious reporting required by 20.2.7 NMAC.

Since all Title V sources are subject to the excess emissions rule at 20.2.7 NMAC, any deviations from Title V permit requirements that resulted in excess emissions would be reported in accordance with the timelines at 20.2.7.110 NMAC.

The excess emissions rule at 20.2.7 NMAC applies to Title V emergencies as well, since they also meet the definition of excess emissions at 20.2.7.7.D NMAC. The timelines in 20.2.7.110 NMAC are more stringent than the reporting timelines for emergencies at 20.2.70.304.B.4 NMAC.

20.2.70.302.E NMAC requires that all deviations resulting in excess emissions (including those classified as Title V emergencies) would be reported in accordance with the timelines at 20.2.7.110 NMAC, and all deviations that did not result in excess emissions would be reported every six months as part of the monitoring reports required by Title V permits.

This reporting schedule is in accordance with the federal requirement at 40 C.F.R. § 70.6(a)(3)(iii)(B) which states in relevant part, "…The permitting authority shall define

"prompt" in relation to the degree and type of deviation likely to occur and the applicable requirements."

The NMED has determined that deviations resulting in excess emissions require a much more stringent reporting time frame than deviations that do not result in excess emissions. Deviations resulting in excess emissions have a potential impact on public health, whereas deviations that do not result in excess emissions do not.

The NMED believes that it is unnecessary to make more specific distinctions such as whether or not the deviation was from monitoring requirements, performance standards, etc. Any deviation from a monitoring requirement, performance standard, etc. that results in excess emissions is required to be reported in accordance with the timelines at 20.2.7.110 NMAC. **The NMED believes that it is sufficient to make the distinction between those deviations that result in excess emissions and those that do not.**

However, the NMED acknowledges that the above discussion regarding the intent is not obvious to those outside the agency who read the regulatory requirement at 20.2.70.302.E NMAC or the permit conditions in previous and current Title V permit templates.

In order to clarify this, the NMED proposes to revise the Title V permit template language and re-open and change the Simms Mesa Permit regarding reporting of deviations as follows:

"5.1 <u>General Reporting Requirements</u>

5.1.2. The permittee shall submit reports of all deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. (20.2.70.302.E.2 NMAC)

5.1.2.1 Deviations resulting in excess emissions as defined in 20.2.7.7 NMAC (including those classified as emergencies) shall be reported in accordance with the timelines specified by 20.2.7 NMAC and in the semi-annual reports required in Condition 5.1.1. (20.2.70.302.E.2 NMAC)

5.1.2.2 All other deviations shall be reported in the semi-annual reports required in Table 5.1.1. (20.2.70.302.E.2 NMAC)."

The NMED believes that the less stringent reporting timeframe for deviations that do not result in excess emissions is consistent with the justification used by the EPA in the preamble to the final version of the Federal Operating Permit rule at 40 CFR 71 (61 FR 34219, July 1, 1996), reproduced in relevant part as follows;

"…Two commenters requested that part 71 clarify prompt reporting requirements for deviations other than those associated with hazardous, toxic, or regulated air pollutants, as described in sections 71.6(a)(3)(iii)(B)(1) and (2). The Agency believes that the requirement contained in section 71.6(a)(3)(iii)(A), in which sources are to report all instances of deviations from permit requirements at least every 6 months, provides the basis for prompt reporting of all other deviations. However, the Agency is willing to clarify this reporting requirement and has modified section 71.6(a)(3)(iii)(B) by adding a statement that directs sources to submit all other deviation reports in accordance with the timeframe given in section 71.6(a)(3)(iii)(A). …."

In addition, the NMED also believes that the proposed revision to the deviation reporting language in the NMED Title V permit template and re-opened Sims Mesa Permit is consistent with that found in the Federal Operating Permit Program at 40 CFR § 71.6(a)(3)(iii)(A) and (B) (reproduced as follows);

(a) Standard permit requirements. Each permit issued under this part shall include the following elements:

(3) Monitoring and related recordkeeping and reporting requirements. (i) Each permit shall contain the following requirements with respect to monitoring:

(iii) With respect to reporting, the permit shall incorporate all applicable reporting requirements and require the following:

(A) Submittal of reports of any required monitoring at least every 6 months. All instances of deviations from permit requirements must be clearly identified in such reports. All required reports must be certified by a responsible official consistent with §71.5(d).

(B) Prompt reporting of deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. Where the underlying applicable requirement contains a definition of prompt or otherwise specifies a time frame for reporting deviations, that definition or time frame shall govern. Where the underlying applicable requirement fails to address the time frame for reporting deviations, reports of deviations shall be submitted to the permitting authority based on the following schedule:

(1) For emissions of a hazardous air pollutant or a toxic air pollutant (as identified in an applicable regulation) that continue for more than an hour ***in excess of permit requirements*** *(emphasis added), the report must be made with 24 hours of the occurrence.*

(2) For emissions of any regulated air pollutant, excluding those listed in paragraph (a)(3)(iii)(B)(1) of this section, that continue for more than two hours ***in excess of permit requirements*** *(emphasis added), the report must be made within 48 hours.*

(3) For all other deviations from permit requirements, the report shall be contained in the report submitted in accordance with the timeframe given in paragraph (a)(3)(iii)(A).

IV. RESPONSE TO CLAIM III.A.1

Summary of Petitioners Comments and EPA Response – III.A.1 Frequency of monitoring for NOx and CO emission limits:

Petitioners state that Conditions 3.4.2 and 3.4.2.2 of the Sims Mesa permit require only once-per-year portable analyzer monitoring for units 1-6 and 11-14, the compressor engines, stating that "[t]his monitoring is too infrequent to ensure compliance with NOx and carbon monoxide emission limits" since the NOx and CO permit emission limits are on an hourly basis. Petitioners argue that "monitoring only once annually for the units cannot possibly ensure continuous compliance with these hourly emission limits, and it is questionable whether once-per-[year]-monitoring can ensure continuous compliance with the annual emission limits.

EPA's response granted the Petitioners' request for an objection on this issue because NMED did not adequately respond to Petitioners' comments. The March 19, 2009 response to comments (RTC) indicates that NMED is relying on proper operation and maintenance of the engines in addition to the annual monitoring requirement in the permit, to show that the existing engines maintain their uncontrolled NOx and CO emissions levels at the permitted limits. However, NMED's RTC does not explain what permit terms or conditions ensure "proper operation and maintenance of" the engines. NMED's RTC does not adequately explain how the monitoring in the permit is sufficient. NMED should respond fully to Petitioner's comment and should offer further explanation of why it believes that steady state operations and proper operation and maintenance of the units are valid assumptions here, in light of the permit's terms and conditions or make appropriate changes to the permit to ensure it includes monitoring requirements consistent with the Act and implementing regulations.

NMED Response – III.A.1 Frequency of monitoring for NOx and CO emission limits:

The regulatory requirement in 20.2.70.302.C(2) New Mexico Administrative Code (NMAC) requires periodic, not continuous, monitoring sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit…. Such monitoring requirements shall assure use of terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable requirement.

As indicated in EPA's order responding to Petitioners' request, a case by case technical analysis considering site-specific factors is necessary to determine the most appropriate monitoring for a source. Factors may include, among others, the variability of emissions from the unit; the capacity at which the unit will be operated; if add-on emissions controls are used; any monitoring, process, maintenance, or control equipment data that is already available or already being conducted by the permittee; the likelihood of a violation of a federal emission standard or the emission rates used to demonstrate compliance with National Ambient Air Quality Standards

(NAAQS); the type and frequency of monitoring required for similar units at other facilities; and/or prior emissions test data.

To explain this technical analysis, we offer two examples. The first considers the appropriate monitoring frequency for particulate matter (PM) emissions controls at a rock crushing facility. One method used to control PM emissions from the crushing, screening, and conveying of rock material are water sprays. Two issues to consider when determining the appropriate monitoring frequency of these add-on controls, are that the water spray bar and nozzles are exposed to the natural elements and rigors of the crushing and screening process and so can be suddenly impaired or damaged (e.g. water spray nozzles can be broken, clogged, or misdirected) and PM emissions can be significant when the water sprays are not properly working. In this example, the factors considered to determine the appropriate monitoring frequency, are that add-on controls must be used to reduce emissions, emissions are highly variable depending on the effectiveness of the controls, and so if impaired, there is a high likelihood that the PM10 or PM2.5 NAAQS will be violated. For these reasons, it is necessary to require frequent, at a minimum daily, monitoring or inspections of these water spray controls.

Another example already mentioned in the March 19, 2010 RTC, are the monitoring (called compliance requirements) in 40 CFR 60, Subpart JJJJ, the New Source Performance Standards (NSPS) for Spark Ignition Internal Combustion Engines (SI ICE). The regulation requires manufacturers to certify the NOx, CO, and VOC emission rates which correspond to the emissions standards in Table 1 of the NSPS. EPA determined that to demonstrate compliance with the gr/hp-hr or ppmvd short term emission standards in Table 1, the following periodic monitoring is sufficient (76 FR 37966, June 28, 2011). Monitoring in 40 CFR 60.4243 for natural gas fueled engines between 100 hp to 500 hp and greater than 500 hp requires a maintenance plan and records, and requires maintaining and operating the engine in a manner consistent with good air pollution control practice for minimizing emissions. Additional monitoring includes performance testing (emissions stack tests), but only if the engine is non-certified. If the non-certified engine capacity is greater than 500 hp, monitoring consists of a performance test within the first year of start up and every 8760 hours or 3 years thereafter. If the non-certified engine capacity is between 100 hp to 500 hp, only one performance test is required within a year of startup. In this case, it appears that some factors EPA may have considered to determine sufficient periodic monitoring are the certification of emission rates (or prior emissions test data), that proper operation and maintenance is sufficient for the engine to continue meeting the certified emission rates (the variability of emissions), and the size of the engine (or size of emissions and environmental impact).

The two requirements that apply to NOx and/or CO emissions from the Sims Mesa engines include 40 CFR 50, National Ambient Air Quality Standards (NAAQS) and 40 CFR 63, Subpart ZZZZ, the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Reciprocating Internal Combustion Engines. The factors considered when determining sufficient periodic monitoring to meet these applicable requirements, were that the NOx and CO permit

emission limits were determined using the engine's maximum site rated capacity and manufacturer's guaranteed emission rates specific to those engines; the engines do not use add-on controls, such as a catalytic converter, to meet any applicable emission limits; and engines without add-on controls typically do not experience significant variability in emission rates over short periods of time. Also, the New Source Review (NSR) permit that permitted these engines required initial compliance tests using EPA Methods 7e for NOx and 10 for CO on 4 out of the 10 engines within 180 days after initial startup of the engine. It should be noted that only 2 of the authorized engines are installed.

It is important to recognize the significance of the fact that the engines' emission limits represent the maximum capacity to emit. EPA recognizes this in its June 13, 1989 memorandum, "Guidance on Limiting potential to Emit in new Source Permitting". Summarizing EPA's pages 5 and 6, to appropriately limit potential to emit, permits must contain production or operational limits in addition to emission limits if the emission limits do not reflect the maximum emissions of the source operating at full design capacity without control equipment.

Due to the factors listed above, the existing periodic monitoring consisting of annual portable analyzer testing of NOx and CO and proper operation and maintenance of the engines are sufficient to demonstrate compliance with the NOx and CO pound per hour emission limits used to demonstrate compliance with the NAAQS and meet the requirements of 20.2.70.302.C(1) and 20.2.70.302.C(2) NMAC. The existing monitoring combined with the initial EPA Method tests are consistent with the requirements in NSPS JJJJ. Extrapolating the pound per hour portable analyzer test results over the year, assuming non-stop operation of the engine, also indicates if the ton per year emission limits are met. The basis for this monitoring is that if the engines are properly operated and maintained, short term, uncontrolled emission rates over a year's time will not vary to the extent that an emission limit would be exceeded. NMED also determined, in accordance with 20.2.70.302.C(2) NMAC, that it was not necessary to supplement any applicable monitoring or compliance demonstration required by the NESHAP ZZZZ. **NMED does agree, and Conditions 1.10, 3.4.2.4, and 4.2.3 will be added to the re-opened permit, that explicitly requires proper operation, maintenance, and corresponding records rather than relying on the requirements in 20.2.7 NMAC Excess Emissions and standard industry practice. Also, Condition 3.3 will be changed to refer back to the requirements in Condition 1.10 that requires operation consistent with good air pollution control practice to minimize emissions. NMED is also adding condition 3.4.2.2 to the Title V re-opened permit requiring the NOx and CO EPA Method Tests on engines 3 and 5.** The NOx and CO EPA Method tests have not been completed on these two engines (currently the only 2 installed at the facility), because they are identical units replaced in 2003 as part of a routine preventative-maintenance program implemented by Williams Four Corner's compression contractor.

V. RESPONSE TO CLAIM III.A.2

Summary of Petitioners Comments and EPA Response – III.A.2 – Monitoring Exemptions:

Petitioners additionally allege the title V Permit allows for even less frequent monitoring for the engines since Condition 3.4.1.3.2 "allows the source to avoid monitoring for NOx, and carbon monoxide altogether if a unit has been operated for less than 25% of a monitoring period." Petitioners believe this condition is "wholly inappropriate and as a practical matter would allow the operator to violate hourly emission limits in the permit for up to three months, which is 25% of the annual monitoring period."…. Petitioners claim this is not sufficient monitoring under title V and note that this requirement does not even apply if a source operates less than 10% of any annual monitoring period. Petitioners state that in "essence, this [monitoring exemption] requirement allows [Williams] to avoid monitoring altogether so long as it only operates its engines 36.5 days annually." Petitioners conclude that this monitoring requirement "hardly serves to ensure compliance with hourly NOx and carbon monoxide emission limits." Citing 40 C.F.R. §§ 70.6(a)(3)(i)(B) and 70.6(c)(i), Petitioners assert title V requires that monitoring shall provide reliable data from the relevant time period which is representative of the source's compliance with provisions of permit in order to ensure compliance.

EPA granted Petitioners' objection on this issue because the permit lacks adequate justification in the record to explain NMED's decisions regarding the exemptions from compliance monitoring for the compressor engines. In addressing this objection, NMED must discuss the adequacy of the permit monitoring requirements in support of the permit's exemption for low operation periods, or make appropriate changes to the permit to ensure it includes monitoring requirements consistent with the Act and implementing regulations.

NMED Response – III.A.2 Monitoring Exemptions:

For reference, the following conditions are related to Petitioners' comments and to NMED's response.

Condition 3.4.1.3.2 of Permit No. P026R2:

> "If the emission unit has operated for 25% or less of a monitoring period then the monitoring is not required. After two successive periods without monitoring, the permittee shall conduct monitoring during the next period regardless of the time operated during that period, except that for any monitoring period in which a unit has operated for less than 10% of the monitoring period, the period will not be considered as one of the two successive periods. However, to invoke monitoring exemptions at 3.4.1.3.2, hours of operation shall be monitored and recorded."

Condition 3.4.1.3.3 of Permit No. P026R2:

> "A minimum of one of each types of monitoring activity shall be conducted during the five year term of this permit."

The intent of Condition 3.4.1.3.2 is to avoid requiring that equipment be operated for the sole purpose of conducting monitoring when a unit is shut down during a monitoring period or when the actual hours of operation are reduced to the extent that completing the required monitoring during the monitoring period becomes impractical. It is not the intent of Condition 3.4.1.3.2 to reduce the frequency of monitoring or to exempt a source from conducting periodic monitoring, but to re-classify the monitoring period in terms of actual time operated in cases where the operating hours of a unit are reduced.

Providing the option to define the monitoring period in terms of 1) actual operating time or, 2) the amount of time that has passed since monitoring was last conducted, is consistent with NSPS JJJJ at 40 CFR 60.4243(a)(2)(iii) which states "…and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance". Again, as stated at 76 FR 37966, June 28, 2011, this frequency of testing is sufficient to ensure compliance.

In consideration of Petitioners' comments, NMED did apply the language in Condition 3.4.1.3.2 to the Sims Mesa annual portable analyzer monitoring requirement and found that, using the condition's current language, an engine could be operated for more than 12 months before monitoring was conducted, allowing an exceedance of the annual monitoring period. Therefore to correct this deficiency, we will be revising Condition 3.4.1.3.3, to state:

> "If invoking the monitoring **period** exemption in 3.4.1.3.2, the actual operating time of a unit shall not exceed the monitoring period required by this permit before the required monitoring is performed. For example, if the monitoring period is annual, the operating hours of the unit shall not exceed 8760 hours before monitoring is conducted. Regardless of the time that a unit actually operates, a minimum of one of each type of monitoring activity shall be conducted at a minimum of at least once every 3 years."

With this change to Condition 3.4.1.3.3, the Sims Mesa portable analyzer engine testing must be completed at least once a calendar year, or, if the monitoring period exemption at Condition 3.4.1.3.2 is invoked, at least once every 12 months or 8760 hours that an engine operates. An annual monitoring period is consistent with EPA's approach in NSPS JJJJ and with NMED's determination in Section III.A.1 of this response, which concluded that annual NOx and CO portable analyzer tests and proper operation and maintenance of the engines is sufficient to assure and verify compliance with the terms and conditions of the permit and with applicable requirements in accordance with 20.2.70.302.C(1) and 20.2.70.302.C(2) NMAC.

VI. RESPONSE TO CLAIM III.B

Summary of Petitioners Comments and EPA Response – III.B VOC Monitoring:

The Permit contains language to the effect that compliance with NOx and CO portable analyzer testing demonstrates compliance with the VOC emission limit for the internal combustion compressor engines. EPA determined that the RTC and permit record did not adequately explain the assertion that NOx and CO emission rates are proper indicators for the VOC emission rates for these engines.

NMED Response – III.B VOC Monitoring:

In past permits, NMED stated "…compliance with NOx and CO portable analyzer testing demonstrates compliance with the VOC emission limit…". NMED has recognized that NOx should be deleted from the statement.

From NMED's Engine Monitoring Protocol dated November 4, 2011: For Periodic Emissions Testing: "Test results that demonstrate compliance with the CO emission limits shall also be considered to demonstrate compliance with the VOC emission limits." The rationale for this statement is that the portable analyzers do not speciate VOC compounds and the cost of a separate EPA method test is significant; therefore, AQB relies on CO monitoring to demonstrate compliance with VOC limits. Taking into account that the manufacturer tests the equipment and specifies the expected NOx, CO, and VOC emissions for a unit operating properly, as well as basic principles of combustion chemistry, if an engine test demonstrates that CO concentration falls within the emission limits, then VOC also falls within the emission limits, and the engine is performing as represented in the application.

CO and VOC are products of combustion and increase due to poor combustion. NMED concludes that using CO as a surrogate for VOC would reasonably demonstrate that the actual VOC emissions were well below the VOC emission limit if the CO emission rate is met.

In the data sheets provided by Waukesha for Sims Mesa, VOCs make up 10-20% of the non-burned Non Methane Hydrocarbons (NMHCs). Williams, like most companies we reviewed, uses the emission factor for the NMHC to estimate its VOC emission.

EPA in developing the RICE MACT, 40 CFR 63.6580, Subpart ZZZZ [69 FR 33506, June 15, 2004, as amended at 75 FR 9676, Mar. 3, 2010] and in the 12/2007 response to comments for the new Subpart JJJJ ("Response to Public Comments on Proposed Standards of Performance for Stationary Spark Ignition Internal Combustion Engines and National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines") focused on looking at CO as a surrogate for HAP for lean burn engines, chiefly formaldehyde, although formaldehyde is a VOC. The information EPA gathered when it originally wrote the stationary engine and turbine NESHAP back in the early 2000's was focused on looking at CO reduction as

a surrogate for HAP reduction - so if a catalyst reduced CO, it also reduced HAP. This is referenced at 40 CFR 63.6620 that speaks to testing for CO as a surrogate for formaldehyde.

In the Statement of Basis Section 13, New/Modified/Unique Conditions (Format: Condition#: Explanation) of each Title V Operating permit, NMED states the names of each Monitoring Protocol and its version date. This incorporates by reference the basis for the new or modified monitoring conditions in the current permit. The monitoring protocols are provided when requested.

Specifically for Sims Mesa, NMED requested Williams obtain site-specific emissions factors from Waukesha for the L7042GL (Lean Burn) engines because we determined the field gas burned as fuel at Sims Mesa didn't meet the definition of "commercial quality natural gas, CQNG" as defined by Waukesha in their development of the spec-sheet emission factors. Even though the Sims Mesa gas contains almost 20% CO_2 as compared with 3% max. for CQNG, the site-specific emission factors were unchanged for CO and NMHC (2.7 g/bhp-hr and 1.0 g/bhp-hr, respectively). The emissions factor for Non-methane, Non-ethane Hydrocarbons (NM, NEHC) did increase from 0.25 to 0.3 g/bhp-hr. To be conservative, Williams based their VOC emission calculations on the higher NMHC value. Therefore, NMED has determined that no adjustment needs to be made to the Sims Mesa permitted VOC emission limits.

As required by previous permits, Williams conducted two annual portable analyzer tests, June 2010 and May 2011, that measured CO and averaged 56% (19.9 tpy) of the allowable CO emission limit of 35.6 tpy. From the Waukesha's Sims Mesa site specific emission factors, we compared the NMHC to CO emission factor and got the ratio of 1/2.7 (37%) NMHC to CO. The resulting NMHC is estimated to be 7.4 tpy. Per Waukesha, the VOCs are 20% of the NMHC; so the estimated VOCs would be 1.5 tpy, well below the emission limit of 13.3 tpy.

Given the precedent set by EPA in the RICE MACT and the very low emissions of VOCs relative to the emission limit, CO emissions are an appropriate and proper indicator of VOC emissions.

VII. RESPONSE TO CLAIM IV

Summary of Petitioners Comments and EPA Response – IV Condition 6.1.1 and Applicable Requirements:

Petitioners assert that permit Condition 6.1.1 is contrary to the Clean Air Act in that NMED cannot automatically conclude that compliance with a title V permit assures compliance with the National Ambient Air Quality Standards (NAAQS).

The EPA granted Petitioners' objection on this issue because the NMED failed to fully respond to Petitioners' comments relating to permit Condition 6.1.1.

NMED Response – IV Condition 6.1.1 and Applicable Requirements:

The NMED considered the basis for Condition 6.1.1 and offers in our response that the basis of Condition 6.1.1 was to provide assurance that the facility will maintain compliance with the NAAQS that were applicable during the previous NSR permitting action which required an air dispersion modeling analysis. As we explained in the RTC, the NMED's mechanism for facilities to demonstrate compliance with the NAAQS typically occurs in the NSR permitting process and in this instance Condition 6.1.1 was meant only to apply to those NAAQS that were effective at the time of the previous NSR permitting action which required a modeling demonstration. The Department agrees that Condition 6.1.1, as written, does appear contrary to the Clean Air Act in that the NMED cannot automatically provide that compliance with the terms and conditions of the Title V permit assures compliance with the NAAQS. The Department did not intend to create a condition that ensured compliance with all NAAQS through compliance with terms and conditions of the Title V permit.

Upon review, the NMED finds the language in Condition 6.1.1 unnecessary and further finds that this condition should be removed from the permit to deter further misunderstanding of the intent and purpose of this condition. The Title V permit for Sims Mesa will be re-opened to remove Condition 6.1.1.

VIII. SUMMARY

Based on the above arguments, NMED will take the following actions in response to Claims I – IV by the Petitioners:

Re-opening of Title V Permit P026R2 (see Attachment 5: Draft re-opened Permit P026R2M1). The following is a summary of proposed changes:

1) Claim I – No action
2) Claim II – Re-open and revise Condition 5.1 as cited in the above response
3) Claim III.A.1 - New conditions (numbers 1.10, 3.4.2.4, and 4.2.3) will be added to the re-opened permit that explicitly requires proper operation, maintenance, and corresponding records rather than relying on the requirements in 20.2.7 NMAC Excess Emissions and standard industry practice. Condition 3.3 will be changed to refer back to the requirements in Condition 1.10. NMED is also adding a new condition (number 3.4.2.2) to the Title V re-opened permit requiring NOx and CO EPA Method Tests on engines 3 and 5.
4) Claim III.A.2 – Re-open and revise Condition 3.4.1.3.3
5) Claim III.B – Re-open and revise Condition 3.4.2.2 (now Condition number 3.4.2.3) to remove the statement that compliance with NOx emission limits demonstrates compliance with VOC emission limits.
6) Claim IV – Re-open and remove of Condition 6.1.1

Supplementation of permit record only:

1) Claim I – The prior discussion concerning common control will be summarized in a revised Statement of Basis for the re-opened permit.

NMED will supplement the permit record in the Statement of Basis for the re-opened permit to address final actions on all Claims.

This Response to Order constitutes a full response by NMED to EPA's July 29, 2011 Order.

Attachments:

Attachment 1: 3/12/10 Letter from DCP Midstream to the State of Colorado
Attachment 2: 3/29/10 Letter from NMOGA to NMED
Attachment 3: 7/14/10 Colorado Response to EPA Order
Attachment 4: 8/25/11 and 11/9/11 Letters from Devon Energy to NMED
Attachment 5: Draft Re-opened Permit P026R2M1

BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF Anadarko Petroleum Corporation, Frederick Compressor Station Permit Number: 95OPWE035 Issued by the Colorado Department of Public Health and Environment, Air Pollution Control Division	)	ORDER RESPONDING TO PETITIONERS' REQUEST THAT THE ADMINISTRATOR OBJECT TO ISSUANCE OF A STATE OPERATING PERMIT Petition Number: VIII-2010-4

ORDER DENYING PETITION FOR OBJECTION TO PERMIT

INTRODUCTION

The United States Environmental Protection Agency ("EPA") received a petition on November 5, 2010, from Wild Earth Guardians ("WEG" or "Petitioner"). In its petition, WEG requests that EPA object, pursuant to section 505(b)(2) of the Clean Air Act ("CAA" or "the Act"), 42 U.S.C. § 7661d, to the July 14, 2010, response of the Colorado Department of Public Health and Environment, Air Pollution Control Division (CDPHE) to the October 8, 2009 Order by EPA objecting to the issuance of the renewed title V permit for Anadarko Petroleum Corporation's (Anadarko's) Frederick Compressor Station, Permit Number 95OPWE035 issued on January 1, 2007.[1]

Specifically, WEG objects that CDPHE's response failed to appropriately assess whether oil and gas wells and other pollutant emitting activities connected with the Frederick Compressor Station should be aggregated together as a single stationary source for PSD and title V permitting purposes, to ensure compliance with applicable CAA requirements. WEG alleges that CDPHE's failure to aggregate the Frederick Compressor

[1] As is explained further in the Background section of this Order, WEG's November 5th petition is the third petition filed by WEG or a predecessor organization concerning the title V permit for Anadarko's Frederick Compressor Station (petition III). The first petition was filed on December 29, 2006 (petition I) and the second petition was filed on August 14, 2009 (petition II). EPA responded to those petitions on February 7, 2008, and October 8, 2009, respectively.

Station with other oil and gas wells and associated equipment that are connected with the compressor station is still unsupported and contrary to regulation and EPA guidance. WEG also alleges that CDPHE's analysis contained in its July 14, 2010, response is not legally adequate and is devoid of objectivity.

EPA has reviewed the allegations in petition III pursuant to the standards set forth by section 505(b)(2) of the Act, which provides that a petition generally may be based only on objections to the permit that were raised with reasonable specificity during the comment period provided by the permitting agency and places the burden on Petitioner to "demonstrate to the Administrator that the permit is not in compliance" with the applicable requirements of the Act or the requirements of Part 70. *See also* 40 CFR § 70.8(c)(1) and (d); *New York Public Interest Research Group, Inc. v. Whitman*, 321 F.3d 316, 333 n.11 (2nd Cir. 2002).

In reviewing the various allegations made in the petition, EPA considered, among other things: Petition III, including exhibits; EPA's October 8, 2009 Order granting petition II; CDPHE's July 14, 2010, response to the October 8, 2009 Order; supplemental information provided by CDPHE in a letter dated December 27, 2010; and the information reviewed in responding to petition I and petition II.

Based on a review of all the information before me, I deny Petitioner's request that EPA object to the CDPHE's response of July 14, 2010, concerning the Frederick Compressor Station title V permit, for the reasons set forth in this Order.

STATUTORY AND REGULATORY FRAMEWORK

Section 502(d)(1) of the Act calls upon each State to develop and submit to EPA an operating permit program to meet the requirements of title V. EPA granted interim approval to the title V operating permit program submitted by the state of Colorado effective February 23, 1995. 60 Fed. Reg. 4563 (Jan. 24, 1995); 40 CFR part 70, Appendix A. *See also* 61 Fed. Reg. 56367 (Oct. 31, 1996) (revising interim approval). Effective October 16, 2000, EPA granted full approval to Colorado's title V operating permit program. 65 Fed. Reg. 49919 (Aug. 16, 2000).

All major stationary sources of air pollution and certain other sources are required to apply for title V operating permits that include emission limitations and such other conditions as are necessary to assure compliance with applicable requirements of the Act, including requirements of the applicable State Implementation Plan (SIP). *See* CAA §§ 502(a) and 504(a)., 42 U.S.C. §§ 7661a(a) and 7661c(a).

The title V operating permit program does not generally impose new substantive air quality control requirements (referred to as "applicable requirements"), but does require permits to contain monitoring, recordkeeping, reporting, and other requirements to assure compliance by sources with applicable requirements. *See* 57 Fed. Reg. 32250, 32251 (July 21, 1992) (EPA final action promulgating part 70 rule).

One purpose of the title V program is to "enable the source, states, EPA and the public to better understand the requirements to which the source is subject, and whether the source is meeting those requirements." 57 Fed. Reg. 32250, 32251 (July 21, 1992). Thus, the title V operating permits program is a vehicle for ensuring that air quality control requirements are appropriately applied to facility emission units and that compliance with these requirements is assured.

Under section 505(a), 42 U.S.C. § 7661d(a), of the CAA and the relevant implementing regulations (40 C.F.R. § 70.8(a)), states are required to submit each proposed title V operating permit to EPA for review. Upon receipt of a proposed permit, EPA has 45 days to object to final issuance of the permit, if it is determined not to be in compliance with applicable requirements or the requirements under title V. 40 C.F.R. § 70.8(c).

If EPA does not object to a permit on its own initiative, section 505(b)(2) of the Act provides that any person may petition the Administrator, within 60 days of expiration of EPA's 45-day review period, to object to the permit. 42 U.S.C. § 7661d(b)(2), *see also* 40 C.F.R. § 70.8(d). The petition must "be based only on objections to the permit that were raised with reasonable specificity during the public comment period provided by the permitting agency (unless the petitioner demonstrates in the petition to the Administrator that it was impracticable to raise such objections within such period or unless the grounds for such objection arose after such period)." Section 505(b)(2) of the Act, 42 U.S.C. § 7661d(b)(2).

In response to such a petition, the CAA requires the Administrator to issue an objection if a petitioner demonstrates that a permit is not in compliance with the requirements of the CAA. 42 U.S.C. § 7661d(b)(2). *See also* 40 C.F.R. § 70.8(c)(1); *New York Public Interest Research Group (NYPIRG) v. Whitman*, 321 F.3d 316,333 n. 11 (2nd Cir. 2003).

Under section 505(b)(2), the burden is on the petitioner to make the required demonstration to EPA. *Sierra Club v. Johnson*, 541 F.3d. 1257, 1266-1267 (11th Cir. 2008); *Citizens Against Ruining the Environment v. EPA*, 535 F.3d 670, 677-678 (7th Cir. 2008); *Sierra Club v. EPA*, 557 F.3d 401, 406 (6th Cir. 2009) (discussing the burden of proof in title V petitions); *see also NYPIRG*, 321 F.3d at 333 n. 11.

BACKGROUND

The Facility

The Frederick Compressor Station is a Natural Gas Gathering and Compression facility as defined under Standard Industrial Classification (SIC) 1311. Gas is compressed to specification for transmission to sales pipelines using three internal combustion engines to power compressor units. Other activities conducted on site

include dehydration of the gas through contact with triethylene glycol, and gravity separation of condensates. The dehydrator is equipped with a thermal oxidizer unit to control volatile organic compound (VOC) emissions. Emissions from the tanks located onsite are controlled with an air-assist vertical flare. Fugitive VOC emissions also result from equipment leaks.

The Permit

On January 1, 2007, CDPHE renewed the Frederick Compressor Station operating permit pursuant to title V of the Act, the federal implementing regulations at 40 CFR Part 70, and the Colorado State implementing regulations at Regulation No. 3 part C. Petitioner commented during the public comment period, raising concerns with the draft operating permit. At the time of permit renewal, the Frederick Compressor Station was owned by Kerr-McGee Gathering, LLC. Kerr-McGee Gathering, LLC is now a wholly-owned subsidiary of Anadarko.[2]

On January 3, 2007, WEG filed its first petition (petition I) objecting to the renewal. Petition I alleged that the Frederick Compressor Station permit does not comply with 40 CFR part 70 in that: (1) the title V permit failed to assure compliance with Prevention of Significant Deterioration ("PSD") requirements because CDPHE failed to consider whether emissions from adjacent and interrelated pollutant emitting activities triggered PSD review, specifically Anadarko owned natural gas wells that supply natural gas to the Frederick Compressor Station; (2) in light of CDPHE's failure to consider PSD compliance, it is likely that the title V permit must include a compliance schedule; (3) CDPHE failed to respond to significant comments submitted by Petitioner during the title V public comment period; and (4) CDPHE failed to consider adjacent and interrelated pollutant emitting activities in defining the "source" subject to title V.

On February 7, 2008, EPA issued an Order granting petition I. EPA determined that CDPHE had failed to adequately respond to comments from WEG regarding the need to aggregate potentially connected sources of air pollution as a single source of air pollution. EPA directed CDPHE to respond to Petitioner's comments and, as necessary, supplement the permit record and make appropriate changes to the permit.

On April 29, 2008, CDPHE submitted the Technical Review Document (TRD) Addendum as its full response to EPA's February 7, 2008 Order. On August 1, 2008, EPA Region 8 informed WEG by letter of WEG's additional opportunity to petition in light of the TRD Addendum. WEG did so on August 14, 2008.

The August 14, 2008 petition (petition II) alleged that CDPHE's response to the February 7, 2008 Order – the TRD Addendum, together with CPDHE's determination that "no changes to the [title V] permit" are warranted – was inconsistent with the CAA.

[2] Kerr-McGee Gathering is one of several "midstream" companies operating in the Wattenburg Field. Midstream companies receive gas from wells, but do not control operation of the wells. See pages 3, 29-30 of CDPHE's July 14, 2010, response.

Petitioner argued that the permit continued to fail to ensure compliance with all applicable requirements, including PSD, title V permitting requirements, and the Colorado SIP. Petitioner requested that EPA object, pursuant to section 505(b)(2) of the Act, to the renewal of Anadarko's Frederick Compressor Station permit.

On October 8, 2009, EPA issued an Order granting petition II. EPA determined that CDPHE had failed to provide an adequate basis in the permit record for its determination of the source for PSD and title V purposes. CDPHE was required to supplement the permit record and, as necessary, make appropriate changes to the permit. It was recommended that CDPHE conduct a source determination analysis based on the three regulatory criteria laid out in PSD rules under the definition of "[b]uilding, structure, facility or installation" and ordered that CDPHE "establish a more thorough permit record" and "make any appropriate changes to the permit." While the Order recommended various factors that CDPHE could evaluate when assessing various emission sources in the Wattenberg gas field, it also recognized that CDPHE had the authority to request different or additional information in determining whether the various pollution emitting activities are contiguous or adjacent to, and under common control with, the Frederick Compressor Station.

On July 14, 2010, CDPHE submitted its response to EPA's October 8, 2009, Order, determining that after consideration of "all the facts, relevant applicability determinations, legal precedent, regulations and the [permitting] record...it is not appropriate to aggregate [the] Frederick Station with other emission sources in the Wattenberg Field." (Petitioner Exhibit 3 at 42). EPA advised Petitioner, in a letter dated October 18, 2010, that there was an opportunity to petition EPA to object to the July 14, 2010, response of CDPHE. Petitioner filed this petition on November 5, 2010.

ISSUES RAISED BY PETITIONER

Petitioner argues that CDPHE's position in its July 14, 2010, response, that aggregation is inappropriate, is unsupported and contrary to regulation and EPA guidance. Petitioner supports its position on the basis that: (1) EPA's prior aggregation determinations overwhelmingly demonstrate that oil and gas sources, and other similar sources, can be aggregated; (2) the pivotal factor in prior source determinations was whether the pollutant emitting activities were physically connected, such as with a pipeline or not, and that EPA's prior aggregation determinations, as well as PSD and title V regulations, do not require complete and exclusive interdependence between sources for aggregation; and (3) the prohibition on aggregation of oil and gas sources in CAA section 112 demonstrates Congress's intent that oil and gas sources be aggregated, where appropriate, for PSD and title V purposes. Discussion of each of these three points follows below.

I. The Title V Permit Fails to Apply Prior EPA Aggregation Statements

Petitioner's claim: Petitioner argues that the Administrator must object to the Frederick Compressor Station title V permit and CDPHE's response to the extent it fails to appropriately apply EPA guidance in justifying its source determination under PSD and title V. Petitioner cites several examples of prior agency statements where oil and gas sources were aggregated and a few where EPA found aggregation to be inappropriate. In particular, Petitioner asserts that CDPHE made no effort to apply prior EPA guidance in assessing the adjacency and/or contiguousness of the Frederick Compressor Stations with other pollutant emitting activities. Petition at 18.

The examples cited by Petitioner as prior statements regarding aggregation have been included by Petitioner as Exhibits 14, 16, 17, 18, 19, 20, 21, 22, 23, 24 and 25. These exhibits consist of the following:

Exhibit 14: Great Salt Lake Minerals (processing plant and brine pump station)
Exhibit 16: Citation Oil & Gas Corporation/Walker Hollow Unit (oil field)
Exhibit 17: EnerVest San Juan Operating Company (coal bed methane gathering compression stations)[3]
Exhibit 18: Valero Transmission Company (gas processing plant and gas transmission station)
Exhibit 19: Summit Petroleum Corporation/Mount Pleasant (gas field)
Exhibit 20: American Soda (commercial mine and soda ash processing plant)
Exhibit 21: Forest Oil/Kustatan Oil Production Facility and Osprey Oil Platform
Exhibit 22: ESCO Corporation/Main Plant metal casting & coating & Plant 3 metal casting
Exhibit 23: Shell Oil Company/Wilmington Refinery Complex; Wilmington & Dominguez Sections
Exhibit 24: Anheuser-Busch Brewery and Nutri-Turf Farm
Exhibit 25: General Motors Corporation/Fisher Body Paint & Oldsmobile Plant

EPA's response: Petitioner mischaracterizes some of these prior agency statements as "determinations," Petition at 14, since several of the exhibits referenced in the petition are actually recommendation letters from EPA to states, which provide EPA's assessment of how the specific facts in a particular permitting action could be evaluated in light of the regulatory criteria for the source determination, but leave the state permitting authority with the discretion to make the final source determination. Exhibits 14, 17, 20, 22 and 25. Additionally, while some of the prior agency statements relied upon by Petitioner were determinations (Exhibits 16, 18, 19, 21, 23 and 24), applicability determinations are made on a case-by-case basis and, therefore, reliance on

[3]The discussion of the concept of a "source" in the EnerVest San Juan Operating Company Letter (Petitioner's Exhibit 17) was not a "source" determination. It was intended to be a demonstration of the extent to which EPA would evaluate pollutant emitting activities for inclusion into the gas gathering compressor stations identified by the company. No detailed source analysis was performed and no source determination was made.

prior determinations alone does not provide an adequate justification for determining the source in a later permitting process with different facts.

Stationary source determinations are made on a case-by-case basis considering the foundational concepts provided in the CAA and EPA and state implementing regulations. The current regulatory definition of stationary source for purposes of major New Source Review (NSR) applicability was promulgated in 1980.[4] In its June 1979 opinion in *Alabama Power*, the D.C. Circuit Court of Appeals rejected the definition of a source in our 1978 regulations.[5] As we noted in the preamble to our 1980 final rules:

> ...the December opinion of the court in Alabama Power sets the following boundaries on the definition for PSD purposes of the component terms of "source": (1) it must carry out reasonably the purposes of PSD; (2) it must approximate a common sense notion of a "plant;" and (3) it must avoid aggregating pollutant-emitting activities that as a group would not fit within the ordinary meaning of "building," structure, "facility," or "installation."[6]

We used these guiding principles from the Court's opinion, including the common sense notion of a plant, to develop the three regulatory criteria for determining when permitting authorities should consider two or more pollutant-emitting activities to be a single stationary source for purposes of the major NSR programs. A stationary source is any building, structure, facility, or installation, which emits, or may emit a regulated NSR pollutant. 40 C.F.R. §§ 51.165(a)(1)(i), 52.21(b)(5). A building, structure, facility, or installation is all of the pollutant-emitting activities which belong to the same industrial grouping (i.e., have the same primary two-digit SIC code), are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control).[7]

To be considered a stationary source for purposes of major NSR, the pollutant emitting activities must meet all three of the regulatory criteria. These same criteria were later adopted into the definition of stationary source in 40 CFR 70.2 for purposes of determining when two or more pollutant-emitting activities are considered a stationary source for purposes of the title V permitting program, and EPA was clear that the

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[4] 45 FR 52676 (August 7, 1980).

[5] *Alabama Power Company v. Costle*, 636 F.2d 323 (D.C. Circuit 1980) Hereafter referred to as *Alabama Power*.

[6] 45 FR 52694-5 (August 7, 1980).

[7] A building, structure, facility, or installation means all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial group if they belong to the same Major Group (i.e., which have the same primary two-digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement (U.S. Government Printing office stock numbers 4101-0065 and 003-005-00176-0, respectively. See 40 CFR 51.165(a)(1)(ii), 51.166(b)(6), 52.21(b)(6), and Section II.A.2 of Appendix S of 40 CFR Part 51.

language and application of the title V definition was to be consistent with the NSR definition contained in section 52.21. *See* 61 Fed. Reg. 34202, 34210 (July 1, 1996).

Guidance on source aggregation determinations under PSD and title V is provided in the September 22, 2009, Memorandum from Gina McCarthy, Assistant Administrator, Office of Air and Radiation, titled, *Withdrawal of Source Determination for Oil and Gas Industries (McCarthy Memo)*; available at:

http://www.epa.gov/region7/air/nsr/nsrmemos/oilgaswithdrawal.pdf).

For purposes of determining applicability of the PSD, nonattainment area NSR, and title V programs of the CAA, the McCarthy Memo states that permitting authorities should rely foremost on the three regulatory criteria for identifying emissions activities that belong to the same "building," "structure," "facility," or "installation." As stated above, these criteria are: whether the activities belong to the same industrial grouping (i.e., have the same primary two-digit SIC code), are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control). [*See* 40 C.F.R. §§ 70.2, 71.2, 63.2, 51.165(a)(1)(i)-(ii), 51.166(b)((5)-(6), and 52.21 (b)(6).]

The McCarthy Memo emphasized that whether to aggregate sources for purposes of PSD, NSR, and title V applicability is a case-by-case determination that represents highly fact-specific decisions. While recognizing that EPA has issued many source determinations in its own permitting actions and provided source determination guidance to other permitting authorities that might be informative in future permitting actions, the McCarthy Memo clearly stated that "no single determination can serve as an adequate justification for how to treat any other source determination for pollutant-emitting activities with different fact-specific circumstances." *Id.* at 2. Therefore, while the prior agency statements and determinations related to oil and gas activities and other similar sources may be instructive, they are not determinative in resolving the source determination issue for the Frederick Compressor Station, particularly where a state with independent permitting authority is making the determination and the prior agency statements had, as we discuss below, substantially different fact-specific circumstances than the Frederick Compressor Station determination.

Pertinent, fact-specific information for the Frederick Compressor Station determination was provided by CDPHE in its July 14, 2010, response to EPA's October 2009 petition Order. For example, the response provides the following information:

1. The Frederick Compressor Station, the oil and gas exploration and production wells, and associated equipment are considered to belong to the same industrial grouping; i.e., the same primary two-digit SIC code (Petitioner Exhibit 3 at 34);

2. Because Kerr-McGee Gathering and Kerr-McGee Oil & Gas Onshore (KMOGO)[8] are both wholly-owned subsidiaries of Anadarko, CDPHE considers that for purposes of this analysis, the oil and gas exploration and production facilities owned or controlled by KMOGO that are connected via pipeline to the Frederick Station are controlled by, or are entities under common control with, the same entity, Anadarko (Petitioner Exhibit 3 at 35);

   Conversely, pollutant-emitting sources, such as wells, condensate tanks or glycol dehydrators at the well head, that are owned and operated by a third party, are not considered by CDPHE to be under the common control of Kerr-McGee Gathering, and CDPHE has determined that it is not appropriate to consider them for possible inclusion in the Frederick Station, even if they would otherwise meet the other two parts of the test (i.e., the same two-digit SIC code and the contiguous or adjacent criteria) (Petitioner Exhibit 3 at 35);

3. The CDPHE emission point tracking database indicates that there is a network of approximately 24,000 wells with a "spider web" (Petitioner Exhibit 3 at 26) of gas gathering lines operated by many oil and gas exploration and production companies, condensate tanks, glycol dehydrators and gas gathering compressor stations operated by many gas gathering companies scattered over 2,000 square miles in the Wattenberg Field (Petitioner Exhibit 3 at 25, 26, 29, 37, 39);

4. The spacing and density of wells in the Wattenberg Field is regulated by the Colorado Oil and Gas Conservation Commission. Well locations can also be controlled by land agreements, access issues, geologic formations, terrain, and, in some situations, by federal or state land management agencies (Petitioner Exhibit 3 at 40);

5. The locations of wells surrounding the Frederick Station and their associated pollutant-emitting equipment are not chosen primarily because of their proximity to the station. The nearby wells and their associated pollutant-emitting equipment are not necessarily dependent on this station, nor is the Frederick Station dependent on certain nearby wells. (Petitioner Exhibit 3 at 39, 40) CDPHE also considered proximity of emission points as "*another* important factor" in a larger contiguous/adjacent analysis. Petitioner Exhibit 3 at 39 (emphasis added);

6. Information received by CDPHE from the companies operating in the Wattenberg Field[9] demonstrates that:

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[8] KMOGO operates certain oil and gas wells and associated emission sources in the Wattenberg Field such as storage tanks and dehydrators. See footnote 3 on page 3 of CDPHE's July 14, 2010, response.
[9] *See* footnote 23 on page 25 of CDPHE's July 14, 2010, response, listing the information received by the CDPHE.

a. Ownership and operations of the oil and gas exploration and production wells, gas gathering compressor stations, and various interstitial and ancillary operations are dispersed among at least fifty different oil and gas exploration and production companies and several midstream companies (Petitioner Exhibit 3 at 29);

b. Multiple streams of oil and gas produced by oil and gas exploration and production wells are sent to multiple gas gathering compressor stations owned and/or operated by Kerr McGee and other companies (Petitioner Exhibit 3 at 25, 33);

c. Kerr McGee Gathering accepts the gas provided by the oil and gas production companies under contractual agreements, but does not control or affect the operations of the wells that are subjects of the contract (Petitioner Exhibit 3 at 25);

d. It is the decision of the oil and gas production companies regarding how and when they operate their wells, such as a decision to shut-in a well because of market conditions. Kerr McGee Gathering cannot override that decision (Petitioner Exhibit 3 at 25, 26);

e. Neither the Frederick Compressor Station nor Kerr-McGee Gathering has operational control over these wells and their associated pollutant-emitting equipment, neither those owned/operated by KMOGO, nor those owned/operated by third parties. However, while Kerr-McGee Gathering may not exert operational control over KMOGO wells/equipment, they are controlled by the same corporate entity (i.e., Anadarko) for business purposes. (Petitioner Exhibit 3 at 37);

f. The gas gathering system's pressures, as a whole, determine how collected gas moves through the system's network of pipes and compressor stations, not contractual or other arrangements. Kerr-McGee Gathering's gas gathering agreements do not specify that collected gas will be moved through any specific compression station, including the Frederick Compressor Station. (Petitioner Exhibit 3 at 27, 37);

g. Once gas from a particular well is metered and flows into the gathering lines of a gas gathering company, that gas becomes commingled with other gas flowing through lines from wells operated by separate companies (Petitioner Exhibit 3 at 26);

h. The ownership, contractual, engineering, and operating realities of the Wattenberg Field support few, if any, instances of interdependence

among oil and gas exploration and production wells and gas gathering compressor stations (Petitioner Exhibit 3 at 39);

i. Should the Frederick Compressor Station be shut down for maintenance, equipment replacement, or other reasons, gas can flow to other gas gathering compressor stations with available capacity, based upon system pressures (Petitioner Exhibit 3 at 37); and

j. Gathering systems, including the portion of Kerr-McGee Gathering's system connected to the Frederick Compressor Station, are complex and subject to many variables that impact the gathering system dynamics. There are common changes to the gathering system dynamics on a day to day basis. There is no guarantee that gas collected from any KMOGO well will pass through the Frederick Station on any particular day (or portion of a day) (Petitioner Exhibit 3 at 38, 39).

Upon evaluation of each of the arguments made in the petition (including examination of the prior agency statements contained in the exhibits to that petition), all of the information and analysis provided by CDPHE in its July 14, 2010, response (Petitioner Exhibit 3), and other information in the record, EPA finds that Petitioner has not met its burden of demonstrating that the permit is not "in compliance with" the applicable requirements of the Act or the requirements of Part 70. Petitioner has not demonstrated that CPDHE incorrectly applied the three relevant regulatory criteria in determining whether to aggregate pollutant emitting activities into a single stationary source for purposes of PSD and title V applicability. The record shows that CPDHE determined that the Frederick Compressor Station and the other emission sources in the Wattenberg Field were under common control and in the same primary two-digit SIC code, but were not contiguous or adjacent. As explained below, CDPHE determined that Frederick Compressor Station and the other emission sources did not have a unique or dedicated interdependent relationship and were not proximate and therefore were not contiguous or adjacent, and Petitioner has not demonstrated that CDPHE's determination was fundamentally flawed or contrary to the relevant regulations, including the Colorado SIP.

The prior agency statements cited by Petitioner at Exhibits 14, 19, 20, 21, 22, 23, and 25 all involved pollutant-emitting activities with a common two-digit SIC code and under common control. Therefore, similar to the CDPHE determination, a "contiguous or adjacent" analysis was essential to the determination of whether the pollutant-emitting activities should be aggregated. As explained above, while these letters *may* be informative in later source determinations, they are not determinative of the source decision for this permitting action, especially given that CDPHE is exercising its independent permitting authority with regard to the Frederick Compressor Station. In addition, in these prior agency statements cited, the facts indicate a unique or dedicated relationship with no interference from other owners or operators, which resulted in a

conclusion in each case that the pollutant emitting activities were contiguous or adjacent. As discussed below, these circumstances are substantially different from Frederick Compressor Station.

- In the Forest Oil/ Kustatan Oil Production Facility and Osprey Oil Platform determination (Petitioner Exhibit 21), both pollutant-emitting activities were owned and operated by Forest Oil, and while Alaska's SIP does not require a common SIC code for source determinations (Petitioner Exhibit 21 at 4), both operations shared a primary SIC code. EPA examined the high degree of interrelatedness of the two pollutant-emitting activities and concluded that they should be considered adjacent. The pollutant emitting activities thus met all three regulatory criteria for source aggregation. In determining whether the activities were adjacent, Region 10 concluded that the platform and production unit operate as one facility as each is "exclusively dependent" upon the other.[10] The Osprey Oil Platform relied upon the Kustatan Oil Production Facility to process all of the platform's produced oil into marketable oil and gas, while separating and treating the produced water. Once treated, the produced water is piped back to the Osprey Oil Platform and re-injected into the formation off-shore. Further, Kustatan provides power generation to Osprey.

  These fact-specific circumstances are substantially different from the Frederick Compressor Station determination, where there is no dedicated relationship between Frederick Compressor Station and other activities under common control. Instead, multiple owner/operators control the movement of gas, and Kerr-McGee Gathering's gas gathering agreements do not specify that collected gas will be moved through any specific compression station, including the Frederick Compressor Station, and the gas from the wells (including KMOGO's wells) can flow to any number of locations other than Frederick Compressor Station (Petitioner Exhibit 3 at 25, 27, 29, 37, 38, 39).

- Similarly, in the aggregation determination for a gas sweetening plant and related gas wells operated by Summit Petroleum Company near Rosebush, Michigan (Petitioner Exhibit 19), the facts specific to that analysis indicated that all the operations in the gas field were owned or operated by Summit Petroleum Company and all the sour gas produced from wells in the field flowed to one gas sweetening plant through an integrated pipeline collection system. There was no evidence that any of the gas from the wells could flow to sweetening plants owned or operated by other entities. Thus, EPA concluded that the pollutant-emitting activities were adjacent, given their interdependent nature. As the activities also shared a common SIC code and were under common control, they met all three regulatory criteria for source

[10] Forest Oil Kustatan Facility and Osprey Platform Construction Permitting Applicability Determination, Memorandum from Douglas E Hardesty to Robert R. Robichaud, August 21, 2001, pg. 5.

aggregation. These fact-specific circumstances are substantially different from the Frederick Compressor Station determination, where there is no dedicated relationship between Frederick Compressor Station and other activities under common control, as explained above.

- The ESCO Corporation's Main Metal Casting and Coating Plant and its Plant 3 Metal Casting operations (Petitioner Exhibit 22) were under common control and had the same primary two-digit SIC code. EPA analysis of the facts indicated that these two pollutant emitting activities could be found to be adjacent because Plant 3 was entirely dependent on facilities at the main Plant for production of the company's finished product. All of the castings produced by the foundries at both the Main Plant and Plant 3 are coated at the coating facility located at the Main Plant. Furthermore, all final production, packaging, shipping, etc. of the finished product is done at the Main Plant. These fact-specific circumstances are substantially different from the Frederick Compressor Station determination, where there is no dedicated relationship between Frederick Compressor Station and other activities under common control, as explained above.

- Shell Oil Company's Wilmington Refinery Complex (Petitioner Exhibit 23) is divided into a Wilmington Section and a Dominguez Section. The Wilmington Section and the Dominguez section were under common control and had the same primary two-digit SIC code. The two sections were considered by EPA to be adjacent since they functioned together as one refinery. They were separated by 1.8 miles, but were connected by a network of pipelines used to transport intermediary products from one site to the other. The two sections thus had a dedicated relationship to each other. These fact-specific circumstances are substantially different from the Frederick Compressor Station determination, where there is no dedicated relationship between Frederick Compressor Station and other activities under common control, as explained above.

- General Motors Corporation's Fisher Auto Body Plant and Oldsmobile Plant (Petitioner Exhibit 25) were recommended by EPA to be considered under common control, in the same primary two-digit SIC code, and adjacent, due to their unique relationship. The two step assembly processes, while being a mile apart, were connected by a special railroad spur for transport between facilities, similar to a two step body/frame operation under one roof connected by a conveyor for transport of the bodies. The two plants were the only facilities served by the railroad spur. These fact-specific circumstances are substantially different from the Frederick Compressor Station determination, where there is no dedicated relationship between Frederick Compressor Station and other activities under common control, as explained above.

- The American Soda/Commercial Mine and Soda Ash Processing Plant (discussed in Petitioner Exhibit 20) were recommended by EPA to be considered in the same primary two-digit SIC code, under common control, and adjacent. It was recommended that the mine and ash processing plant be considered adjacent because "the two will clearly be functionally interdependent, as evidenced by the dedicated slurry pipeline and the spent brine return pipeline which will connect the two facilities." (Petitioner Exhibit 20 at 1.) These fact-specific circumstances are substantially different from the Frederick Compressor Station determination, where there is no dedicated relationship between Frederick Compressor Station and other activities under common control, as explained above.

- The Great Salt Lake Minerals processing plant and pump station (Petitioner Exhibit 14) were recommended by EPA to be considered in the same primary two-digit SIC code, under common control, and adjacent. It was recommended that the processing plant and pump station be considered adjacent because of the "unique relationship between the pump station and the salt processing plant and the dedicated channel (21.5 miles) between the two that supplies the pre-concentrated brine." (Petitioner Exhibit 14 at 2.) These fact-specific circumstances are substantially different from the Frederick Compressor Station determination, where there is no dedicated relationship between Frederick Compressor Station and other activities under common control, as explained above.

- The Anheuser-Busch Brewery determination (Petitioner Exhibit 24) concerned a brewery and landfarm that were under common control and were considered to be adjacent, based on the interrelatedness of the two sites.[11] The brewery wastewater stream, containing hydrocarbons, was piped to the landfarm and disposed of by land application. The brewery and landfarm were determined to be adjacent because the "landfarm is an integral part of the brewery operations" and "brewery operation is dependent on landfarm operations." These fact-specific circumstances are substantially different from the Frederick Compressor Station determination, where there is no dedicated relationship between Frederick Compressor Station and other activities under common control, as explained above.

In each of these Exhibits (14, 19-25) that Petitioner cites, sources were considered contiguous or adjacent where a unique or dedicated relationship existed between the two pollutant emitting activities[12]. On the contrary, the Wattenberg Field has a "spider web"

[11] The Anheuser-Busch Brewery determination also included an analysis finding that the landfarm was a support facility for the brewery. EPA determined that the landfarm's purpose was to support the production of the primary product (beer). Thus, EPA concluded that they should be considered to share the same major SIC code. *See also* discussion of Valero Transmission Company (Petitioner Exhibit 18) below.

of gas gathering lines operated by many oil and gas exploration and production companies, as well as condensate tanks, glycol dehydrators and gas gathering compressor stations operated by many gas gathering companies.[13] As described by CDPHE in its July 14, 2010, response (Petitioner Exhibit 3), ownership and operations of the oil and gas exploration and production wells, gas gathering compressor stations, and various interstitial and ancillary operations are dispersed among at least fifty different oil and gas exploration and production companies and several midstream companies.[14] The ownership, contractual, engineering, and operating realities of the Wattenberg Field support few, if any, instances of unique and dedicated relationships among oil and gas exploration and production wells and gas gathering compressor stations.[15]

Petitioner also relies on the Valero Transmission Company analysis (Petitioner Exhibit 18), which involved pollutant-emitting activities that were both under common control and located on contiguous property but did not share a common two-digit SIC code. Therefore, the Valero determination focused only on whether the Transmission Company was considered to be a support facility to the Gathering Company, and thus treated as if they were under the same SIC code. It did not address interrelatedness of the activities as it related to the contiguous or adjacent element of the source determination. Moreover, in the support facility analysis, it is not clear which specific pollutant emitting activities were included in the analysis, whether multiple gas streams from other owner/operators were sent to the Transmission Station, and whether there was a unique and dedicated relationship between the Transmission Company and the Gathering Company. Accordingly, the Valero determination is irrelevant to the source decision for this permitting action, since CDPHE is exercising its independent permitting authority with regard to determining whether the Frederick Compressor Station is adjacent to other activities in the Wattenberg Field under common control.

Petitioner cites Exhibit 27 (Utility Trailer letter) as an example of EPA determinations concerning whether two sources are contiguous or adjacent. As Petitioner notes, EPA did not make a final applicability determination in this letter. Instead, EPA maintained that the distance associated with "adjacent" must be considered on a case-by-case basis and suggested a list of questions that the state could consider in making that determination. However, nothing in the letter suggests that these questions are either

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[12] Petitioner also relies on the Walker Hollow Unit (Petitioner Exhibit 16) and EnerVest San Juan Operating Company (Petitioner Exhibit 17) letters, but it is not clear how informative (if at all) these letters are to this action. The letters contain no detailed analysis of the relevant regulatory criteria for the source determination as applied to the specific facts of the emission points under review. Instead the letters simply make conclusory statements regarding groups of emission points that "would be considered a single stationary source" and then discuss information necessary to determine whether they were *major* stationary sources for permitting purposes. Given the lack of detailed analysis of the source determination, these letters cannot serve as an adequate justification for how CHPHE should treat the source determination for the Frederick Compressor Station, nor are the letters a basis for concluding that CDPHE's determination is unsupported and contrary to regulation and EPA guidance.

[13] Petitioner's Exhibit 3, Page 26.

[14] Petitioner's Exhibit 3, Page 29.

[15] Petitioner's Exhibit 3, Page 39.

required or determinative of the source aggregation issue, especially in the context of a different industry. Thus, this letter comports with the McCarthy memo in that source determinations are made on a case-by-case basis, considering the specific facts of the situation.

After review of Petitioner's arguments and CDPHE's response to the petition II Order, it is my determination that Petitioner has not met its burden of demonstrating that the permit "is not in compliance" with the applicable requirements of the Act or the requirements of Part 70. While Petitioner argues that an objection is necessary because the CDPHE determination "fails to appropriately apply EPA guidance in justifying its source determination" for the Frederick Compressor Station, Petitioner's citation of prior agency statements, in which EPA suggested that aggregation of various pollutant-emitting activities may be appropriate for source determinations in different permitting actions, does not demonstrate that CDPHE's determination otherwise in this permitting action is fundamentally flawed or contrary to the relevant regulations, including the Colorado SIP. Therefore, I deny Petitioner's request to object to the permit on this basis.

II. EPA's Prior Statements and Regulations Do Not Require Complete and Exclusive Interdependence Between Sources for Aggregation.

Petitioner's claim: Petitioner argues that CDPHE "rested its determination on an arbitrary assertion that the Frederick Compressor Station is not "exclusively" dependent on the oil and gas wells and other pollutant-emitting activities connected to the compressor station, and vice-a-versa." Petitioner asserts that this type of interdependence analysis is not supported by prior EPA guidance and is counter to the requirements of PSD and title V regulations. Petitioner further claims that EPA guidance, as well as the common sense notion of plant embodied in EPA's regulations, demonstrates that oil and gas sources should be aggregated if they regularly support one another in the production of pipeline quality oil and gas. Petition at 22. Petitioner cites Exhibits 16, 17, 18, 22, and 27 as examples of prior determinations where sources were aggregated without relying on whether oil and gas sources were completely and exclusively interdependent. Petition at 19-20. Petitioner also rejects reliance on complete and exclusive interdependence by claiming that the 1980 preamble noted that a boiler providing process steam for two different sources should be aggregated with whichever source is the primary recipient of the boiler's output. Petition at 19.

EPA's response: Petitioner's claims regarding "support facilities" in the context of determining whether two points are contiguous or adjacent confuses two of the three regulatory criteria for determining whether pollutant emitting activities should be aggregated. As explained in the 1980 preamble to the NSR rules, a support facility analysis is only relevant under the SIC-code determination. EPA explained that when two activities have different SIC codes, a support facility analysis may be conducted to determine whether the activities should be treated as having the same industrial grouping.

The preamble clarifies that "support facilities" that "convey, store, or otherwise assist in the production of the principal product or group of products produced or distributed, or services rendered" should be considered under one source classification, even when the support facility has a different primary two-digit SIC code. Thus one source classification encompasses both primary and support facilities, even when the latter includes units with a different primary two digit SIC code. See 45 FR 52696. In making a determination of whether two activities share the same industrial grouping, the 1980 preamble explains that a boiler that provides process steam for two different sources should be aggregated with whichever source is the primary recipient of the boiler's output. See 45 FR 52695.

While EPA's prior recommendations and determinations involving support facilities are instructive, CDPHE has already determined that the Frederick Compressor Station and the surrounding Wattenberg gas and oil field pollutant-emitting activities share the same primary two-digit SIC code. Therefore, there is no reason to analyze whether there is a support facility relationship between Frederick Compressor Station and the surrounding activities.

Petitioner cites Exhibits 16, 17, 18, 22 and 27 as examples where sources were aggregated without relying on whether they were completely and exclusively interdependent.[16] Each of these Exhibits concerned the second regulatory criterion, whether sources are contiguous or adjacent. However, none of these examples demonstrate that CDPHE applied an improper standard. In the Citation Oil and Gas determination cited by Petitioner (Petitioner Exhibit 16), there was no evidence that any of the oil from the wells could flow to tank batteries owned by other companies. With regard to Exhibit 22, EPA's analysis noted the "dependent" nature of one pollutant emitting activity on the other. In addition, as Petitioner notes, EPA did not make a final applicability determination in the letter constituting Exhibit 27. Instead, EPA advised that the State should evaluate whether the facilities could be operated independently of each other, and that the State's source determination must be made on a case-by-case basis.

Moreover, as discussed in Section I of this Order, there are many instances in which EPA applied the relevant regulations and considered pollutant emitting activities to be contiguous or adjacent where a dedicated relationship existed between the two pollutant emitting activities under common control. For example, in the Summit Petroleum determination cited by Petitioner (Petitioner Exhibit 19), it was found that all the sour gas produced from wells in the field flows to the one gas sweetening plant owned by Summit Petroleum through a pipeline collection system. In Summit, there was no evidence that any of the gas from the wells could flow to sweetening plants owned by other companies. Similar findings were made in the aggregation determinations for the Forest Oil/Kustatan Production operations (Petitioner Exhibit 21), the Shell Oil Company

[16] For the reasons we cite in Footnote 12, it is not clear how informative (if at all) the letters in Exhibit 16 or 17 are to this action. For the reasons we discuss in Section I of this Order, the letter in Exhibit 18 is irrelevant to the source decision for this permitting action.

Refinery Complex (Petitioner Exhibit 23), and the General Motors Corporation Fisher Auto Body and Oldsmobile operations (Petitioner Exhibit 25).

Finally, Petitioner references two examples, Shell Offshore, Inc. (OCS Appeal Nos. 07-01 and 07-02, September 14, 2007) and Williams Energy Ventures (at Petitioner's Exhibit 26) that resulted in separate source determinations, asserting that these sources were determined to be separate because there was no pipeline connection and suggesting that the existence of a pipeline connection would have been pivotal. In both of these determinations, the pollutant-emitting activities were in the same primary two-digit SIC code and under common control. Thus, the aggregation determination turned on whether the sources were considered contiguous or adjacent. However, Petitioner's argument regarding the importance of a pipeline connection is flawed, for the following reasons.

First, the Shell Offshore, Inc. determination was never finalized by the Agency, and EPA's source determination was in fact remanded to the Agency in the decision cited by Petitioner. See Petition at 15. Accordingly, it is not clear what (if any) relevance that determination should have on future permitting actions. Moreover, an examination of the permitting record demonstrates that the determination was based on a number of factors, especially the vast area separating the drilling ships and lack of dependence in the operation of the two ships, as well as the lack of a physical connection between them. See 13 E.A.D. 357, 368 (EAB 2007) (describing the factors the EPA region considered in making the source determination). Therefore, the separate source determination in this case did not pivot on the lack of a pipeline connection.

Second, the Williams Energy Ventures Bulk Gasoline Terminals were determined to be separate sources based on consideration of a number of factors, including the recognition that each terminal could be operated independently. Again, this separate source determination did not pivot on the lack of a pipeline connection.

Furthermore, CDPHE addressed the specific facts in this matter and concluded that the activities being evaluated are not adjacent. As noted by CDPHE in its July 14, 2010, response (Petitioner Exhibit 3), the process of producing natural gas in the Wattenberg field is split among the various facilities. Wells produce, separators separate, and compressor stations gather and compress the gas. However, CDPHE also determined that no one compressor station or well in the Wattenberg field receives or provides products or intermediate products exclusively to the other. In other words, they do not have a unique or dedicated relationship to each other. CDPHE concluded that gas production companies have the ability to send, and do send, produced gas to a number of different compressor stations. In addition, the flow dynamics change often, in some cases on a daily basis, which influences how gas is sent. Some of these compressor stations are owned and operated by the same or a related entity, while others are not owned or operated by the same or a related entity. CDPHE determined that specific compressor stations, like the Frederick Compressor Station, are not addressed or identified individually in gathering contracts. This gives the gathering company flexibility to allow

the gas from a particular well to flow to a different compressor station connected to the gathering system as conditions warrant. For instance, if the Frederick Compressor Station is not operating because of maintenance, repair, or new equipment installation, the gas from a well that normally could flow to the Frederick Station would instead flow to another compressor station.[17]

Petitioner also generally claims that CDPHE improperly relied on the fact that oil and gas sources may be located some distance apart from one another in finding they are not adjacent, and instead argues that EPA guidance has noted that "distance between sources is not determinative." Petition at 13. However, the petition acknowledges that EPA guidance has indicated that proximity of sources may be considered in source determinations. *See id.* at 13 (citing McCarthy Memo statements noting that proximity may be considered as part of a "reasoned decision making" which includes other factors relevant to the analysis).

In this case, CDPHE did not use distance as *the* determinative factor in its source determination, but rather CDPHE considered proximity of emission points as "*another* important factor" in a larger contiguous/adjacent analysis. Petitioner Exhibit 3 at 39 (emphasis added); *compare with* Petitioner Exhibit 3 at 35-39 (discussing the complex legal, engineering, and operational relationships between the various points in the field in finding they were not adjacent). In particular, CDPHE noted that other states have considered emission points within a quarter mile to be adjacent and stated that "[t]his distance is consistent with a practical meaning of the term adjacent." Petitioner Exhibit 3 at 39-40. CDPHE then noted that there are no commonly-controlled pollutant-emitting activities within a quarter mile of the Frederick station. Petitioner Exhibit 3 at 40. Furthermore, CDPHE concluded that the lack of proximity "between the Frederick Station and the wells/pollutant emitting-equipment strains the common sense notion of a plant." *Id.* Petitioner has not demonstrated that CDPHE's analysis was flawed for including proximity as one factor in contiguous or adjacent, nor that the particular consideration of proximity was inappropriate or incomplete. *See* Petition at 13 (discussing the number of wells within a mile of the Frederick Station without any discussion of the quarter mile analysis completed by CDPHE).

After review of Petitioner's arguments and CDPHE's response to the petition II Order, it is my determination that Petitioner has not met its burden of demonstrating that the permit "is not in compliance" with the applicable requirements of the Act or the requirements of Part 70. Petitioner does not demonstrate that the manner in which CDPHE considered and weighed interdependence (as well as proximity) is fundamentally

[17] Petitioner's Exhibit 3 at 25, 26, 27, 29, 33, 35, 37, 39. See, also, pages 8 through 10 of this document for further detailed reference. We also note that Petitioner asserts (*see* Petition at 19) that CDPHE's analysis is flawed because gas from particular wells may only flow to other compressor stations during specific events (such as maintenance and repair shutdowns). However, that fact is still evidence that the wells and the Frederick Compressor Station do not have an exclusive interdependence with one another and does not negate CDPHE's finding that they are separate stationary sources.

flawed or contrary to the relevant regulations, including the Colorado SIP. Therefore, I deny Petitioner's request to object to the permit on the basis of this issue.

III. The State Inappropriately Cites to Section 112 of the Clean Air Act to Support Its Determination.

Petitioner's claim: Petitioner argues that CDPHE improperly relies on the significance of section 112(n)(4)(A) of the CAA – which addresses hazardous air pollutants (HAPs) and prohibits the aggregation of oil and gas sources to determine whether a source is a major source for HAPs – and says the Administrator "must object to the Frederick Compressor Station Title V Permit and [CDPHE's] Response to Objection to the extent it [*sic*] relies on Section 112 of the Clean Air Act to justify its source determination under PSD and Title V." Petition at 23.

EPA's response: CDPHE only discusses CAA section 112 in the general background on the three-part stationary source regulatory test. See Exhibit 3 at page 23. Petitioner has not identified any discussion of section 112 beyond that contained in CDPHE's general background, *see* Petition at 22-23, and EPA could identify no citation to, or reliance on, section 112 in the CDPHE's application of the source determination requirement to the Frederick Station, *see* Exhibit 3 at 30-42. Accordingly, I deny Petitioner's request to object to the permit on this basis.

IV. Petitioner's comment on reservation of rights.

WEG's Petition for Objection includes a section entitled, "Reservation of Rights" (ROR), in which WEG explains that the petition is filed to preserve WEG's rights in light of EPA's determination that WEG has an opportunity to petition the Administrator to object to the issuance of the Division's July 14, 2010, Response to Objection. *See* Exhibit 5 to WEG's Petition, Letter from Callie A. Videtich, EPA Region 8, to Jeremy Nichols, WildEarth Guardians, In re: Opportunity to Petition on Colorado's Response to EPA's October 8, 2009 Anadarko Frederick Administrative Order (Oct. 18, 2010). WEG's ROR further states:

> In filing this Petition, WildEarth Guardians does not waive its rights to challenge the EPA's failure to issue or deny the Title V Permit for the Frederick Compressor Station, does not waive its rights to argue that the Division failed to submit a permit revised to meet the Administrator's objection, and does not waive its rights to argue that a Title V Petition is not the appropriate avenue under the Clean Air Act to address the deficiencies in the Division's response. WildEarth Guardians is only filing this Title V Petition to preserve its rights in the face of conflicting guidance from EPA.

The ROR presents the argument that 42 U.S.C. § 7661d(c) requires EPA to issue or deny a title V permit because CDPHE did not "submit a permit revised to meet the

objection" and that CDPHE did not issue a "proposed permit" triggering EPA's 45-day review period and the 60-day petition period.

The ROR also presents WEG's view that because CDPHE did not respond to EPA's petition within 90 days, pursuant to 42 U.S.C. § 7661d(c), the authority and obligation to issue the operating permit for the Kerr-McGee facility has passed to EPA and that CDPHE has lost all authority to administer the current permit. WEG asserts that CDPHE's late response to EPA's Order is irrelevant because CDPHE no longer has permitting authority.

Despite the arguments presented in the ROR, the remainder of the petition makes clear that the basis for WEG's request that EPA object to the permit is CDPHE's failure to make an accurate source determination and is unrelated to the issues that are raised in the ROR. (See, e.g., page 9 of the petition, section entitled, "Grounds for Objection: The Title V Permit Still Fails to Ensure Compliance with PSD and Title V Requirements," in which WEG introduces the basis for the petition as follows: "In this case, the Division continues to fail to make an accurate source determination for the Frederick Compressor Station. Notably, the Division continues to fail to appropriately assess whether adjacent pollutant emitting activities, namely the oil and gas wells and associated equipment that feed the Frederick Compressor Station, should be aggregated together as a single source.")

Therefore, this response addresses the source determination issues raised by WEG because these issues, and not the issues raised in the ROR, are the basis for WEG's petition to object. Further, a response to the arguments raised in the ROR is not required because the ROR merely serves to put EPA on notice that certain rights have not been waived. EPA does not agree with the arguments presented in WEG's ROR and reserves its rights to present arguments in opposition if relevant in any proceeding.[18]

CONCLUSION

For the reasons set forth above and pursuant to section 505(b)(2) of the Clean Air Act, I deny Petitioner's requests for an objection to the issuance of Anadarko's Frederick Compressor Station title V permit.

Dated: 2/2/11

Lisa P. Jackson
Administrator

[18] EPA notes that some of the issues raised in the ROR have also been raised in a complaint filed by WEG against EPA in WildEarth Guardians v. Jackson, 1:10-cv-01680 (D. CO.). That case has been stayed until February 2, 2011.

ADMINISTRATIVE RECORD INDEX

XTO Energy Inc., Bulldog Compressor Station

AQB 21-31 (P)

Index No.	Date	Bates No.	From	To	Format	Subject
1	9/25/2020	0001-0242	XTO Energy Inc.	Air Quality Bureau (AQB)	Hard Copy	Application 8153M1
2	10/23/2020	0243-0247	Air Quality Bureau (AQB)	XTO Energy Inc	Digital	Ruled Complete letter and Public Notice
3	10/23/2020	0248	Air Quality Bureau (AQB)	Carlsbad Cavern National Park	Digital	Affected Parties Letter
4	10/27/2020	0249-0251	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy/ Digital	Newspaper Affidavit for public notice
5	1/22/2021	0252-0261	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	AQB Modeling Review Report
6	1/13/2021	0262-0272	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	Database Summary
7	5/28/2021	0273-0278	Air Quality Bureau (AQB)	XTO, WildEarth Guardians (WEG), AQB Website	Digital	Statement of Basis (public)
8	5/28/2021	0279-0332	Air Quality Bureau (AQB)	XTO, WEG, AQB Website	Digital	Draft Permit Version 2021.05.28 (public)
9	11/24/2020	0333-0340	WildEarth Guardians	Air Quality Bureau (AQB)	Digital	WEG 1st Comment
10	6/28/2021	0341-0346	WildEarth Guardians	Air Quality Bureau (AQB)	Digital	WEG 2nd Comment
11	12/7/2020	0347-0350	Air Quality Bureau (AQB)	WildEarth Guardians	Digital	Citizen Letter Initial
12	5/28/2021	0351	Air Quality Bureau (AQB)	WildEarth Guardians	Digital	Citizen Letter Second
13	9/27/2021	0352-0360	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy	Affidavit for English Notice of Hearing for Carlsbad
14	9/27/2021	0361-0370	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy	Affidavit for Spanish Notice of Hearing Carlsbad
15	9/28/2021	0371-0373	Albuquerque Journal	Air Quality Bureau (AQB)	Digital	Affidavit for English Notice of Hearing Albuquerque
16	9/28/2021	0374-0376	Albuquerque Journal	Air Quality Bureau (AQB)	Digital	Affidavit for Spanish Notice of Hearing Albuquerque
17	10/5/2021	0377-0378	Hobbs Radio	Air Quality Bureau (AQB)	Digital	PSA for Hobbs Radio
18	10/5/2021	0379-0380	Carlsbad Radio	Air Quality Bureau (AQB)	Digital	PSA for Carlsbad Radio.

NMED EXHIBIT 38

Index No.	Date	Bates No.	From	To	Format	Subject
19	10/5/2021	0381-0386	Eddy and Lea City	Air Quality Bureau (AQB)	Digital	PSA for Eddy and Lea City Radio.
AQB Internal Correspondence and Multiple Agency Email						
20	10/19/2020	0387	Sufi Mustafa, AQB	Urshula Bajracharya, AQB	E-mail	Modeling Ruled complete
21	10/23/2020	0388-0389	Arianna Espinoza, AQB	Urshula Bajracharya, AQB	E-mail	Confirmation of public notice posted to AQB website.
22	12/11/2020	0390-0391	Urshula Bajracharya, AQB	Arianna Espinoza, AQB	E-mail	PN and App posted to Public Interest and Hearing Web site.
23	1/6/2021	0392-0393	Compliance and Enforcement, AQB	Urshula Bajracharya, AQB	E-mail	Verification of Compliance
24	1/22/2021	0394	Angela Raso	Urshula Bajracharya, AQB	E-mail	Modeling Report finished
25	5/28/2021	0395-0396	Air Quality Bureau (AQB)	Arianna Espinoza, AQB	E-mail	Permit and SoB Posted to AQB Website for review by citizen.
26	6/9/2021	0397-0399	Air Quality Bureau (AQB)	XTO Energy Inc and WEG	E-mail	Cabinet Secretary Hearing Determination
27	9/22/2021	0400	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of Development and Village of Loving.	E-mail	Emails to all parties
28	9/22/2021	0401	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management, New Mexico State Land	Digital	Letter for Notices of Hearing emailed to Parties

Index No.	Date	Bates No.	From	To	Format	Subject
				Office, Lea County, Eddy County, Carlsbad Department of Development and Village of Loving.		
29	9/22/2021	0402-0406	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of Development and Village of Loving.	Digital	Spanish Notice of Hearing emailed to Parties
30	9/22/2021	0407-0410	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management (BLM), New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of Development and Village of Loving.	Digital	English Notice of Hearing emailed to Parties
XTO Energy Inc. Correspondence						
31	10/23/2020	0411	Air Quality Bureau (AQB)	XTO Energy, Inc	E-mail	Ruled Complete letter and Public Notice sent to XTO
32	5/21/2021	0412-0413	XTO Energy, Inc	Air Quality Bureau	E-mail	3.8 gr total sulfur confirmation

Index No.	Date	Bates No.	From	To	Format	Subject
33	5/28/2021	0414	Air Quality Bureau (AQB)	XTO Energy, Inc	E-mail	Draft document sent to XTO for review
34	6/10/2021	0415-0416	XTO Energy, Inc	Air Quality Bureau	E-mail	VRU OOOO applicability
35	8/30/2021	0417-0418	XTO Energy, Inc	Air Quality Bureau	E-mail	Question on pneumatic controllers.
36	10/30/2020	0419-0420	XTO Energy, Inc	Air Quality Bureau	E-mail	Engine Calculation review
WEG Correspondence						
37	11/24/2020	0421	WEG	Air Quality Bureau	E-mail	First Comments received WEG
38	12/7/2020	0422	Air Quality Bureau (AQB)	WEG	E-mail	Initial Citizen letter send to WEG
39	5/28/2021	0423	Air Quality Bureau (AQB)	WEG	E-mail	Second Citizen Letter send to WEG
40	6/28/2021	0424	WEG	Air Quality Bureau	E-mail	Second comments from WEG
Miscellaneous Documents						
41	09/24/2021	0425-0427	Hobbs News-Sun	Air Quality Bureau	Hardcopy	Affidavit for Hobbs News-Sun for Notice of Public Hearing-English
42	09/24/2021	0428-0430	Hobbs News-Sun	Air Quality Bureau	Hardcopy	Affidavit for Hobbs News-Sun for Notice of Public Hearing-Spanish

ADMINISTRATIVE RECORD INDEX

XTO Energy Inc., Jayhawk Compressor Station

AQB 21-32

Index No.	Date	Bates No.	From	To	Format	Subject
1	9/30/2020	001-213	XTO Energy Inc.	Air Quality Bureau (AQB)	Hard Copy	Application 8152M1
2	10/30/2020	214	XTO Energy Inc.	Air Quality Bureau (AQB)	Digital	Revised Table 2C
3	12/2/2020	215	XTO Energy Inc.	Air Quality Bureau (AQB)	Digital	Revised Table 2H
4	12/2/2020	216	XTO Energy Inc.	Air Quality Bureau (AQB)	Digital	Revised Table 2J
5	9/10/2021	217-427	XTO Energy Inc.	Air Quality Bureau (AQB)	Digital	Updated/Revised Application
6	10/26/2020	428	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	WS Fees
7	10/6/2020	429	Air Quality Bureau (AQB)	XTO Energy Inc	Digital	NSR Invoice
8	10/29/2020	430-435	Air Quality Bureau (AQB)	XTO Energy Inc	Digital	Ruled Complete letter and Public Notice
9	10/26/2020	436-438	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Hard Copy	Location Verification
10	11/3/2020	439-440	Hobbs News-Sun	Air Quality Bureau (AQB)	Hard Copy/ Digital	Newspaper Affidavit for legal notice
11	1/4/2021	441-450	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	AQB Modeling Review Report
12	1/25/2021	451-463	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	Database Summary
13	5/27/2021	464-473	Air Quality Bureau (AQB)	XTO, WildEarth Guardians (WEG), AQB Website	Digital	Statement of Basis (public)
14	5/25/2021	474-525	Air Quality Bureau (AQB)	XTO, WEG, AQB Website	Digital	Draft Permit Version 2021.05.25 (public)
15	5/7/2019	526-574	Air Quality Bureau (AQB)	XTO Energy Inc	Hard Copy/ Digital	NSR permit 8152
16	12/3/2020	575-582	WildEarth Guardians	Air Quality Bureau (AQB)	Digital	WEG 1st Comment
17	6/28/2021	583-588	WildEarth Guardians	Air Quality Bureau (AQB)	Digital	WEG 2nd Comment

NMED EXHIBIT 39

Index No.	Date	Bates No.	From	To	Format	Subject
18	12/7/2020	589-592	Air Quality Bureau (AQB)	WildEarth Guardians	Digital	First Citizen Letter
19	5/28/2021	593	Air Quality Bureau (AQB)	WildEarth Guardians	Digital	Second Citizen Letter
20	9/22/2021	594-602	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy	Affidavit for English Notice of Hearing
21	9/22/2021	603-612	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy	Affidavit for Spanish Notice of Hearing
22	9/23/2021	613-615	Albuquerque Journal	Air Quality Bureau (AQB)	Hard Copy	Affidavit for English Notice of Hearing
23	9/23/2021	616-618	Albuquerque Journal	Air Quality Bureau (AQB)	Hard Copy	Affidavit for Spanish Notice of Hearing
24	9/24/2021	619-621	Hobbs News-Sun	Air Quality Bureau (AQB)	Hard Copy	Affidavit for English Notice of Hearing
25	9/24/2021	622-624	Hobbs News-Sun	Air Quality Bureau (AQB)	Hard Copy	Affidavit for Spanish Notice of Hearing
AQB Internal Correspondence and Multiple Agency Email						
26	10/26/2020	625-626	Sufi Mustafa, AQB	Julia Kuhn, AQB	E-mail	Modeling Ruled complete
27	11/3/2020	627-628	Arianna Espinoza, AQB	Julia Kuhn, AQB	E-mail	Confirmation of public notice posted to AQB website
28	12/9/2020	629	Julia Kuhn, AQB	Arianna Espinoza, AQB	E-mail	PN and App posted to Public Interest and Hearing Web site
29	7/20/2021	630-631	Compliance and Enforcement, AQB	Julia Kuhn, AQB	E-mail	Verification of Compliance
30	1/5/2021	632	Angela Raso	Julia Kuhn, AQB	E-mail	Modeling Report finished
31	2/23/2021	633-635	Air Quality Bureau (AQB)	Arianna Espinoza, AQB	E-mail	Permit and SoB Posted to AQB Website
32	5/27/2021	636-637	Air Quality Bureau (AQB)	Arianna Espinoza, AQB	E-mail	Update Permit and SoB Posted to AQB Website for review by citizen.
33	6/9/2021	638-639	Air Quality Bureau (AQB)	Julia Kuhn, AQB and WEG	E-mail/ Hard Copy	Cabinet Secretary Hearing Determination
34	10/29/2020	640-642	Julia Kuhn, AQB	EPA	E-mail	PN notification to EPA
35	9/22/2021	643-654	Air Quality Bureau (AQB)	WEG, US EPA, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy	E-mail/ Hard Copy	Letter for Notices of Hearing emailed to Parties

Index No.	Date	Bates No.	From	To	Format	Subject
				County, Western Environmental Law Center, New Mexico Environmental Law Center, Center for Biological Diversity, XTO		
36	9/22/2021	643-654	Air Quality Bureau (AQB)	WEG, US EPA, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, Western Environmental Law Center, New Mexico Environmental Law Center, Center for Biological Diversity, XTO	E-mail/ Hard Copy	Spanish Notice of Hearing emailed to Parties
37	9/22/2021	643-654	Air Quality Bureau (AQB)	WEG, US EPA, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, Western Environmental Law Center, New Mexico Environmental Law Center, Center for Biological Diversity, XTO	E-mail/ Hard Copy	English Notice of Hearing emailed to Parties
38	10/5/2021	655-656	Air Quality Bureau (AQB)	Don Hughes/Carlsbad Radio	Hard Copy	PSA request Carlsbad Radio
39	10/5/2021	657-658	Air Quality Bureau (AQB)	Aaron Forrister/KZOR FM	Hard Copy	PSA request Hobbs Radio

Index No.	Date	Bates No.	From	To	Format	Subject
40	10/5/2021	659-664	Air Quality Bureau (AQB)	Kenw New Mexico	Hard Copy	PSA request Eddy and Lea Counties
XTO Energy Inc. Correspondence						
41	10/29/2020	665	Air Quality Bureau (AQB)	XTO Energy, Inc	E-mail	Ruled Complete letter and Public Notice sent to XTO
42	2/23/2021	666-668	Air Quality Bureau (AQB)	XTO Energy, Inc	E-mail	Draft document sent to XTO for review
43	6/9/2021	669-670	Air Quality Bureau (AQB)	XTO Energy, Inc	E-mail	Notification of Hearing Request Determination/Notification of WEG comments
44	7/12/2021	671-692	XTO Energy, Inc	Air Quality Bureau	E-mail	Application review: additional clarification, revision, request for supporting documents
45	9/10/2021	693-694	XTO Energy, Inc	Air Quality Bureau	E-mail	Updated application
WEG Correspondence						
46	12/3/2020	695	WEG	Air Quality Bureau	E-mail	First Comments received WEG
47	12/7/2020	696	Air Quality Bureau (AQB)	WEG	E-mail	Initial Citizen letter send to WEG
48	5/28/2021	697	Air Quality Bureau (AQB)	WEG	E-mail	Second Citizen Letter send to WEG along with Permit and SOB drafts.
49	6/9/2021	698	Air Quality Bureau (AQB)	WEG	E-mail	Notification of Hearing Request Determination
50	6/28/2021	699	WEG	Air Quality Bureau	E-mail	Second comments from WEG

ADMINISTRATIVE RECORD INDEX

XTO Energy Inc., Longhorn Compressor Station

AQB 21-33 (P)

Index No.	Date	Bates No.	From	To	Format	Subject
1	9/30/2020	0001-0222	XTO Energy Inc.	Air Quality Bureau (AQB)	Hard Copy	Application 8349M2
2	10/30/2020	0223-0227	Air Quality Bureau (AQB)	XTO Energy Inc	Digital	Ruled Complete letter and Public Notice
3	10/30/2020	0228-0229	Air Quality Bureau (AQB)	State of Texas	Digital	Affected Parties Letter
4	11/3/2020	0230-0232	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy/ Digital	Newspaper Affidavit for public notice
5	11/2/2020	0233-0241	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	AQB Modeling Review Report
6	1/29/2021	0242-0251	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	Database Summary
7	5/28/2021	0252-0258	Air Quality Bureau (AQB)	XTO, WildEarth Guardians (WEG), AQB Website	Digital	Statement of Basis (public)
8	5/28/2021	0259-0311	Air Quality Bureau (AQB)	XTO, WEG, AQB Website	Digital	Draft Permit Version 2021.05.28 (public)
9	12/3/2020	0312-0883	WildEarth Guardians	Air Quality Bureau (AQB)	Digital	WEG 1st Comment
10	6/28/2021	0884-0889	WildEarth Guardians	Air Quality Bureau (AQB)	Digital	WEG 2nd Comment
11	12/23/2020	0890-0893	Air Quality Bureau (AQB)	WildEarth Guardians	Digital	Citizen Letter Initial
12	5/28/2021	0894	Air Quality Bureau (AQB)	WildEarth Guardians	Digital	Citizen Letter Second
13	9/27/2021	0895-0903	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy	Affidavit for English Notice of Hearing Carlsbad
14	9/27/2021	0904-0913	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy	Affidavit for Spanish Notice of Hearing Carlsbad
15	9/28/2021	0914-0916	Albuquerque Journal	Air Quality Bureau (AQB)	Digital	Affidavit for English Notice of Hearing Albuquerque
16	9/28/2021	0917-0919	Albuquerque Journal	Air Quality Bureau (AQB)	Digital	Affidavit for Spanish Notice of Hearing Albuquerque
17	10/5/2021	0920-0921	Hobbs Radio	Air Quality Bureau (AQB)	Digital	PSA for Hobbs Radio

Index No.	Date	Bates No.	From	To	Format	Subject
18	10/5/2021	0922-0923	Carlsbad Radio	Air Quality Bureau (AQB)	Digital	PSA for Carlsbad Radio.
19	10/5/2021	0924-0929	Eddy and Lea City	Air Quality Bureau (AQB)	Digital	PSA for Eddy and Lea City Radio.
AQB Internal Correspondence and Multiple Agency Email						
20	10/15/2020	0930	Sufi Mustafa, AQB	Urshula Bajracharya, AQB	E-mail	Modeling Ruled complete
21	10/30/2020	0931-0932	Arianna Espinoza, AQB	Urshula Bajracharya, AQB	E-mail	Confirmation of public notice posted to AQB website.
22	12/17/2020	0933	Urshula Bajracharya, AQB	Arianna Espinoza, AQB	E-mail	PN and App posted to Public Interest and Hearing Web site.
23	1/7/2021	0934-0935	Compliance and Enforcement, AQB	Urshula Bajracharya, AQB	E-mail	Verification of Compliance
24	11/10/2020	0936	Rhett Zyla, AQB	Urshula Bajracharya, AQB	E-mail	Modeling Report finished
25	5/28/2021	0937-0938	Air Quality Bureau (AQB)	Arianna Espinoza, AQB	E-mail	Permit and SoB Posted to AQB Website for review by citizen.
26	6/9/2021	0939-0941	Air Quality Bureau (AQB)	XTO Energy Inc and WEG	E-mail	Cabinet Secretary Hearing Determination
27	9/22/2021	0942	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of Development and Village of Loving.	E-mail	Emails to all parties
28	9/22/2021	0943	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of	Digital	Letter for Notices of Hearing emailed to Parties

Index No.	Date	Bates No.	From	To	Format	Subject
				Development and Village of Loving.		
29	9/22/2021	0944-0948	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of Development and Village of Loving.	Digital	Spanish Notice of Hearing emailed to Parties
30	9/22/2021	0949-0952	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management (BLM), New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of Development and Village of Loving.	Digital	English Notice of Hearing emailed to Parties
XTO Energy Inc. Correspondence						
31	10/30/2020	0953-0954	Air Quality Bureau (AQB)	XTO Energy, Inc	E-mail	Ruled Complete letter and Public Notice sent to XTO
32	5/21/2021	0955-0956	XTO Energy, Inc	Air Quality Bureau	E-mail	3.8 gr total sulfur confirmation
33	5/28/2021	0968	Air Quality Bureau (AQB)	XTO Energy, Inc	E-mail	Draft document sent to XTO for review

Index No.	Date	Bates No.	From	To	Format	Subject
34	6/10/2021	0957	XTO Energy, Inc	Air Quality Bureau	E-mail	VRU OOOO applicability
35	8/30/2021	0959-0960	XTO Energy, Inc	Air Quality Bureau	E-mail	Question on pneumatic controllers.
36	10/30/2020	0961-0962	XTO Energy, Inc	Air Quality Bureau	E-mail	Engine Calculation review
WEG Correspondence						
37	12/3/2020	0963	WEG	Air Quality Bureau	E-mail	First Comments received WEG
38	12/23/2020	0964-0965	Air Quality Bureau (AQB)	WEG	E-mail	Initial Citizen letter send to WEG
39	5/28/2021	0967	Air Quality Bureau (AQB)	WEG	E-mail	Second Citizen Letter send to WEG
40	6/28/2021	0969	WEG	Air Quality Bureau	E-mail	Second comments from WEG
Miscellaneous Documents						
41	09/24/2021	0970-0972	Hobbs News-Sun	Air Quality Bureau	Hardcopy	Affidavit for Hobbs News-Sun for Notice of Public Hearing-English
42	09/24/2021	0973-0975	Hobbs News-Sun	Air Quality Bureau	Hardcopy	Affidavit for Hobbs News-Sun for Notice of Public Hearing-Spanish

ADMINISTRATIVE RECORD INDEX

XTO ENERGY, INC. – COWBOY CDP

AQB 21-34

Index No.	Date	Bates No.	From	To	Format	Subject
1		0001 - 0348				Revised Application as of 02/18/2021
2		0349 - 0382				Draft Permit Part A as of 09/16/21
3		0383 - 0404				Permit Parts B&C as of 09/16/21
4		0405 - 0418				Statement of Basis as of 09/16/21
5		0419 - 0430				Database Summary as of 09/16/2021
6		0431 - 0441				AQB Modeling Report as of 09/23/2021
7		0442 - 0487				NSR Permit 7877
8	April 29, 2020	0488	XTO Energy, Inc. (XTO)	Air Quality Bureau (AQB)	Hard Copy	Date stamped cover letter for the initial Application 7877-M1
9	May 4-5, 2020	0489 - 0497	Vanessa Springer, AQB and Evan Tullos, XTO	Vanessa Springer, AQB and Evan Tullos, XTO	Multiple emails	Correspondence regarding request for and submission of digital copy of the application files. The digital application files were received May 4, 2020.
10	May 4, 2020	0498 - 0844	Evan Tullos, XTO	Vanessa Springer, AQB	3 Word docs, 1 Excel file, 1 PDF, 1 zip file	Digital copy of application files, received May 4, 2020
11	May 5, 2020	0845	Vanessa Springer, AQB	Shannon Duran, Enforcement Manager, AQB	Email	Request for verification of compliance

12	May 18, 2020	0846 - 0848	Eric Peters, AQB	Vanessa Springer, AQB and Sufi Mustafa, AQB	Email	Email from AQB modeler Eric Peters stating that application 7877-M1 may be ruled administratively complete with regard to modeling
13	May 20, 2020	0849 - 0850	Michael Space, Compliance & Enforcement Section, AQB	Vanessa Springer, AQB	Email	Email response verifying compliance status of the facility
14	May 27-28, 2020	0851 - 0859	Vanessa Springer, AQB and Evan Tullos, XTO	Vanessa Springer, AQB and Evan Tullos, XTO	Multiple emails	Correspondence regarding questions about and revisions to the application (topics included emissions in the public notice, corrections to Section 2 tables, updates to Section 13, and Malfunction emissions at the facility)
15	May 28, 2020	0860 - 0869	Evan Tullos, XTO	Vanessa Springer, AQB	2 PDF files, 1 Word doc, 1 Excel file	Updated Application files (sent in two emails on May 28, 2020)
16	May 29, 2020	0870 - 0875	Vanessa Springer, AQB	EPA Region 6 and Erica LeDoux, EPA	Email	Department's Legal Notice emailed to EPA
17	May 29, 2020	0876	Vanessa Springer, AQB	State of Texas, Operating Permit Division (TCEQ)	Email	Department's Legal Notice and Affected Program letter to state of Texas
18	May 29, 2020	0877	Vanessa Springer, AQB	Benjamin Schneider, XTO, and Evan Tullos, Consultant for XTO	Email	Ruled complete letter to applicant
19	May 29, 2020	0878 - 0883	Vanessa Springer, AQB	Benjamin Schneider, XTO, and Evan Tullos, Consultant for XTO	PDF	Ruled Complete letter
20	May 29, 2020	0884	Vanessa Springer, AQB	State of Texas, Operating	PDF	Affected Program letter

				Permit Division (TCEQ)		
21	May 29, 2020	0885 - 0886	Vanessa Springer, AQB	Arianna Espinoza, AQB	Multiple emails	Request and confirmation of the Department's Legal Notice and the permit application being posted to the AQB website
22	June 10, 2020	0887 - 0889			PDF	Affidavit of Publication of AQB's public notice, received in the mail on June 10, 2020
23	June 20, 2020	0890	Jeremy Nichols, WildEarth Guardians	Vanessa Springer, AQB	Email	Written comments on the permit application
24	June 20, 2020	0891 - 0893	Jeremy Nichols, WildEarth Guardians	Vanessa Springer, AQB	PDF	Written comments on the permit application
25	June 22-25, 2020	0894 - 0904	Vanessa Springer, AQB	Benjamin Schneider, XTO, and Evan Tullos, Consultant for XTO	Multiple emails	Correspondence regarding questions about and revisions to the application (topics included corrections to Section 2 tables and heater capacity)
26	June 23, 2020	0905 - 0917	Benjamin Schneider, XTO, and Evan Tullos, Consultant for XTO	Vanessa Springer, AQB	PDF, Excel file	Updated Application files (sent June 23, 2020) with corrections to Section 2 tables
27	June 25, 2020	0918 - 0932	Evan Tullos, XTO	Vanessa Springer, AQB	PDF, Excel file	Updated Application files (sent June 25, 2020) with all previous updates incorporated
28	June 26, 2020	0933 - 0934	Vanessa Springer, AQB	Benjamin Schneider, XTO, and Evan Tullos, Consultant for XTO	Multiple emails	AQB informed the applicant of the comments received on the permit application
29	June 29, 2020	0935 - 0936	Vanessa Springer, AQB	Arianna Espinoza, AQB	Multiple emails	Request and confirmation of the Department's Legal Notice and the updated permit application being posted to the AQB website, main page for permit notices and

						additionally, the webpage specific to applications with public interest
30	June 29, 2020	0937 - 0940	Vanessa Springer, AQB	Benjamin Schneider, XTO, and Evan Tullos, Consultant for XTO	Multiple emails	Correspondence regarding typographical errors with the facility throughputs listed in Section 1 of the application
31	June 29, 2020	0941 - 0956	Evan Tullos, XTO	Vanessa Springer, AQB	PDF	Updated Application file (sent June 29, 2020) with corrected throughput units in Section 1
32	June 30-July 1, 2020	0957 - 0960	Jeremy Nichols, WildEarth Guardians	Vanessa Springer, AQB	Multiple emails	AQB sent the 1st citizen letter to WEG, and corresponded regarding next steps
33	June 30, 2020	0961 - 0964	Vanessa Springer, AQB	Jeremy Nichols, WildEarth Guardians	PDF	1st Citizen Letter
34	July 15-21, 2020	0965 - 1005	Vanessa Springer, AQB	Benjamin Schneider, XTO, and Evan Tullos, Consultant for XTO	Multiple emails	Correspondence regarding questions on the permit application (topics included heater capacity and calculations, flare purge gas rate, thermal oxidizer capacity, fugitives calculations, truck loading emissions, and generator horsepower). Evan Tullos notified AQB that he would no longer be working on the application.
35	July 22-24, 2020	1006 - 1031	Vanessa Springer, AQB	Benjamin Schneider, XTO	Multiple emails	Discussion of fugitive emissions calculations and possible emissions reductions due to LDAR program.
36		1032 - 1041			Word doc	AQB Monitoring Protocol for fugitive emissions
37	July 27-29, 2020	1042 - 1065	Benjamin Schneider, XTO	Vanessa Springer, AQB	Multiple emails	XTO submitted revised application files to incorporate changes to the application including removing several heaters, reducing the size of several tanks, revising the loading emissions, revising SSM emissions, and correcting the capacity and emissions for the thermal oxidizers.

38	July 27-29, 2020	1066 - 1415	Benjamin Schneider, XTO	Vanessa Springer, AQB	1 Excel file, 1 Word doc, 1 PDF	Revised application files. The excel file and Word doc were sent via email on July 27, 2020 and the PDF was sent via Kiteworks on July 29, 2020.
39	September 15, 2020	1416 - 1428	Vanessa Springer, AQB	Benjamin Schneider, XTO	Email	Email to applicant with additional questions about the emissions calculations (topics included the loading emissions, heater emissions, and the possibility that the overall change in emissions at the facility due to application revisions may require new modeling)
40	September 23, 2020	1429 - 1441	Benjamin Schneider, XTO	Vanessa Springer, AQB	Email	Email with application updates (truck loading emissions calculations corrected)
41	September 23, 2020	1442 - 1446	Benjamin Schneider, XTO	Vanessa Springer, AQB	1 PDF, 1 Excel file	Updated application files (truck loading emissions calculations corrected)
42	September 28, 2020	1447 - 1460	Vanessa Springer, AQB	Benjamin Schneider, XTO	Email	Email regarding AQB's position on using SOCMI control efficiencies for fugitive calculations, and changes to tank VOC emissions
43	October 7-15, 2020	1461 - 1569	Vanessa Springer, AQB	Benjamin Schneider, XTO	Multiple emails	Discussion of application updates (applicant incorporated a new oil sample into tank calculations)
44	October 12, 2020	1570 - 1622	Benjamin Schneider, XTO	Vanessa Springer, AQB	1 Word doc, 1 Excel file, 4 PDFs	Updates to application with updated tank calculations based on the new oil sample
45	October 15, 2020	1623	Eric Peters, AQB	Bruce Ferguson, Engineer for XTO, Benjamin Schneider, XTO, Evan Tullos, Previously a consultant for XTO, and Vanessa Springer, AQB	Email	AQB informed XTO that they would need to complete new modeling due to the changes in emissions in the application

46	October 16-22, 2020	1624 - 1736	Vanessa Springer, AQB	Benjamin Schneider, XTO	Multiple emails	Applicant submitted new application files that incorporate all the changes made to the application so far (version control; some changes had been lost in later revisions, so this application version corrected this)
47	October 16, 2020	1737 - 2070	Benjamin Schneider, XTO	Vanessa Springer, AQB	1 Excel file, 2 Word docs, 1 PDF	Updated application files inclusive of all changes thus far (PDF sent through Kiteworks, other files sent via email)
48	October 30-November 2, 2020	2071 - 2126	Vanessa Springer, AQB	Benjamin Schneider, XTO	Email	Correspondence regarding the revised modeling, which was submitted by applicant and sent to Eric Peters for review
49	October 30, 2020	2127 - 2461	Benjamin Schneider, XTO	Vanessa Springer, AQB	2 Word docs, 1 PDF, 1 zip file	Revised UA4 form with the updated modeling information, and revised UA3 form with a few minor corrections, were sent in two separate emails on this date. Via Kiteworks, the applicant submitted a revised application PDF that reflected these updates, as well as a zip file with the new modeling files.
50	November 10, 2020	2462	Vanessa Springer, AQB	Benjamin Schneider, XTO	Email	Question for applicant about whether the facility is an area source, rather than a major source, for the purposes of 40 CFR 63 Subpart HH applicability
51	November 19, 2020	2463 - 2464	Vanessa Springer, AQB	Benjamin Schneider, XTO	Email	Additional questions for the applicant. Topics included clarification on the location of the facility as listed in the NSR administrative revision to Permit 7877; confirmation that the applicant wanted NSR exempt generators GEN1-4 included in the NSR permit; and clarification about the inclusion of NSR exempt haul road emissions source being included in Table 2-A of the application

52	November 19-20, 2020	2465 - 2479	Benjamin Schneider, XTO	Vanessa Springer, AQB	Multiple emails	Correspondence regarding the questions sent to the applicant on November 19, 2020. Applicant also requested to revise their HAP (Hexane) emissions calculations for the heaters, which was approved by AQB management.
53	November 20, 2020	2480 - 2490	Benjamin Schneider, XTO	Vanessa Springer, AQB and Ethan Boor, XTO	3 PDFs, 1 Word doc, 1 Excel file	Applicant submitted an updated calculations workbook with revised HAP calculations for heaters, made updates to the application PDF and UA3 Word doc to incorporate this change, and included supporting documentation for the emissions calculation revision
54	December 2-3, 2020	2491 - 2501	Raymond Tole, XTO	Vanessa Springer, AQB and Ethan Boor, XTO	Multiple emails	Correspondence from XTO, informing AQB to direct all future correspondence regarding this application to Raymond Tole and Ethan Boor, and checking in to ensure that AQB was not in need of any additional information.
55	January 7, 2021	2052 - 2505	Raymond Tole, XTO	Vanessa Springer, AQB and Ethan Boor, XTO	Multiple emails	XTO emailed to check in about the status of the permit draft, and the outcome of the EIB hearing that previously took place in response to WG comments on other permitting actions. AQB stated that the draft was being written and would likely be ready for review within the next week, and that there was no news on the outcome of the EIB hearing.
56	January 11, 2021	2506 - 2509	Raymond Tole, XTO	Vanessa Springer, AQB	Multiple emails	XTO requested a phone call with AQB regarding the possibility of modifying flare limits in the application.
57	January 12, 2021	2510	Vanessa Springer, AQB	Raymond Tole, XTO	Email	Two questions for the applicant that came up while drafting the permit (regarding whether the thermal oxidizers and combustors have a continuous pilot, and whether unit TO1 has had an initial compliance test).

58	January 13, 2021	2511 - 2522	Raymond Tole, XTO	Vanessa Springer, AQB	Multiple emails	XTO responded to questions about the pilot light for the combustor and thermal oxidizer, and the initial compliance test for TO1. It was determined the that permit would allow flexibility of either a continuously lit pilot light or a piezoelectric igniter (approved by AQB management). Unit TO1 had not had an initial compliance test yet so the initial compliance test condition will remain in the permit. A phone call between AQB and XTO was scheduled.
59	January 14, 2021	2523 - 2533	Raymond Tole, XTO	Vanessa Springer, AQB and Ethan Boor, XTO	Multiple emails	Correspondence regarding the applicant revising facility operations so that the tanks would be controlled by a vapor recovery unit and backup low pressure flare. AQB informed the applicant that this would be allowed in this permit action (approved by AQB management), provided that the applicant submitted revised application materials including calculations for revised units; new modeling, if required by AQB's Modeling Section; and possibly new public notice steps depending on the emissions changes. AQB also notified the applicant that the EIB would be deliberating on the September hearing (involving WEG comments on other air permits) at a meeting on January 22, 2021.
60	January 25, 2021	2534	Raymond Tole, XTO	Vanessa Springer, AQB and Ethan Boor, XTO	Email	XTO provided the applicant with revised pilot and purge rates for the flares, and informed AQB that they would not be proceeding with the larger updates to the tanks (routing emissions to a VRU and backup flare).

61	January 25, 2021	2535 - 2565	Raymond Tole, XTO	Vanessa Springer, AQB and Ethan Boor, XTO	1 PDF, 1 Excel file	Updates to the application to incorporate revised pilot/purge rates for the flares.
62	January 25, 2021	2566 - 2571	Vanessa Springer, AQB	Raymond Tole and Ethan Boor, XTO	Multiple emails	AQB requested that the applicant send a PDF of the entire application, including all revisions thus far, and notified the applicant that new modeling would likely be needed; AQB Modeling Section reviewed the application and confirmed this. AQB also notified the applicant that the EIB deliberated on the permit appeal requests from WEG (which were made on the same basis as the 1st public comment from WEG on the Cowboy CDP application) and determined that those permits could be issued.
63	January 26, 2021	2572 - 2581	Vanessa Springer, AQB	Raymond Tole and Ethan Boor, XTO	Multiple emails	AQB informed the applicant that AQB management had determined another public notice should be done by both the applicant (all public notice requirement in Section 9 of the application) and NMED, given the changes in emissions in the application. The applicant agreed this would be done and asked whether this meant there would be another 30 day comment period. AQB informed them that yes, there would be another comment period after the Department's new public notice was published.
64	February 1-2, 2021	2582 - 2596	Vanessa Springer, AQB	Raymond Tole and Ethan Boor, XTO	Multiple emails	Correspondence regarding the timeline for permit issuance. AQB informed the applicant that a request has been sent to AQB's legal counsel in regards to whether a hearing would need to be held before issuance of this permit, given the WEG comment which was deliberated in the January EIB

						meeting. The hearing determination would need to be prepared and submitted for review by the Cabinet Secretary. Additionally, Major Sources and TV Managers determined that AQB Permit Section Chief would need to weigh in on whether the Department should do another public notice.
65	February 1, 2021	2597 - 2944	Raymond Tole, XTO	Vanessa Springer, AQB	1 PDF, 1 zip file	Revised application PDF, including new Section 9, Public Notice requirements, increase in pilot/purge gas rates for the flare, and updated modeling files
66	February 3, 2021	2945 - 2988	Vanessa Springer, AQB	Raymond Tole and Ethan Boor, XTO	Multiple emails	AQB informed the applicant that AQB's Permit Section Chief determined that the Department should issue another public notice. AQB and XTO coordinated phone calls to discuss the path forward. AQB requested that the applicant finalize their application (including determining whether to include the flare pilot and purge gas updates in this application) so that the final facility emissions could be included in the Department's public notice.
67	February 3, 2021	2989 - 2990	Ethan Boor, XTO	Vanessa Springer, AQB and Raymond Tole, XTO	Email	Applicant asked AQB whether emission factors from Table 2-8 of "Protocol for Equipment Leak Emission Estimates," an EPA fugitive guidance document dated November 1995, could be used to calculate their fugitive emissions
68	February 4, 2021	2991 - 3023	Vanessa Springer, AQB	Raymond Tole and Ethan Boor, XTO	Multiple emails	Correspondence regarding scheduling a group call, and applicant's questions about the timeline for the Department's public notice, the comment period, and permit issuance.
69	February 5, 2021	3024 - 3031	Vanessa Springer, AQB	Raymond Tole and Ethan Boor, XTO	Multiple emails	Additional correspondence regarding applicant's questions about the timeline for the Department's public notice, the

						comment period, and permit issuance.
70	February 8, 2021	3032 - 3035	Vanessa Springer, AQB	Raymond Tole and Ethan Boor, XTO	Multiple emails	AQB emailed the applicant stating that AQB management had discussed and determined that a reduction in fugitive emissions at the facility may be allowed, with additional monitoring and reporting requirements in the permit. If the fugitive emissions are reduced, the Department would not need to publish another public notice. Also, AQB asked the applicant whether they would like to include the previously provided updates with flare purge/pilot gas rate increases, or whether they would like to keep the rates that were originally requested. The applicant had questions about how long AQB would need to review the revised modeling if the flare pilot/purge rates were increased, what the extra fugitive monitoring and reporting requirements would be, and whether there would be another public notice published by the Department. The applicant requested a call to discuss further.
71	February 9, 2021	3036	Raymond Tole, XTO	Vanessa Springer, Kirby Olson, and Melinda Owens, AQB and Ethan Boor, XTO	Email	XTO sent AQB the TCEQ fugitives guidance document.
72		3037 - 3071			PDF	TCEQ Fugitive Guidance
73	February 9, 2021	3072 - 3080	Raymond Tole, XTO	Vanessa Springer, Kirby Olson, and Melinda Owens, AQB	Multiple emails	Correspondence regarding the facility's fugitive emissions. XTO clarified that they do not intend to use SOCMI emission factors for fugitive emission calculations. XTO

				and Ethan Boor, XTO		explained why it may be appropriate to calculate a portion of the facility's fugitive emissions using emission factors from EPA's 1995 fugitive guidance document. AQB responded stating that the facility might be allowed a reduction to the facility's fugitive emissions with enhanced monitoring protocols in the permit, but that this was still being developed. XTO provided sample calculations for their proposed scenario, where the fugitives from the gas processing side of the facility would be calculated using emission factors from Table 2-8 of the 1995 EPA guidance document.
74	February 9, 2021	3081 - 3083	Raymond Tole, XTO	Vanessa Springer, AQB	2 Excel files	Excel files demonstrating XTO's proposed fugitive emissions calculations and emission factors compared to their current calculations.
75	February 9, 2021	3084	Raymond Tole, XTO	Vanessa Springer, AQB and Ethan Boor, XTO	Email	XTO informed AQB that they would like to proceed with the updated flare purge/pilot rate increases that they provided on February 1, 2021.
76	February 11, 2021	3085 - 3087	Raymond Tole, XTO	Vanessa Springer, AQB and Ethan Boor, XTO	Multiple emails	XTO inquired about the draft permit. AQB responded that it would need to be reviewed by TV Manager Melinda Owens, and then it would be sent to XTO for review.
77	February 16-17, 2021	3088 - 3092	Vanessa Springer, AQB	Raymond Tole, XTO	Multiple emails	AQB asked XTO to confirm that the compressors at the facility are all reciprocating compressors subject to 40 CFR 60 Subpart OOOOa. XTO responded with a table that listed all compressors at the facility, the compressor type, and the unit number.
78	February 18, 2021	3093 - 3097	Vanessa Springer, AQB	Raymond Tole, XTO, and Melinda Owens, AQB	Multiple emails	Correspondence regarding the pressure at units PWTK1-2, SOTK1, and GBS1; this information was clarified for the addition of a

						throughput and pressure monitoring condition into the permit.
79	February 18, 2021	3098 - 3105	Raymond Tole, XTO	Vanessa Springer, Kirby Olson, and Melinda Owens, AQB and Ethan Boor, XTO	Multiple emails	XTO submitted a revised application PDF and calculations workbook that incorporated the revised fugitive emissions calculations agreed upon by XTO and AQB. The applicant also provided comments on AQB's rough draft of the fugitive condition for the permit. AQB responded that the full draft permit would be ready for the applicant's review the following day.
80	February 18, 2021	3106 - 3108	Raymond Tole, XTO	Vanessa Springer, AQB and Ethan Boor, XTO	Word doc	XTO's comments on the draft fugitive condition
81	February 19, 2021	3109 - 3122	Vanessa Springer, AQB	Raymond Tole, XTO	Multiple emails	AQB emailed the applicant to clarify a few minor discrepancies in emissions totals between application revisions. The applicant responded with an explanation of the changes that led to these differences. The applicant inquired about the status of the draft permit.
82	February 22, 2021	3123	Vanessa Springer, AQB	Raymond Tole and Ethan Boor, XTO	Email	AQB provided the draft permit and associated documents (Permit Part A, Parts B&C, Statement of Basis, and Database Summary) to the applicant for review.
83	February 22, 2021	3124 - 3205	Vanessa Springer, AQB	Raymond Tole and Ethan Boor, XTO	4 Word docs	Draft permit documents as of 02/22/21: Permit Part A, Parts B&C, Statement of Basis, and Database Summary
84	February 23, 2021	3206	Vanessa Springer, AQB	Jeremy Nichols, WildEarth Guardians	Email	Emailed 2nd Citizen Letter (in response to comment on permit application) to WEG
85	February 23, 2021	3207	Vanessa Springer, AQB	Jeremy Nichols, WildEarth Guardians	PDF	2nd Citizen Letter (in response to comment on permit application)
86	February 23, 2021	3208 - 3211	Tasha Burns, AQB	Vanessa Springer, Kirby Olson, and	Email	Confirmation that the draft permit documents were posted to the AQB website on 02/23/21

				Arianna Espinoza, AQB		
87	March 8, 2021	3212 - 3213	Vanessa Springer, AQB	Raymond Tole and Ethan Boor, XTO	Email	AQB emailed applicant requesting they review the draft permit by March 18, 2021.
88	March 19, 2021	3214 - 3218	Vanessa Springer, AQB	Raymond Tole and Ethan Boor, XTO	Multiple emails	AQB emailed applicant asking if they have comments on the draft permit. XTO responded with an email and attached Word document containing minor comments.
89	March 19, 2021	3219 - 3252	Raymond Tole, XTO	Vanessa Springer, AQB and Ethan Boor, XTO	Word doc	Draft permit with comments from XTO
90	March 22, 2021	3253 - 3257	Raymond Tole, XTO	Vanessa Springer, AQB and Ethan Boor, XTO	Multiple emails	XTO emailed AQB asking if any comments were received on the draft permit documents and when the permit would be issued if there were no comments. AQB responded that there were no comments so far, and that the draft permit could possibly be issued within a few days after the comment period ended if no comments were submitted.
91	March 22, 2021	3258 - 3263	Raymond Tole, XTO	Vanessa Springer, AQB and Ethan Boor, XTO	Multiple emails	AQB asked XTO to clarify one of their comments on the draft permit regarding gunbarrel separator pressure. Upon rereading, XTO determined the comment was not necessary and this issue was resolved.
92	March 25, 2021	3264	Matthew Nykiel, WEG	Vanessa Springer and Ted Schooley, AQB	Email	Email with attached PDF letter with comments from Matthew Nykiel of WEG on the permit application and draft documents
93	March 25, 2021	3265 - 3270	Matthew Nykiel, WEG	Vanessa Springer, AQB	PDF	Comments from Matthew Nykiel of WEG on the permit application and draft documents
94	March 26, 2021	3271 - 3274	Raymond Tole, XTO	Vanessa Springer, Kirby Olson, and Melinda Owens, AQB;	Multiple emails	XTO asked whether AQB had received any comments on the draft permit, and AQB replied with the WEG comments attached. XTO asked whether there would be a hearing.

				Lara Katz, 3275 - OGC; and Ethan Boor, XTO		
95	March 26, 2021	3275 - 3288	Kirby Olson, AQB	Rodney Horrocks, Carlsbad Caverns National Park (CCNP); Vanessa Springer, Ted Schooley, AQB; Lara Katz, OGC	Multiple emails	AQB sent CCNP the draft permit and other documents regarding this application for their review and informed them that they could have an additional 30 days to review the documents.
96	March 26, 2021	3289 - 3293	Vanessa Springer, AQB	Lara Katz, AQB, and Raymond Tole and Ethan Boor, XTO	Multiple emails	AQB informed applicant that AQB and legal staff were reviewing the public comments and determining next steps for this permit application.
97	March 29, 2021	3294 - 3298	Vanessa Springer, AQB	Raymond Tole, XTO	Multiple emails	AQB explained to XTO why CCNP was given 30 days to comment on the permit documents.
98	March 30, 2021	3299 - 3308	Rodney Horrocks, CCNP	Vanessa Springer, AQB	Multiple emails	CCNP acknowledged receipt of the permit documents.
99	June 7, 2021	3309	Melinda Owens, AQB	Vanessa Springer and Kirby Olson, AQB; Jeremy Nichols and Matthew Nykiel, WEG	Email	AQB sent WEG the hearing determination signed by NMED Cabinet Secretary
100		3310 - 3312			PDF	public hearing determination signed by NMED Cabinet Secretary
101	June 21, 2021	3313	Melinda Owens, AQB	Raymond Tole and Ethan Boor, XTO; Vanessa Springer and	Email	AQB asked XTO about the sources of tank SSMs and methodology for demonstration of compliance.

				Kirby Olson, AQB		
102	June 27, 2021	3314 - 3321	Raymond Tole, XTO	Melinda Owens, Vanessa Springer, and Kirby Olson, AQB; Ethan Boor, XTO	Multiple emails	XTO responded to questions regarding tank SSM emissions. AQB informed the applicant that we may make changes to the tank SSM condition in the permit.
103	August 12, 2021	3322 - 3324	Melinda Owens, AQB	Raymond Tole and Ethan Boor, XTO; Vanessa Springer and Kirby Olson, AQB	Email	AQB sent draft of revised SSM Floating Roof Tank Emissions Condition to XTO.
104	August 12, 2021	3325	Melinda Owens, AQB	Raymond Tole and Ethan Boor, XTO; Vanessa Springer and Kirby Olson, AQB	Word doc	Draft of revised SSM Floating Roof Tank Emissions Condition
105	September 9, 2021	3326 - 3333	Raymond Tole, XTO	Melinda Owens, Vanessa Springer, and Kirby Olson, AQB; Ethan Boor, XTO	Multiple emails, Word doc	XTO responded with feedback on the draft condition.
106	September 13-15, 2021	3334 - 3378	Vanessa Springer, AQB	Raymond Tole and Ethan Boor, XTO	Multiple emails	AQB asked the applicant why they suggested to remove the annual inlet gas analysis from the draft SSM condition. XTO responded that the analysis in the application could be used for SSM emissions calculations. AQB and XTO discussed whether an annual oil analysis would lead to more accurate emission calculations. A call was scheduled to discuss further.
107	September 16, 2021	3379 - 3386	Raymond Tole, XTO	Melinda Owens, Vanessa	Multiple emails	XTO provided a revised draft tank SSM condition.

				Springer, and Kirby Olson, AQB; Ethan Boor, XTO		
108	September 16, 2021	3387	Raymond Tole, XTO	Melinda Owens, Vanessa Springer, and Kirby Olson, AQB; Ethan Boor, XTO	Word doc	Revised draft of tank SSM condition
109	September 16, 2021	3388 - 3415	Vanessa Springer, AQB	Raymond Tole and Ethan Boor, XTO; Kirby Olson and Melinda Owens, AQB	Multiple emails	AQB sent XTO a draft permit that incorporated changes to the tank conditions, and an update to one footnote in Table 106.A. XTO had no comments on the draft.
110	September 16, 2021	3416 - 3449	Vanessa Springer, AQB	Raymond Tole and Ethan Boor, XTO; Kirby Olson and Melinda Owens, AQB	Word doc	Revised draft permit with tank condition changes incorporated
111	September 16, 2021	3450 - 3483	Vanessa Springer, AQB	Raymond Tole and Ethan Boor, XTO	Word doc	Revised draft permit with tank condition changes incorporated and minor change to Table 106.A footnote
112	September 16, 2021	3484 - 3485	Vanessa Springer, AQB	Jeremy Nichols and Matthew Nykiel, WEG	Email	Revised draft permit documents to WEG
113	September 21, 2021	3486	Tasha Burns, AQB	Vanessa Springer & other AQB permitting staff	Email	Confirmation of public notices and other permit documents onto new AQB website
114	September 22, 2021	3487 - 3490	Vanessa Springer, AQB	Jeremy Nichols and Matthew Nykiel, WEG; EPA Region 6 and Erica LeDoux and Mary Layton,	Multiple emails	Notice of Hearing and automatic reply from EPA

				EPA; TCEQ; CCNP; Bureau of Land Management; NM State Land Office; Lea County and Eddy County Managers		
115		3491			PDF	Cover Letter - Notices of Hearing
116		3492 - 3495			PDF	English Notice of Hearing
117		3496 - 3500			PDF	Spanish Notice of Hearing
118	September 27, 2021	3501 - 3502	Matthew Nykiel, AQB	Vanessa Springer, AQB and Jeremy Nichols, WEG	Email	Acknowledged receipt of the revised permit documents
119	September 27, 2021	3503 - 3511			PDF	Affidavit - Proof of publication of notice of hearing in the Carlsbad Current Argus (English)
120	September 27, 2021	3512 - 3521			PDF	Affidavit - Proof of publication of notice of hearing in the Carlsbad Current Argus (Spanish)
121	September 27, 2021	3522 - 3524			PDF	Affidavit - Proof of publication of notice of hearing in the Albuquerque Journal (English)
122	September 27, 2021	3525 - 3527			PDF	Affidavit - Proof of publication of notice of hearing in the Albuquerque Journal (Spanish)
123	October 5, 2021	3528 - 3529	Kathy Primm, AQB		Email	PSA request for Hobbs radio
124	October 5, 2021	3530 - 3531			Word doc	PSA request for Hobbs radio
125	October 5, 2021	3532 - 3533	Kathy Primm, AQB		Email	PSA request for Carlsbad radio
126	October 5, 2021	3534 -			Word doc	PSA request for Carlsbad radio

		3535				
127	October 5, 2021	3536 - 3537	Kathy Primm, AQB		Email	PSA request for radio in Eddy and Lea County
128	October 5, 2021	3538 - 3543			PDF of webpage	PSA request for radio in Eddy and Lea County
129	October 6, 2021	3544 - 3546			PDF	Affidavit - Proof of publication of notice of hearing in the Hobbs News-Sun (English)
130	October 6, 2021	3547 - 3549			PDF	Affidavit - Proof of publication of notice of hearing in the Hobbs News-Sun (Spanish)

ADMINISTRATIVE RECORD INDEX

XTO Energy, Inc. – Wildcat Compressor Station

AQB 21-35

Index No.	Date	Bates No.	From	To	Format	Subject
1	February 6, 2019	001-052	XTO Energy, Inc	Air Quality Bureau (AQB)	Hard Copy	Issued NSR Permit 7474M1 for Wildcat Compressor Station
2	June 8, 2020	052-228	XTO Energy, Inc	Air Quality Bureau (AQB)	Hard Copy	Original Application 7474M2 for Wildcat Compressor Station
3	June 8, 2020	229-234	XTO Energy, Inc	Air Quality Bureau (AQB)	Hard Copy	Original Application 7474M2 Section 1 for Wildcat Compressor Station
4	November 8, 2020	235-237	XTO Energy, Inc	Air Quality Bureau (AQB)	Email	Revised Application Pages Email
5	November 8, 2020	238-240	XTO Energy, Inc	Air Quality Bureau (AQB)	Email	Revised Application Pages - Regenerator Heater Calculations - Excel Sheet
6	November 8, 2020	241-242	XTO Energy, Inc	Air Quality Bureau (AQB)	Email	Revised Application Pages – All Table 2s & Calculations
7	July 9, 2020	243-245	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Email	Email – Modeling Files Complete –
8	July 8, 2020	246-252	Air Quality Bureau (AQB)	XTO Energy, Inc	Email	Application Ruled Complete
9	June 29, 2020	253	Air Quality Bureau (AQB)	XTO Energy, Inc	Email & Mail	Invoice
10	July 6, 2020	254	Air Quality Bureau (AQB)	State of Texas	Email	Affected Party Letter
11	July 17, 2020	255-257	Air Quality Bureau (AQB)	Public in general	Hard Copy	Public Notice Affidavit for Carlsbad Current-Argus
12	July 27, 2020	258-264	WildEarth Guardians	Air Quality Bureau (AQB)	Email	WEG First Comments
13	August 4, 2020	265-268	Air Quality Bureau (AQB)	WildEarth Guardians	Email	First Citizen Letter
14	February 26, 2021	269-270	Air Quality Bureau (AQB)	WildEarth Guardians	Email	Third Citizen Letter
15	March 3, 2021	271	Air Quality Bureau (AQB)	XTO Energy, Inc	Email	Withdraw Permit Issuance
16	March 2, 2021	272	Air Quality Bureau (AQB)	WildEarth Guardians	Email	Second Citizen Letter
17	April 1, 2021	273-277	WildEarth Guardians	Air Quality Bureau (AQB)	Email	WEG Second Comments

18	March 2, 2021	278-285	Air Quality Bureau (AQB)	WildEarth Guardians & Public in general	Web Posting & Email to WEG	Statement of Basis for 7474M2
19	March 2, 2021	286-335	Air Quality Bureau (AQB)	WildEarth Guardians & Public in general	Web Posting & Email to WEG	NSR Permit 7474M2
20	March 2, 2021	336-345	Air Quality Bureau (AQB)	WildEarth Guardians & Public in general	Web Posting & Email to WEG	Database Summary for 7474M2
21	November 23, 2020	346-350	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Email	Revised Emissions – Modeling Approval
22	July 7, 2020	351-353	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Web Post	Legal Notice
23	July 14, 2020	354-355	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Email	Email to Modeling – Calculation Verifications Complete
24	June 29, 202	357	Air Quality Bureau (AQB)	XTO Energy, Inc	Email & Mail	Invoice – Fee Worksheet
25	June 4, 2021	358-360	NMED Cabinet Secretary	Air Quality Bureau (AQB)	Email	Hearing Determination Memo
26	August 20, 2020	361-391	XTO Energy, Inc	Air Quality Bureau (AQB)	Email	Applicant Comments on Permit Draft
27	October 13, 2020	392-420	XTO Energy, Inc	Air Quality Bureau (AQB)	Email	Applicant Comments on Permit Draft
28	November 23, 2020	421-450	XTO Energy, Inc	Air Quality Bureau (AQB)	Email	Applicant Comments on Permit Draft
29	August 20, 2020	451-458	XTO Energy, Inc	Air Quality Bureau (AQB)	Email	Applicant Comments on Permit Statement of Basis
30	August 31, 2020	459-466	XTO Energy, Inc	Air Quality Bureau (AQB)	Email	Applicant Comments on Permit Statement of Basis
31	December 2, 2020	467-471	Air Quality Bureau (AQB)	XTO Energy, Inc	Email	AQB Response to XTO Comments
32	March 3, 2021	472	Air Quality Bureau (AQB)	XTO Energy, Inc	Email	Notification of issuance withdrawal to XTO
33	September 22, 2021	473	Air Quality Bureau (AQB)	The public in general	Webposting	Screen shot of website on date of Notice of Hearing
34	September 22, 2021	474-482	Air Quality Bureau (AQB)	The public in general	Newspaper Publication in English	Carlsbad Current-Argus publication
35	September 22, 2021	483-492	Air Quality Bureau (AQB)	The public in general	Newspaper Publication in Spanish	Carlsbad Current-Argus publication

36	September 23, 2021	493-495	Air Quality Bureau (AQB)	The public in general	Newspaper Publication in English	Albuquerque Journal publication
37	September 23, 2021	496-498	Air Quality Bureau (AQB)	The public in general	Newspaper Publication in Spanish	Albuquerque Journal publication
38	October 5, 2021	499-500	Air Quality Bureau (AQB)	The public in general	Radio	PSA request – Carlsbad radio
39	October 5, 2021	501-502	Air Quality Bureau (AQB)	The public in general	Radio	PSA request – Hobbs radio
40	October 5, 2021	503-508	Air Quality Bureau (AQB)	The public in general	Radio	PSA request public radio in Eddy and Lea Counties
41	July 1, 2020	509	Air Quality Bureau (AQB)	Air Quality Bureau (AQB) – Enforcement Section	Email	Compliance Status Verification
42	September 22, 2021	510	Air Quality Bureau (AQB)	BLM, Eddy County and Lea County Managers, WED, Sierra Club, NM State Land Office, Seeds Beneath the Snow, Western Environmental Law Center, State of Texas	Email	Notice of Hearing in Spanish & English & Cover Letter
43	September 22, 2021	511	Air Quality Bureau (AQB)	Sierra Club	Email	Notice of Hearing in Spanish & English & Cover Letter
44	August 20, 2020	512-520	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Email/digital	Modeling Review - Report
45	September 24, 2021	521-523	Air Quality Bureau (AQB)	The public in general	Newspaper Publication in English	Hobbs News-Sun publication
46	September 24, 2021	524-527	Air Quality Bureau (AQB)	The public in general	Newspaper Publication in Spanish	Hobbs News-Sun publication

ADMINISTRATIVE RECORD INDEX

CONOCOPHILLIPS COMPANY, ZIA HILLS CENTRAL FACILITY

AQB 21-36 (P)

Index No.	Date	Bates No.	From	To	Format	Subject
1	January 11, 2021	0001-0257	ConocoPhillips Company (CPC)	Air Quality Bureau (AQB)	Hard Copy	Application 7746M8
2		0258-0266				Statement of Basis
3		0267-0280				Database Summary
4		0281-0290				Location Verification
5		0291-0345				AQB Calculation Verifications
6		0346-0355				AQB Modeling Review Report
7		0356-0438				AQB Modeling Guidelines
8		0439-0459				EPA guidance on the SIL for O3 and PM2.5 in the PSD permitting program
9		0460				Compliance & Enforcement Status
10		0461-0512				Draft Permit Version 05.06.2021
11-12		0513-0519				AQB Resumes
CPC Correspondence						
13	January 13, 2021	0520	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Request for Application files
14	January 13, 2021	0521	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Request for link to upload application files for electronic review
15-20	January 13, 2021	0522-0527	Evan Tullos, CPC consultant	Asheley Coriz, AQB	E-mail	Received application files via Kiteworks notification
21	January 13, 2021	0528	Evan Tullos, CPC consultant	Asheley Coriz, AQB	E-mail	Requested confirmation that application files were received

22	January 13, 2021	0529	Asheley Coriz, AQB	Evan Tullos, CPC consultant	E-mail	Confirmed that six files were received to include one modeling zipped file
23	January 13, 2021	0530	Evan Tullos, CPC consultant	Asheley Coriz, AQB	E-mail	Acknowledged that application files were received
24	January 13, 2021	0531	Asheley Coriz, AQB	Evan Tullos, CPC consultant	E-mail	Responded to CPC's acknowledgement and informed that AQB will be in touch regarding questions on behalf of this application
25	January 26, 2021	0532-0533	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Questions on original application while doing administrative review
26-27	January 27, 2021	0534-0541	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Updates and responses to 1/26/21 e-mail from AQB to include the following: • **First page of registration**- Appropriate reference to 20.2.72.200.A.1 NMAC citation under why this application has been submitted • **Section 1-C**- Updated annual gas throughput from 6.57 MMBBL to 6.75 MMBBL • **Section 9-** Back-up delivery receipts for certified mail slips • **Section 9-** Provided second NM OCD Oil and Gas Map showing land ownership
28-29	January 27, 2021	0542-0549	Evan Tullos, CPC consultant	Asheley Coriz, AQB	E-mail	Provided the following updates in addition to the updated pages received previously on 1/27/21:

						• **Section 3-** Appropriate reference to 20.2.72.200.A.1 NMAC • **Section 9-** Provided a replacement NM OCD Oil and Gas Map showing land ownership with ½ mile distance that meets the 20.2.72.203.B.1(b) NMAC requirements to meet public notice requirements
30	February 1, 2021	0550-0552	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Requested an explanation and clarity to include: • How uncontrolled and controlled emission factors were gathered from the test data • The engines applicability to the 20.2.77 NMAC rule
31	February 1, 2021	0553-0556	Asheley Coriz, AQB	Shannon Lathrop, Lea County Assessor's Office and Heather Adams, Lea County Assessor's Office	E-mail	AQB followed-up with the Lea County Assessor's Office regarding CPC's response. Requested clarification from Lea County regarding whether or not there is tax information for Federal lands within Lea County.
32-33	February 1, 2021	0557-0565	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Provided the following updates in addition to all the updated received previously on 1/27/21: • Provided a response on the test data and how the information

						was utilized for the emissions calculations • Updated applicability of "Yes" to 20.2.77 NMAC
34	February 9, 2021	0566-0570	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Requested an explanation and clarity to include: • **Table 2-L** – clarity on the throughput • Further clarification on engine emissions calculations
35-37	February 10, 2021	0571-0577	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail and USPS Certified Mailing	Ruled Application Administratively Complete; provided the following: • Completion letter • Legal Notice • Invoice
38	February 10, 2021	0578	Vivian C. Bermudez, CPC	Asheley Coriz, AQB; and Evan Tullos, CPC consultant	E-mail	• Confirmed receipt of e-mail from AQB of application ruled administratively complete • Wanted clarification on how the general review fee is calculated
39-40	February 10, 2021	0579-0580	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Provided the excel spreadsheet of the Department's fee calculator
41	February 10, 2021	0581	Evan Tullos, CPC consultant	Asheley Coriz, AQB	E-mail	Notified AQB that CPC is working on responses from AQB's email request on 2/9/21 regarding stack tests for engines
42	February 11, 2021	0582	Asheley Coriz, AQB	Evan Tullos, CPC consultant	E-mail	Responded to CPC's latest email; awaited on

						information regarding engine test data
43	February 16, 2021	0583	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Followed up on responses regarding engines test data as these responses had not yet been received
44	February 16, 2021	0584	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Informed that Vivian C. Bermudez is working on getting responses to AQB on the engines test data
45	February 17, 2021	0585-0586	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Responded to AQB's e-mail request on 2/9/21 for engines test data
46	February 19, 2021	0587-0588	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Responded and requested an explanation and clarity to include: • Why the pollutant Acrolein is not incorporated with the uncontrolled VOC emissions • **Section 1-C and Table 2-L-** Clarity needed on facility's oil throughput discrepancy
47	February 19, 2021	0589	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Responded to AQB's latest email on 2/19/21
48	February 19, 2021	0590-0591	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Responded and requested an explanation and clarity to include: • Clarity on the Acrolein pollutant not included in the uncontrolled VOC emissions for engines • **Section 1-C and Table 2-L-** Discrepancy in oil throughput

						• Emission factor for trial run #2 for the serial unit # N6W00631 (ENG-1) not consistent with test data
49-50	February 22, 2021	0592-0609	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Updates and responses to 2/19/21 e-mail from AQB to include the following: • **Table 2-E** -Update for VOC tpy controlled emission for ENG-1 • **Table 2-I**- Update for total HAPs for all engine units
51-59	March 15, 2021	0610-0826	Vivian C. Bermudez, CPC	Asheley Coriz, AQB; and Evan Tullos, CPC consultant	E-mail	Provided a revised calculations workbook to include changes to the tables as listed below, updated manufacturer and catalyst spec, updated stack test data reports (ENG2-3, ENG5-7), and lowered the safety factor from 25% to 15% for the engines, as well as represented SSM emissions differently. The changes to the following Tables were made: • **Table 2-C** • **Table 2-D** • **Table 2-E** • **Table 2-F** • **Table 2-I**
60	March 16, 2021	0827	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Requested a summary sheet for each test data report as well as highlighted information pertaining to the changes that were requested

61-63	March 16, 2021	0828-0859	Vivian C. Bermudez, CPC	Asheley Coriz, AQB; and Evan Tullos, CPC consultant	E-mail	Responded and provided the updated highlighted information/emissions to the below tables as listed below, updated manufacturer and catalyst spec, SSM updates, ProMax data, and the summary pages of the stack test data: • **Table 2-C** • **Table 2-D** • **Table 2-E** • **Table 2-F** • **Table 2-I**
64	March 17, 2021	0860-0862	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Responded and requested clarity on emissions for engines and SSM for the facility
65	March 18, 2021	0863	Vivian C. Bermudez, CPC	Asheley Coriz, AQB; and Evan Tullos, CPC consultant	E-mail	Notified that they will send the updates but wanted to discuss the SSM-C (combustion) emissions first via telephone
66	March 18, 2021	0864	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Notified CPC that AQB can discuss via telephone at 1 PM (Mountain time)
67	March 18, 2021	0865	Vivian C. Bermudez, CPC	Asheley Coriz, AQB; and Evan Tullos, CPC consultant	E-mail	Confirmed CPC can discuss via telephone with AQB today at 1 PM (Mountain time)
68-69	March 19, 2021	0866-0871	Vivian C. Bermudez, CPC	Asheley Coriz, AQB and Rhonda Romero, AQB; and Evan Tullos, CPC consultant	E-mail	Responded with an explanation for the proposed SSM emissions and provided the following updates/clarity to include: • Revised stack test data to correctly identify ENG-5 & ENG-6

						• Updated test data summary with correct emission factor for trial #3 for ENG-5
70	March 19, 2021	0872	Rhonda Romero, AQB	Vivian C. Bermudez, CPC and Evan Tullos, CPC consultant; and Asheley Coriz, AQB	E-mail	Requested information regarding exact changes in emissions for each pollutant in regards to what was represented in the public notice; requested a comparison by pollutant
71	March 19, 2021	0873	Vivian C. Bermudez, CPC	Asheley Coriz, AQB and Rhonda Romero, AQB; and Evan Tullos, CPC consultant	E-mail	Responded to AQB's email request on 3/19/21 that the VOCs increased by 1.1% whereas the NO_x, CO, SO_2, PMs, HAPs, and CO2e all decreased such as 5.7%, 6.7%, 14.4%, 10.6%, 45.6%, and 10.7% respectively; this was the comparison in percentage differences when compared to the higher values in the public notice
72	March 30, 2021	0874	Asheley Coriz, AQB	Vivian C. Bermudez, CPC and Evan Tullos, CPC consultant; and Rhonda Romero, AQB	E-mail	Request for clarification on the revised SSM emissions in Table 2-F sent via e-mail on 3/15/21; need an excel workbook
73-74	March 31, 2021	0875-0886	Vivian C. Bermudez, CPC	Asheley Coriz, AQB and Rhonda Romero, AQB; and Evan Tullos, CPC consultant	E-mail	Responded to AQB's email on 3/30/21; revised changes were provided compared to changes received 3/16/21 to the following Tables due to the changes to the SSM emissions: • **Table 2-C** • **Table 2-D** • **Table 2-F** • **Table 2-I**
75	April 12, 2021	0887	Asheley Coriz, AQB	Vivian C. Bermudez,	E-mail	Requested CPC's availability to see when

				CPC; and Evan Tullos, CPC consultant		AQB and CPC could discuss application 7746M8
76	April 12, 2021	0888	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Mentions time/day of availability via telephone
77	April 13, 2021	0889	Vivian C. Bermudez, CPC	Asheley Coriz, AQB; and Evan Tullos, CPC consultant	E-mail	Mentions time/day of availability via telephone
78	April 13, 2021	0890	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Notified CPC that AQB is still working through calculations for application 7746M8
79	April 14, 2021	0891-0893	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Requested clarification in regards to the calculations on the tanks and flares
80	April 15, 2021	0894-0896	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Responded to AQB's email on 4/14/21
81	April 15, 2021	0897-0899	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Responded to CPC's response on 4/15/21 to request clarity on the VRUs within Table 2-A and/or Table 2-C
82	April 15, 2020	0900	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Clarified the VRUs are already included in Tables 2-A and 2-C; claim the VRUs as a process rather than a control per 20.2.38 109 NMAC and 20.2.38.112 NMAC
83	April 15, 2021	0901	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	• AQB Management confirmed that the VRUs as represented in application 7746M8 (excel file as of 03.31.21) are accepted

						• **<u>Section 10-</u>** Requested an explanation with clarification of the VRUs redundancy
84	April 15, 2021	0902	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Requested clarification on additional units: malfunctions, fugitives, dehydrators, reboiler, and Table 2-L (discrepancy of throughput with Section 1-C)
85	April 16, 2020	0903	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Relayed that CPC will send the update to Section 10 as AQB requested via email on 4/15/21
86-88	April 16, 2020	0904-0909	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Responded to AQB's email on 4/15/21 regarding additional units and provided the following updates: • **<u>Table 2-E-</u>** Updated the PM2.5 emissions for the RB4 unit • **<u>Section 10-</u>** Updated to include a description about the VRUs redundancy • **<u>Section 1-C-</u>** Noted the throughput in the original application of 6.57 MMBBL was and is still correct, matches that of Table 2-L
89	April 16, 2021	0910-0911	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Responded to CPC's email on 4/16/21 and requested an update to Tables 2-D and 2-E

90-91	April 16, 2020	0912-0920	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Responded and provided the following updates, to include the updates to the fugitive emissions and PM2.5 emissions for RB4 unit, only in PDF: • **Table 2-D** • **Table 2-E**
92	April 16, 2021	0921	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Requested further clarification
93	April 16, 2020	0922	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Requested clarification on AQB's latest email on 4/16/21
94	April 16, 2021	0923	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Requested clarification on Table 2-A and flares while working on the draft permit
95-96	April 16, 2020	0924-0932	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Responded and provided the following updates, to include the updates to the fugitive emissions and PM2.5 emissions for RB4 unit, in *both PDF and excel*: • **Table 2-D** • **Table 2-E**
97	April 16, 2021	0933	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Replied to CPC's latest email on 4/16/21
98	April 20, 2021	0934	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	• Requested the correct Universal Application (UA) Table 2-J Form to be filled out • Requested Section 17 and Table 2-A engine unit numbers to be consistent with one another

99-100	April 20, 2021	0935-0936	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	• Provided an Updated **Table 2-J** • Provided an explanation for the unit IDs corresponding to a pedigree
101	April 20, 2021	0937-0938	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Requested clarification on catalytic converters, glycol dehydrators, and control devices regarding the glycol dehydrators while working on the draft permit
102	April 20, 2021	0939	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Requested clarification on sulfur in Table 2-J, the pedigree for the engines, and the initial compliance testing for engines
103	April 21, 2021	0940-0941	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Responded to AQB's email on 4/20/21 regarding catalytic converters, glycol dehydrators, and control devices regarding the glycol dehydrators
104-107	April 21, 2021	0942-0946	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Responded to AQB's email on 4/20/21 regarding sulfur in Table 2-J, the pedigree for the engines and the initial compliance testing for engines. Updates provided were: • Pedigree letters for ENG7 and ENG8 • Provided initial compliance testing record for ENG8
108-109	April 21, 2021	0947-0952	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Provided the following updates: • **Table 2-A** • **Table 2-C**
110	April 26, 2021	0953	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan	E-mail	• Requested an update to Section 17 to include unit numbers as to

				Tullos, CPC consultant		correspond with what is represented in Table 2-A • Clarification on whether the test results for ENG8 are a part of the calculations and represented in Table 2-E
111-112	April 27, 2021	0954-0955	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Responded to AQB's email on 4/26/21: • Provided an updated **Section 17** • CPC confirmed ENG8 test data was not included in the controlled calculations because the test was conducted after submittal of the application to the department and after Vivian C. Bermudez, CPC submitted adjusted engine emissions based on other stack tests (via email 3/15/21)
113	April 27, 2021	0956	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Requested clarification on whether the fugitives are also subject to 20.2.77 NMAC
114-115	April 27, 2021	0957-0959	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Provided an update to **Section 13**; fugitives are applicable to 20.2.77 NMAC
116-118	April 27, 2021	0960-1013	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan	E-mail	Attached Draft Permit version 04.27.21 for review; requested response for CPC to

				Tullos, CPC consultant		provide comments no later than noon on 05.04.21
119	April 27, 2021	1014	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Notified CPC of discrepancy between the pedigree unit number on the pedigree letter and Section 17 for ENG8
120-121	April 28, 2021	1015-1017	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Responded to AQB's email on 4/27/21: • Provided an updated **Section 17** to correct for pedigree unit number for ENG8
122-123	May 4, 2021	1018-1049	Michael K. Lane, CPC	Asheley Coriz, AQB; Vivian C. Bermudez, CPC, and Evan Tullos, CPC consultant	E-mail	Comments on Draft Permit version 04.27.21 were submitted to AQB
124	May 4, 2021	1050-1051	Asheley Coriz, AQB	Michael K. Lane, CPC, Vivian C. Bermudez, CPC, and Evan Tullos, CPC consultant	E-mail	Responded to CPC's comments on Draft Permit version 04.27.21 to provide AQB's response: • Updated Table 106.A • Removed footnote under Table 107.A • Updated the appropriate separator pressures for the tanks in Conditions A.203.A-D • Updated flares information in Condition in A206.D
125	May 11, 2021	1052-1055	Rhonda Romero, AQB	Asheley Coriz, AQB	E-mail	Forwarded e-mail chain discussion between AQB and CPC; CPC requested a change in permit language. AQB noted it

						was too late in the process to request this change.
126-127	May 11, 2021	1056-1108	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	The department issued Permit version 05.06.21
128	May 25, 2021		Rhonda Romero, AQB Liz Kuehn, AQB Lara Latz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	Telephone	The department notified CPC that the NSR permit issued on 05.11.21 has been rescinded
129-130	June 7, 2021	1109-1112	Melinda Owens, AQB	Vivian C. Bermudez, CPC; Asheley Coriz, AQB, Kirby Olson, AQB, Rhonda Romero, AQB, and Kathleen Primm, AQB	E-mail	Attached Public Hearing Determination document
131-132	July 14, 2021	1113-1117	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	• Attached WEG's 1st comments the department received on 3/12/21 • Requested responses from CPC on WEG's 1st comments
133-135	July 27, 2021	1118-1126	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	• Attached WEG's 2nd comments the department received on 7/16/21 • Attached WEG's 1st comments the department received on 3/12/21 • Requested responses from

						CPC on both comments
136-137	July 28, 2021	1127-1134	Vivian C. Bermudez, CPC	Asheley Coriz, AQB; and Evan Tullos, CPC consultant	E-mail	Attached responses to WEG's 1st comments
138	July 29, 2021	1135	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	• Replied that their responses to WEG's 1st comments have been received • Reminded CPC that the department still needs CPC's response on behalf of WEG's 2nd comments
139	July 29, 2021	1136	Vivian C. Bermudez, CPC	Asheley Coriz, AQB	E-mail	Informed that CPC will send responses on WEG's 2nd comments ASAP
140-141	August 17, 2021	1137-1141	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Attached WEG's 2nd comments the department received on 7/16/21; reminded CPC the department is still in need of responses
142-143	August 18, 2021	1142-1149	Vivian C. Bermudez, CPC	Asheley Coriz, AQB; Evan Tullos, CPC consultant and Jennifer Knowlton, CPC	E-mail	Attached responses to WEG's 2nd comments
144	August 26, 2021	1150	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Question on pneumatic controllers/pumps and whether these are exempted units
145	August 26, 2021	1151	Vivian C. Bermudez, CPC	Asheley Coriz, AQB; and Evan Tullos, CPC consultant	E-mail	Confirmed that the pneumatic devices/pumps are air driven; therefore, these units are not a "source"
146	August 27, 2021	1152	Asheley Coriz, AQB	Vivian C. Bermudez,	E-mail	Responded to CPC's email response on 8/26/21;

				CPC; and Evan Tullos, CPC consultant		requested updates to Sections 3 & 10 with updated language in regards to the unregulated air driven pneumatic devices/pumps
147-148	August 31, 2021	1153-1155	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Provided an update (statement for pneumatic devices/pumps) to **Sections 3 & 10** of the application 7746M8
149	September 20, 2021	1156	Asheley Coriz, AQB	Vivian C. Bermudez, CPC; and Evan Tullos, CPC consultant	E-mail	Requested an updated Section 3 with all the changes that should be reflected (both the correct 20.2.72.200.A.1 NMAC citation and statement regarding the pneumatic pumps)
150-151	September 20, 2021	1157-1159	Evan Tullos, CPC consultant	Asheley Coriz, AQB; Vivian C. Bermudez, CPC	E-mail	Responded to 9/20/21 email from AQB; provided an updated **Section 3**
152	September 22, 2021	1160	Evan Tullos, CPC consultant	Asheley Coriz, AQB	E-mail	Responded to the Notification of Public Hearing email sent from AQB on 9/22; Inquired about excel workbook with their full calculations posted on the AQB website
153	September 22, 2021	1161-1163	Kathleen Primm, AQB	Evan Tullos, CPC consultant; and Asheley Coriz, AQB	E-mail	Informed that the excel file that included their formatted calculations sheets have been removed from AQB's website and that these updated UA2 tables are reflected in the PDF of the Application Updates file
Modeling Correspondence						
154	January 15, 2021	1164-1165	Asheley Coriz, AQB	Sufi Mustafa, AQB	E-mail	Sent 7746M8 modeling files to modeling section for review
155	February 5, 2021	1166	Asheley Coriz, AQB	Sufi Mustafa, AQB	E-mail	Followed up with modeling to see if

						application could be ruled administratively complete
156	February 8, 2021	1167	Sufi Mustafa, AQB	Asheley Coriz, AQB and Angela Raso, AQB	E-mail	• Application 7746M8 could be ruled administratively complete with regard to modeling • Modeling had been assigned to Angela Raso, AQB
157	April 13, 2021	1168	Angela Raso, AQB	Asheley Coriz, AQB	E-mail	Requested an update on the review for application 7746M8; wanted confirmation on whether emission rates or stacks parameters have changed
158-159	April 16, 2021	1169-1185	Asheley Coriz, AQB	Angela Raso, AQB	E-mail	• Provided the calculation updates to application 7746M8 to include updates to Tables 2-C, D, E, F, and I.
160-161	April 23, 2021	1186-1207	Asheley Coriz, AQB	Angela Raso, AQB	E-mail	• Provided updates to application 7746M8 to include updates to Tables 2-A, C, and J.
162-163	April 26, 2021	1208-1218	Angela Raso, AQB	Asheley Coriz, AQB	E-mail	Attached Modeling Review Report and noted that permit may be issued based on this modeling analysis
Public Comments						
164-166	March 12, 2021	1219-1225	Matthew Nykiel, WEG	Asheley Coriz, AQB and Ted Schooley, AQB	E-mail	Attached written comments and legal notice
167-168	May 21, 2021	1226-1230	Asheley Coriz, AQB	Matthew Nykiel, WEG	E-mail and USPS Mailing	Attached Citizen Initial letter
169-170	June 7, 2021	1231-1234	Melinda Owens, AQB	Jeremy Nichols, WEG and Matthew	E-mail	Attached Public Hearing Determination document

				Nykiel, WEG; Asheley Coriz, AQB, Kirby Olson, AQB, Rhonda Romero, AQB, and Kathleen Primm, AQB		
171-172	June 18, 2021	1235-1236	Asheley Coriz, AQB	Matthew Nykiel, WEG	E-mail and USPS Mailing	Attached Citizen Second letter
173	June 30, 2021	1237	Asheley Coriz, AQB	Matthew Nykiel, WEG; Lara Katz, AQB, Kathleen Primm, AQB, Rhonda Romero, AQB, Kirby Olson, AQB, and Melinda Owens, AQB	E-mail	Emailed in response to Matthew Nykiel's (WEG) voicemail
174	June 30, 2021	1238	Matthew Nykiel, WEG	Asheley Coriz, AQB, Lara Katz, AQB, Kathleen Primm, AQB, Rhonda Romero, AQB, Kirby Olson, AQB, and Melinda Owens, AQB	E-mail	Had an administrative question; but will continue to direct questions to Lara Katz at AQB
175-177	July 16, 2021	1239-1245	Matthew Nykiel, WEG	Asheley Coriz, AQB, Kirby Olson, AQB, and Melinda Owens, AQB	E-mail	Attached written comments and legal notice
AQB Public Outreach						
178-182	February 10, 2021	1246-1252	Asheley Coriz, AQB	Santa Fe area Class I Areas, Bernalillo County, EPA, and organizations identified on a list	E-mail	<u>EPA Region 6, Erica LeDoux at EPA</u> Department's Legal Notice <u>State of Texas</u> Affected Parties letter and Department's Legal Notice

				maintained by the Department who have indicated in writing a desire to receive notices of applications per 20.2.72.206.A(4) NMAC		
183-184	February 10, 2021	1253-1254	AQB	The public in general	Webposting	*Public Notices of Permitting Actions* webpage: • Application 7746M8 and Legal Notice was posted
185	February 17, 2021	1255-1256	AQB	The public in general	Newspaper	Affidavit of AQB publication of legal notice in Hobbs-News Sun newspaper
186-187	May 21, 2021	1257-1258	AQB	The public in general	Webposting	*Public Notices of Permitting Actions* webpage: • Revised Public Notice was posted *Permit Applications with Public Interest, Public Meeting, or Public Hearing* webpage: • Original Application • Calculation Updates • Application Updates • Modeling Report • All Test Data Information and/or Reports • Draft Statement of Basis

						• Draft Permit Part A (version 05.06.21) • Draft Permit Parts B and C • Public Notice (Revised)
188	May 22, 2021	1259-1260	AQB	The public in general	Newspaper	Affidavit of AQB publication of legal notice in Albuquerque Journal newspaper
189-190	July 2, 2021	1261-1262	AQB	The public in general	Webposting	*Permit Applications with Public Interest, Public Meeting, or Public Hearing* webpage: • Red font language with the statement of "NMED is initiating the second 30 day comment period for this permit on June 22, 2021." was included on the AQB's webpage
191	July 8, 2021	1263-1269	AQB	The public in general	Webposting	Via TRUMA Calendar where the following was noted: • Start of 30 day comment period- May 22, 2021 • End of initial 30-day comment period- June 21, 2021 • Start of 30-day analysis period- June 22, 2021 • End of 30-day analysis period- July 22, 2021
192	August 31, 2021	1270	AQB	The public in general	Webposting	*Public Notices* webpage: Draft Statement of Basis (08/27/2021) was posted

193	September 8, 2021	1271	AQB	The public in general	Webposting	*Public Notices* webpage: Application Updates (08/31/21) was posted
194	September 22, 2021	1272-1273	AQB	The public in general	Webposting	*Public Notices* webpage: • Application Updates (09/20/21) was posted on 09/21/21 • NMED Events Calendar • Notice of Hearing
195-201	September 22, 2021	1274-1350	Asheley Coriz, AQB	The public in general, Santa Fe area Class I Areas, Bernalillo County, EPA, and organizations identified on a list maintained by the Department who have indicated in writing a desire to receive notices of applications per 20.2.72.206.A(4) NMAC, nearby tribes, nearby counties, and nearby municipalities	E-mail	AQB e-mailed to inform the Department's Notification of Public Hearing in both English and Spanish. Included the cover letter, English notice, and Spanish notice as attachments to each of the following: • Vivian Bermudez and Evan Tullos at CPC (Applicant) • Matthew Nykiel at WEG • EPA Region 6, Erica LeDoux at EPA, and Elizabeth Layton at EPA • Eddy County • Lea County • State of Texas • Bureau Land Management (BLM)
202	September 22, 2021	1351	AQB	The public in general	Webposting	*Public Notices* webpage: • Removed the Calculation Updates file (excel file included formatted calculations) from

						AQB's website; the updated UA2 tables were reflected in the pdf of the Application Updates file
203-204	September 22, 2021	1352-1370	AQB	The public in general	Newspaper	Affidavits of AQB publications of Notices of Hearing in both English and Spanish in the *Carlsbad Current-Argus* newspaper
205-206	September 23, 2021	1371-1376	AQB	The public in general	Newspaper	Affidavits of AQB publications of Notices of Hearing in both English and Spanish in the *Albuquerque Journal* newspaper
207-209	September 24, 2021	1377-1381	AQB	The public in general	Newspaper	Affidavits of AQB publications of Notices of Hearing in both English and Spanish in the *Hobbs News-Sun* newspaper
210-215	October 5, 2021	1382-1396	AQB	The public in general	Public Service Announcement (PSA)	AQB sent a Public Service Announcement (PSA) to a radio station to the following: • Radio Station in Hobbs (cover letter and announcement) • Radio Station in Carlsbad (cover letter and announcement) • KENW Community Calendar (screenshots of announcement submittal)

ADMINISTRATIVE RECORD INDEX

Crestwood New Mexico, LLC., Willow Lake Gas Processing Plant

AQB 21-38 (P)

Index No.	Date	Bates No.	From	To	Format	Subject
1	2/19/2021	001 - 247	Crestwood New Mexico LLC	Air Quality Bureau (AQB)	Hard Copy	Application 5142M8 (Original)
2	6/7/2021	248 - 312	Crestwood New Mexico LLC	Air Quality Bureau (AQB)	Hard Copy	Application 5142M8 (Revised 2021.6.7) for VRU
3	9/14/2021	313 - 343	Crestwood New Mexico LLC	Air Quality Bureau (AQB)	Hard Copy	Application 5142M8 (Revised 2021.9.14) for multiple operation
4	3/18/2021	345 - 349	Air Quality Bureau (AQB)	Crestwood New Mexico LLC	Digital	Ruled Complete letter and Public Notice
5	4/20/2021	350 - 351	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	Public Notice 2nd for Website
6	3/18/2021	352	Air Quality Bureau (AQB)	Carlsbad Cavern National Park	Digital	Affected Parties Letter to Carlsbad Cavern NP
7	3/18/2021	354	Air Quality Bureau (AQB)	State of Texas	Digital	Affected Parties Letter to State of Texas.
8	3/20/2021	356 - 360	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy/ Digital	Newspaper Affidavit for public notice (1st)
9	4/22/2021	361 - 363	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy/ Digital	Newspaper Affidavit for public notice republished (2nd)
10	5/14/2021	364 - 375	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	AQB Modeling Review Report
11	5/19/2021	376 - 387	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	Database Summary
12	9/21/2021	388 - 399	Air Quality Bureau (AQB)	Crestwood, WildEarth Guardians (WEG), AQB Website	Digital	Statement of Basis (public) version 2021.5.28
13	9/21/2021	400 - 412	Air Quality Bureau (AQB)	Crestwood, WEG, AQB Website	Digital	Statement of Basis _revised version 2021.9.21
14	5/27/2021	413 - 465	Air Quality Bureau (AQB)	Crestwood, WEG, AQB Website	Digital	Draft Permit Version 2021.05.28 (public)
15	9/21/2021	466 - 499	Air Quality Bureau (AQB)	Crestwood, WEG, AQB Website	Digital	Revised Draft Permit Part A Version 2021.9.21 (public)
16	4/16/2021	500 - 503	WildEarth Guardians	Air Quality Bureau (AQB)	Digital	WEG 1st Comment

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Index No.	Date	Bates No.	From	To	Format	Subject
17	6/28/2021	504 - 509	WildEarth Guardians	Air Quality Bureau (AQB)	Digital	WEG 2nd Comment
18	4/16/2021	510 - 512	Air Quality Bureau (AQB)	WildEarth Guardians	Digital	Citizen Letter Initial
19	5/27/2021	513	Air Quality Bureau (AQB)	WildEarth Guardians	Digital	Citizen Letter Second
20	9/27/2021	514 - 522	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy	Affidavit for English Notice of Hearing Carlsbad
21	9/27/2021	523 - 532	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy	Affidavit for Spanish Notice of Hearing Carlsbad
22	9/28/2021	533 - 535	Albuquerque Journal	Air Quality Bureau (AQB)	Digital	Affidavit for English Notice of Hearing Albuquerque
23	9/28/2021	536 - 538	Albuquerque Journal	Air Quality Bureau (AQB)	Digital	Affidavit for Spanish Notice of Hearing Albuquerque
24	10/5/2021	539 - 540	Hobbs Radio	Air Quality Bureau (AQB)	Digital	PSA for Hobbs Radio
25	10/5/2021	541 - 542	Carlsbad Radio	Air Quality Bureau (AQB)	Digital	PSA for Carlsbad Radio
26	10/5/2021	543 - 548	Eddy and Lea City	Air Quality Bureau (AQB)	Digital	PSA for Eddy and Lea City Radio
AQB Internal Correspondence and Multiple Agency Email						
27	3/11/2021	549 - 550	Sufi Mustafa, AQB	Urshula Bajracharya, AQB	E-mail	Modeling Ruled complete
28	4/8/2021	551	Arianna Espinoza, AQB	Urshula Bajracharya, AQB	E-mail	Confirmation of public notice (1st) posted to AQB website.
29	4/20/2021	552	Arianna Espinoza, AQB	Urshula Bajracharya, AQB	E-mail	Confirmation of public notice (2nd) re-posted to AQB website.
30	5/13/2021	554	Urshula Bajracharya, AQB	Arianna Espinoza, AQB	E-mail	PN and App posted to Public Interest and Hearing Web site.
31	6/9/2021	555	Air Quality Bureau (AQB)	Crestwood New Mexico LLC and WEG	E-mail	Cabinet Secretary Hearing Determination
32	5/14/2021	556	Angela Raso, AQB	Urshula Bajracharya, AQB	E-mail	Modeling Report finished
33	5/27/2021		Air Quality Bureau (AQB)	Arianna Espinoza, AQB	E-mail	Permit and SoB Posted to AQB Website for review by citizen.

Index No.	Date	Bates No.	From	To	Format	Subject
34	9/22/2021	560 - 565	Air Quality Bureau (AQB)	Arianna Espinoza, AQB	E-mail	Revised Permit and SoB Posted to AQB Website for review by citizen.
35	7/21/2021	557 - 559	Compliance and Enforcement, AQB	Urshula Bajracharya, AQB	E-mail	Verification of Compliance
36	9/22/2021	564 - 568	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of Development and Village of Loving.	E-mail	Emails to all parties
37	9/22/2021	569	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of Development and Village of Loving.	Digital	Letter for Notices of Hearing emailed to Parties
38	9/22/2021	570 - 574	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of Development and Village of Loving.	Digital	Spanish Notice of Hearing emailed to Parties

Index No.	Date	Bates No.	From	To	Format	Subject
39	9/22/2021	575 - 578	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management (BLM), New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of Development and Village of Loving.	Digital	English Notice of Hearing emailed to Parties
Crestwood New Mexico LLC Correspondence						
40	3/18/2021	579	Air Quality Bureau (AQB)	Crestwood New Mexico LLC	E-mail	Ruled Complete letter and Public Notice sent to Crestwood
41	5/27/2021	580	Air Quality Bureau (AQB)	Crestwood New Mexico LLC	E-mail	Draft document sent to Crestwood for review of draft permit version
42	9/21/2021		Air Quality Bureau (AQB)	Crestwood New Mexico LLC	E-mail	Draft document sent to Crestwood for review of draft permit version 2021. 9.21
43	6/7/2021	581	Crestwood New Mexico LLC	Air Quality Bureau (AQB)	E-mail	VRU OOOO applicability
44	6/7/2021	581	Crestwood New Mexico LLC	Air Quality Bureau (AQB)	E-mail	Application revision for new VRU addition to facility.
45	9/14/2021	585	Crestwood New Mexico, LLC., Inc	Air Quality Bureau	E-mail	Question on pneumatic controllers included in Revised application dated 2021.9.14
46	9/14/2021	583	Crestwood New Mexico, LLC., Inc	Air Quality Bureau	E-mail	Application revision for multiple units in facility.
WEG Correspondence						
47	4/16/2021	616	WEG	Air Quality Bureau	E-mail	First Comments received WEG
48	4/16/2021	617	Air Quality Bureau (AQB)	WEG	E-mail	Initial Citizen letter send to WEG
49	5/27/2021	618	Air Quality Bureau (AQB)	WEG	E-mail	Second Citizen Letter send to WEG
50	6/28/2021	619	WEG	Air Quality Bureau	E-mail	Second comments from WEG

Index No.	Date	Bates No.	From	To	Format	Subject
51	9.21.2021	620	Air Quality Bureau (AQB)	WEG	E-mail	Revised Draft Permit Part A Version 2021.9.21 sent to WEG
Miscellaneous Documents						
52	9/24/2021	621 - 623	Hobbs News-Sun	Air Quality Bureau	Hardcopy	Affidavit for Hobbs News-Sun for Notice of Public Hearing-English
53	9/24/2021	624 - 626	Hobbs News-Sun	Air Quality Bureau	Hardcopy	Affidavit for Hobbs News-Sun for Notice of Public Hearing-Spanish
54	9/22/2010	627	AQB (on website)	Public	Digital	AQB Monitoring Protocol Graph for Glycol Dehydrators
55	6/1/2021	628 - 630	Crestwood New Mexico, LLC	Air Quality Bureau	Email	Email comments on draft permit version 2021.5.28 from Crestwood
56	6/1/2021	631 - 674	Crestwood New Mexico, LLC	Air Quality Bureau	Digital	Draft permit and statement of basis version 2021.5.28 from Crestwood with comments
57	9/23/2021	675 - 676	Crestwood New Mexico, LLC	Air Quality Bureau	Email	Email comments on draft permit version 2021.9.21 from Crestwood-comments written in the email.

ADMINISTRATIVE RECORD INDEX

XTO Energy Inc., Maverick Compressor Station

AQB 21-39

Index No.	Date	Bates No.	From	To	Format	Subject
1	3/8/2021	001-324	XTO Energy Inc.	Air Quality Bureau (AQB)	Hard Copy	Application 7565M2
2	5/18/2021	325	XTO Energy Inc.	Air Quality Bureau (AQB)	Digital	Updated Section 3
3	9/13/2021	326-618	XTO Energy Inc.	Air Quality Bureau (AQB)	Digital	Updated/Revised Application
4	4/5/2021	619	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	WS Fees
5	3/17/2021	620	Air Quality Bureau (AQB)	XTO Energy Inc	Digital	NSR Invoice
6	4/7/2021	621-626	Air Quality Bureau (AQB)	XTO Energy Inc	Digital	Ruled Complete letter and Public Notice
7	4/5/2021	627-629	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Hard Copy	Location Verification
8	4/7/2021	630	Air Quality Bureau (AQB)	State of Texas	Digital	Affected Parties
9	4/9/2021	631-633	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy/ Digital	Newspaper Affidavit for legal notice (initial)
10	4/20/2021	634-636	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy/ Digital	Newspaper Affidavit for legal notice (second)
11	6/7/2021	637-645	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	AQB Modeling Review Report
12	6/9/2021	646-660	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	Database Summary
13	6/9/2021	661-670	Air Quality Bureau (AQB)	XTO, WildEarth Guardians (WEG), AQB Website	Digital	Statement of Basis (public)
14	6/9/2021	671-724	Air Quality Bureau (AQB)	XTO, WEG, AQB Website	Digital	Draft Permit Version 2021.06.09 (public)
15	2/6/2019	725-774	Air Quality Bureau (AQB)	XTO Energy Inc	Hard Copy/ Digital	NSR permit 7565M1
16	5/20/2021	775-780	WildEarth Guardians	Air Quality Bureau (AQB)	Digital	WEG 1st Comment

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Index No.	Date	Bates No.	From	To	Format	Subject
17	7/9/2021	781-784	WildEarth Guardians	Air Quality Bureau (AQB)	Digital	WEG 2nd Comment
18	5/24/2021	785-788	Air Quality Bureau (AQB)	WildEarth Guardians	Digital	First Citizen Letter
19	6/9/2021	789	Air Quality Bureau (AQB)	WildEarth Guardians	Digital	Second Citizen Letter
20	9/22/2021	790-798	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy	Affidavit for English Notice of Hearing
21	9/22/2021	799-808	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy	Affidavit for Spanish Notice of Hearing
22	9/23/2021	809-811	Albuquerque Journal	Air Quality Bureau (AQB)	Hard Copy	Affidavit for English Notice of Hearing
23	9/23/2021	812-814	Albuquerque Journal	Air Quality Bureau (AQB)	Hard Copy	Affidavit for Spanish Notice of Hearing
24	9/24/2021	815-817	Hobbs News-Sun	Air Quality Bureau (AQB)	Hard Copy	Affidavit for English Notice of Hearing
25	9/24/2021	818-820	Hobbs News-Sun	Air Quality Bureau (AQB)	Hard Copy	Affidavit for Spanish Notice of Hearing
AQB Internal Correspondence and Multiple Agency Email						
26	3/18/2021	821-822	Sufi Mustafa, AQB	Julia Kuhn, AQB	E-mail	Modeling Ruled complete
27	4/7/2021	823-824	Arianna Espinoza, AQB	Julia Kuhn, AQB	E-mail	Confirmation of public notice posted to AQB website.
28	4/19/2021	825-826	Arianna Espinoza, AQB	Julia Kuhn, AQB	E-mail	Confirmation of revised public notice posted to AQB website.
29	7/20/2021	827-828	Compliance and Enforcement, AQB	Julia Kuhn, AQB	E-mail	Verification of Compliance
30	6/7/2021	829-830	Eric Peters	Julia Kuhn, AQB	E-mail	Modeling Report finished
31	6/9/2021	831-832	Air Quality Bureau (AQB)	Arianna Espinoza, AQB	E-mail	Permit and SoB Posted to AQB Website for review by citizen (along with PN and application)
32	6/7/2021	833-835	Air Quality Bureau (AQB)	Julia Kuhn, AQB and WEG	Hard Copy	Cabinet Secretary Hearing Determination
33	4/7/2021	836	Julia Kuhn, AQB	EPA	E-mail	PN notification to EPA
34	9/22/2021	837-848	Air Quality Bureau (AQB)	WEG, US EPA, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy	E-mail/ Hard Copy	Letter for Notices of Hearing emailed to Parties

Index No.	Date	Bates No.	From	To	Format	Subject
				County, State of Texas, XTO		
35	9/22/2021	837-848	Air Quality Bureau (AQB)	WEG, US EPA, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, State of Texas, XTO	E-mail/ Hard Copy	Spanish Notice of Hearing emailed to Parties
36	9/22/2021	837-848	Air Quality Bureau (AQB)	WEG, US EPA, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, State of Texas, XTO	E-mail/ Hard Copy	English Notice of Hearing emailed to Parties
37	10/5/2021	849-850	Air Quality Bureau (AQB)	Don Hughes/Carlsbad Radio	Hard Copy	PSA request Carlsbad Radio
38	10/5/2021	851-852	Air Quality Bureau (AQB)	Aaron Forrister/KZOR FM	Hard Copy	PSA request Hobbs Radio
39	10/5/2021	853-858	Air Quality Bureau (AQB)	Kenw New Mexico	Hard Copy	PSA request Eddy and Lea Counties
40	9/14/2021	859-869	Melinda Owens (AQB)	Julia Kuhn (AQB)	E-mail/ Hard Copy	Maverick Excess Emissions
XTO Energy Inc. Correspondence						
41	4/7/2021	870	Air Quality Bureau (AQB)	XTO Energy, Inc	E-mail	Ruled Complete letter and Public Notice sent to XTO
42	5/21/2021	871-872	Air Quality Bureau (AQB)	XTO Energy, Inc	E-mail	Notification of WEG comments
43	6/11/2021	873	Air Quality Bureau (AQB)	XTO Energy, Inc	E-mail	Draft document sent to XTO for review
44	7/13/2021	874-882	XTO Energy, Inc	Air Quality Bureau	E-mail	Application review: additional clarification, revision, request for supporting documents
45	9/13/2021	883-884	XTO Energy, Inc	Air Quality Bureau	E-mail	Updated application
WEG Correspondence						
46	5/20/2021	885	WEG	Air Quality Bureau	E-mail	First Comments received WEG

Index No.	Date	Bates No.	From	To	Format	Subject
47	5/24/2021	886-887	Air Quality Bureau (AQB)	WEG	E-mail	Initial Citizen letter send to WEG
48	6/9/2021	888	Air Quality Bureau (AQB)	WEG	E-mail	Second Citizen Letter send to WEG along with Permit and SOB drafts.
49	6/7/2021	889	Air Quality Bureau (AQB)	WEG	E-mail	Notification of Hearing Request Determination
50	7/9/2021	890	WEG	Air Quality Bureau	E-mail	Second comments from WEG

ADMINISTRATIVE RECORD INDEX

XTO Energy Inc., Spartan Compressor Station

AQB 21-40 (P)

Index No.	Date	Bates No.	From	To	Format	Subject
1	3/8/2021	001 - 287	XTO Energy Inc.	Air Quality Bureau (AQB)	Hard Copy	Application 7681M2
2	4/6/2021	288 - 292	Air Quality Bureau (AQB)	XTO Energy Inc	Digital	Ruled Complete letter and Public Notice
3	4/24/2021	293 - 294	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	Public Notice 2nd
4	4/6/2021	295	Air Quality Bureau (AQB)	Carlsbad Cavern National Park	Digital	Affected Parties Letter to Carlsbad Cavern NP
5	4/7/2021	296	Air Quality Bureau (AQB)	State of Texas	Digital	Affected Parties Letter to State of Texas.
6	4/8/2021	297 - 299	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy/ Digital	Newspaper Affidavit for public notice (1st)
7	4/24/2021	300 - 302	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy/ Digital	Newspaper Affidavit for public notice republished (2nd)
8	6/2/2021	303 - 315	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	AQB Modeling Review Report
9	5/24/2021	316 - 326	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	Database Summary
10	6/11/2021	327 - 333	Air Quality Bureau (AQB)	XTO, WildEarth Guardians (WEG), AQB Website	Digital	Statement of Basis (public)
11	6/11/2021	334 - 387	Air Quality Bureau (AQB)	XTO, WEG, AQB Website	Digital	Draft Permit Version 2021.6.11 (public)
12	5/24/2021	388 - 392	WildEarth Guardians	Air Quality Bureau (AQB)	Digital	WEG 1st Comment
13	7/12/2021	393 - 396	WildEarth Guardians	Air Quality Bureau (AQB)	Digital	WEG 2nd Comment
14	6/2/2021		Air Quality Bureau (AQB)	WildEarth Guardians	Digital	Citizen Letter Initial
15	6/10/2021	397	Air Quality Bureau (AQB)	WildEarth Guardians	Digital	Citizen Letter Second
16	9/27/2021	398 - 406	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy	Affidavit for English Notice of Hearing Carlsbad

Index No.	Date	Bates No.	From	To	Format	Subject
17	9/27/2021	407 - 416	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy	Affidavit for Spanish Notice of Hearing Carlsbad
18	9/28/2021	417 - 419	Albuquerque Journal	Air Quality Bureau (AQB)	Digital	Affidavit for English Notice of Hearing Albuquerque
19	9/28/2021	420 - 422	Albuquerque Journal	Air Quality Bureau (AQB)	Digital	Affidavit for Spanish Notice of Hearing Albuquerque
20	10/5/2021	423 - 424	Hobbs Radio	Air Quality Bureau (AQB)	Digital	PSA for Hobbs Radio
21	10/5/2021	425 - 426	Carlsbad Radio	Air Quality Bureau (AQB)	Digital	PSA for Carlsbad Radio
22	10/5/2021	427 - 432	Eddy and Lea City	Air Quality Bureau (AQB)	Digital	PSA for Eddy and Lea City Radio
AQB Internal Correspondence and Multiple Agency Email						
23	3/30/2021	433 - 435	Sufi Mustafa, AQB	Urshula Bajracharya, AQB	E-mail	Modeling Ruled complete
24	4/7/2021	436	Arianna Espinoza, AQB	Urshula Bajracharya, AQB	E-mail	Confirmation of public notice (1st) posted to AQB website.
25	4/26/2021	437	Arianna Espinoza, AQB	Urshula Bajracharya, AQB	E-mail	Confirmation of public notice (2nd) re-posted to AQB website.
26	5/25/2021	438	Urshula Bajracharya, AQB	Arianna Espinoza, AQB	E-mail	PN and App posted to Public Interest and Hearing Web site.
27	6/9/2021	439	Air Quality Bureau (AQB)	XTO Energy Inc and WEG	E-mail	Cabinet Secretary Hearing Determination
28	6/11/2021	442 - 443	Angela Raso, AQB	Urshula Bajracharya, AQB	E-mail	Modeling Report finished
29	6/11/2021	444	Air Quality Bureau (AQB)	Arianna Espinoza, AQB	E-mail	Permit and SoB Posted to AQB Website for review by citizen.
30	7/20/2021	445 - 446	Compliance and Enforcement, AQB	Urshula Bajracharya, AQB	E-mail	Verification of Compliance
31	9/22/2021	447	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of	E-mail	Emails to all parties

Index No.	Date	Bates No.	From	To	Format	Subject
				Development and Village of Loving.		
32	9/22/2021	448	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of Development and Village of Loving.	Digital	Letter for Notices of Hearing emailed to Parties
33	9/22/2021	449 - 453	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of Development and Village of Loving.	Digital	Spanish Notice of Hearing emailed to Parties

Index No.	Date	Bates No.	From	To	Format	Subject
34	9/22/2021	454 - 457	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management (BLM), New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of Development and Village of Loving.	Digital	English Notice of Hearing emailed to Parties
XTO Energy Inc. Correspondence						
35	3/9/2021	458 - 460	Air Quality Bureau (AQB)	XTO Energy, Inc	Email	Catalyst specs for the application
36	4/6/2021	461 - 462	Air Quality Bureau (AQB)	XTO Energy, Inc	E-mail	Ruled Complete letter and Public Notice sent to XTO
37	5/21/2021	463 - 464	XTO Energy, Inc	Air Quality Bureau	E-mail	3.8 gr total sulfur confirmation
38	6/10/2021	465	XTO Energy, Inc	Air Quality Bureau	E-mail	VRU OOOO applicability
39	6/11/2021	467	Air Quality Bureau (AQB)	XTO Energy, Inc	E-mail	Draft document sent to XTO for review
40	8/30/2021	468 - 469	XTO Energy, Inc	Air Quality Bureau	E-mail	Question on pneumatic controllers.
WEG Correspondence						
41	5/24/2021	470	WEG	Air Quality Bureau	E-mail	First Comments received WEG
42	6/2/2021	471 - 472	Air Quality Bureau (AQB)	WEG	E-mail	Initial Citizen letter send to WEG
43	6/10/2021	473	Air Quality Bureau (AQB)	WEG	E-mail	Second Citizen Letter send to WEG
44	7/12/2021	474	WEG	Air Quality Bureau	E-mail	Second comments from WEG
Miscellaneous Documents						
45	9/24/2021	475 - 477	Hobbs News-Sun	Air Quality Bureau	Hardcopy	Affidavit for Hobbs News-Sun for Notice of Public Hearing-English
46	9/24/2021	478 - 480	Hobbs News-Sun	Air Quality Bureau	Hardcopy	Affidavit for Hobbs News-Sun for Notice of Public Hearing-Spanish
47	6/21/2021	481 - 483	XTO Energy, Inc	Air Quality Bureau	Email	XTO comment on draft permit: No comments or changes required.
48	5/24/2021	484 - 486	XTO Energy, Inc	Air Quality Bureau	Email	TCEQ factors used in Spartan.

ADMINISTRATIVE RECORD INDEX

XTO Energy Inc., Tiger Compressor Station

AQB 21-41 (P)

Index No.	Date	Bates No.	From	To	Format	Subject
1	3/8/2021	001 - 288	XTO Energy Inc.	Air Quality Bureau (AQB)	Hard Copy	Application 7623M2
2	4/7/2021	289 - 293	Air Quality Bureau (AQB)	XTO Energy Inc	Digital	Ruled Complete letter and Public Notice
3	4/26/2021	294 - 295	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	Public Notice 2nd for Website
4	4/7/2021	296	Air Quality Bureau (AQB)	Carlsbad Cavern National Park	Digital	Affected Parties Letter to Carlsbad Cavern NP
5	4/7/2021	297	Air Quality Bureau (AQB)	State of Texas	Digital	Affected Parties Letter to State of Texas.
6	4/9/2021	298 - 300	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy/ Digital	Newspaper Affidavit for public notice (1st)
7	4/24/2021	301 - 303	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy/ Digital	Newspaper Affidavit for public notice republished (2nd)
8	6/7/2021	304 - 314	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	AQB Modeling Review Report
9	5/24/2021	315 – 325	Air Quality Bureau (AQB)	Air Quality Bureau (AQB)	Digital	Database Summary
10	6/11/2021	326 - 332	Air Quality Bureau (AQB)	XTO, WildEarth Guardians (WEG), AQB Website	Digital	Statement of Basis (public)
11	6/11/2021	333 - 386	Air Quality Bureau (AQB)	XTO, WEG, AQB Website	Digital	Draft Permit Version 2021.06.11 (public)
12	5/24/2021	387 - 391	WildEarth Guardians	Air Quality Bureau (AQB)	Digital	WEG 1st Comment
13	7/12/2021	392 - 395	WildEarth Guardians	Air Quality Bureau (AQB)	Digital	WEG 2nd Comment
14	6/2/2021		Air Quality Bureau (AQB)	WildEarth Guardians	Digital	Citizen Letter Initial
15	6/10/2021	396	Air Quality Bureau (AQB)	WildEarth Guardians	Digital	Citizen Letter Second
16	9/27/2021	397 - 405	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy	Affidavit for English Notice of Hearing Carlsbad

NMED EXHIBIT 47

Index No.	Date	Bates No.	From	To	Format	Subject
17	9/27/2021	406 - 415	Carlsbad Current Argus	Air Quality Bureau (AQB)	Hard Copy	Affidavit for Spanish Notice of Hearing Carlsbad
18	9/28/2021	416 – 418	Albuquerque Journal	Air Quality Bureau (AQB)	Digital	Affidavit for English Notice of Hearing Albuquerque
19	9/28/2021	419 - 421	Albuquerque Journal	Air Quality Bureau (AQB)	Digital	Affidavit for Spanish Notice of Hearing Albuquerque
20	10/5/2021	422 - 423	Hobbs Radio	Air Quality Bureau (AQB)	Digital	PSA for Hobbs Radio
21	10/5/2021	424 - 425	Carlsbad Radio	Air Quality Bureau (AQB)	Digital	PSA for Carlsbad Radio
22	10/5/2021	426 - 431	Eddy and Lea City	Air Quality Bureau (AQB)	Digital	PSA for Eddy and Lea City Radio
AQB Internal Correspondence and Multiple Agency Email						
23	4/6/2021	432 - 434	Sufi Mustafa, AQB	Urshula Bajracharya, AQB	E-mail	Modeling Ruled complete
24	4/8/2021	435	Arianna Espinoza, AQB	Urshula Bajracharya, AQB	E-mail	Confirmation of public notice (1st) posted to AQB website.
25	4/26/2021	436	Arianna Espinoza, AQB	Urshula Bajracharya, AQB	E-mail	Confirmation of public notice (2nd) re-posted to AQB website.
26	5/24/2021	437	Urshula Bajracharya, AQB	Arianna Espinoza, AQB	E-mail	PN and App posted to Public Interest and Hearing Web site.
27	6/9/2021	438 - 440	Air Quality Bureau (AQB)	XTO Energy Inc and WEG	E-mail	Cabinet Secretary Hearing Determination
28	6/7/2021	441	Eric Peters, AQB	Urshula Bajracharya, AQB	E-mail	Modeling Report finished
29	6/11/2021	422-423	Air Quality Bureau (AQB)	Arianna Espinoza, AQB	E-mail	Permit and SoB Posted to AQB Website for review by citizen.
30	7/20/2021	486 - 487	Compliance and Enforcement, AQB	Urshula Bajracharya, AQB	E-mail	Verification of Compliance
31	9/22/2021	444	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of Development	E-mail	Emails to all parties

Index No.	Date	Bates No.	From	To	Format	Subject
				and Village of Loving.		
32	9/22/2021	445	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of Development and Village of Loving.	Digital	Letter for Notices of Hearing emailed to Parties
33	9/22/2021	446 - 450	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management, New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of Development and Village of Loving.	Digital	Spanish Notice of Hearing emailed to Parties

Index No.	Date	Bates No.	From	To	Format	Subject
34	9/22/2021	451 - 454	Air Quality Bureau (AQB)	WEG, US EPA, State of Texas, Carlsbad Cavern NP, Bureau of Land Management (BLM), New Mexico State Land Office, Lea County, Eddy County, Carlsbad Department of Development and Village of Loving.	Digital	English Notice of Hearing emailed to Parties
XTO Energy Inc. Correspondence						
35	3/9/2021	455 - 457	Air Quality Bureau (AQB)	XTO Energy, Inc	Email	Catalyt specs for the application
36	4/7/2021	458	Air Quality Bureau (AQB)	XTO Energy, Inc	E-mail	Ruled Complete letter and Public Notice sent to XTO
37	5/21/2021	460 - 461	XTO Energy, Inc	Air Quality Bureau	E-mail	3.8 gr total sulfur confirmation
38	6/10/2021	462	XTO Energy, Inc	Air Quality Bureau	E-mail	VRU OOOO applicability
39	6/11/2021	464 - 466	Air Quality Bureau (AQB)	XTO Energy, Inc	E-mail	Draft document sent to XTO for review
40	8/30/2021	467 - 468	XTO Energy, Inc	Air Quality Bureau	E-mail	Question on pneumatic controllers.
WEG Correspondence						
41	5/24/2021	469	WEG	Air Quality Bureau	E-mail	First Comments received WEG
42	6/2/2021	470 - 471	Air Quality Bureau (AQB)	WEG	E-mail	Initial Citizen letter send to WEG
43	6/10/2021	472 - 473	Air Quality Bureau (AQB)	WEG	E-mail	Second Citizen Letter send to WEG
44	7/12/2021	474	WEG	Air Quality Bureau	E-mail	Second comments from WEG
Miscellaneous Documents						
45	9/24/2021	475 - 477	Hobbs News-Sun	Air Quality Bureau	Hardcopy	Affidavit for Hobbs News-Sun for Notice of Public Hearing-English
46	9/24/2021	478 - 480	Hobbs News-Sun	Air Quality Bureau	Hardcopy	Affidavit for Hobbs News-Sun for Notice of Public Hearing-Spanish

Index No.	Date	Bates No.	From	To	Format	Subject
47	6/21/2021	481 - 482	XTO Energy, Inc	Air Quality Bureau	Email	XTO comment on draft permit: No comments or changes required.
48	5/24/2021	483 - 485	XTO Energy, Inc	Air Quality Bureau	Email	TCEQ factors used for Tiger

October 8, 2021

Aaron Forrister, CRMC
Regional Market Manager – La Zeta 103.7 FM
619 N. Turner St.
Hobbs, New Mexico 88240

SUBJECT: Spanish PSA Request – Virtual Public Hearing for Ten Air Quality Construction Permits Facilities in SE NM

Attached is a copy of a public service announcement, in Spanish, regarding a virtual public hearing for ten air quality construction permits in Eddy County and Lea County. This announcement is being submitted by the New Mexico Environment Department's Air Quality Bureau.

The announcement request is being made to inform concerned Spanish speaking citizens and provide information for public participation. Please consider reading the attached Spanish announcement as a public service message.

If you have any questions or need additional information, please contact me at Kathleen.primm@state.nm.us or (505) 629-5650.

Thank you,
Kathy Primm
Supervisor – Minor Source Permitting Unit
New Mexico Environment Department
Air Quality Bureau
525 Camino de los Marquez, Suite 1
Santa Fe, NM 87505
(505) 629-5650
Kathleen.Primm@state.nm.us
https://www.env.nm.gov

ANUNCIO DE RADIO

El Departamento de Medio Ambiente de Nuevo México anuncia una audiencia pública virtual para obtener pruebas sobre diez solicitudes de permisos de construcción de calidad del aire para instalaciones ubicadas en los condados de Eddy y Lea. Las solicitudes de permiso en esta audiencia incluyen ocho instalaciones propiedad de XTO Energy, Inc.: Estación de Compresión Bulldog, Estación de Compresión Jayhawk, Estación de Compresión Longhorn, Punto Central de Entrega Cowboy (CDP, por sus siglas en inglés), Estación de Compresión Wildcat, Estación de Compresión Maverick, Estación de Compresión Spartan y Estación de Compresión Tiger. Esta audiencia también incluye las solicitudes de permiso para la instalación central Zia Hills de ConocoPhillips Company y la planta de procesamiento de gas Willow Lake de Crestwood New Mexico Pipeline, LLC.

La audiencia se llevará a cabo virtualmente a través de la plataforma Zoom y comenzará a las 9:00 a.m., MDT, el 25 de octubre de 2021, continuando en días consecutivos según sea necesario. La Oficina proporcionará una manera para que aquellos que deseen participar en la audiencia en español puedan hacerlo. Para los miembros del público que no tengan acceso a una computadora o a una conexión de Internet, el Departamento ha reservado la sala de conferencias en la oficina local de Carlsbad ubicada en 406 N. Guadalupe, Suite C, Carlsbad, NM 88220. Los miembros del público pueden ir a este lugar durante la audiencia para ver y participar en la audiencia virtual. Además, el Departamento proporcionará conexiones WiFi a aquellos miembros del público que decidan traer sus propios dispositivos.

La información sobre cómo unirse a la audiencia, ya sea a través de Zoom o en la oficina local de Carlsbad, se ha publicado en línea en el calendario de NMED en www.env.nm.gov/events-calendar/. Vaya a la fecha de inicio de la audiencia y haga clic en la entrada sobre esta audiencia para obtener instrucciones.

Cualquier persona puede revisar las solicitudes de permisos, los documentos asociados y los borradores de los permisos en el sitio web de avisos públicos de NMED en los menús desplegables del condado de Eddy y del condado de Lea, en el enlace de cada solicitud de permiso listada por nombre de empresa e instalación. El sitio web de avisos públicos de NMED se encuentra en www.env.nm.gov/public-notices-2/.

Para obtener más información, o para obtener una copia de cualquier Borrador de Permiso o Solicitud sobre estos asuntos, comuníquese con Kirby Olson en la Oficina de Calidad del Aire del Departamento de Medio Ambiente de Nuevo México llamando al (505) 629-5107, Kirby.olson@state.nm.us, o en la Oficina de Calidad del Aire situada en 525 Camino de los Marquez Suite 1, Santa Fe, NM 87505.

La funcionaria de audiencias aceptará comentarios no técnicos o generales del público, ya sea por escrito o de forma verbal. Se recomienda a los miembros del público que deseen hacer comentarios generales a que los envíen por escrito a Madai Corral (Madai.Corral@state.nm.us) antes de la audiencia o durante la audiencia. Los comentarios generales verbales se aceptarán en la audiencia el 25 de octubre de 2021. Cualquier persona que desee presentar un testimonio técnico en la audiencia debe presentar una Declaración de Intención de Presentar Testimonio Técnico a más tardar hasta el 11 de octubre de 2021 o antes. La Declaración de Intención debe presentarse ante la secretaria de audiencias

del Departamento de Medio Ambiente de Nuevo México, Pamela Jones, en la siguiente dirección: 1190 St. Francis Drive, P.O. Box 5469, Santa Fe, Nuevo México 87502. Si necesita ayuda, llame a Pamela Jones al (505) 660-4305.

October 8, 2021

Don Hughes
Sales Manager – KATK 93.9 FM / 740 AM La Raza
PO Box 1538
Carlsbad, New Mexico 88220

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Thank you,
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