

# State Office of Administrative Hearings



Cathleen Parsley  
Chief Administrative Law Judge

October 18, 2013

Les Trobman, General Counsel  
Texas Commission on Environmental Quality  
P.O. Box 13087  
Austin Texas 78711-3087

TEXAS  
COMMISSION  
ON ENVIRONMENTAL  
QUALITY  
OCT 18 9 31 46  
CHIEF CLERKS OFFICE

**RE: SOAH Docket No. 582-12-6347; TCEQ Docket No. 2012-0971-AIR; Application of EOG Resources, Inc. for Air Quality Permit Number 95412 in Cooke County, Texas**

Dear Mr. Trobman:

The above-referenced matter will be considered by the Texas Commission on Environmental Quality on a date and time to be determined by the Chief Clerk's Office in Room 201S of Building E, 12118 N. Interstate 35, Austin, Texas.

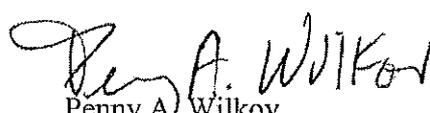
Enclosed are copies of the Proposal for Decision and Order that have been recommended to the Commission for approval. Any party may file exceptions or briefs by filing the documents with the Chief Clerk of the Texas Commission on Environmental Quality no later than November 7, 2013. Any replies to exceptions or briefs must be filed in the same manner no later than November 18, 2013.

This matter has been designated **TCEQ Docket No. 2012-0971-AIR; SOAH Docket No. 582 12-6347**. All documents to be filed must clearly reference these assigned docket numbers. All exceptions, briefs and replies along with certification of service to the above parties shall be filed with the Chief Clerk of the TCEQ electronically at

SOAH Docket No. 582-12-6347  
TCEQ Docket No. 2012-0971-AIR  
Proposal for Decision and Order  
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<http://www10.tceq.state.tx.us/epic/efilings/> or by filing an original and seven copies with the Chief Clerk of the TCEQ. Failure to provide copies may be grounds for withholding consideration of the pleadings.

Sincerely,

  
Penny A. Wilkov  
Administrative Law Judge

  
Travis Vickery  
Administrative Law Judge

PAW/TEV/ap/mle  
Enclosures  
cc: Mailing List

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**STYLE/CASE:** EOG RESOURCES, INC  
**SOAH DOCKET NUMBER:** 582-12-6347  
**REFERRING AGENCY CASE:** 2012-0971-AIR

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SOAH DOCKET NO. 582-12-6347  
TCEQ DOCKET NO. 2012-0971-AIR

APPLICATION BY EOG	§	BEFORE THE STATE OFFICE
	§	
RESOURCES, INC., FOR AIR	§	OF
	§	
QUALITY PERMIT NUMBER 95412	§	ADMINISTRATIVE HEARINGS

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**SOAH DOCKET NO. 582-12-6347  
TCEQ DOCKET NO. 2012-0971-AIR**

<b>APPLICATION BY EOG</b>	<b>§</b>	<b>BEFORE THE STATE OFFICE</b>
	<b>§</b>	
<b>RESOURCES, INC., FOR AIR</b>	<b>§</b>	<b>OF</b>
	<b>§</b>	
<b>QUALITY PERMIT NUMBER 95412</b>	<b>§</b>	<b>ADMINISTRATIVE HEARINGS</b>

**PROPOSAL FOR DECISION**

**I. INTRODUCTION**

**A. Summary**

EOG Resources, Inc. (EOG or Applicant) filed an application with the Texas Commission on Environmental Quality (TCEQ or Commission) for issuance of an Air Quality Permit to construct and operate an industrial sand processing plant in Cooke County, Texas. The plant will be a minor source because the annual amount of predicted emissions for any particular air contaminant from the facilities is less than 100 tons per year.<sup>1</sup> The application is opposed by Rebecca Harris, Holly Harris-Bayer, and Red River Motorcycle Trails, Inc. Recreation Park (collectively RRMT or Protestant) and the Commission's Office of Public Interest Counsel (OPIC). The Executive Director (ED) of the TCEQ supports the application.

The Administrative Law Judges (ALJs) recommend that the application be granted. Principle disagreements among the parties centered on the scope of emissions sources and whether EOG's and the ED's analyses were sufficiently conservative. Although OPIC and RRMT raised valid concerns over EOG's analysis, the ALJs find that the Applicant's analysis was sufficiently conservative and EOG met its statutory and regulatory burden for a preconstruction permit.

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<sup>1</sup> 30 Texas Administrative Code (TAC) § 122.10(13); App. Ex. 2 at 62-63; ED Ex. 20 at 3.

**B. Description of Project<sup>2</sup>**

EOG has applied to the TCEQ for issuance of Air Quality Permit Number 95412, which would authorize construction of an industrial sand processing plant to be located at 14596 North Farm-to-Market Road 373, near Saint Jo, Cooke County, Texas, on approximately 1,445 acres. Once permitted, the facilities will consist of hoppers, belt conveyors, bucket elevators, screens, stockpiles, a dryer with a baghouse and truck load out bins, which will be used to supply sand for oil and gas well operations.<sup>3</sup>

As proposed, sand will be mined on the property and transported by a conveyor system to a stockpile and then to the sand processing plant. The conveyor system would include hoppers, belt conveyors, and a screen. The screen will remove larger material, to be temporarily stored in a stockpile and ultimately returned to the quarry by trucks. The smaller material will be sent to the sand processing plant for cleaning, screening, and drying. Waste material will be moved back to the quarry by trucks over roads.<sup>4</sup>

The sand processing plant will consist of a wet processing operation and a dry processing operation. The wet processing operation will screen, wash, and separate the material. Hoppers and belt conveyors will be used to transfer the material up to and through the screen. At that point, the material will be in slurry form and pumped in enclosed piping through the washing, separation, and dewatering process, and then conveyed to a surge bin. From the surge bin, the material will be conveyed to the dry processing operation where it will be dried and screened into product sizes, stored in silos, and loaded into trucks. Hoppers, belt conveyors, and bucket elevators will be used to transfer the material throughout the dry processing operation. This process is depicted in the process description and flow diagrams in the application.<sup>5</sup>

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<sup>2</sup> As explained at the hearing, the Administrative Law Judges (ALJs) have borrowed directly from the parties' briefing throughout this Proposal for Decision (PFD).

<sup>3</sup> App. Ex. 2 at 21-23.

<sup>4</sup> App. Ex. 2 at 21-23.

<sup>5</sup> App. Ex. 2 at 21-23.

As contemplated by the draft air quality permit (Draft Permit),<sup>6</sup> the facilities will be authorized to operate 8,760 hours per year, except for the dryer baghouse and associated dryer, the dry plant transfer dust collector baghouse and associated dry feed bins, dry screens and conveyors, the surge bin dust collector and the product silo dust collectors, and associated product load facilities, which will each be limited to a maximum operating schedule not to exceed 7,884 hours per year in any rolling twelve-month period.<sup>7</sup> The throughput of the plant will be limited to a maximum of 500 tons per hour (tph) and 4,380,000 tons per year (tpy) at the vibrating scalping screen; 300 tph and 2,628,000 tpy at the wash screen; and 158 tph and 1,182,600 tpy at the dryer.<sup>8</sup>

Contaminants authorized under this permit include organic compounds (VOCs), nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), and particulate matter (PM), including PM with diameters of 10 micrometers or less (PM<sub>10</sub>) and 2.5 micrometers or less (PM<sub>2.5</sub>).<sup>9</sup>

**C. Procedural History, Application Notice, Notice of Hearing, and SOAH Jurisdiction**

On March 25, 2011, Applicant submitted its application for the project, along with the required \$75,000 fee, to the TCEQ Air Permits Division. The application was received on March 25, 2011, and declared administratively complete on April 7, 2011.

The Notice of Receipt and Intent to Obtain an Air Quality Permit (NORI or first public notice) for the application was published on April 15, 2011, in the *Muenster Enterprise*, and on May 27, 2011, in the *Saint Jo Tribune*. The Applicant arranged for the placement of the completed application for inspection and copying at the Bettie M. Luke Muenster Public Library

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<sup>6</sup> The Draft Permit is attached to the PFD after Attachment A.

<sup>7</sup> ED Ex. 21 at 244 (Draft Permit Special Condition No. 9).

<sup>8</sup> ED Ex. 21 at 244 (Draft Permit Special Condition No. 8).

<sup>9</sup> ED Ex. A. For the Commission's convenience, the ALJs have attached, as Attachment A, a list of acronyms and abbreviations, drafted by the parties.

beginning on April 15, 2011. On the same day, in accordance with TCEQ rules, signs were posted along the fence line of the property where the proposed plant would be constructed and operated.

In response to public comment and requests for a public hearing, the TCEQ Chief Clerk held a public meeting at the Muenster Independent School District cafeteria on August 23, 2011, in Muenster, Cooke County, Texas.

On January 18, 2012, in response to public comment and requests for a contested case hearing, the Applicant requested that the application be directly referred to the State Office of Administrative Hearings (SOAH) for a hearing.<sup>10</sup>

On May 31, 2012, the TCEQ Chief Clerk informed the Applicant that the ED had completed the technical review of the application and made a preliminary decision to issue the permit. Applicant then published additional notices in three newspapers (*Saint Jo Tribune*, *Muenster Enterprise* and *Gainesville Daily Register*) informing the public of the ED's decision and of the preliminary hearing in this matter scheduled for July 12, 2012, at the Cooke County Court Annex Building in Gainesville, Texas.

On June 8, 2012, the Notice of Application and Preliminary Decision for an Air Quality Permit (NAPD or second public notice) and Notice of Hearing for the application was published in the *Gainesville Daily Register*, *Muenster Enterprise*, and *Saint Jo Tribune*.<sup>11</sup> Applicant arranged for publication of the NORI in two local newspapers. Also on June 8, 2012, the application and all subsequent revisions, along with the Draft Permit and the ED's preliminary

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<sup>10</sup> 30 TAC § 55.210(a) (“[T]he applicant may file a request with the chief clerk that the application be sent directly to State Office of Administrative Hearings (SOAH) for a hearing on the application.”).

<sup>11</sup> 30 TAC § 39.603, requires that public notice for air applications be published in only one newspaper of general circulation in the municipality in which the facility is located or proposed to be located or in the municipality nearest to the location of the facility. In this case, the Applicant published the notice in three newspapers.

decision, were made available for inspection and copying by the public at the Muenster Public Library.<sup>12</sup>

As a result of additional public comment and requests for a public meeting to discuss the ED's decision, the TCEQ Chief Clerk scheduled a second public meeting, which was held on July 11, 2012, at the Gainesville Civic Center, in Gainesville, Texas. The comment period ended at the close of the second public meeting on July 11, 2012.

On July 12, 2013, ALJs Penny Wilkov and Travis Vickery conducted a preliminary hearing in Gainesville, Texas. At the preliminary hearing, the ED offered ED Exhibit A, which was admitted. No party objected to SOAH and Commission jurisdiction over this case, and the ALJs proceeded to determine party status, align parties pursuant to 30 Texas Administrative Code (TAC) § 80.109(c), and identify party representatives.<sup>13</sup>

The hearing on the merits was held April 15 through April 17, in Austin; April 22 through April 23, in Gainesville, and; April 25, 2013, in Austin. The parties began submitting post-hearing briefing on June 28, 2013, and the record closed on August 23, 2013.

The ALJs note that Kathy Nielson and Red River Agriculture and Wildlife Tourism, represented by Mary Del Olmo, did not enter an appearance at or otherwise participate in the hearing on the merits or post-hearing briefing. No party moved to dismiss these parties. RRMT

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<sup>12</sup> ED Ex. A.

<sup>13</sup> At the preliminary hearing, the Cooke County Commissioner's Court and Kathy Nielson were admitted as individual parties. In addition, the following parties were admitted as groups: Rebecca Harris, Holly Harris-Bayer, and Red River Motorcycle Trails, Inc. Recreation Park (collectively RRMT, represented by Blackburn & Carter); Mary E. Del Olmo, John Frederick, Mike Bartush, J'Lynn Hare, Wildcat Archery, Bartush Land & Cattle Co., Blue Ostrich Winery and Vineyard, and Arche Winery (Red River Agriculture and Wildlife Tourism, represented by Mary Del Olmo); and Penny Jordan, Jenny and John Shiffer, Barbara and Donald Rohmer, Joan and David Brockett, Roger Reiter, Susan Nelson, Nancee Turlington, Rita Blakely, Bob Wartman, Marina Greenhill, A.J. Knabe, Robert Fazen, Wylie Harris, Rhelda Harris, Terry Fender, Özlem Altioğ, Janis Sneed, Ivars Lulis, Patty Fleiman, Judith Kulop, and Joy Philpott (Save the Trinity Aquifer, represented by Penny Jordan). Non-lawyer party representatives were only determined for service of pleadings and cross-examination. SOAH Docket No. 582-12-6347, Order No.1. The Cooke County Commissioner's Court and Save the Trinity Aquifer subsequently requested to withdraw as parties to the contested case hearing. Ms. Del Olmo did not participate or otherwise make an appearance at the hearing on the merits.

was the only protestant to enter an appearance and participate in the hearing and post-hearing briefing. As a result, the ALJs only refer to RRMT as a singular protestant in this case, because Ms. Nielson and Red River Agriculture and Wildlife Tourism offered no evidence and no argument.

## **D. Legal Standards**

### **1. Burden and Standard of Proof**

Under 30 TAC § 80.17, the burden is on the Applicant to prove by a preponderance of the evidence that the application complies with all applicable statutory and regulatory requirements.<sup>14</sup>

The ED's participation in a contested case hearing is defined by statute and limited to two issues: (1) to provide information to complete the administrative record; and (2) support the ED's position developed in the underlying proceeding.<sup>15</sup>

### **2. New Source Review Permits – Statutory/Regulatory Requirements**

The Texas Clean Air Act (TCAA)<sup>16</sup> grants the Commission the authority to issue a permit to construct a new facility or modify an existing facility that may emit air contaminants.<sup>17</sup> The TCAA defines a facility as a “discrete or identifiable structure, device, item, equipment, or enclosure that constitutes or contains a stationary source, including appurtenances other than emission control equipment. A mine, quarry, well test, or road is not considered to be a facility.”<sup>18</sup> Before issuing a permit for a facility, the TCAA requires the Commission to find that

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<sup>14</sup> 30 TAC §§ 80.17(a) and 55.210(b).

<sup>15</sup> Texas Water Code (Water Code) § 5.228.

<sup>16</sup> Texas Health & Safety Code (TCAA) ch. 382.

<sup>17</sup> TCAA § 382.051(a)(1).

<sup>18</sup> TCAA § 382.003(6); 30 TAC § 116.10(4).

the facility will employ “at least the best available control technology, considering the technical practicability and economic reasonableness of reducing or eliminating the emissions resulting from the facility . . . and [there is] no indication that the emissions from the facility will contravene the intent of [the TCAA], including protection of the public’s health and physical property.”<sup>19</sup>

Under the TCAA and Commission rules, a project that meets the applicable requirements is entitled to an air quality permit.<sup>20</sup> The TCEQ may not issue an air quality permit unless the permit is protective of public health and welfare.<sup>21</sup> The TCEQ must ensure that the facilities will use best available control technology (BACT) and find no indication that emissions from the facilities will contravene the intent of the TCAA.<sup>22</sup>

All representations in the application with regard to construction plans, operating procedures, and maximum emission rates become conditions on which the proposed plant must be constructed and operated. The Applicant’s representations in the application are legally binding requirements under which the proposed plant must operate.<sup>23</sup>

The issues set forth below, under Section I.D.2(a) through (d), are the rules that the Applicant and the ED contend apply to the application. Protestant, however, argues that additional rules and law apply to the application, which are set out in Section I.D.3(a) through (h) of this Proposal for Decision (PFD). Applicant and the ED disagree with this contention. The parties’ positions are briefly summarized below. Each of these issues are fully discussed in Sections II and III, regarding the analysis of the contested issues:

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<sup>19</sup> TCAA § 382.0518(b)(1) and (2) (Preconstruction Permit).

<sup>20</sup> TCAA § 382.0518(b); 30 TAC § 116.111.

<sup>21</sup> 30 TAC § 116.111(a)(2)(A).

<sup>22</sup> TCAA § 382.0518(b)(1); 30 TAC § 116.111(a)(2)(B)-(C).

<sup>23</sup> 30 TAC § 116.116.

- a. **Whether the permit application demonstrates that emissions from the proposed facilities will comply with all rules and regulations of the commission and with the intent of the TCAA, including the protection of the health and property of the public in accordance with 30 TAC § 116.111(a)(2)(A)(i).**

EOG argues it has demonstrated that emissions from the proposed facilities will comply with the Commission's rules and the U.S. Environmental Protection Agency's (EPA) regulations, comply with the intent of the TCAA, and protect the public's health and property. Protestant argues that this generic compliance requirement was violated in many respects and the Applicant failed to meet its burden of proof.

- b. **Whether the permit application demonstrates that BACT was evaluated and applied to all facilities subject to the TCAA in accordance with 30 TAC § 116.111(a)(2)(C).**

Under the TCAA, the TCEQ must find that the proposed facilities will use BACT before issuing the permit.<sup>24</sup> BACT is defined as:

[A]n air pollution control method for a new or modified facility that through experience and research, has proven to be operational, obtainable, and capable of reducing or eliminating emissions from the facility, and is considered technically practicable and economically reasonable for the facility. The emissions reduction can be achieved through technology . . . or by enforceable changes in production processes, systems, methods, or work practice.<sup>25</sup>

EOG argues that it evaluated and applied BACT to all of the facilities at the proposed plant subject to the TCAA. Applicant contends it will use state of the art control methods, which have been accepted by the TCEQ for the type of operation involved. The ED's technical staff concluded that Applicant met the requirements of this rule.

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<sup>24</sup> TCAA § 382.0518(b)(1).

<sup>25</sup> 30 TAC § 116.10(1).

Protestant argues that Applicant failed to comply with this provision, because EOG allegedly circumvented the BACT requirement by using roads to return waste material to the quarry site instead of a conveyor. This issue is discussed in Sections II and III below.

- c. Whether the permit application includes information demonstrating that the emissions from the facilities will meet the requirements of any applicable New Source Performance Standard (NSPS) as listed under 40 CFR Part 60, in accordance with 30 TAC § 116.111(a)(2)(D).**

Applicant argues that only one NSPS applies to the proposed facilities. Subpart UUU of 40 Code of Federal Regulations (CFR) part 60 and the Draft Permit require EOG to conduct initial stack testing from the dryer baghouse within 180 days of startup. Protestant argues that the dryer baghouse is the single largest emissions source analyzed by the Applicant, and yet EOG failed to provide a manufacturer's guarantee for that equipment. This matter is discussed in Sections II and III below.

- d. Whether the permit application demonstrates that the proposed facilities will achieve the performance specified in the application in accordance with 30 TAC § 116.111(a)(2)(G).**

Applicant argues that it met its burden under 30 TAC § 116.111(a)(2)(G) through the analyses performed by its air permitting consultant, Lisa Hoover, as set forth in the application and her testimony. The ED concurs that the proposed facilities will achieve the performance specified in the application. RRMT argues that the application and Draft Permit lack specificity as to the timing and manner of the operation of the dryer such that annual modeling representations cannot be achieved. Protestant also argues that given the lack of a manufacturer's guarantee, there is no proof that the dryer will comply with NSPS. These matters are discussed in Sections II and III below.

**3. New Source Review Air Quality Permits – Protestant’s Position Regarding Additional Applicable Commission Rules and Statutes.**

RRMT takes the position that the permit for EOG’s proposed plant may not be issued unless the application demonstrates compliance with the following rules and statutes. The Applicant and the ED generally argue that these issues are either cumulative of the requirements listed above or inapplicable to this case. The issues summarized below are analyzed in Sections II and III of the PFD.

**a. Whether the permit application includes information demonstrating that the emissions from the facility will meet the requirements for Air Dispersion Modeling in 30 TAC § 116.111(a)(2)(J).**

Protestant argues that the Applicant failed to use the best information available when modeling and made numerous choices that effectively lowered modeled pollutant levels. Protestant contends that if more appropriate data had been used, then modeled results would have been higher, triggering additional controls and evaluations that were not undertaken, but should have been under 30 TAC § 116.111(a)(2)(J).

**b. Whether the permit application includes information demonstrating that the emissions from the facility will meet the requirements of 30 TAC § 116.115.**

The Draft Permit includes special conditions prohibiting “visible emissions” from crossing the site’s property line. RRMT argues that the application lacks a method by which the Applicant will address visible emissions at night when they cannot be seen. As a result, Protestant claims that there are major off-site pollution issues that simply cannot be addressed. Further, RRMT argues that it is unclear whether the Applicant could comply with the various conditions of the permit, because even if it took steps to control visible emissions, those steps may be inadequate to prevent significant emissions that cause or contribute to a condition of air pollution.

- c. Whether the permit application includes information demonstrating that the requirements of 30 TAC § 101.3 regarding circumvention are met.**

Under 30 TAC § 101.3, EOG is prevented from circumventing the regulations. RRMT argues that Applicant has proposed to use roads to truck waste back to the quarry, instead of a conveyor system, because roads fall outside the definition of a facility by law and rule, and thus those emissions were not considered. Protestant argues that the failure to use a conveyor system for the return of material to the quarry site represents circumvention of the BACT regulations, among other provisions.

- d. Whether the permit application includes information demonstrating that the requirements of 30 TAC § 101.4 regarding nuisance are met.**

Protestant argues that EOG failed to demonstrate that its operations will not violate the Commission's nuisance rule. RRMT argues that because 30 TAC § 101.4 prohibits a discharge from "any source whatsoever" that creates a nuisance, road and quarry emissions, as well as background emissions, should be evaluated. RRMT contends that Applicant made no such evaluation.

- e. Whether the permit application includes information demonstrating that the requirements of 30 TAC § 101.20 regarding NSPS are met.**

Under 30 TAC § 101.20(a), EOG must demonstrate compliance with NSPS requirements found in 40 CFR part 60. RRMT argues that Applicant cannot show compliance, because it failed to provide a manufacturer's guarantee that the dryer baghouse meets applicable NSPS requirements.

- f. Whether the permit application includes information demonstrating that the requirements of 30 TAC § 101.21 regarding National Ambient Air Quality Standards (NAAQS) are met.**

Under 30 TAC § 101.21, the NAAQS promulgated by the EPA are enforced throughout the State of Texas. RRMT challenges EOG's proof of compliance with two NAAQS related to particulate matter – the standards applicable to PM<sub>2.5</sub> and PM<sub>10</sub>. Each of those standards include short-term and long-term analysis. With regard to the PM<sub>2.5</sub> standard, the issue is whether EOG's modeling used the appropriate meteorological conditions and included all appropriate sources. With regard to PM<sub>10</sub>, the issue is whether the Significant Impact Level (SIL) was exceeded, thereby necessitating a full blown PM<sub>10</sub> impact analysis.

- g. Whether the permit application includes information demonstrating that the requirements of the TCAA are met.**

RRMT argues that Applicant's proposed plant will cause or contribute to a condition of air pollution in violation of the policy of the TCAA.

- h. Whether the permit application includes information demonstrating that the requirements of Texas Water Code § 5.130 are met.**

Texas Water Code Section 5.130 requires the Commission to develop and implement policies to protect the public from cumulative risks in areas of concentrated operations. RRMT questions whether the Commission has implemented policies in its consideration and review of EOG's application that protect the public from cumulative risks. Protestant argues that the public would not be protected from cumulative risk if this permit were issued, due to allegedly inadequate analysis of background concentrations and the failure to include all sources in EOG's computer modeling. Absent full consideration of background concentrations and all sources, Protestant argues the Commission cannot meet the requirements of this section.

## II. ANALYSIS OF CONTESTED ISSUES

This case came to SOAH as a direct referral from the Commission. As a result, the parties determined the issues to be addressed in this proceeding. After the close of the evidentiary hearing, the parties developed an agreed briefing outline, which the ALJs have adopted in this PFD.

In accordance with the parties' agreed briefing outline, the ALJs turn to an analysis of contested issues. Many of these issues are also addressed in Section III, below, in the context of statutory and regulatory analysis. In developing the briefing outline for this PFD, the parties sought to address interrelated factual and regulatory matters as distinct substantive and regulatory issues. Although this makes the parties' specific arguments easier to assess, this approach also resulted in some repetition of the issues addressed.

As explained below, EOG prevailed on all major contested issues. In general, the Applicant argues that it conducted extensive engineering analyses, following well-established TCEQ and EPA guidance, to demonstrate that the permit will be protective of air quality and human health, welfare, and the environment. In support of the application, EOG presented testimony from the following expert witnesses: Lisa Hoover, P.E., Keith Zimmermann, P.E., and Dr. Thomas Dydek, Ph.D., D.A.B.T., P.E.

Ms. Hoover assisted with the preparation and submission of the application. She reviewed plant design, identified emission points, used methodologies for developing BACT for plant facilities, and used emission factors to calculate the estimated emission rates for air contaminant estimates for the proposed facilities.

Mr. Zimmerman conducted air dispersion modeling analysis using Ms. Hoover's work, a site investigation, a Commission-approved meteorological data set, and an EPA-approved dispersion model to predict maximum off-property concentrations of air contaminants from the facilities at the plant. Those estimates showed that none of the maximum modeled

concentrations of federal criteria pollutants exceeded NAAQS. The modeling did predict that the short- and long-term silica concentrations would exceed the Effects Screening Levels (ESLs) set by the TCEQ for this pollutant.

Dr. Dydek conducted a toxicological analysis of Mr. Zimmermann's work and determined that the predicted maximum concentrations of all air contaminants from the proposed facilities, including silica, will not cause adverse health or welfare effects.

The ED argues that he performed a thorough technical review of the application and prepared the Draft Permit for the proposed facilities, finding that the application meets all applicable rules and statutory requirements. Both the ED and the Applicant argue that the Draft Permit is based on conservative, protective methodologies that assumed maximum operating conditions, and will ensure compliance with all state and federal air quality requirements.

In support of this finding, the ED offered the testimony of TCEQ staff from the Air Permits Division, Air Dispersion Modeling Team (ADMT), Toxicology Division, and a manager from the TCEQ's Dallas-Fort Worth (DFW) Regional Air Section. Larry Buller, P.E., was the permit engineer in charge of the TCEQ's technical review. Mr. Buller determined that the emission factors used by Ms. Hoover were conservative and acceptable, that her emission rate calculations were accurate, and that the application applied the appropriate BACT.

Justin Cherry, P.E., from the ADMT, audited Mr. Zimmermann's modeling results and found the analysis acceptable and in accordance with TCEQ and EPA guidelines. Mr. Cherry determined that the Applicant accurately represented all input data in the model, used the recommended meteorological data set to sufficiently represent worst-case conditions, and made appropriate characterizations of the emissions sources. Mr. Cherry agreed that the analysis showed the maximum modeled concentrations of air contaminants would be below the NAAQS and therefore protective of the health and welfare of the general public.

Angela Curry performed a toxicological evaluation of the predicted exceedances of the short- and long-term silica ESLs. Ms. Curry agreed with Dr. Dydek that there is no risk of adverse health or welfare effects as a result of the predicted silica emissions from the proposed plant.

Alyssa Taylor, the TCEQ's DFW Regional Air Section Manager, testified regarding the Commission's monitoring, investigative, and enforcement mechanisms. Part of her testimony focused on the ability of TCEQ investigators to detect emissions at night.

Upon completing his review, the ED determined that the application meets all rules and regulations and issued a preliminary decision and Draft Permit.

Protestant generally argues that the Applicant's and the ED's analyses were flawed due to the omission of certain known emission sources and an inadequately conservative set of methodologies and data inputs, which resulted in modeling that failed to accurately predict a worst-case scenario for future emissions from the plant. RRMT claims that the ED's and EOG's focus on the plant has been too narrow and legalistic, and their failure to consider the project as a whole undermines a genuine prediction of emissions. OPIC generally agrees with Protestant, with a focus on potential silica emissions.

In support of its arguments, Protestant offered the testimony of Holly Harris-Bayer, Vice-president of Red River Motorcycle Trails, Inc., Michael Kleinman, Ph.D., and Jim Tarr, P.E. Ms. Harris-Bayer testified about activities at RRMT, its history, and concerns over the impact of the project on RRMT's operations.

Mr. Tarr reviewed the application and Mr. Zimmerman's work. Mr. Tarr questioned the accuracy and reliability of EOG's emissions factors, and meteorological and source inputs. He opined that EOG's modeling failed to account for all potentially significant emission sources, such as emissions that include combined water, road dust, mining operations at the quarry, and background concentrations of PM<sub>10</sub> and silica. Mr. Tarr developed new emissions and modeling

estimates to conduct modeling that Protestant argues used better, more reliable inputs, such as more comprehensive meteorological data, the addition of known emission sources, and background information that justifies a full impact analysis for PM<sub>10</sub>.

Dr. Kleinman reviewed Mr. Tarr's results, the application, EOG's prefiled testimony, and a number of other materials. Based on Mr. Tarr's modeling results, Dr. Kleinman concluded that the project entails potential serious health risks to the public from exposure to PM<sub>10</sub> and fresh crystalline silica. This would include increased risks of the public contracting silicosis, cancer, bronchitis, tuberculosis, scleroderma, and lupus.

RRMT presented reasonable arguments and raised some genuine concerns over the Applicant's analysis. However, the ALJs find that EOG met its burden in this matter. As discussed below, while the Applicant and the ED did not analyze known sources of potential emissions, the omissions were justified under the TCAA and the Commission's rules. There is a regulatory difference between the requirements for a new minor source and limits on post-construction emissions or the creation of nuisance conditions. Furthermore, many of Protestant's arguments centered on Mr. Tarr's analysis, which at times was too speculative or raised questions regarding the reliability of his inputs. On the other hand, the ED's and EOG's experts used sufficiently conservative modeling and accepted guidance in reaching their conclusions. In short, the ALJs find that Applicant's projections satisfied all statutory and regulatory requirements applicable to the proposed facilities.

## **A. Emission Sources**

### **1. Roads**

EOG proposes to transport sand from the quarry to the plant by an enclosed belt conveyor system. Front-end loaders and trucks will move material from the quarry into a portable load hopper, which will, in turn, load the material onto the belt conveyors. Waste material, however,

will be returned to the quarry by trucks over roads.<sup>26</sup> Although EOG modeled emissions from the conveyor system, it did not model emissions from roads. Protestant argues that emissions from roads should have been modeled, just as they were for the conveyor system. The ALJs find that, although Protestant is correct that roads will be a source of emissions, the Applicant and the ED were correct in not modeling road emissions for the application.

The TCAA requires a New Source Review Permit for the construction of any “facility that may emit air contaminants.”<sup>27</sup> The TCAA and the Commission’s rules define “facility” to specifically exclude roads. Under the TCAA:

“Facility” means a discrete or identifiable structure, device, item, equipment, or enclosure that constitutes or contains a stationary source, including appurtenances other than emission control equipment. A mine, quarry, well test, or road is not considered to be a facility.<sup>28</sup>

As a result, EOG did not analyze roads at the proposed plant as a source of emissions.<sup>29</sup> The ED supports this approach, arguing that, with the exception of the Commission’s jurisdiction over nuisance conditions that are prohibited from any source, a road is not a facility subject to Commission regulation for a new source permit.<sup>30</sup>

The ED and EOG also note that TCEQ rules exclude roads from the definition of a facility.<sup>31</sup> They argue that, consistent with the statutory exclusion, the TCEQ’s rules limit the required demonstrations in an application to proposed facilities. EOG points to the language in 30 TAC § 116.111(a)(2)(J), which limits dispersion modeling required by the ED, to an evaluation of “air quality impacts from a proposed new facility . . . .”<sup>32</sup>

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<sup>26</sup> App. Ex. 28 at 2, 8, 10; Tr. at 32-35, 59-60.

<sup>27</sup> TCAA § 382.0518.

<sup>28</sup> TCAA § 382.003(6). The definition of “facility” found in 30 TAC § 116.10(4) is very similar.

<sup>29</sup> Tr. at 29, 52, 57, 60, 72, 996; Prot. Ex. CX-5.

<sup>30</sup> 30 TAC § 101.4.

<sup>31</sup> 30 TAC § 116.10(4).

<sup>32</sup> 30 TAC § 116.111(a)(2); (a)(2)(A)(i); (a)(2)(B)–(J).

Even though EOG and the ED argue that road emissions were not required to be modeled for the application, they point out that EOG is still prohibited from creating a nuisance from any source.<sup>33</sup> In addition, the Draft Permit requires EOG to implement best management practices (BMP) in order to prevent nuisance conditions from any in-plant road and to prevent visible emissions from crossing the property line. The Draft Permit thus requires all in-plant roads, traffic areas, and active work areas to be cleaned or sprayed with water upon detection of visible particulate matter emissions.<sup>34</sup> Mr. Buller testified that, in his opinion, BMPs required by the Draft Permit will adequately prevent nuisance conditions.<sup>35</sup>

Protestant acknowledges that a road alone is not a facility under the TCAA and the TCEQ's new permit rules. RRMT argues, however, that when a road is proposed as part of a project that requires an air quality permit, then those emissions need to be addressed and included in the analysis of potential adverse impacts. Regardless of legal definitions, Protestant contends that roads are a recognized source of particulate emissions, including silica.

Protestant's expert, Mr. Tarr, evaluated potential road emissions, which he incorporated into his air dispersion modeling, along with updated meteorological data and EOG's air dispersion modeling input, to arrive at off-site maximum concentrations of particulate matter, including silica. Because EOG and the ED did not analyze road emissions, Mr. Tarr could not look to the application for that information. Thus, he made certain assumptions in developing a "worst-case" scenario for road emissions. Protestant acknowledges that Mr. Tarr's results provide an upper boundary of the potential impact of road emissions when added to the emission sources considered by the Applicant.<sup>36</sup>

RRMT also argues that roads should have been included in the analysis, because Commission guidance in Section 6.6 of the Commission's Air Quality Modeling Guidelines

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<sup>33</sup> 30 TAC § 101.4 (prohibiting nuisance conditions).

<sup>34</sup> ED Ex. 35 at 685, 691; ED Ex. 21 (Draft Permit Special Condition Nos. 5 and 19).

<sup>35</sup> Tr. at 423.

<sup>36</sup> Prot. Ex. JT-1 at 13; Tr. at 750.

(RG-25) specifically addresses how to evaluate roads as a known source of emissions.<sup>37</sup> The ED counters that although RG-25 discusses road emissions, it also states that such emissions should be included only in a long-term modeling analysis and under limited circumstances. Under the guidance, long-term road emissions should not be modeled if they cannot be accurately quantified and the applicant will use BMPs. RG-25 indicates that the use of control measures and BMPs are usually the most effective means to address off-property impacts from road sources.<sup>38</sup> As a result, Mr. Buller testified the ED's practice is not to directly review road emissions because roads are not a facility and the Draft Permit requires BMPs to ensure compliance with all TCEQ rules and regulations, including the prohibition on visible emissions crossing the property line.<sup>39</sup> EOG notes that extensive experience has demonstrated the effectiveness of BMPs in controlling and minimizing potential road emissions.<sup>40</sup>

Regardless of RG-25's guidance, Protestant argues that the use of BMPs on roads will not result in zero emissions. RRMT points out Ms. Hoover's testimony that under the EPA's emission factor guidance (AP-42), BMPs applied to unpaved roads to suppress emissions is only 75 to 95% effective.<sup>41</sup> Furthermore, the Draft Permit only requires EOG to water roads when visible emissions are present, which Protestant asserts will be difficult or impossible to detect at night.<sup>42</sup> So, even with the application of BMPs, the plant's roads could still emit up to 25% of total emissions, which could increase at night. Considering that such emissions are anticipated, RRMT argues that proper evaluation of the application requires that road emissions be quantified, modeled, and the predicted concentrations added to those from the proposed facilities and existing background levels.

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<sup>37</sup> App. Ex. 13 at 58-60 (Bates 76-77) (*See also* ED Ex. 22 at 335-36); Tr. at 52, 72, 127; Prot. Ex. JT-1 at 6.

<sup>38</sup> App. Ex. 13 at 58-60 (Bates 76-77) (*See also* ED Ex. 22 at 335-36).

<sup>39</sup> ED Ex. 35 at 691; Tr. at 423.

<sup>40</sup> App. Ex. 28 at 9; App. Ex. 29 at 4.

<sup>41</sup> Tr. at 972-73.

<sup>42</sup> App. Ex. 3 at 3; Tr. at 403.

During the hearing, EOG committed to paving all in-plant roads, an option authorized under the Draft Permit's typical requirement for implementation of BMPs for minimizing road emissions.<sup>43</sup> In briefing, OPIC specifically requested that the ALJs recommend that roads be paved. Applicant argues that, while other alternatives are acceptable, paved roads are considered to be effective at minimizing emissions – both Ms. Hoover and Protestant's witness Mr. Tarr agreed to that principle.<sup>44</sup>

RRMT counters that EOG's commitment to pave roads was made near the end of the hearing in an attempt to reduce the issue of road emissions. Protestant also notes that it is unclear whether EOG's commitment applies to all roads on the property, or only roads within the plant, and that even paved roads can generate dust emissions. Protestant claims that RG-25 and AP-42 both recognize a distinction between paved and unpaved roads.<sup>45</sup>

EOG responds that even paved roads will be subject to the Draft Permit's requirement that Applicant use BMPs to clean and water the roads to prevent visible emissions. EOG contends that predicted emissions from roads will be minimized if not eliminated, such that the Applicant's air dispersion modeling analysis for the proposed plant produced results representative of expected off-site impacts from emissions.<sup>46</sup>

Finally, EOG argues that the issue in this proceeding is not the potential for visible emissions from paved or unpaved roads, potential nuisance, or the efficacy of BMPs. Rather, the issue is that the application is subject to review under the TCAA's New Source Review Permit program, which specifically excludes roads from the definition of a covered facility. This exclusion was recognized by Applicant's air permitting consultant Ms. Hoover and the ED's

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<sup>43</sup> Tr. at 986, 988.

<sup>44</sup> Tr. at 973, 974, 976, 977; Tr. at 686-87.

<sup>45</sup> Tr. at 972-77.

<sup>46</sup> App. Ex. 28 at 9; App. Ex. 29 at 4; Tr. at 374 –75.

regulatory expert, Mr. Buller.<sup>47</sup> EOG argues that Protestant's position on roads should be addressed by the legislature, not in the midst of a new source review process.

The ALJs find that the TCAA and Commission rules governing new source permits clearly exclude roads from the definition of a regulated facility. Roads are not considered to be a "facility that may emit air contaminants."<sup>48</sup> As a result, EOG was not required to model emissions from roads.

Nevertheless, RRMT established that roads will be a source of emissions. Having said that, the ALJs find that Protestant's evidence does not warrant additional emissions analysis. As noted above, there is evidence that road emissions are expected to be minimized or eliminated, such that Applicant's air dispersion modeling reasonably represents expected off-site impacts from plant emissions.<sup>49</sup> EOG also noted Mr. Cherry's testimony that the conservative background levels of particulate matter assumed in EOG's cumulative effects analysis compensate for emission impacts from roads.<sup>50</sup> In briefing, Protestant contested EOG's cite to Mr. Cherry's testimony claiming that he clarified he was only referring to existing roads.<sup>51</sup> While Protestant's statement is accurate, immediately after Mr. Cherry's clarification, he also extended that conclusion to new roads, stating that he still believed it was a reasonable assumption based on conservative modeling of concentrations.<sup>52</sup>

In any event, as argued by the ED and EOG, the background concentrations for PM<sub>2.5</sub> NAAQS analysis were obtained from monitors in Dallas and Tarrant counties, not the area surrounding the project site. The ALJs agree with these parties that background concentrations

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<sup>47</sup> Tr. at 57, 60, 421, 422.

<sup>48</sup> TCAA §§ 382.0518 and 382.003(6); 30 TAC § 116.10(4).

<sup>49</sup> App. Ex. 28 at 9; App. Ex. 29 at 4; Tr. at 374-75.

<sup>50</sup> Tr. at 516-20. A cumulative effects or full impacts analysis is required when the predicted concentration of a federal criteria contaminant exceeds the applicable Significant Impact Level (SIL) developed by the EPA, and requires an evaluation of surrounding sources including a representative background concentration for the proposed site. ED Ex. 36 at 15.

<sup>51</sup> Protestant's Response at 10.

<sup>52</sup> See specifically, Tr. 519:4-520:4.

were conservative and should compensate for road emissions, if any, because it is unlikely that any emissions generated from the proposed plant would be comparable to the background concentrations in Dallas or Tarrant counties.<sup>53</sup>

As for Protestant's evidence, Mr. Tarr estimated that the maximum 24-hour off-site concentrations of PM<sub>10</sub> would be over 200 µg/m<sup>3</sup>, which exceeds the NAAQS value of 150.<sup>54</sup> However, RRMT acknowledged in briefing that Mr. Tarr's estimate reflects an upper boundary of the potential impact of road emissions. Ms. Hoover went further and opined that Mr. Tarr's calculations were not reliable. In reaching this conclusion, she noted that Mr. Tarr multiplied her calculated emission rates by 1,000% (applied to unpaved roads, as he did not model paved roads). Also, Mr. Tarr did not reduce his emission calculations to take into account BMPs, although they are required by the Draft Permit. As noted above, BMPs such as watering are estimated to reduce emissions by 75 to 95%. He also did not reduce emission calculations based on meteorological data such as rainfall averages, which AP-42 dictates should result in a 20% reduction in emissions. Finally, Ms. Hoover noted that Mr. Tarr's estimate doubled the number of truck trips from the overs/fines tank back to the quarry, that is allowed under the Draft Permit. That is, EOG made a binding representation in the application limiting the daily tonnage of waste that can be moved from the overs/fines tank back to the quarry to a *maximum* of half the number of tons Mr. Tarr used for his calculations. Mr. Tarr was unaware of this limitation.<sup>55</sup>

Notwithstanding the problems Ms. Hoover identified with Mr. Tarr's estimates, EOG has committed to paving all in-plant roads. Although the ALJs recommend that EOG pave all roads on the property, even if only in-plant roads are paved, Mr. Tarr's calculations would have to be reduced accordingly, because his calculations were based on unpaved roads. Although Mr. Buller expressed doubts about the efficacy of paving roads, in reaching that conclusion, he also assumed they would be not be swept or cleaned.<sup>56</sup> In contrast, Mr. Tarr agreed that paving

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<sup>53</sup> ED Ex. 15 at 207; App. Ex. 16 (ED's Response to Comment) at 26.

<sup>54</sup> Prot. Ex. JT-1 at 13 (referencing JT-9, JT-10, and JT-11); Tr. at 750.

<sup>55</sup> Tr. at 966-78.

<sup>56</sup> Tr. at 422-23.

roads is an effective means to reduce emissions. Ms. Hoover testified that under AP-42, the best way to control emissions for unpaved roads is to simply pave them.<sup>57</sup> Finally, under the Draft Permit, BMPs such as watering also apply to paved roads. Draft Permit Special Condition Number 19 reads:

All into plant roads, traffic areas, and active work areas shall be cleaned or sprayed with water upon detection of visible particulate matter emissions to maintain compliance with all applicable TCEQ rules and regulations.<sup>58</sup>

The ALJs find that a road is not a regulated facility for purposes of a new source application. Although RRMT has expressed genuine concerns over road emissions, the ALJs find that RRMT's projections were inflated, and that Protestant's concerns will be adequately addressed by the Applicant's commitment to pave in-plant roads (at a minimum), which should be adopted.<sup>59</sup> Paving roads was identified by two competing experts as effective in controlling emissions and under AP-42 is the best control measure for unpaved roads. Paved roads are also subject to BMPs. In addition, the Draft Permit prohibits visible emissions crossing the property line or the creation of nuisance conditions. While Protestant raised concerns about the enforceability of these prohibitions at night, the ALJs have found that the TCEQ possesses adequate enforcement mechanisms to detect emissions at night (this issue is addressed below).

The ALJs conclude the Applicant was not required to model road emissions for the application.

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<sup>57</sup> Tr. at 976-77.

<sup>58</sup> App. Ex. 3 at 3-4.

<sup>59</sup> Although the ALJs do not propose a method by which this recommendation can be enforced, the Findings of Fact regarding Draft Permit conditions specifically reference paved roads as a BMP.

## 2. Quarry

The Applicant did not model emissions from the quarry.<sup>60</sup> As with roads, EOG and the ED argue that quarries are specifically excluded from the statutory and regulatory definitions of a facility. That is, a quarry should be excluded from a new source review in the same manner as roads.<sup>61</sup> As for expected emissions from the quarry, Applicant argues that moisture inherent in the material as it is mined will either prevent emissions or make them insignificant in the overall analysis.<sup>62</sup> Further, just as it applies to the in-plant roads, the ED and the Applicant argue that the Draft Permit's prohibition on "visible emissions" beyond the property line and the prohibition against creating nuisance conditions affords effective control of any emissions from the quarry.<sup>63</sup> These parties argue that conservative background levels of particulate matter assumed in Applicant's analysis also serve to compensate for impacts, if any, from the quarry.<sup>64</sup>

As with roads, Protestant acknowledges that a quarry alone is not a defined facility subject to new source review. Rather, Protestant argues that when a quarry is part of an integrated project, its emissions should be considered. Regardless of legal definitions, RRMT notes that the quarry will result in emissions of particulate matter, including silica. Operations at the quarry will include mining, material removal from the open pit, and deposits on a storage pile.<sup>65</sup> Protestant notes that RG-25 specifically references how to evaluate emissions from open pits or quarries, which establishes a quarry as a known source of emissions.<sup>66</sup> As a result, RRMT argues that to determine whether the project will result in a condition of air pollution prohibited by the TCAA, potential emissions from the quarry should have been evaluated along with all other emissions sources.

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<sup>60</sup> Tr. at 72.

<sup>61</sup> TCAA § 382.003(6); 30 TAC § 116.10(4); Tr. at 29, 72; Prot. Ex. CX-5.

<sup>62</sup> Tr. at 145-46, 374-75; App. Ex. 2 at 21.

<sup>63</sup> App. Ex. 3 at 1 (Draft Permit Special Condition No. 5); 30 TAC § 101.4.

<sup>64</sup> Tr. at 518-20.

<sup>65</sup> Tr. at 72, 122-23.

<sup>66</sup> App. Ex. 13 at 57 (Bates 75).

The ED argues that the subsection of RG-25 dealing with quarries falls within a section aimed at characterizing a source as a “point,” “area,” or “volume.” The section, however, does not address whether or not the source is a regulated facility. The ED argues that the proper focus of the permitting inquiry is the rock crusher within the quarry, which is a regulated source and was modeled. Protestant responds that the quarry is an integral part of the operations and, because EOG evaluated specific quarry operations such as the load hopper, conveyor, and screen, the quarry should also have been evaluated as an integral component of the mining activities.

The ALJs’ analysis of whether the quarry should have been modeled is the same as for roads. The Protestant raises a valid point that the quarry is an integral part of the Applicant’s entire operation and it is expected to generate emissions. However, many of the same problems identified with Mr. Tarr’s estimation of emissions from roads also applies to quarries. Most important, the TCAA and the Commission’s rules specifically exclude quarries from the definition of a regulated facility for a new source application. As a result, it was appropriate for the Applicant not to include quarry emissions in its analysis.

### **3. Combined Water**

There are a number of locations within the proposed project where water will be used as part of the process.<sup>67</sup> The TCEQ does not consider such water to be a source of emissions, and as a result, EOG did not model this water for emissions.

RRMT notes that the Commission’s definition of “particulate matter” specifically excludes “uncombined water,” so the definition necessarily includes “combined water.”<sup>68</sup> EOG and the ED dispute that the rule’s exclusion of “uncombined water” necessarily means that “combined water” meets the regulatory definition of particulate matter.<sup>69</sup>

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<sup>67</sup> Tr. at 67; Prot. Ex. CX-3.

<sup>68</sup> 30 TAC § 101.1(75).

<sup>69</sup> 30 TAC § 101.1(75).

Protestant next contends that the water used at the facility will either be recycled or brackish, that this should be considered combined water and a potential source of emissions.<sup>70</sup> RRMT points out that EOG has not yet determined how much water will be added during the processing of material. As a result, Protestant argues combined water may be a significant source of emissions, which should have been modeled by EOG.<sup>71</sup>

EOG and the ED argue that Protestant is erroneous in its conclusion that water used at the site will constitute combined water. They note that Mr. Tarr testified he did not know whether water used in the process will be combined water.<sup>72</sup> EOG explained that the water used in sand operations will not be bound to the material it contains, such that it cannot be removed by physical means, which is the defining characteristic of combined water. That is, water with particles in it, like the water to be used at the proposed facilities, can be heated such that the water evaporates. As a result, the water at issue is uncombined water and is specifically excluded from the definition of "particulate matter."<sup>73</sup> In any event, EOG and the ED argue that even if the water used was combined water, Mr. Buller and Ms. Hoover testified that it does not become particulate matter as defined in the rule.<sup>74</sup>

EOG and the ED argue that there is no precedent or basis to conduct the analysis that RRMT seeks. The ED notes that combined water is not defined by Commission or EPA rules. Because water sprays are intended to suppress emissions at an aggregate facility, the ED contends that they have never been considered a source of emissions. The ED also notes that, although Mr. Buller has reviewed 270 permit applications, he has never seen or conducted an evaluation of combined water as part of an air permit review.<sup>75</sup> In any event, EOG and the ED

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<sup>70</sup> Tr. at 107, 109; Prot. Ex. JT-1 at 5.

<sup>71</sup> Tr. at 111; Ex. JT-1 at 5.

<sup>72</sup> Tr. at 684-85.

<sup>73</sup> Tr. at 1115-16.

<sup>74</sup> Tr. at 107-10, 421, 426.

<sup>75</sup> Tr. at 421, 423, 426; ED Ex. 35 at 672, 689-91.

argue that such analysis would be completely speculative, as RRMT provided no reliable authority or methodology for characterizing or estimating emissions from water.

The ALJs conclude that EOG was not required to include combined water in its modeling. Significantly, Mr. Tarr was equivocal at hearing as to whether water used at the site would even comprise combined water, while Mr. Buller and Ms. Hoover testified that it would not. If the water used at the facility is uncombined water, then it is specifically excluded from the definition of particulate matter.<sup>76</sup> Furthermore, the Commission has never required the analysis RRMT seeks to grant an air permit for a facility such as this. The ALJs find that it was appropriate for EOG to exclude water used at the site from its emissions analysis.

#### 4. Background Levels

Protestant argues that, in order to evaluate the potential for the project to cause a condition of air pollution, all sources of emissions should have been accounted for in Applicant's analysis. This would include taking into account background concentrations for a full impact analysis.<sup>77</sup> Protestant argues that EOG failed to consider background concentrations of silica, neglected to conduct a full impact analysis for PM<sub>10</sub>, and ignored appropriate modeling inputs, which in the full impacts analysis of PM<sub>2.5</sub>, would have resulted in an exceedence of NAAQS.<sup>78</sup> The ALJs find that the background level concentrations of silica and other constituents were considered in the review conducted by the TCEQ Toxicology Division for silica and the modeling performed by Applicant for the presence of other pollutants, which included consideration of conservative background concentrations from Dallas and Tarrant Counties.

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<sup>76</sup> 30 TAC § 101.1(75).

<sup>77</sup> Tr. at 157, 550, 1022-23.

<sup>78</sup> Tr. at 989-90, 1016-17, 1089.

**a. Silica**

As will be discussed more thoroughly in a subsequent section, silica is not one of the pollutants for which a NAAQS has been established. Therefore, an applicant's modeling of silica emissions is compared to the ESLs, which are guidelines established by TCEQ toxicologists to provide a high degree of certainty of protectiveness of the public health and welfare. If an ESL is exceeded, then a health impacts review is conducted by the TCEQ Toxicology Division using a three-tiered approach that factors in the quantity of exceedence and potential for public exposure. In this case, there was an ESL exceedence which triggered a Tier Three review, the most highly-scrutinized level of review, by a TCEQ toxicologist. Protestant asserts that background concentrations were not considered as part of the health impacts review. The ALJs determine that the silica background concentration was a component that was considered as part of the Tier Three review conducted in this case.

In particular, Protestant asserts that Applicant's air dispersion modeling for silica failed to include silica background concentrations.<sup>79</sup> Protestant points out that in assessing the potential impact on human health and welfare, the ED's toxicologist relied on Applicant's modeling result to determine the off-site silica concentration.<sup>80</sup> Protestant also argues that disregarding background concentrations is inconsistent with a full impact analysis to assess the potential for the project to cause or contribute to a condition of air pollution. Finally, Protestant points out that the Commission's Air Permit Reviewer Reference Guide, under Tier Three review criteria, requires the consideration of existing levels of the same constituent. Protestant notes that the guidance recommends establishing and evaluating off-site concentrations from proposed emissions to determine the potential for adverse health and welfare effects, which includes project emissions and existing exposure levels.<sup>81</sup>

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<sup>79</sup> Tr. at 522-23, 564, 1089.

<sup>80</sup> Tr. at 581-83, 522-23.

<sup>81</sup> App. Ex. 17 at 29; App. Ex. 30 at 15, 27.

Applicant and the ED respond that the ESLs used to evaluate potential health effects for silica are set conservatively in order to account for potential background sources, and, as a result, modeling would have taken background concentrations into account twice. These parties point out that silica was reviewed in accordance with TCEQ guidance.<sup>82</sup> As a result, EOG and the ED argue that background levels of silica do not need to be considered in the health-effects evaluation, because the conservatism used by the TCEQ in setting the ESLs.<sup>83</sup>

As more thoroughly discussed in a subsequent section (see section II.F), the ALJs agree that silica is a pollutant which does not require the inclusion of background concentration levels in an ESL evaluation.<sup>84</sup> Because the maximum predicted off-site silica concentration exceeded the ESL standard, a case-specific factor evaluation, or Tier Three review, was conducted by the TCEQ toxicology division to determine whether health or welfare effects would be expected as a result of exposure to a given constituent. One of the factors considered in the Tier Three review is whether the existing levels of the same constituent, i.e. silica, is present. Thus, the background concentrations of silica emission were considered when a Tier Three ESL evaluation of the potential health effects of silica was conducted by a TCEQ toxicologist.

**b. PM<sub>10</sub>**

Because the Applicant's air dispersion modeling results showed that the SIL or de minimis level of PM<sub>10</sub> was not exceeded, EOG did not conduct a full impact analysis for PM<sub>10</sub>.<sup>85</sup> Protestant argues, however, that air dispersion modeling results showed that by using more appropriate and updated meteorological data, the SIL would be exceeded and thus a full impact analysis would have been required.<sup>86</sup>

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<sup>82</sup> ED Ex. 35 at 691; ED Ex. 37 at 738.

<sup>83</sup> Tr. at 1125.

<sup>84</sup> Tr. at 518.

<sup>85</sup> App. Ex. 29 at 6.

<sup>86</sup> Prot. Ex. JT-4a.

EOG argues that a full impact analysis was not required for PM<sub>10</sub>, because the highest modeled concentration did not meet the SIL. Furthermore, EOG contends that the screening background concentrations for Cooke County (derived from heavily-populated Dallas and Tarrant Counties) are very conservative, indicating that there is no danger of exceeding NAAQS for PM<sub>10</sub>. The Applicant notes that Mr. Tarr agreed with this conclusion, and testified that he knows of no significant background sources of PM<sub>10</sub> or silica in the area surrounding the site.<sup>87</sup>

As more thoroughly discussed in a subsequent section (see section II.E), the ALJs conclude that, even if a NAAQS full impact analysis was conducted, the full impact analysis for would not have resulted in a different outcome. Specifically, Mr. Zimmerman testified that, when he added the TCEQ's screening background concentration for Cooke County of 60 µg/m<sup>3</sup> to the 5.8 µg/m<sup>3</sup> maximum modeled concentration of PM<sub>10</sub> modeled by Mr. Tarr, which included the most current Denton meteorological data, the result was 66 µg/m<sup>3</sup>.<sup>88</sup> The short-term (24-hour) PM<sub>10</sub> NAAQS is 150 µg/m<sup>3</sup>, and 66 µg/m<sup>3</sup> does not exceed this standard. Mr. Cherry also confirmed that Applicant would still be in compliance with NAAQS for PM<sub>10</sub> even if Mr. Tarr's Denton meteorological data was used.<sup>89</sup> Therefore, the ALJs conclude that even if a NAAQS full impact analysis was required and performed, the result would not have demonstrated an exceedance of the NAAQS standard.

**c. PM<sub>2.5</sub>**

EOG conducted a full impact analysis for PM<sub>2.5</sub>, after the Applicant's air dispersion modeling results showed that the SIL or de minimis level for PM<sub>2.5</sub> would be exceeded.<sup>90</sup> Based on EOG's modeling results, which showed a value of 11.1 µg/m<sup>3</sup>, Mr. Cherry confirmed that the NAAQS for PM<sub>2.5</sub> of 12 µg/m<sup>3</sup> would not be exceeded.<sup>91</sup> Instead of the inputs EOG ultimately

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<sup>87</sup> Tr. at 708.

<sup>88</sup> Prot. Ex. JT-4a.

<sup>89</sup> Tr. at 546.

<sup>90</sup> App. Ex. 29 at 7.

<sup>91</sup> Tr. at 464; App. Ex. 12 at 362; App. Ex. 29 at 8.

used, Protestant argues that actual background information should have been obtained at the site and maximum predicted concentrations from the project added to those levels.

EOG argues that preconstruction monitoring to establish background levels is only required under the federal Prevention of Significant Deterioration (PSD) program, which only applies to facilities with more than 100 tons per year of emissions,<sup>92</sup> a level much higher than the predicted emissions from the proposed project. Next, EOG notes that the proposed operation will be located in a rural area, where there are no TCEQ permitted operations, and no ambient monitoring sites.<sup>93</sup> To compensate for this lack of monitoring sites, Applicant used monitoring data from Dallas and Tarrant Counties to provide a background level to which PM<sub>2.5</sub> emissions from the proposed facility could be added for Mr. Zimmermann's analysis. Noting that these are urban counties with substantially more emissions from both mobile and stationary sources than the project area, EOG argues the assumed background level of PM<sub>2.5</sub> was conservative.<sup>94</sup>

The ED agrees that the assumed PM<sub>2.5</sub> background level was conservative, noting that the monitor with the highest background concentration for each averaging time was used to represent the background concentrations at Applicant's site. The ED points out that the Dallas and Tarrant County monitors are conservative because the populations and 2008 reported PM<sub>2.5</sub> emissions in those counties were greater than the population and 2008 reported PM<sub>2.5</sub> emissions in Cooke County.<sup>95</sup>

The ALJs find that the monitors in Dallas and Tarrant Counties were appropriate to use as the background concentration at the Applicant's proposed project, rather than the actual background at the Cooke County site. The use of ambient air monitors in either Dallas or Tarrant Counties was conservative because the population and reported PM<sub>2.5</sub> emissions are

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<sup>92</sup> 30 TAC § 116.160(c)(2)(B), incorporating 40 CFR §52.21(m) (requirement for preconstruction monitoring); 40 CFR § 51.166(b)(1)(definition of major source).

<sup>93</sup> App. Ex. 12 at 16; Prot. Ex. HB-3.

<sup>94</sup> App. Ex. 29 at 8; Tr. at 518-20; Tr. at 1038, 1087-88; ED Ex. 35 at 27, 28.

<sup>95</sup> ED Ex.15 at 207; ED Ex. 35 at 697-98; ED Ex. 36 at 716, 723, 725.

greater than the population and reported PM<sub>2.5</sub> emissions for Cooke County. Specifically, Dallas County had a population of 2,368,139 and 2008 emissions of 7,089 tons of PM<sub>2.5</sub>; Tarrant County had a population of 1,809,034 and 2008 emissions of 5,190 tons of PM<sub>2.5</sub>; and Cooke County had a population of 38,437 and 2008 emissions of 961 tons of PM<sub>2.5</sub>.<sup>96</sup> The evidence showed that the monitor with the highest background concentration in Dallas and Tarrant Counties for each averaging time was used to appropriately and conservatively represent the background concentrations for Cooke County. Further, Tarrant County and Dallas County have three years of complete data as required by recent EPA guidance documentation.<sup>97</sup> Thus, the ALJs conclude that EOG's use of data from the ambient air monitors in Dallas and Tarrant Counties was appropriate to determine whether the NAAQS for PM<sub>2.5</sub> would be exceeded.

**B. Emission calculations/estimates**

**1. AP-42 Factors**

To develop estimated emissions from each emission source, EOG and the ED used emission factors from the EPA's AP-42 guidance document to calculate emission rates for the facilities represented in the application.<sup>98</sup> The ED explained that emission factors are representative values that relate an activity with a quantity of a pollutant released into the atmosphere. These factors facilitate estimation of emissions from various sources of air pollution. EOG used emission factors provided in AP-42 to estimate particulate matter emissions from all loading operations, screens, conveyance systems, and stockpiles, as well as products of combustion from the dryer.<sup>99</sup> Each AP-42 emission factor is given a rating from A through E, with A being the most reliable. Applicant and the ED applied D and E factors to a number of emission sources.<sup>100</sup>

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<sup>96</sup> ED Ex. 20 at 5.

<sup>97</sup> App. Ex. 16 at 26.

<sup>98</sup> Tr. at 80.

<sup>99</sup> ED Ex. 35 at 679-80.

<sup>100</sup> Prot. Ex. JT-3 at 8; Tr. at 95.

Protestant points out that, in the introduction to AP-42, the EPA states concerns about using the low-rated factors in an air permit analysis, which could be off by as much as an order of magnitude.<sup>101</sup> As a result, when Mr. Tarr modeled emissions for roads, he increased the emission factors for sources having a rating of D or E by a factor of 10, which is an order of magnitude.<sup>102</sup> Protestant argues that this adjustment is appropriate to estimate a “worst-case” scenario, and yet, Ms. Hoover, who stated that her analysis represented “worst-case” conditions, used AP-42 factors D and E without such an adjustment.<sup>103</sup>

In response, the ED and EOG argue that even D and E emission factors are reliable. The ED points out that in the introduction to AP-42, the source of Protestant’s argument to increase the factors to such an extent, actually states that “some emission factors are *derived from tests* that may vary by an order of magnitude or more.”<sup>104</sup> That is, it is variation in source tests that may differ by an order of magnitude, but not the factors themselves, which use average test results.

The ED and the Applicant note that Mr. Tarr was the only expert witness to suggest that AP-42 factors are inappropriate for the project. Yet, he did not recall ever having worked on a permit for a sand or aggregate facility.<sup>105</sup> EOG and the ED also point out that the application of AP-42 is consistent with long-established use by the TCEQ. Ms. Hoover testified that Commission experience dating back decades over the history of the permit program supports the methodology employing these emission factors. These factors are also accepted in other states, as well as by the EPA, and the AP-42 factors are based on sampling at plants processing material with lower moisture content and more fines than are anticipated at the proposed plant.<sup>106</sup>

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<sup>101</sup> Prot. Ex. JT-1 at 8; Prot. Ex. JT-3 at 8.

<sup>102</sup> Tr. at 738-39.

<sup>103</sup> Tr. at 95.

<sup>104</sup> Prot. Ex. JT-3 at 3 (emphasis added).

<sup>105</sup> Tr. at 668-69.

<sup>106</sup> App. Ex. 28 at 4-5.

Mr. Buller reviewed EOG's emission calculation methodology and the emission factor values in accordance with established guidance for facilities in this industry. He stated that reliance on AP-42 emission factors is reasonable and a regularly accepted engineering practice.<sup>107</sup> Mr. Buller testified that every permit application he reviewed at the TCEQ has used AP-42 emission factors, as well as applications he has peer reviewed. He stated that even AP-42 factors with a rating of D or E are regularly relied on and used consistently throughout the State of Texas. Further, there is no documented basis for revising those factors up or down. He could not conclude that an E rated emissions factor suggested an order of magnitude variability and, in his experience, he has never seen AP-42 emission factors increased by an order of 10.<sup>108</sup>

The ALJs are persuaded by the testimony of Mr. Buller and Ms. Hoover, who both indicated that AP-42 represents an industry standard sanctioned by the EPA, and used in a wide range of applications – the AP-42 Table of Contents lists over 150 industries.<sup>109</sup> Protestant's evidence and argument are insufficient to overcome what is an established industry and regulatory standard. The ALJs find that it was appropriate for EOG and the ED to apply and rely on AP-42 factors.

## 2. Dryer Baghouse

As part of the project, EOG proposes to use a dryer that will generate greater emissions than any other source at the site. AP-42 discusses how certain sources of emissions can be reduced by implementing certain control technologies. EOG proposes to use a baghouse at the dryer stack as such an emission control technology. EOG developed an emission factor for this source of emissions using the vendor's performance information and AP-42 factors.<sup>110</sup>

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<sup>107</sup> ED Ex. 35 at 676-80; ED Ex. 4; ED Ex. 5; ED Ex. 6; ED Ex. 7; ED Ex. 8.

<sup>108</sup> Tr. at 411, 421, 424-25, 429-30, 948-49, 952, 954-55, 960-61.

<sup>109</sup> ED Ex. 35 at 676-80.

<sup>110</sup> App. Ex. 28 at 3-4; Tr. at 80, 84.

As the dryer is the largest single source of emissions for the project, Protestant argues that EOG should have used a vendor performance guarantee, instead of simply relying on performance information and AP-42 factors. The basis of this argument is that the EPA considers emission information from an equipment vendor, particularly emission performance guarantees or actual test data from similar equipment, as a better source of information for permitting decisions than an AP-42 emission factor.<sup>111</sup> RRMT argues that for other baghouses at the site, Ms. Hoover obtained and used performance guarantees. She admitted that had she realized this early enough, she would have attempted to obtain such a guarantee for the dryer baghouse.<sup>112</sup>

EOG responds that there is no rule that requires the use of a vendor guarantee in addition to performance data. Nevertheless, EOG and the ED argue that there is extensive TCEQ and industry experience with baghouses for emission sources of this type. Ms. Hoover's calculations incorporated emission information provided by the vendor, was reviewed and approved by the ED's technical team, and incorporated commonly-accepted methodology. The ED notes that emission factors and calculation methodologies were taken from AP-42. Particulate matter emissions from the baghouse were based on the vendor's specifications for outlet grain loading. EOG argues that these calculations have proven effective at creating reasonable projections of emissions from this type of baghouse. Ms. Hoover compared dryer stack sampling for similar dryers installed at similar operations, and those sampling reports reasonably correlated to the emission rates she calculated for the dryer baghouse to be used here. Ms. Hoover testified that in her experience, the sampling results show that emissions from this type of dryer baghouse meet or are lower than what the vendor represents.<sup>113</sup>

EOG and the ED also argue that a vendor guarantee would be superfluous because EOG's representations in the application regarding emissions limits are binding. EOG must comply with the Draft Permit's general and special conditions, and the Maximum Allowable

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<sup>111</sup> Prot. Ex. JT-3 at 3.

<sup>112</sup> Tr. at 80-81, 84-85, 1004-05; Prot. Ex. CX-4.

<sup>113</sup> App. Ex. 28 at 3-4, 708; ED Ex. 35 at 680, 685; Tr. at 80, 134-37, 425, 964-66.

Emission Rate Table (MAERT).<sup>114</sup> Both parties note that initial stack sampling is required within the first 180 days of operation to demonstrate compliance with emissions limits and federal NSPS.<sup>115</sup> The ED notes that in offering his opinion on the matter, Mr. Tarr was unaware that initial stack testing was required under NSPS and the Draft Permit.<sup>116</sup> If the sampling results show emissions beyond the permitted limit or the NSPS, Applicant will be required to bring the baghouse into compliance, while subject to TCEQ enforcement for a permit violation.<sup>117</sup>

The ALJs find that EOG's reliance on performance data and AP-42 factors was sufficient to estimate emissions from the dryer baghouse. Although a vendor guarantee would have provided useful information, sampling results from similar dryers correlated with Ms. Hoover's estimated emission rates for the proposed dryer baghouse. If actual emissions from the dryer baghouse exceed the MAERT, violate conditions in the Draft Permit, or cause an exceedance of the NSPS, EOG will be required to bring the baghouse into compliance.

### 3. Use of PM<sub>4</sub> for Silica

Protestant asserts that the emission rates used by Applicant in its modeling for silica are unreliable. Specifically, Protestant challenges Applicant's reliance on the TCEQ Toxicology Division's determination that the long-term (annual) impact of silica must be evaluated as smaller-sized particulate matter, or PM<sub>4</sub>, and the short-term (hourly) impact of silica must be evaluated as the total concentration of larger-sized particulate matter, or PM<sub>10</sub>.<sup>118</sup> Protestant maintains that all of the sand at this plant should be assumed to be PM<sub>10</sub> for all modeling purposes, principally because PM<sub>10</sub> is a criteria pollutant, *e.g.* a pollutant for which a federal NAAQS standard has been established, unlike silica, which must be evaluated using TCEQ Toxicology Division guidelines only.

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<sup>114</sup> 30 TAC § 116.115.

<sup>115</sup> Tr. at 964.

<sup>116</sup> Tr. at 780.

<sup>117</sup> Tr. at 964-66.

<sup>118</sup> ED Ex. 35 at 19.

By way of background, the TCEQ Toxicology Division has determined that the respirable size of particulate matter is PM<sub>4</sub>.<sup>119</sup> Respirable means that the particulate matter is small enough to stay in the air and get inhaled into the lungs.<sup>120</sup> According to the TCEQ Toxicology Division guidelines, “particle size is a key determinate of silica toxicity.”<sup>121</sup> Silica particles that range in size from 1-4 micrometers are small enough to enter the deeper regions of the respiratory tract and can lead to acute silicosis, a very rare and non-cancerous respiratory disease. America’s worst disaster with acute silica overexposure occurred during drilling of the Gauley Bridge hydroelectric tunnel in 1930-31 in West Virginia when 2,000 workers were sickened with silicosis. Another disaster occurred in Midland-Odessa, Texas, during drilling in the oil industry in the early 1990s when hundreds of sandblasters developed the disease.<sup>122</sup> Although there were some silica dust measurements in the early 1990s, there were no reproducible levels of silica for analysis related to these disasters. Thus, because there are no human sources for the development of a human risk assessment for silica, rats have been used to develop the TCEQ ESLs, or health effects standards, for respirable silica.<sup>123</sup>

Applicant points out that, pursuant to TCEQ guidance, it made the conservative assumption that 100% of the sand expected from the proposed facilities was respirable silica.<sup>124</sup> Because emissions were conservatively estimated and all of the PM<sub>10</sub> and PM<sub>4</sub> were assumed to be respirable silica for annual average modeling purposes, Applicant argues that its evaluation incorporated multiple and significant conservative emission projections, with the result that there was an exceedance of the ESL shown and a Tier Three evaluation of the risk of public exposure.

Protestant argues that it would be more conservative and more accurate to assume that the amount of silica at this site is 100% of the larger-size particle, PM<sub>10</sub>, for both the short-term and

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<sup>119</sup> ED Ex. 35 at 19.

<sup>120</sup> App. Ex. 38 at 8-10.

<sup>121</sup> App. Ex. 38 at 8.

<sup>122</sup> App. Ex. 38 at 9.

<sup>123</sup> App. Ex. 38 at 8-9.

<sup>124</sup> App. Ex. 29 at 6.

long-term analysis.<sup>125</sup> According to Mr. Tarr, the use of PM<sub>4</sub> to model for silica originated from studies done in South African gold mines.<sup>126</sup> Mr. Tarr explained that the study was designed to quantify the particulate matter that gold miners were exposed to as the result of fracturing gold in the mining process. Mr. Tarr believed that relying on the study for the proposition that silica should be modeled at a smaller particulate size, or PM<sub>4</sub>, for long-term exposure was flawed for two reasons: (1) the instrument, a Konimeter,<sup>127</sup> used to collect the samples in the gold mine study was faulty and either damaged or did not collect the larger particulate matter;<sup>128</sup> and (2) the gold mine was located 10,000 feet below the surface and the sample did not account for windblown emissions related to the size of the particulate matter.<sup>129</sup> He pointed out that focusing on PM<sub>4</sub> versus PM<sub>10</sub> substantially reduces the emission rate and decreases the calculated ambient air concentration based on that emission rate.

The ED pointed out that the EPA has not classified silica as a hazardous air pollutant or criteria pollutant and accordingly, the EPA does not provide specific emission factors or NAAQS for PM<sub>4</sub>.<sup>130</sup> This was confirmed by Mr. Buller, who testified that it has been “an accepted TCEQ practice” to determine emission factors related to various size particles when evaluating silica emissions.<sup>131</sup> The ED noted, however, that in order to evaluate PM<sub>4</sub>, the TCEQ Toxicology Division has established ESL guidelines,<sup>132</sup> which were developed by combining data from ten separate occupational studies to account for exposure to different forms of silica at different concentrations.<sup>133</sup> The ED agreed that Applicant appropriately modeled the amount of silica at

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<sup>125</sup> Tr. at 768.

<sup>126</sup> Tr. at 767.

<sup>127</sup> A device for estimating the dust content of air. Merriam-Webster Dictionary 1254 (8<sup>th</sup> ed. 2008).

<sup>128</sup> Tr. at 766. The reason for the damage was not fully explained, just that the particulate matter was “physically affected” between the time it entered the instrument and the time it was analyzed.

<sup>129</sup> Tr. at 766.

<sup>130</sup> App. Ex. 38.

<sup>131</sup> ED Ex. 35 at 680.

<sup>132</sup> App. Ex. 16 at 26-27.

<sup>133</sup> App. Ex. 38 at 32, 36.

this site as smaller-sized respirable particulate matter rather than larger-sized non-respirable particulate matter.

The ALJs agree with Applicant and the ED that the Applicant conservatively modeled silica by assuming that all of the sand at the facility was silica for the short-term concentration evaluation. Protestant argues that all of the silica should have been modeled as PM<sub>10</sub> for short- and long-term evaluation, which would have necessitated adding the background concentrations for PM<sub>10</sub> from Tarrant and Dallas Counties (as discussed in a subsequent section). However, because studies show that silica is respirable smaller-sized particulate matter that could lead to silicosis with heavy exposure, TCEQ guidance properly evaluates long-term exposure to silica as an ESL, rather than as larger-size, minimally-respirable PM<sub>10</sub> subject to a NAAQS standard. Thus, the ALJs agree with Applicant and ED that Applicant properly modeled all the sand as silica and conservatively modeled the silica as 100% of PM<sub>10</sub> for the short-term analysis and 100% of PM<sub>4</sub> for the long-term analysis of emissions as provided by TCEQ guidance.

#### **4. Point Source Emissions Reduced by 10% for Long-Term Analysis**

The source of this controversy involves EOG's initial calculation of emission rates based on an operational schedule of 24 hours per day for 365 days per year, or 8,760 hours annually. Later, EOG revised the schedule to provide that the plant will operate 8,760 hours per year, except for various pieces of equipment, which will have a maximum operating schedule not to exceed 7,884 hours per year in any rolling 12-month period.<sup>134</sup> Based on the 10% reduction in operating hours for certain equipment, EOG reduced its emission rates by 10% to reflect the new operational schedule. It is undisputed that the equipment operating under the reduced schedule<sup>135</sup> will generate greater emissions than any other source at the site.

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<sup>134</sup> ED Ex. 21 at 244 (Draft Permit Special Condition No. 8).

<sup>135</sup> The equipment is listed as: the dryer baghouse and associated dryer, the dry plant transfer dust collector baghouse and associated dry feed bins, dry screens and conveyors, the surge bin dust collector and the product silo dust collectors, and associated product load facilities.

Protestant argues that there was no specific testimony from an EOG employee concerning the hours or times that the facility would be operating. According to Protestant, without the information on which sources would not be operating and when, there was no way to calculate how the direction or speed of the wind would impact off-site areas. Protestant points out that Applicant just made a wholesale 10% reduction in emissions without identifying the specific equipment, times, or dates that the facility would be operating under a reduced schedule. Protestant argues that the emission rates should be calculated at 100%, without Applicant's specific operating schedule incorporated into the modeling.

Applicant counters that using the actual operating hours is standard methodology for modeling, as set out in TCEQ guidance.<sup>136</sup> Applicant refers to TCEQ's guidance which states that "the annualized average hourly emission rate based on the maximum ton-per-year rate [is used] to obtain annual concentrations."<sup>137</sup> Thus, Applicant argues that the operational schedule is the basis for the modeling and not the specifics of how and when the plant will operate.

The ED agrees that the proposed operating hours were accurately represented in the application.<sup>138</sup> The application was reviewed by Mr. Buller, who tracked throughput at the facilities to ensure that the hours of operation and hourly and annual throughput were consistent with the representations in the application. The ED concurred that the emissions represented in the modeling analysis is a function of the operating hours authorized by the draft permit.

The ALJs are persuaded that the operating hours properly correspond to the emission rates as authorized by the Draft Permit. The ALJs agree that testimony concerning exactly how and when Applicant planned to operate the plant would have been helpful, but it was not critical information. Because Mr. Buller testified persuasively that he thoroughly tracked throughput to ensure consistency with the application, and there was no contradictory evidence presented otherwise, the ALJs are convinced that, even with the 10% reduction due to the reduced

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<sup>136</sup> App. Ex. 29 at 5 (corrected version).

<sup>137</sup> App. Ex.13.

<sup>138</sup> Tr. at 115.

operational schedule, the emission rates were properly calculated as represented in the application.

### C. Air Dispersion Modeling/Results

Applicant has applied for a Preconstruction Permit to construct a new facility that may emit air contaminants as required by the TCAA.<sup>139</sup> Because the plant has not yet been constructed and new sources of pollution are not in operation at the time of the permit review process, actual air samples cannot be collected to evaluate whether the emissions will adversely impact public health. As a result, computerized air dispersion modeling is used to predict the off-property, ground-level air concentrations (GLCs) of constituents in order to determine compliance with NAAQS and Texas property line standards, and to ensure that non-criteria pollutants (silica) will not adversely impact human health and welfare.<sup>140</sup> In Texas, the ED may require an applicant to perform air dispersion modeling as part of the application.<sup>141</sup>

In this case, modeling was required to be completed by EOG and was audited by the TCEQ ADMT.<sup>142</sup> The ADMT also required Applicant to use “refined modeling,” a more complex model with more detail and precise input data.<sup>143</sup> Typically, the input data comprises land-use information (urban or rural), topographical elevation data (flat or complex terrain), variable emission rates, building wake effects (downwash), emission point parameters (receptor grid locations, elevations, and spacing), and meteorological data (standard surface and upper-air observations).<sup>144</sup>

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<sup>139</sup> TCAA § 382.0518(a).

<sup>140</sup> Constituent generally refers to a contaminant, chemical, chemical compound, pollutant, or particulate matter. App. Ex. 13 at 12; App. Ex. 29 at 4.

<sup>141</sup> 30 TAC § 116.111(j).

<sup>142</sup> ED Ex. 35 at 23; App. Ex. 16 at 23.

<sup>143</sup> App. Ex. 13 at 31.

<sup>144</sup> App. Ex. 13 at 41-69.

Emission rates are an additional and integral input variable necessary to accurately model the projected concentrations of pollutants in the atmosphere resulting from the proposed facility. Once the emission rate is calculated, it is plugged into the model along with all other inputs, and the model calculates a total projected concentration in the atmosphere of each specific pollutant at each identified receptor. The Applicant's modeling encompassed receptors extending out to a range of 10,000 meters in all directions from the property line, known as a "receptor grid."

**Criteria Pollutants.** The EPA has set NAAQS for six principal pollutants, referred to as "criteria" pollutants, *i.e.* pollutants for which a standard exists: (1) particulate matter PM<sub>10</sub> and PM<sub>2.5</sub>; (2) ozone (O<sub>3</sub>); (3) sulfur dioxide (SO<sub>2</sub>); (4) carbon monoxide (CO); (5) nitrogen dioxide (NO<sub>2</sub>); and (6) lead (Pb).<sup>145</sup> The Clean Air Act identifies two types of NAAQS, primary and secondary. Primary NAAQS define levels of air quality that the EPA Administrator has determined are required to protect the public health.<sup>146</sup> Primary NAAQS are set to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. Secondary NAAQS define levels of air quality that the EPA Administrator has determined are required to protect the public welfare from any known or anticipated adverse effects. Secondary NAAQS are designed to protect the public welfare against non-health-related effects, such as decreased visibility; effects to animals, crops, and vegetation; and damage to and deterioration of property.<sup>147</sup> As Dr. Dydek notes, ". . . when the EPA set the NAAQS for each Federal criteria contaminant, [the EPA] set them at protective and conservative levels, so that even the most sensitive subgroups of the population would not suffer adverse effects from ambient concentrations of the contaminant at or below the NAAQS levels."<sup>148</sup>

Of the listed criteria pollutants, Applicant proposes to emit: PM<sub>10</sub> and PM<sub>2.5</sub>, CO, NO<sub>2</sub>, and SO<sub>2</sub>.<sup>149</sup> In order to understand the modeling results for the criteria pollutants, there are a few

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<sup>145</sup> 42 U.S.C. § 7409(a); 40 CFR § 50.

<sup>146</sup> 42 U.S.C. § 7409(b)(1); 40 CFR. § 50.2(b).

<sup>147</sup> 42 U.S.C. § 7409(b)(2).

<sup>148</sup> App. Ex. 30 at 9.

<sup>149</sup> App. Ex. 35, p. 18-19.

basic items to consider. First, the measurement for the modeled predicted concentrations is expressed as micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). According to the ED, a microgram is the size of a dust mite and a cubic meter is the size of a washing machine.<sup>150</sup> Thus, for instance, in order for the projected facility's emissions to meet the  $\text{PM}_{10}$  NAAQS of  $150 \mu\text{g}/\text{m}^3$ , there must be no more exposure in an average 24-hour period than 150 dust mite-size particles per washing machine-size area.

Second, modeling predicts the maximum GLC beginning at the facility's nearest property line, expressed as maximum ground-level concentration or  $\text{GLC}_{\text{max}}$ . This is because the definition of "ambient air" only includes that portion of the atmosphere to which the general public has access, and it is assumed that the public does not have general access to the facility.<sup>151</sup> Accordingly, air dispersion modeling starts at the applicant's property line.<sup>152</sup>

Third, the "de minimis" SIL of air contaminant concentration is that value defined by the EPA as a concentration below which the air quality is not anticipated to degrade due to emissions. Thus, when a modeled impact is deemed insignificant, or de minimis, using the SIL as a threshold for significance, it is not necessary to incorporate background levels or emissions from other sources in the modeling.<sup>153</sup> In other words, if modeling shows that a pollutant is below the SIL, no further evaluation is necessary.<sup>154</sup> But, if the maximum modeled concentration of a pollutant for the project is greater than the SIL then a "full impact analysis" is performed, integrating the modeled background source with the appropriate averaging time.<sup>155</sup>

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<sup>150</sup> App. Ex. 16 at 26.

<sup>151</sup> 30 TAC § 101.1(3).

<sup>152</sup> App. Ex. 13 at 67.

<sup>153</sup> App. Ex. 29 at 6.

<sup>154</sup> ED Ex. 35 at 27.

<sup>155</sup> App. Ex. 29 at 7.

Fourth, receptors are an important element of capturing the  $GLC_{max}$ .<sup>156</sup> According to the Applicant's modeling report, receptor grids were placed at intervals of: 25 meters from the property line to 100 meters from the property line; 100 meters from 100-1,000 meters from the property line; 500 meters from 1,000-5,000 meters from the property line; and 1,000 meters from 5,000-10,000 meters from the property line.<sup>157</sup> Special discrete receptors were also modeled at "special locations of interest such as residences and commercial operations."<sup>158</sup> The receptor elevations were determined by use of the EPA AERMAP program.

**Property Line Standards.** Property line standards are used to regulate the air contaminant contributions of a particular facility.<sup>159</sup> Texas has a "state property line rule" governing sulfur dioxide, which is represented on the table below as  $SO_2$  for a 30-minute averaging period. Specifically, the state property line rule provides that no person in Texas may allow or permit emissions of sulfur dioxide from a source operated on a property to exceed a net ground level concentration of 0.4 per million by volume averaged over any 30-minute period.<sup>160</sup> According to Mr. Zimmerman, the maximum modeled concentration for this project for sulfur dioxide was less than the TCEQ's standard for the property line rule.<sup>161</sup>

The modeling performed by Mr. Zimmerman and audited by Mr. Buller in regards to criteria pollutants and the property line standard for  $SO_2$  predicted the following:<sup>162</sup>

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<sup>156</sup> App. Ex. 13 at 66.

<sup>157</sup> App. Ex. 12 at 67.

<sup>158</sup> App. Ex. 12 at 7.

<sup>159</sup> App. Ex. 30 at 5.

<sup>160</sup> 30 TAC § 112.4

<sup>161</sup> App. Ex. 29 at 7.

<sup>162</sup> ED Ex. 15 at 1-5; App. Ex. 12 at 49.

Air Pollutant	Averaging Period	GLC <sub>max</sub> $\mu\text{g}/\text{m}^3$	Background $\mu\text{g}/\text{m}^3$	TOTAL (GLC <sub>max</sub> + Background) $\mu\text{g}/\text{m}^3$	NAAQS Standard $\mu\text{g}/\text{m}^3$	De Minimis or SIL level $\mu\text{g}/\text{m}^3$
PM <sub>10</sub>	24-hr	2.2	N/A <sup>163</sup>	N/A	150	5
PM <sub>2.5</sub>	24-hr	1.97	24.5	26.47	35	1.2
PM <sub>2.5</sub>	annual	0.41	10.7	11.11	15	0.3
Nitrogen Dioxide (NO <sub>2</sub> )	1-hr	15.2	102.9	118.1	188	7.5
NO <sub>2</sub>	Annual	0.66	N/A	N/A	100	1
Sulfur Dioxide (SO <sub>2</sub> )	30-minutes	1.7	20.42		1021	N/A <sup>164</sup>
SO <sub>2</sub>	1-hr	1.7	N/A	N/A	196	7.8
SO <sub>2</sub>	3-hr	0.7	N/A	N/A	1,300	25
SO <sub>2</sub>	24-hr	0.4	N/A	N/A	365	5
SO <sub>2</sub>	annual	0.07	N/A	N/A	80	1
Carbon Monoxide (CO)	1-hr	10	N/A	N/A	2,000	2,000
CO	8-hr	3	N/A	N/A	500	500

<sup>163</sup> N/A denotes that the predicted concentration at ground level is below the SIL so no further evaluation of that contaminant was required or performed.

<sup>164</sup> ED Ex. 15 at 1-5; App. Ex. 12 at 49. The SIL was not included.

In sum, as pertains to the contested issues in this case including the performance of a full impact analysis, the following results were shown by Applicant's modeling:

1. **PM<sub>10</sub>**. The SIL for PM<sub>10</sub> was not exceeded at any off-site location, for any period of time, either short-term or long-term, and thus no full impact analysis was required or performed.
2. **PM<sub>2.5</sub>**. The SIL level for PM<sub>2.5</sub> was exceeded at locations within one kilometer of the proposed facility for both short-term and long-term; therefore, a full impact analysis was required and performed.

The review concluded that for a 24-hour period, the maximum ground level concentration of PM<sub>2.5</sub> was expected to be 26.47  $\mu\text{g}/\text{m}^3$  (1.97  $\mu\text{g}/\text{m}^3$  plus the background concentration of 24.5  $\mu\text{g}/\text{m}^3$ ), which fell below the 24-hour PM<sub>2.5</sub> NAAQS of 35  $\mu\text{g}/\text{m}^3$ .

The review also concluded that for an annual average period, the maximum ground level concentration of PM<sub>2.5</sub> was expected to be 11.11  $\mu\text{g}/\text{m}^3$  (0.41  $\mu\text{g}/\text{m}^3$  plus the background concentration of 10.7  $\mu\text{g}/\text{m}^3$ ), which fell below the then-existing annual PM<sub>2.5</sub> NAAQS of 15  $\mu\text{g}/\text{m}^3$  and the new annual PM<sub>2.5</sub> NAAQS of 12  $\mu\text{g}/\text{m}^3$ .<sup>165</sup>

3. **Nitrogen Dioxide**. NO<sub>2</sub> was modeled and evaluated for the proposed facility. The SIL level for NO<sub>2</sub> was exceeded short-term (1-hour) but not long-term (annual). A full impact analysis was therefore required and performed for the 1-hour time period.

The SIL level of NO<sub>2</sub> is 1  $\mu\text{g}/\text{m}^3$  (annual). Modeling of this facility resulted in predicted air concentrations of 0.66  $\mu\text{g}/\text{m}^3$ . Therefore, no full impact analysis was required or performed.

When TCEQ's screening background concentration for Cooke County (derived from Dallas and Tarrant Counties) of 102.9  $\mu\text{g}/\text{m}^3$  was added to the 15.2  $\mu\text{g}/\text{m}^3$  maximum modeled concentration of NO<sub>2</sub>, the result was 118.11  $\mu\text{g}/\text{m}^3$ . The short-term (1-hour) NAAQS for NO<sub>2</sub> is 188  $\mu\text{g}/\text{m}^3$ , and 118.11  $\mu\text{g}/\text{m}^3$  does not exceed the NAAQS.

4. **Sulfur Dioxide**. SO<sub>2</sub> was modeled and evaluated for the proposed facility. The de minimis or SIL level of SO<sub>2</sub> is 7.8  $\mu\text{g}/\text{m}^3$  (1-hour), 25  $\mu\text{g}/\text{m}^3$  (3-hour), 5  $\mu\text{g}/\text{m}^3$  (24-hour), and 1  $\mu\text{g}/\text{m}^3$  (annual). Modeling of this facility resulted in predicted air concentrations of SO<sub>2</sub> of 1.7  $\mu\text{g}/\text{m}^3$  (1-hour), 0.7  $\mu\text{g}/\text{m}^3$  (3-hour), 0.4  $\mu\text{g}/\text{m}^3$  (24-hour), and 0.07  $\mu\text{g}/\text{m}^3$  (annual). Thus, a full impact analysis was not required or performed.

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<sup>165</sup> On January 15, 2013, a new annual average PM<sub>2.5</sub> NAAQS was published in the Federal Register (Vol. 78, No. 10, January 15, 2013). The new annual average is effective March 18, 2013. App. Ex. 29 at 8.

5. **Carbon Monoxide.** CO was modeled and evaluated for the proposed facility. The SIL level of CO is 2,000  $\mu\text{g}/\text{m}^3$  (1-hour) and 500  $\mu\text{g}/\text{m}^3$  (8 hour). Modeling of this facility resulted in predicted air concentrations of CO to be 10  $\mu\text{g}/\text{m}^3$  (1-hour) and 3  $\mu\text{g}/\text{m}^3$  (8-hour). Therefore, no full impact analysis was required or performed.

**Non-Criteria Pollutants.** Although Applicant proposes to emit silica, the EPA has not designated silica as a criteria pollutant or a hazardous air pollutant.<sup>166</sup> The TCEQ toxicologists developed ESLs, or guidelines, for non-criteria pollutants, based on data concerning health effects, odor/nuisance potential, and effects on vegetation.<sup>167</sup> The ESLs are set at levels lower than those reported to produce adverse health effects, and are set to protect the general public, including sensitive subgroups such as children, the elderly, or people with existing respiratory conditions.<sup>168</sup> If a predicted or measured airborne level of a constituent does not exceed the ESL, adverse health or welfare would not be expected to result. If ambient levels of constituents in the air exceed the ESL, a more in-depth review is required and conducted in order to assess whether a health issue is presented.<sup>169</sup>

The objective of a Toxicology Effects Evaluation is to establish off-property GLCs and to evaluate these GLCs for the potential to cause adverse health or welfare effects.<sup>170</sup> According to the Toxicology Effects Evaluation Procedure, the “worst-case scenario emissions” must be modeled in order to predict maximum potential exposure levels. The  $\text{GLC}_{\text{max}}$  is evaluated first, and if needed, the GLC at the maximally affected non-industrial receptor ( $\text{GLC}_{\text{ni}}$ ) is evaluated next. “Non-industrial” property (where a receptor is located) is defined as residential, recreational, commercial, business, agricultural; or a school, hospital, day-care center, or church; or a right-of-way, waterways, or the like.<sup>171</sup> Further, if the property with a receptor is located in an unzoned or undeveloped area, it is treated as non-industrial.<sup>172</sup>

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<sup>166</sup> App. Ex. 29 at 5.

<sup>167</sup> App. Ex. 29 at 7.

<sup>168</sup> App. Ex. 13 at 13.

<sup>169</sup> App. Ex. 13 at 13.

<sup>170</sup> App. Ex. 33 at 27.

<sup>171</sup> App. Ex. 17 at 21.

<sup>172</sup> App. Ex. 17 at 21.

The parties agree that the sole major emission from Applicant's proposed project is particulate matter containing crystalline silica.<sup>173</sup> The modeling performed by Mr. Zimmerman and audited by Mr. Buller in regards to crystalline silica predicted the following:<sup>174</sup>

Air Pollutant	Averaging Period	GLC <sub>max</sub> $\mu\text{g}/\text{m}^3$	ESL $\mu\text{g}/\text{m}^3$	Frequency > 1x ESL @ GLC <sub>max</sub>	GLC <sub>ni</sub> $\mu\text{g}/\text{m}^3$	Frequency > 1x ESL @ GLC <sub>ni</sub>
Silica (PM <sub>10</sub> )	1-hr	16.4	14	5 hours per year on FM373 Road	15.0	1 hour/year at GLC <sub>ni</sub>
Silica (PM <sub>4</sub> )	Annual	0.44	0.27	Conc. > 1 x ESL only on FM 373	0.19	N/A

The modeling report also included specific residential and commercial special receptors to determine the silica maximum concentration at that location.<sup>175</sup> The special receptors R1-R2 and R4-R10 are residential (Res), while receptor R3 is the Red Bull Barn and R11 is Red River Cycles, which are both commercial (Comm):

Pollutant $\mu\text{g}/\text{m}^3$	R1 Res	R2 Res	R3 Comm	R4 Res	R5 Res	R6 Res	R7 Res	R8 Res	R9 Res	R10 Res	R11 Comm
Silica (PM <sub>10</sub> ) 1-hr	2.9	2.4	6.8	1.5	1.1	1.0	1.1	1.1	1.6	2.0	3.74
% of ESL	21%	17%	49%	11%	8%	7%	8%	8%	11%	14%	26%
Silica (PM <sub>4</sub> ) annual	0.006	0.007	0.023	0.017	0.016	0.014	0.013	0.012	0.014	0.021	0.054
% of ESL	2%	3%	8%	6%	6%	5%	5%	4%	5%	8%	20%

<sup>173</sup> App. Ex. 30 at 6.

<sup>174</sup> ED Ex. 15 at 1-5 and App. Ex. 12 at 49.

<sup>175</sup> App. Ex. 12 at 51.

Thus, as pertains to the contested issues in this case, Applicant's modeling analysis of silica concluded the following:

The ESL level for silica was exceeded at off-site locations, for both periods of time—short-term (24-hour) and long-term (annual)—and therefore, a review by TCEQ's Toxicology Division was required and performed.

The ESL levels for silica of  $0.27 \mu\text{g}/\text{m}^3$  for long-term exposure and  $14 \mu\text{g}/\text{m}^3$  for short-term exposure were exceeded. The modeling predicted a maximum annual (long-term) average silica concentration of  $0.44 \mu\text{g}/\text{m}^3$ . The modeling also predicted a maximum 1-hour (short-term) average silica concentration off-site as  $16.4 \mu\text{g}/\text{m}^3$ .

The parties identified several issues in regards to the air dispersion modeling performed by Applicant: whether worse case conditions were modeled; whether the correct number of years was used for the analysis; and whether the source of meteorological data (DFW/Denton) was appropriate. The ALJs will analyze these issues as pertains to the modeling results.

#### **1. Worst-Case Conditions**

The ADMT developed guidelines to suggest a minimum level of analysis so that modeling results reliably predict whether the public's health, welfare, and property are protected. As part of that guidance, the ADMT's goal is to "use worst-case assumptions and conditions to conduct the minimum amount of modeling necessary to demonstrate that the modeled sources should not cause or contribute to air pollution."<sup>176</sup>

Protestant contends that Mr. Zimmerman's modeling did not reflect worst-case conditions for a number of reasons: the modeling did not include all sources of pollutants such as roads and the quarry; appropriate emission rates for certain sources, such as the dryer baghouse and the poorly-rated AP-42 factors for the volume sources, were not modeled; and the meteorological data did not represent worst-case meteorological conditions at the site, as

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<sup>176</sup> ED Ex. 13 at 22.

discussed in the next section. Further, Protestant argues that its witness, Mr. Tarr, ran the same model using different assumptions and conditions, which more closely resembled reasonable worst-case conditions. Mr. Tarr's model indicated that a full-impact analysis would be required for PM<sub>10</sub> for the annual average period, and that the ESLs for silica were exceeded by 3.0 to 4.0 times, using updated meteorological data and higher receptor heights of five feet rather than ground level.<sup>177</sup>

Applicant responded that ADMT found in its review that Applicant's modeling looked at worst-case assumptions and conditions to demonstrate that the emissions will not contribute to air pollution. Applicant points to Mr. Zimmerman's and Mr. Cherry's testimony that the AERMOD modeling program predicts a higher concentration than will actually occur at any particular off-site point.<sup>178</sup>

The ED agreed with Applicant that AERMOD provides a reasonable worst-case representation of potential impacts to demonstrate that the facility will not exceed NAAQS, a state property line standard, or will adversely affect human health or welfare. The model is designed to be conservative, according to the ED.

Based on the evidence and testimony, the ALJs are persuaded that appropriate worst-case conditions were used in the modeling as required and performed. The Applicant used the EPA-approved AERMOD air modeling program to provide a reasonable worst-case representation of potential impacts from the proposed facility. The evaluation incorporated the proposed hours and operating schedule as outlined in the application, applied the emissions authorized by the permit at the maximum throughput on an hourly and annual basis, analyzed the control efficiencies, and considered appropriate background and meteorological data. Proper procedures and guidelines were followed and the results were reviewed by the ADMT and determined to be acceptable. Therefore, the ALJs conclude that Applicant used proper worst-case assumptions and conditions to conduct the modeling.

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<sup>177</sup> Prot. Ex. JT-4a, Prot. Ex. JT-6a, Prot. Ex. JT-8, Prot. Ex. JT-5a, Prot. Ex. JT-7.

<sup>178</sup> Tr. at 162; ED Ex. 36 at 9.

## 2. Number of Years for Analyses

Protestants assert that the 1988 surface meteorological data (met data) used in Applicant's model from the Dallas/Fort Worth and Stephenville, Texas area was out-of-date, not representative of the most current data available on TCEQ's website, and did not replicate the worst-case meteorological conditions for the EOG facility. Specifically, Mr. Zimmerman used the National Weather Service (NWS) surface met data for 1988 from Dallas/Fort Worth and NWS upper air met data from Stephenville for both the short-term and long-term modeling. Meteorological conditions are relevant to modeling because it helps predict where airborne particles will disperse in the atmosphere, influenced by wind speed, wind direction, temperature, humidity, station pressure, amount of incoming solar radiation, and insulating cloud cover.<sup>179</sup>

Mr. Zimmerman testified that he used one year of met data, 1988, because that was what was agreed to by the ADMT team (Mr. Buller and ADMT team-member Daniel Jamison) at the meeting required to discuss the modeling protocol.<sup>180</sup> Although there were five years of met data available on the TCEQ website, Mr. Zimmerman testified that he used 1988 out of the five-year block of data from 1985 to 1990, after he was directed to use that year because that year had "the most [weather] stations that had complete datasets."<sup>181</sup>

Mr. Zimmerman confirmed, however, that he is aware that there is a new set of met data from the NWS.<sup>182</sup> He agreed that the new met data was: (1) gathered at the airport in Denton, Texas, which is 32 miles from Gainesville; (2) for the years 2006 to 2010; (3) processed with the 2011 version of AERMET; and (4) currently posted on the TCEQ website.<sup>183</sup> Mr. Zimmerman testified that in January 2012 at the ADMT protocol meeting, he was told by Mr. Buller that the Denton meteorological data (Denton met data) was not ready for publication on the TCEQ

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<sup>179</sup> Tr. at 309.

<sup>180</sup> Tr. at 197.

<sup>181</sup> Tr. at 209-11.

<sup>182</sup> App. Ex. 1 at 6.

<sup>183</sup> Tr. at 198-99.

website.<sup>184</sup> Besides, Mr. Zimmerman noted that he completed and submitted his modeling report on February 14, 2012, while the Denton met data was not available on the TCEQ website until months later, on December 20, 2012.<sup>185</sup>

The Applicant and ED agreed that the modeling was compliant with then-current guidelines published by TCEQ. In particular, the following information was published in the Air Quality Modeling Guidelines prepared by the TCEQ New Source Permits Division and dated February 1999: “Short Term Meteorological Data. For state permit applications, *use data for 1988 or 1989 as specified in Appendix C.*”<sup>186</sup> Appendix C of the Guidelines states “the required year for short-term modeling is currently 1988 (1989 for Shreveport data sets),” and contains a listing of meteorological stations and counties in order to “standardize the selection of met data for Texas permit applications.”<sup>187</sup> A table is also provided in Appendix C for NWS upper-air stations. According to Appendix C, for Cooke County, the surface data to use is Dallas/Fort Worth, while the upper air data is Stephenville, Texas.<sup>188</sup>

The Guidelines also provide that for long-term modeling the “required years for long-term state modeling are currently 1985 through 1989 (1985-1987, 1989-1990 for Shreveport).”<sup>189</sup> Protestant argues that even if the ADMT team did agree on the use of 1988 for short-term modeling, the guidelines specifically state that for long-term analysis, five years of met data is to be evaluated. Protestant contends that the updated Denton met data was available (but not on the TCEQ website), in August 2011, when Mr. Zimmerman started working on his model. Further, when Mr. Tarr used the updated data in his modeled results, he found that different years produced different results. For instance, Mr. Tarr found that the highest computed concentration

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<sup>184</sup> Tr. at 205.

<sup>185</sup> App. Ex. 12.

<sup>186</sup> ED Ex. 22 at 52. (emphasis added).

<sup>187</sup> ED Ex. 22 at C-1.

<sup>188</sup> ED Ex. 22 at C-3.

<sup>189</sup> ED Ex. 22 at C-1.

off-site at one location did not necessarily occur the same year at another location.<sup>190</sup> Therefore, Applicant's modeling should have analyzed at least five meteorological years, according to Protestant.

TCEQ ADMT Project Leader Mr. Cherry testified that the Applicant properly used the 1988 data recommended by TCEQ for modeling short- and long-term exposure. He explained that for "federal reviews,"<sup>191</sup> e.g. a "major source review," five years of met data is required for modeling, but for "state reviews" such as the EOG project, only one year of data is required for both long-term and short-term modeling.<sup>192</sup> According to Mr. Cherry, the year 1988 was chosen because 1988 was a leap year and therefore, there was an extra 24-hour period for the model to determine the worst-case conditions.<sup>193</sup> He also testified that daily weather conditions can vary within a given year but the worst-case conditions that occur during a year are typically the same as other years.<sup>194</sup> Mr. Cherry stated that with 8,700 hourly samples gathered for 1988 and used for analysis, "the worst-case meteorological conditions have been sufficiently represented in the dataset."<sup>195</sup> Lastly, according to Mr. Cherry, it is still the current practice at TCEQ to require only one year of data for short- and long-term meteorological modeling.<sup>196</sup>

The ALJs find that the Applicant used the acceptable met data recommended by TCEQ ADMT team for a minor source: a single year, 1988, of met data for Cooke County. The ALJs note that the last time the TCEQ Air Modeling Guidance document was revised was in February 1999, and it is still being used today. The ALJs find the testimony persuasive that the reason that a standard date and location is chosen, such as directed by Appendix C of the

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<sup>190</sup> Prot. Ex. JT-4, Prot. Ex. JT-5, Prot. Ex. JT-6.

<sup>191</sup> A federal review refers to a "major source," defined as any source belonging to a list of 28 source categories found in 40 CFR § 52.21(b)(1) which emits or has the potential to emit 100 tons-per-year of any regulated pollutant. Tr. at 501, ED Ex. 22 at xvi (page 271).

<sup>192</sup> ED Ex. 36 at 8.

<sup>193</sup> ED Ex. 36 at 8.

<sup>194</sup> ED Ex. 36 at 9.

<sup>195</sup> ED Ex. 36 at 9.

<sup>196</sup> Tr. at 503, 509.

Guidelines, is that it provides uniformity to have all applicants use the same met data so that Staff has an opportunity to review and compare the modeling. Hence, when Applicant's modeling was submitted on February 14, 2012, nearly all other required modeling from 1999 to 2012 submitted by other applicants had used the same met data (adjusted for location, but not year), allowing the ADMT some standardization in evaluating the results. Further, the ALJs are persuaded by ADMT team leader Mr. Cherry's assurance that with 8,700 met samples per year, he is reasonably certain that the worst-case conditions that occur during a year are typically the same as other years, and therefore, adequately represented in the data. Lastly, it was shown that Applicant followed the protocol prescribed by the ADMT team, which ostensibly has the expertise to direct the modeling process. Accordingly, the ALJs conclude that Applicant's use of the year 1988 acceptably represented meteorological "worst-case" conditions for short- and long-term modeling, as directed by TCEQ ADMT and its Guidelines.

### **3. Source of Meteorological data (DFW/Denton)**

Applicant maintained that, although there is a new set of met data from the NWS station at the Denton airport covering 2006 to 2010, it should not have been required to apply untested methodologies to replace or supplement its modeling. Applicant points out that at the time of completion of the modeling, the Denton met data was neither published on the TCEQ website, nor discussed at the protocol meeting with the ADMT team. Furthermore, Mr. Zimmerman testified that he did not believe that using the met data from Dallas (Dallas met data) presented any different weather conditions than the Denton met data, given that Dallas and Denton are only 30 miles apart.<sup>197</sup>

Protestant disputed that there was no significant difference between using the 1988 Dallas met data and the 2006-2010 Denton met data. Protestant pointed out that the Denton met data benefited from the use of current technology. Specifically, in a March 8, 2013 memoranda authored by EPA Air Quality Modeling Group Leader Tyler Fox, Mr. Fox discusses the use of

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<sup>197</sup> Tr. at 308-09.

the Automated Surface Observing System (ASOS) to record hourly meteorological observations.<sup>198</sup> Mr. Fox provided a brief history of the evolution of the met data gathering processing. According to the memo, prior to the early 1990s, standard hourly NWS meteorological observations were human-observer-based. Beginning in 1991, NWS began using ASOS to record hourly observations.<sup>199</sup> Then, in 2011, the EPA began using AERMINUTE to “minimize data gaps by substituting [AERMINUTE data] for hours that were calm or missing due to variable or missing winds . . . .”<sup>200</sup>

The memo also explains the difficulties inherent in the transition to automated weather gathering devices, termed the “issues and challenges with the use of airport data for purposes of dispersion modeling.”<sup>201</sup> In particular, unlike human observers, ASOS was not as proficient at distinguishing degrees of cloud cover, recording cloud height over 12,000 feet, taking instantaneous temperature readings versus 30-second samples, or replicating the 1-minute average wind speeds that were previously used as the standard for wind speed and direction.<sup>202</sup> Thus, the memo states that “limitations associated with ASOS [have] raised concerns within the dispersion modeling community regarding the adequacy of ASOS data for such [modeling] purposes.”<sup>203</sup> In response to the “modeling community” concerns, the EPA memo recommends that lower wind speeds recorded at 0.5 meters per second or below be eliminated (treated as calms) so that the revised datasets using ASOS and AERMINUTE would be consistent with past datasets which had a threshold of 1.0 to 1.5 meters per second wind speeds recorded.<sup>204</sup>

To address the March 2013 EPA memo, Mr. Cherry testified that the inclusion of very low wind speeds of 0.5 meters or below, termed a “calm wind bias,” in the new met data, such as

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<sup>198</sup> App. Ex. 26 at 1.

<sup>199</sup> App. Ex. 26 at 1-2.

<sup>200</sup> App. Ex. 26 at 9.

<sup>201</sup> App. Ex. 26 at 1.

<sup>202</sup> App. Ex. 26 at 2.

<sup>203</sup> App. Ex. 26.

<sup>204</sup> App. Ex. 26 at 13; Tr. at 310 and 523-26.

the Denton met data, is presently being reviewed and revised by the ADMT team. According to Mr. Cherry, new met data will be published soon on the TCEQ website in accordance with the March 2013 EPA recommendation to remove the calm wind bias.<sup>205</sup> He testified that when the revisions are made, he would expect that the 1988 Dallas met data and the 2010 Denton met data would be consistent again.<sup>206</sup>

Protestant's modeling expert, Mr. Tarr, used the updated Denton met data, which includes the very low wind speeds, and he re-ran Applicant's model with all the other input data used by Mr. Zimmerman in his modeling. The results of Mr. Tarr's modeling were as follows:

- (1) The de minimis or SIL level for  $PM_{10}$  of  $5.0 \mu\text{g}/\text{m}^3$  was exceeded. The modeling predicted a maximum 24-hour concentration off-site of  $5.8 \mu\text{g}/\text{m}^3$  as compared to Applicant's  $2.2 \mu\text{g}/\text{m}^3$  finding. Therefore, a full impact analysis would be required.<sup>207</sup>
- (2) The ESL levels for silica of  $0.27 \mu\text{g}/\text{m}^3$  for long-term exposure and  $14 \mu\text{g}/\text{m}^3$  for short-term exposure were exceeded. The modeling predicted a maximum annual (long-term) average silica concentration off-site as  $0.74 \mu\text{g}/\text{m}^3$  as compared to Applicant's  $GLC_{\text{max}}$  value of  $0.44 \mu\text{g}/\text{m}^3$ . The modeling also predicted a maximum 1-hour (short-term) average silica concentration off-site as  $50 \mu\text{g}/\text{m}^3$  as compared to Applicant's  $GLC_{\text{max}}$  value of  $16.4 \mu\text{g}/\text{m}^3$ .<sup>208</sup>

The ALJs are cognizant that there is met data that is much more site-specific and current than the met data from Dallas used by Applicant. Based on the evidence and argument, however, the ALJs conclude: (1) the Applicant used the data that was available on the TCEQ website and as directed by the ADMT team; (2) the Denton met data was not available to Applicant at the time of the modeling and any modeling done with the Denton met data would not have complied with TCEQ protocol and published guidelines; (3) the Denton met data as posted on the TCEQ website contains the calm wind bias, or wind speeds recorded of 0.5 meters

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<sup>205</sup> ED Ex. 36 at 9.

<sup>206</sup> ED Ex. 36 at 9.

<sup>207</sup> Prot. Ex. JT-1 at 11. A full impact analysis does not show a NAAQS exceedance for  $PM_{10}$  (see section IIE.).

<sup>208</sup> Prot. Ex. JT-1 at 12; JT-8, JT-7.

per second or below, that is the subject of a March 2013 EPA memo recommending removal of this data from ASOS-AERMINUTE-generated met data; (4) the calm wind bias has raised concerns in the modeling community because the new met data is largely inconsistent with historical datasets; (5) without the calm wind bias, the Denton and Dallas met data should be compatible with the 30-mile distance between the two cities and consistent with historical data that has been gathered at the Dallas airport for decades; and (6) the current Denton met data will soon be obsolete as the TCEQ revises the Denton met data to remove the calm wind bias as recommended by the EPA memo.

Further, even if the ALJs were to suggest that a remand would be appropriate to consider the more current Denton met data in the modeling, the March 2013 EPA memo indicates that the Denton met data is flawed, has caused concern with the modeling community, and will shortly be obsolete as the calm wind bias is removed. The Applicant could then be subjected to even more rounds of modeling to comply with the newly-revised met data. With the upcoming revisions to the met data, the 1988 data provides a reliable and uniform methodology to determine worst-case conditions, without the uncertainty caused by the inclusion of the very low-speed winds. Further, the ALJs are persuaded that a 30-mile distance from Dallas to Denton should provide little difference in weather conditions, in light of the 8,700 hourly readings that compose the 1988 met data sample. Thus, the ALJs conclude that the Applicant properly used the 1988 Dallas met data, which did not contain the calm wind bias, in its modeling.

#### **D. BACT (trucks vs. conveyors)**

As noted in the previous discussion of roads, EOG proposes to construct an enclosed conveyor system to transport material from the quarry to the processing plant. Waste material will be returned to the quarry by trucks. EOG acknowledges that the conveyor system will generate fewer emissions than trucks over roads.<sup>209</sup>

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<sup>209</sup> App. Ex. 28 at 2, 8, 10; Tr. at 32-35, 56, 59-60.

Protestant argues that EOG's use of trucks represents a failure to apply BACT to the project, because conveyors generate lower emissions than roads. EOG and the ED argue that there is no requirement that the company use a conveyor system at all -- EOG could have used trucks and roads for the entire operation.<sup>210</sup>

As applied to the application, BACT is defined in the Commission's rules as a control method that only applies to a facility:

An air pollution control method for a new or modified facility that, through experience and research, has proven to be operational, obtainable and capable of reducing or eliminating emissions from the facility.<sup>211</sup>

As previously discussed, roads are specifically excluded from the definition of facility by the TCAA and the Commission's rules. As a result, the ED and EOG argue that BACT does not apply to roads.<sup>212</sup> For RRMT, the idea that roads are not subject to BACT review, exacerbates the fact that roads also produce greater emissions than conveyors. RRMT argues that this is another example of how EOG is attempting to circumvent the intent of the TCAA, which is to minimize emissions from a project to protect the health and welfare of the public.

The ALJs' analysis here is the same as for roads and the quarry -- the definition of facility governs this issue. Under the TCAA and the Commission's rules, BACT only applies to facilities, and a road is excluded from the definition of a facility. The ALJs conclude that BACT does not apply to roads at the proposed plant.

#### **E. NAAQS for PM<sub>10</sub> (full impact analysis)**

Protestant argues that the use of the Denton met data by Applicant would have resulted in a maximum modeled concentration that exceeded the SIL/de minimis level for the 24-hour PM<sub>10</sub>

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<sup>210</sup> Tr. at 398-99.

<sup>211</sup> 30 TAC § 116.10(1).

<sup>212</sup> Tr. at 60.

and would have necessitated a full impact analysis. A full impact analysis would require that the TCEQ's screening background concentrations for Cooke County of  $60 \mu\text{g}/\text{m}^3$  be added to the maximum modeled concentrations for  $\text{PM}_{10}$  to determine if the NAAQS standard was violated.<sup>213</sup> Applicant and the ED, however, assert that the Applicant correctly used the 1988 Dallas met data to predict a  $\text{PM}_{10}$  level of  $2.2 \mu\text{g}/\text{m}^3$ , which is below the SIL of  $5 \mu\text{g}/\text{m}^3$ , and therefore no full impact analysis was necessary.

The ALJs conclude that a NAAQS full impact analysis would not have resulted in a different outcome: Even assuming that a full impact analysis was required, the evidence shows that the concentration of  $\text{PM}_{10}$  would not exceed the NAAQS Standard.<sup>214</sup> Mr. Tarr's maximum modeled concentration of  $\text{PM}_{10}$  was  $5.8 \mu\text{g}/\text{m}^3$ , using the new Denton met data, and with no other input adjustments. When TCEQ's screening background concentration for Cooke County of  $60 \mu\text{g}/\text{m}^3$  is added to the  $5.8 \mu\text{g}/\text{m}^3$  maximum modeled concentration of  $\text{PM}_{10}$ , the result is  $66 \mu\text{g}/\text{m}^3$ . The short-term (24-hour)  $\text{PM}_{10}$  NAAQS standard is  $150 \mu\text{g}/\text{m}^3$ , and  $66 \mu\text{g}/\text{m}^3$  does not exceed this standard. Therefore, the ALJs conclude that even if a NAAQS full impact analysis was required when the Denton met data was modeled, the result would not have demonstrated an exceedance of the NAAQS.

#### **F. Silica Evaluation**

ESLs are used and published by the TCEQ Toxicology Division to evaluate the potential for effects to occur as a result of exposure to non-criteria constituents in the air.<sup>215</sup> Of the contaminants for which there are ESLs, only one will be emitted by Applicant in significant quantities: crystalline silica. According to the Toxicology Division guidelines, exposure to crystalline silica (composed of respirable quartz) occurs primarily in the workplace,<sup>216</sup> and is

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<sup>213</sup> App. Ex. 30 at 14.

<sup>214</sup>  $\text{PM}_{10}$  does not have an annual NAAQS.

<sup>215</sup> ED Ex. 37.

<sup>216</sup> App. Ex. 8 at 8.

present in 255 industries, including mining, foundries, metallurgical operations, ceramics, cement, glass industries, construction, sandblasting, agriculture, and denture manufacturing.<sup>217</sup>

TCEQ staff has published an air permit reviewer reference guide entitled “Modeling and Effects Review Applicability: How to Determine the Scope of Modeling and Effects Review for Air Permits” (MERA).<sup>218</sup> According to MERA, there are three tiers available to evaluate the health and welfare effects of emissions:<sup>219</sup>

**Tier One review** is required only if all off-property short- and long-term maximum ground level concentration, or  $GLC_{max}$ , are below the ESLs for the constituent under review;

**Tier Two review** is only required if the  $GLC_{max}$  occurs on industrial property only and does not exceed the ESL by more than 2 fold; and

**Tier Three review** occurs if the  $GLC_{max}$  occurs in a non-industrial area, i.e. residential or commercial area, and/or the ESL is exceeded by more than 2 times.

Because EOG’s modeling showed that an ESL was exceeded at a non-industrial area (the exceedance for silica occurred along the Applicant’s property line adjacent to undeveloped land and surrounded by the Applicant’s property), a Tier Three review was required to be performed by the Toxicology Division in this case.<sup>220</sup> A Tier Three review requires analysis of case-specific factors that have a bearing on exposure: surrounding land use, magnitude of the concentration, the frequency of exceedence, the type of toxic effect (acute or chronic), the margin of safety between the toxicity value and known effects levels, degree of confidence in toxicity database, and acceptable reductions from existing ground level concentrations.<sup>221</sup>

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<sup>217</sup> App. Ex. 8 at 8.

<sup>218</sup> ED Ex. 33.

<sup>219</sup> ED Ex. 33 at 29.

<sup>220</sup> As described in the MERA, and used in the Tier Three analysis, “non-industrial” property is defined as residential, recreational, commercial, business, agricultural; or a school, hospital, day-care center, or church; or a right-of-way, waterways, or the like. Further, if the property with a receptor is located in an unzoned or undeveloped area, it is treated as non-industrial.

<sup>221</sup> ED Ex. 33 at 29-30.

TCEQ Senior Toxicologist Angela Curry evaluated the potential adverse health effects of silica beginning at the property line of the proposed plant based on the assumption that all of the sand, gravel, and soil mined at the facility were 100% crystalline silica. She predicted the short-term (1-hour) maximum ground level concentration, ( $GLC_{max}$ ) modeled for silica would be  $16.4 \mu\text{g}/\text{m}^3$ , while the short-term non-industrial maximum ground level concentration ( $GLC_{ni}$ ) would be  $15 \mu\text{g}/\text{m}^3$ . Because the short-term ESL for silica is  $14 \mu\text{g}/\text{m}^3$ , Ms. Curry concluded that the short-term ESL for silica was exceeded at the  $GLC_{max}$  by 1.17 times (or the ratio of the  $GLC_{max}$  of  $16.4 \mu\text{g}/\text{m}^3$  to the ESL of  $14 \mu\text{g}/\text{m}^3$ ) and exceeded at the  $GLC_{ni}$  by 1.07 times (or the ratio of the  $GLC_{max}$  of  $15 \mu\text{g}/\text{m}^3$  to the ESL of  $14 \mu\text{g}/\text{m}^3$ ).

Ms. Curry also predicted the long-term (annual)  $GLC_{max}$  would be  $0.44 \mu\text{g}/\text{m}^3$ , while the long-term  $GLC_{ni}$  would be  $0.19 \mu\text{g}/\text{m}^3$ . Ms. Curry concluded that the annual ESL for silica, which is  $0.27 \mu\text{g}/\text{m}^3$ , was therefore exceeded at the  $GLC_{max}$  by 1.63 times (or the ratio of the annual  $GLC_{max}$  of  $0.44 \mu\text{g}/\text{m}^3$  to the annual ESL of  $0.27 \mu\text{g}/\text{m}^3$ ). Ms. Curry noted that the  $GLC_{max}$  ESL exceedances for both the 1-hour and annual times were found to be on FM 373 that cuts through the northeast section of the property. The  $GLC_{ni}$  values for both the 1-hour and annual times occurred at the north property line of the privately owned land, which is inset within the site.<sup>222</sup>

Ms. Curry testified that she considered all the factors in her Tier Three review and arrived at the conclusion that the predicted silica concentrations are “allowable.”<sup>223</sup> The term “allowable” means that the predicted ground level concentrations are not “acceptable” but the permit engineer has provided justification to the Toxicologist Division that the predicted GLCs are not likely to occur or that they occur in a location where public access is limited.<sup>224</sup> “Acceptable” denotes that adverse health or welfare effects would not be expected as a result of

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<sup>222</sup> App. Ex. 16 at 28. A map shows the inset property surrounded by EOG property.

<sup>223</sup> ED Ex. 37 at 13-15.

<sup>224</sup> ED Ex. 33 at 28. The term “permit engineer” refers to EOG’s engineer.

exposure to a given constituent.<sup>225</sup> “Unacceptable” means that there may be a potential for adverse effects to occur as a result of exposure to a given constituent concentration.<sup>226</sup>

In arriving at her result that the silica concentrations are allowable, or “not expected to cause adverse health effects,” Ms. Curry testified that she analyzed the following factors:<sup>227</sup>

Surrounding Land Use. The terrain was described as sparsely populated rolling hills with a mix of pastureland, hardwoods, cultivated land, and uncultivated land. Because the maximum concentration occurs along the Applicant’s property line adjacent to undeveloped land and surrounded by the Applicant’s property, it was conservatively reviewed as non-industrial property, (or  $GLC_{ni}$ ). The off-road motorcycle park was also considered as non-industrial property.<sup>228</sup>

The magnitude and frequency of the ESL exceedance. The magnitudes for the short-term ESL exceedances showed that the  $GLC_{max}$  was exceeded by 1.17 times and exceeded at the  $GLC_{ni}$  by 1.07 times. Additionally, the predicted frequency of the short-term ESL exceedance at the  $GLC_{max}$  is 5 hours per year and 1 hour per year at the  $GLC_{ni}$ . According to Ms. Curry, adverse health effects would not be expected from the exposure to these small magnitudes and frequencies.

The type of toxic effect caused by the constituent. The primary health concern for silica results from long-term exposure. Silicosis is the most sensitive health effect resulting from exposure to crystalline silica. TCEQ considers silica to be carcinogenic to humans via inhalation and set its risk goal for the long-term ESL at a “no significant risk level” of  $1 \times 10^5$  (1 in 100,000) or 1 cancer death per 100,000 population, which is

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<sup>225</sup> ED Ex. 33 at 28.

<sup>226</sup> ED Ex. 33 at 28.

<sup>227</sup> ED Ex. 37 at 13-15.

<sup>228</sup> Red River Motorcycles was modeled as special receptor 11, and showed that the modeling predicted a maximum annual average silica concentration of 0.054, which did not exceed the 0.27 ESL level for long-term exposure to silica. The predicted exposure of 0.054 was 20% of the ESL. App. Ex. 12 at 51.

within the range of what the EPA has designated as an acceptable risk range of  $1 \times 10^4$  (1 in 10,000) to  $1 \times 10^6$  (1 in 1,000,000).<sup>229</sup> According to Ms. Curry, the exceedances at the  $GLC_{max}$  occur in an area where public exposure is unlikely, and the long-term ESL is not exceeded at the  $GLC_{ni}$ . Additionally, the long-term ESL derived by the TCEQ Toxicology Division for silica is protective of a 70-year, 24-hour, 7-day a week exposure; the likelihood of the general public being exposed for this length of time is very low.<sup>230</sup>

The margin of safety between the toxicity value and known effects. The lowest observed adverse effect level as a result of exposure to silica occurred at  $10,000 \mu\text{g}/\text{m}^3$ , according to Ms. Curry. Ms. Curry concludes that, because the short-term ESL is  $14 \mu\text{g}/\text{m}^3$ , the ESLs are set at levels well below health effects levels and are set to protect against adverse health and welfare effects for all members of the general public, including sensitive subgroups.

Degree of confidence in the database. According to Ms. Curry, the TCEQ guidelines for developing ESLs were peer-reviewed outside of TCEQ by experts in inhalation toxicology and risk assessment. She concludes that the guidelines and the ESLs calculated from them are scientifically-sound assessments of a chemical's potential for adverse health effects.

Existing levels of the same constituent. Ms. Curry reviewed an aerial map of the proposed plant and confirmed that there were no other industrial facilities in the area. Therefore, she determined that there was no other facility with silica emissions, and that existing levels of the same constituent were unlikely.

Acceptable reductions from existing ground level concentrations. Because this was a new facility, Ms. Curry found there were no existing GLCs to review.

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<sup>229</sup> ED Ex. 37 at 13.

<sup>230</sup> ED Ex. 37 at 13.

Ms. Curry concluded, therefore, that based on her Tier Three review, the silica concentrations are not expected to cause adverse health effects.

### 1. Worst-Case Scenario/Conditions

Protestant argues that because all of the sources of silica were not incorporated in the modeling and the met data did not represent the “worst-case” conditions, the health effects evaluation by both Ms. Curry and Dr. Dydek were unreliable and cannot support the permit. For instance, Protestant argues that 5 years of met data should have been analyzed rather than just a single year. Protestant also argues that background concentrations should have been considered, as it is with the evaluation of PM<sub>10</sub>.

OPIC argued that *all* potential sources should be considered for a complete Tier Three ESL evaluation, rather than just those sources arising from the “facility,” which excludes the mine, quarry, well test, or road. OPIC points out that “source” is defined as “a point of origin of air contaminants, whether privately or publicly owned or operated,” while “air contaminants” is defined as “particulate matter, radioactive material, dust, fumes, gas, mist, smoke, vapor, or odor, including any combination of those items, produced by processes other than natural.”<sup>231</sup> Thus, the definition of “source” does not have the exclusions found in the definition of “facility.”

OPIC points out that Ms. Curry only considered the emission sources provided by the modeling, which did not include roads or the quarry. Therefore, in order to evaluate the potential effects of silica, the worst-case scenario should include all sources, including the roads and the quarry, and not just facility sources.

Applicant responded that Mr. Zimmerman made very conservative assumptions in his modeling: that 100% of the PM<sub>10</sub> and PM<sub>4</sub> was silica and that all sources at the proposed plant

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<sup>231</sup> Tex. Health & Safety Code § 382.003 (2), (12).

were operating simultaneously at their maximum proposed rates. Further, the silica emission calculations were accepted by TCEQ as a conservative estimate of the silica emission rate.

The ED argues that the air modeling conducted by Applicant and audited by Mr. Cherry demonstrated reasonable worst-case assumptions and conditions in the modeling demonstration.

The ALJs conclude that the worst-case conditions were considered in the Tier Three review. According to MERA, emissions of any emitted constituents must be evaluated and *modeled impacts* must be compared to existing ESLs to evaluate potential health effects. Accordingly, MERA recognizes and requires that the Applicant must submit modeled results for an ESL evaluation. Because roads and the quarry are not considered in the modeling (as discussed in a previous section), the Applicant was in compliance with MERA in submission of the modeling to evaluate silica emissions from the facility only.

The ALJs also find that Applicant used worst-case conditions in the modeling. For instance, although silica is assumed to be that portion of emissions which is 4 microns or less, or PM<sub>4</sub>, the modeling performed by Applicant assumed that all PM<sub>10</sub> particulate matter (or 2.2 µg/m<sup>3</sup>) was silica and included this in the ESL evaluation, which created an extra layer of safety in the Tier Three evaluation. Also, Applicant modeled all sand as silica, although sand could be made of several types of particulate matter such as rocks, soil, or other materials. As to the met data, Applicant used the Dallas met data, which the ALJs have determined to be reliable, given the uncertainty created by the recent EPA recommendation to revise the data once more. Thus, the ALJs are persuaded that the worst-case conditions were considered in the Tier Three review conducted by the TCEQ Toxicology Division.

## **2. Exceedance of ESL**

Applicant presented the testimony of Dr. Dydek, who agreed that there will be no adverse human health or welfare effects caused by silica emissions from the facility. Dr. Dydek pointed out that ESLs are set at extremely low levels designed to protect the most sensitive members of

the population, including children, the elderly, and people with pre-existing disease.<sup>232</sup> According to Dr. Dydek, ESLs are also set at levels that are 100 to 1,000 times lower than exposure levels that are designed to be safe in an occupational setting. Dr. Dydek testified that background concentrations are not needed because ESLs are set at sufficiently conservative levels so that there will be no adverse health or welfare effects even if there are background contributions from nearby sources.

Dr. Dydek opined that, based on the 1 hour per year potential exceedance of an ESL on vacant land surrounded by Applicant's property, and the 5 hours per year potential ESL exceedance on the road or its right-of-way, there is very little chance that the general public would spend any significant amount of time of the road, its right-of-way, or the vacant land during the few hours in a year when the maximum impacts could exceed the ESL.<sup>233</sup> Further, he pointed out that the modeling did not show any exceedances of the 1-hour ESL at any residential or commercial location near the site, including the Red River Motorcycle Trails.

Lastly, Dr. Dydek distinguished between "freshly fractured" and "aged" silica particles.<sup>234</sup> He pointed out that studies have shown that freshly fractured silica particles are more likely to cause lung damage than aged silica particles and that the TCEQ ESLs are based on studies of mine workers who have been exposed to significant amounts of freshly-fractured silica. According to Dr. Dydek, the operations at the proposed EOG facility (extraction of sand but no crushing) are not energetic enough to cause much, if any, fracturing of silica particles, according to the National Institute for Occupational Safety and Health. Thus, Dr. Dydek concludes that the ESLs are more health-protective than the types of silica emissions that will occur at the facility.

Protestant presented the testimony of Dr. Kleinman, who analyzed Mr. Tarr's modeling results. In particular, Mr. Tarr used the updated Denton met data and also set the receptors at a

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<sup>232</sup> App Ex. 30 at 18.

<sup>233</sup> App Ex. 30 at 20.

<sup>234</sup> App Ex. 30 at 23.

5-foot height to emulate a person's nose and mouth height (rather than using the ground level concentration standards pursuant to TCEQ guidelines). Using these modeling parameters, Dr. Kleinman noted that Mr. Tarr found that the short-term (1-hour) maximum off-site concentration was computed to be over 3 times the ESL, or  $50 \mu\text{g}/\text{m}^3$  compared to the ESL of  $14 \mu\text{g}/\text{m}^3$ . Similarly, the annual maximum off-site concentration was calculated to exceed the ESL by threefold, or  $0.74 \mu\text{g}/\text{m}^3$  compared to  $0.27 \mu\text{g}/\text{m}^3$ .<sup>235</sup>

Dr. Kleinman testified that he had several concerns with the ESL review procedures, particularly when considering Mr. Tarr's modeling results. Dr. Kleinman testified that the ESLs are based on sampling methods that have a bias towards larger particles.<sup>236</sup> He pointed out that there are more modern methods available to accurately measure silica exposure, particularly when smaller particles are more toxic. Dr. Kleinman also testified that the unit risk factors, or human cancer risk level, evaluated for chronic silica exposure are based on rat experimental data. He testified that body surface is not taken into account with the ESLs in considering the risk to humans.<sup>237</sup>

Dr. Kleinman also explained that the ESLs were developed by applying safety factors to existing standards that are used for regulating workplace exposures.<sup>238</sup> He noted that residents can be exposed 24 hours per day, while workers are only exposed 8 hours per day. Lastly, Dr. Kleinman disagreed with Dr. Dydek and testified that operations at a sand and gravel plant can break down larger materials and release fresh silica.<sup>239</sup>

The ALJs conclude that the evidence supports a finding that the health effects review was properly conducted and that the proposed facility will not adversely impact health, welfare, or physical property. Because the maximum predicted off-site silica concentration occurred on

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<sup>235</sup> Prot. Ex. MK-1 at 7.

<sup>236</sup> Prot. Ex. MK-1 at 9-10.

<sup>237</sup> Prot. Ex. MK-1 at 23-24.

<sup>238</sup> Prot. Ex. MK-1 at 23.

<sup>239</sup> Prot. Ex. MK-1 at 6.

non-industrial property, the MERA Tier Three case-specific factors for determining whether the exceedances are allowable were triggered. The evidence showed that there is no long-term ESL exceedance at the  $GLC_{ni}$  and the long-term  $GLC_{max}$  is predicted to occur in a location where prolonged exposure by the general public is unlikely and in short duration, if it does occur. Members of the public at most could be exposed for just a few hours per year at a location that is generally not accessible or used by the public. With the infrequency of the event and the conservative modeling, the ALJs conclude that adverse health effects are very unlikely to occur.

The ALJs are also persuaded that TCEQ uses a conservative methodology in its evaluation of silica. Specifically, the TCEQ Toxicology Division has set its risk goal for the long-term ESL at a no significant risk level of  $1 \times 10^5$  (1 in 100,000) or 1 cancer death per every 100,000 exposed, which is within the range of what the EPA has designated as an acceptable risk range of  $1 \times 10^4$  (1 in 10,000) to  $1 \times 10^6$  (1 in 1,000,000). This lifetime cancer risk of 1 in 100,000 is ten times more stringent than the highest level that the EPA deems acceptable. Thus, the predicted long-term ESL of  $0.27 \mu\text{g}/\text{m}^3$  could be exceeded by 10 times (or  $2.7 \mu\text{g}/\text{m}^3$ ) and still be within the acceptable range as determined by EPA.

The ALJs find that there is no guideline or precedent for setting the receptors heights at 5 feet as modeled by Mr. Tarr, and which yielded the result of a three-fold exceedance of the ESL for silica. Instead, the standard for evaluating health effects is to compare the ground level concentrations for this constituent.

Lastly, the ALJs are convinced of the accuracy of Dr. Dydek's assessment that there will be minimal freshly-fractured silica at the sand processing plant. Dr. Dydek testified that, according to the National Institute for Occupational Safety and Health, the extraction of sand, with no crushing, would cause minimal fracturing of silica particles. Although the magnitude of the ESL exceedance or the type of toxic effect caused by the constituent must be considered in the Tier Three review, Ms. Curry did not raise the issue of fractured silica particles in her evaluation of these issues. Moreover, Dr. Kleinman did not provide any specific information about the operation that contradicted the application, which does not show any crushing

equipment is used in the sand processing operation. The ALJs are thus persuaded that the plant should not result in any health consequence to the general public due to the presence of freshly-fractured silica.

Thus, based on the evidence, the ALJs agree with the assessment made by the TCEQ toxicologist that the evidence supports a finding that no adverse health effects are anticipated from the expected concentrations of silica.

### **G. Special Conditions in the Draft Permit**

Special conditions in the Draft Permit require EOG to take corrective action if “visible emissions” are detected leaving the site.<sup>240</sup> RRMT argues that such special conditions will be ineffective in controlling emissions, because there was testimony that it would be difficult, if not impossible, to detect such emissions at night.<sup>241</sup>

Protestant’s claim regarding emissions at night is based on the testimony of Mr. Buller. Under cross-examination, Mr. Buller testified that emissions cannot be monitored at night, and there is no permit provision that applies to emissions at night.<sup>242</sup> The ED points out, however, that Mr. Buller has not been trained as, nor is he an expert in, environmental investigations or enforcement procedures. Instead, his expertise is in the review of engineering aspects of state air quality permit applications.<sup>243</sup>

The ED and EOG assert that the best witness to discuss whether TCEQ investigators can detect emissions at night was Alyssa Taylor, the TCEQ’s DFW Regional Air Section Manager. Ms. Taylor has thirteen years of experience, including monitoring visible emissions at night. She explained that if a complainant alleges violations or nuisance conditions are occurring at night,

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<sup>240</sup> App. Ex. 3 at 1-3.

<sup>241</sup> Tr. at 403.

<sup>242</sup> Tr. at 403.

<sup>243</sup> ED Ex. 35 at 675-76.

the region will conduct a nighttime investigation, and Commission investigators have the authority to enter a regulated plant at night. She stated that all TCEQ investigators attend Smoke School, where they learn how to read opacity. While it may be more difficult to monitor visible emissions at night, Ms. Taylor stated it is possible. For example, she testified that lights at the facility would enable an investigator to see visible emissions at night. She noted it is unlikely that any company would operate a facility in complete darkness.<sup>244</sup>

The ED reiterates that representations in the application are enforceable and an applicant must comply with permit general and special conditions.<sup>245</sup> In addition, the Draft Permit and special conditions were provided to the TCEQ Region 4 office for comment. Although Neal Penny, a TCEQ regional investigator, suggested changes to the Draft Permit, those suggested changes were unrelated to permit enforceability at night.<sup>246</sup>

Mr. Buller's testimony that emissions cannot be monitored at night and there is no permit provision that applies to emissions at night, is not within his area of expertise. The ALJs find that Ms. Taylor possesses the expertise to opine on whether emissions at night are detectable. She clearly testified that TCEQ investigators have the experience, training, and means to detect emissions at night, despite some difficulties. Ms. Taylor noted that TCEQ investigators conduct investigations at night and on weekends. If emissions are detected, then they have the option of requesting monitoring by the Commission's mobile response team, which can deploy extremely sensitive equipment. Based on the evidence, the ALJs find that the conditions in the Draft Permit are enforceable, including the Commission's ability to detect particulate matter and silica emissions at night.<sup>247</sup>

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<sup>244</sup> Tr. at 908, 922-23, 931.

<sup>245</sup> 30 TAC § 116.115.

<sup>246</sup> Tr. at 436-38; ED Ex. 35 at 703-04; ED Ex. 18 (Response to Request for Comments – Draft Conditions).

<sup>247</sup> Tr. at 915-20, 922-23.

### III. ANALYSIS OF CONTESTED STATUTORY AND REGULATORY REQUIREMENTS

In accordance with the parties' agreed briefing outline, the ALJs now turn to an analysis of the contested statutory and regulatory requirements. It should be noted that some of the issues dealt with below have been addressed in Section II, above.

**A. Whether the permit application demonstrates that emissions from the proposed facilities will be protective of public health and welfare in accordance with 30 TAC § 116.111(a)(2)(A), including NAAQS.**

In order to be granted a permit, the application must include information which demonstrates that emissions from the facility will be protective of public health and welfare and comply with all TCEQ rules and the TCAA, in accordance with 30 TAC § 116.111(a)(2)(A), including NAAQS.

EOG contends that the application shows that emissions would be protective of public health and welfare because it identified all facilities to be permitted, applied BACT, committed to BMPs for emission sources not subject to regulation, and used emission factors and rates approved and recommended by TCEQ. Dr. Dydek reviewed the modeling and emission information, conducted an independent toxicological analysis, and concluded that the predicted emissions would not cause any adverse health or welfare effects to any potentially affected individuals. Furthermore, the public would only be exposed for a short period on a road, right-of-way, or unimproved land, and the NAAQS for PM<sub>10</sub> and PM<sub>2.5</sub> would not be exceeded even with the full impact analysis, according to Applicant.

Protestant asserts that Applicant has failed to consider all sources of emissions, including the road and quarry. Further, Applicant's failure to use the Denton met data and apply appropriate emissions factors in the modeling obscures the fact that PM<sub>10</sub> SIL and ESLs for silica will far exceed Applicant's modeled results.

The ED points out that the TCEQ permit reviewer was satisfied that the Draft Permit was protective of human health according to applicable standards; the TCEQ modeling auditor determined that the modeling was acceptable for all review types and pollutants; and that the TCEQ toxicologist concluded that the proposed plant would not adversely affect human health or welfare, animal life, or vegetation, or interfere with the normal use and enjoyment of animal life, or vegetation.

The ALJs find that evidence demonstrates that emissions from the proposed facility will be protective of public health and welfare in accordance with 30 TAC § 116.111(a)(2)(A), including NAAQS. Specifically, the application meets the requirements of 30 TAC § 116.111(a)(2)(A) because it includes information which demonstrates that emissions from the facility will be protective of public health and welfare and comply with all rules and regulations of the commission and the TCAA.

Further, the ALJs conclude that the Applicant has shown by a preponderance of the evidence that Applicant's air dispersion modeling of proposed particulate matter emissions is compliant with TCEQ directives and guidelines and produced appropriate results. The ALJs are persuaded that Applicant applied correct emission factors, applicable background concentrations, and valid meteorological data. Applicant also accurately considered road emissions and silica concentrations in its calculations. Accordingly, the ALJs find that the potential air emissions from the proposed facility will not adversely affect air quality, and the draft permit complies with the Texas Clean Air Act and other applicable state and federal requirements.

Accordingly, the ALJs conclude that the Applicant has demonstrated by a preponderance of the evidence that Applicant's air dispersion modeling of proposed particulate matter emissions was accurate and appropriate and will be protective of public health and welfare in accordance with 30 TAC § 116.111(a)(2)(A), including NAAQS.

**B. Whether the permit application demonstrates that the proposed facilities will utilize best available control technology in accordance with 30 TAC § 116.111(a)(2)(C).**

BACT must be evaluated for and applied to all facilities subject to the TCAA.<sup>248</sup> Specifically, 30 TAC § 116.111(a)(2)(C) states:

Best available control technology (BACT) must be evaluated for and applied to all facilities subject to the TCAA. Prior to evaluation of BACT under the TCAA, all facilities with pollutants subject to regulation under Title I Part C of the Federal Clean Air Act (FCAA) shall evaluate and apply BACT as defined in § 116.160(c)(1)(A) of this title (relating to Prevention of Significant Deterioration Requirements).<sup>249</sup>

BACT is “an air pollution control method for a new or modified facility that through experience and research, has proven to be operational, obtainable, and capable of reducing or eliminating emissions from the facility,<sup>250</sup> and is considered technically practical and economically reasonable for the facility.”<sup>251</sup>

The Applicant and the ED contend that the controls proposed by EOG meet or exceed BACT requirements as applied to operations of this type. These parties explain that BACT review mandates at least a 70% reduction in uncontrolled emissions. They contend that this will be achieved by permanently mounted water spray bars installed at the inlet and outlet of all shaker screens and at all material transfer points, and an outlet grain loading of any baghouse or bin vent filter stack of no greater than 0.01 grains per dry standards cubic feet of air flow (gr/dscf).<sup>252</sup> The Applicant also notes that the fabric filter is designed such that the emissions will be lower than the typical BACT level. The ED and EOG note that water spray used to achieve particulate matter control is a well-established control method, which is promoted by the TCEQ. In order to minimize emissions, EOG also points out that the longest conveyor at the

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<sup>248</sup> TCAA § 382.003(6); 30 TAC §§ 116.10(4), 116.111(a)(2)(C).

<sup>249</sup> 30 TAC § 116.111(a)(2)(C).

<sup>250</sup> TCAA § 382.003(6); 30 TAC § 116.10(4).

<sup>251</sup> 30 TAC § 116.10(1); ED Ex. 35 at 681.

<sup>252</sup> ED Ex. 35 at 685.

plant will be enclosed, and the largest storage pile at the plant will sit over funnels and gravity-feed to a tunnel conveyor, which exceeds BACT used at similar operations. The dryer will also be natural-gas fired and thus meets BACT for CO, PM, SO<sub>2</sub>, and VOC. As a result of these measures, Ms. Hoover testified that the controls proposed by EOG meet or exceed BACT requirements as applied to other sand operations.<sup>253</sup>

The ED and the Applicant note that the Draft Permit also requires EOG to implement BMPs, which require that all in-plant roads, traffic areas, stock piles and active work areas be cleaned or sprayed with water upon detection of visible emissions to maintain compliance with all applicable Commission rules.<sup>254</sup> Spillage of any aggregate material, silica sand, and/or industrial sand shall also be cleaned up immediately to minimize emissions and maintain compliance with Commission rules.<sup>255</sup>

The ED notes that Mr. Buller conducted a Tier One BACT evaluation for all facilities proposed by EOG in accordance with Texas statutes, Commission rules, and guidance documents.<sup>256</sup> Mr. Buller concluded that the application meets or exceeds BACT requirements. As a result of Mr. Buller's review, the ED asserts that the application includes all controls that have been accepted in recent permit reviews for similar facilities, and because there are no new technical developments associated with BACT for industries of this type, a Tier One BACT review met current BACT requirements.<sup>257</sup>

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<sup>253</sup> App. Ex. 28 at 10.

<sup>254</sup> ED Ex. 21 at 246 (Draft Permit Special Conditions Nos. 19, 20, and 21); ED Ex. 35 at 685.

<sup>255</sup> ED Ex. 21 at 246 (Draft Permit Special Condition No. 21).

<sup>256</sup> ED Ex. 35 at 681-86. Mr. Buller relied on the following TCEQ guidance documents: "TCEQ Air Permit Reviewer Reference Guide," APDG 6110 (ED Ex. 9); "TCEQ Mechanical Sources, Current Best Available Control Technology Guidelines: Rock Crushing Facilities (NSPS OOO)" (ED Ex. 10); "TCEQ Mechanical Sources, Current Best Available Control Technology (BACT) Guidelines: Concrete Batch Plants" (Ex. ED 11); and "TCEQ Mechanical Sources, Current Best Available Control Technology Guidelines: Material and Coal Handling" (ED Ex. 12).

<sup>257</sup> ED Ex. 35 at 15-16; ED Ex. 20.

RRMT acknowledges that BACT will be applied to the permitted facilities. However, Protestant argues that EOG is attempting to circumvent BACT by proposing to use a conveyor to move sand from the quarry to the processing facility, but to return waste using roads and trucks, when it is uncontested that conveyors result in lower emissions than roads. RRMT points out the conveyor system represents BACT for movement of sand from the quarry to the processing plant. But because roads are not defined as facilities, BACT does not apply to roads. RRMT argues that this is illogical – EOG should not be allowed to decide whether to use BACT by opting out of a loophole; if the conveyor system is BACT for the transport of material in one direction, it should be considered BACT for transport of material in the other direction.

Protestant does not contest Applicant's and the ED's assertions that the proposed controls will meet or exceed BACT requirements as they apply to the EOG's facilities, as defined in the TCAA and the Commission's rules. Instead, Protestant argues that, despite the regulatory definition of facility, BACT should require the use of conveyors instead of roads. The ALJs have already addressed the matter of roads above. Although RRMT presents a credible argument that roads will be a source of emissions, the ED and EOG are correct that BACT only applies to facilities and roads are not defined as facilities.<sup>258</sup> It is uncontested that no rule requires the use of conveyors, and EOG could have used either roads or conveyors to and from the quarry.<sup>259</sup> The ALJs find that the application demonstrates the proposed facilities will use BACT in accordance with the Commission's rules.

**C. Whether the permit application includes information demonstrating that the emissions from the facility will meet the requirements of the New Source Performance Standards in 30 TAC § 116.111(a)(2)(D).**

Texas is the delegated administrator for NSPS and National Emissions Standards for Hazardous Air Pollutants "NESHAP."<sup>260</sup> Specifically, 30 TAC § 116.111(a)(2)(D), states:

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<sup>258</sup> TCAA § 382.003(6); 30 TAC § 116.10(4).

<sup>259</sup> Tr. at 688-90.

<sup>260</sup> 44 Fed. Reg. 7869 (Feb. 7, 1979) (Delegation of Authority to State of Texas) (Sections 111(c) and 112(d) of the CAA, direct the Administrator to delegate authority to implement and enforce NSPS and NESHAPS to any state which has submitted adequate procedures.).

New Source Performance Standards. The emissions from the proposed facility will meet the requirements of any applicable NSPS as listed under 40 Code of Federal Regulations (CFR) Part 60 . . . .<sup>261</sup>

RRMT only challenges Applicant's representations to the extent that EOG did not receive a manufacturer's guarantee for the dryer baghouse, the single largest emissions source within the facility. The manufacturer only provided performance information. Protestant acknowledges that if this were the only problem with the application, it would not justify denial. However, in the context of the other alleged shortcomings, RRMT argues that the lack of a guarantee is another indication of EOG's lack of diligence to support the application. As a result, Protestant argues that this factor should be considered among the issues for which the Applicant failed to meet its burden of proof.

The ED and EOG respond that compliance with the Draft Permit is mandatory, and Special Condition Number 4 mandates that the facilities "shall comply with all applicable requirements of the EPA's regulation on Standards of Performance for New Stationary Sources . . . ."<sup>262</sup> The only NSPS federal regulations that apply to the facilities is Calciners and Dryers in Mineral Industries (NSPS Subpart UUU). Under the Draft Permit, Applicant will be required to demonstrate compliance with the regulations and stated emission rates stated, by conducting initial stack testing of the dryer baghouse within 180 days after operation begins. Ms. Hoover testified that the facility will comply with NSPS UUU, which requires initial performance testing to demonstrate compliance with the regulations and emission rates stated in the Draft Permit.<sup>263</sup> An Applicant is bound by the representations made in an application and must comply with all permit general and special conditions.<sup>264</sup> Finally, Applicant and the ED argue that initial stack

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<sup>261</sup> 30 TAC § 116.111(a)(2)(D), referencing 40 CFR Part 60, promulgated by the EPA under FCAA, § 111, as amended.

<sup>262</sup> ED Ex. 21 at 243 (Draft Permit Special Condition No. 4), referencing 40 CFR Part 60.

<sup>263</sup> ED Ex. 21 at 243 (Draft Permit Special Condition No. 4); 30 TAC § 116.111(a)(2)(D); 40 CFR §§ 60.730-737 (Subparts A – General Provisions and UUU – Standards of Performance for Calciners and Dryers in Mineral Industries).

<sup>264</sup> 30 TAC § 116.115.

testing required by the Draft Permit and NSPS provides a greater assurance of dryer baghouse performance than a manufacturer's guarantee.<sup>265</sup>

The ALJs agree with the ED and the Applicant that initial testing provides adequate assurance of the dryer's compliance with NSPS. While it may have been better for the Applicant to initially rely on a vendor guarantee rather than performance information, the initial testing will establish actual performance of the dryer baghouse. As a result, the Draft Permit provides adequate assurance that dryer emissions will meet NSPS. The ALJs find that the application includes information demonstrating that facility emissions will meet NSPS in compliance with 30 TAC § 116.111(a)(2)(D).

**D. Whether the permit application demonstrates that the proposed facilities will achieve the performance specified in the application in accordance with 30 TAC § 116.111(a)(2)(G).**

Under Commission rules, a proposed facility must achieve the performance specified in the application. Specifically, 30 TAC § 116.111(a)(2)(G) states:

Performance demonstration. The proposed facility will achieve the performance specified in the permit application. The applicant may be required to submit additional engineering data after a permit has been issued in order to demonstrate further that the proposed facility will achieve the performance specified in the permit application. In addition, dispersion modeling, monitoring, or stack testing may be required.<sup>266</sup>

The Applicant contends that the proposed plant will use conventional, well-established dust control equipment, and BMPs to meet the requirements of this rule. EOG notes that the Draft Permit also requires extensive monitoring. Recordkeeping is required to show that the production rates on a daily, monthly, and annual basis stay within the bounds of the Draft Permit.

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<sup>265</sup> Tr. at 135-37.

<sup>266</sup> 30 TAC § 116.111(a)(2)(G).

NSPS Subpart UUU requires initial performance testing to demonstrate compliance with the regulations and emission rates stated in the Draft Permit.<sup>267</sup>

Both the ED and EOG note that the Applicant is bound by the representations made in the application and must comply with permit general and special conditions. EOG must also comply with all sampling requirements in the Draft Permit and the MAERT. Ms. Hoover testified that, based on her experience with numerous other similar plants, which operate under similar requirements, the proposed plant will operate in accordance with the performance specified in both the application and the Draft Permit.<sup>268</sup>

Protestant argues that because this rule requires facilities to achieve the performance represented in the application, there are still concerns over whether the emissions from the proposed facilities are correctly estimated in the application. Specifically, RRMT questions whether AP-42 factors are sufficiently reliable to offer dependable estimates and whether the absence of a vendor guarantee for the dryer baghouse renders Applicant's estimates unreliable.

RRMT contends that public health impacts and NAAQS and ESL compliance representations are an even greater issue. For instance, RRMT reiterates that all known emission sources should have been included in Applicant's analysis. Protestant also argues that Mr. Tarr's modeling showed that the SIL performance for PM<sub>10</sub> cannot be achieved and should have been subject to a full impact analysis.

Regarding RRMT's concerns over whether emissions from the proposed facilities are correctly estimated in the application, as stated above, the ALJs find that AP-42 factors represent an industry and regulatory standard and are reliable without revision as proposed by the Protestant. As for the absence of a vendor's guarantee for the dryer baghouse, Protestant's

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<sup>267</sup> App. Ex. 28 at 11-14; 30 TAC § 116.115; 40 CFR §§ 60.730-737 (Subpart UUU – Standards of Performance for Calciners and Dryers in Mineral Industries).

<sup>268</sup> App. Ex. 28 at 11-14; 30 TAC § 116.115; 40 CFR §§ 60.730-737 (Subpart UUU – Standards of Performance for Calciners and Dryers in Mineral Industries).

concerns over Applicant's estimates are adequately addressed by the reliability of AP-42 factors, vendor information, and the initial performance testing required under the NSPS, Commission rules, and the Draft Permit. Consistent with this analysis, the ALJs highlight that 30 TAC § 116.111(G) specifically references the ability to require EOG "to submit additional engineering data after a permit has been issued in order to demonstrate further that the proposed facility will achieve the performance specified in the permit application [and] dispersion modeling, monitoring, or stack testing . . ."<sup>269</sup>

The ALJs further conclude that there are several special conditions in the permit that assure adequate monitoring, reporting, and recordkeeping to ensure performance compliance as specified in the application. Specifically, Special Condition Number 5 contains the following requirements: no visible fugitive emissions from the property; quarterly testing on the downwind property line for a minimum of 6 minutes; and testing standards and a corrective action deadline of 24 business hours.<sup>270</sup> Special Condition Number 6 provides that the opacity of particulate matter emissions from various enumerated equipment pieces must not exceed 5% by observation from a distance of at least 15 feet to no more than 0.25 miles from the emission point. Also, the opacity of emissions from the screen and transfer points on belt conveyors must not exceed 7% for a 6-minute period. The condition additionally requires that compliance analyses must be performed and recorded quarterly.<sup>271</sup>

The Draft Permit also includes "Determination of Compliance" Special Conditions 22-24, which provides that Applicant must: (1) comply with the TCEQ Sampling Procedure Manual; (2) perform stack sampling and other testing as required to establish the actual pattern and quantities of air contaminants emitted into the atmosphere; and (3) operate the equipment in accordance with the manufacturers' recommendations, including calibration, maintenance, and replacement as necessary.

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<sup>269</sup> 30 TAC § 116.111(a)(2)(G).

<sup>270</sup> App. Ex. 21 at 243-44.

<sup>271</sup> App. Ex. 21 at 244.

In addition, Special Condition Number 34 provides an extensive list of recordkeeping requirements. The records to be maintained are quarterly observation reports; daily, monthly, and annual amounts of material processed; actual hours of operations of certain enumerated equipment; records of road cleaning, application of road dust control, or road maintenance; daily pressure drop readings; numerous calibration records; inspection, repair, and maintenance records, and copies of the manufacturers' cleaning and maintenance schedules.

The ALJs, therefore, conclude that the Draft Permit conditions demonstrate that the proposed facilities will achieve the performance specified in the application in accordance with 30 TAC 116.111(a)(2)(G).

**E. Whether the permit application includes information demonstrating that the emissions from the facility will meet the requirements for Air Dispersion Modeling in 30 TAC § 116.111(a)(2)(J).**

Computerized air dispersion modeling may be required by the ED to determine air quality impacts from a proposed new facility pursuant to 30 TAC § 116.111(a)(2)(J). In this case, air dispersion modeling was required by the ED to be completed by Applicant and audited by the TCEQ ADMT. Thus, the issue is whether the application demonstrates air modeling was properly performed in order to determine air quality impacts.

Protestant points out that the guidelines set by the TCEQ include incorporating "worst-case" assumptions into the modeling, which should incorporate the best localized met data and all sources considered. Protestant notes that when the Denton met data is used, the SIL and silica ESL were exceeded significantly, and if all sources (quarries and roads) were modeled, the results would be even higher. Applicant responds that the long-established modeling practice of using TCEQ guidelines and procedures for met data and modeled sources should be followed to give the process uniformity and rationality.

The ED asserts that as long as the met data is representative and meets the completeness criteria set by the EPA, then it is acceptable for modeling. Here, the ED points out that the EPA

and TCEQ have recognized that AERMOD tends to over predict emission concentrations at very low wind speeds and in response, TCEQ ADMT is currently reprocessing the Denton met data used by Mr. Tarr to incorporate a 0.5 mile per second threshold consistent with the EPA's recommendation.

The ALJs find that the permit application included information demonstrating that the emissions from the facility will meet the requirements for air dispersion modeling in accordance with 30 TAC § 116.111(a)(2)(J). Based on the evidence and testimony, the ALJs are convinced that appropriate air modeling was required and performed. The Applicant used the EPA-approved AERMOD air modeling program to provide a reasonable worst-case representation of potential impacts from the proposed facility. The evaluation incorporated the proposed hours and operating schedule as outlined in the application, applied all emissions authorized by the permit, and considered all appropriate background and met data. Proper procedures and guidelines were followed and the results were reviewed by the TCEQ ADMT and determined to be acceptable. Thus, the ALJs conclude that the Applicant met the requirements for air dispersion modeling in accordance with 30 TAC § 116.111(a)(2)(J).

**F. Whether the permit application includes information demonstrating that the emissions from the facility will meet the requirements of 30 TAC § 116.115.**

The Commission's rule at 30 TAC § 116.115 deals with general and special conditions in permits. The ED argues that this rule does not mandate requirements for an application but rather grants the ED authority to require certain permit conditions and contains directives that all permit holders must follow. However, Section 116.115 does mandate compliance with permit general and special conditions, sampling requirements, recordkeeping requirements, emissions equipment maintenance requirements, and compliance with the MAERT. Furthermore, Section 116.115(a)(2)(H) mandates compliance with all Commission rules and states "[a]cceptance of a permit by an applicant constitutes an acknowledgment and agreement that the

permit holder will comply with all rules, regulations, and orders of the commission issued in conformity with the [TCAA] and the conditions precedent to the granting of the permit.”<sup>272</sup>

Protestant argues that the Draft Permit prohibits EOG from creating a nuisance condition, yet the evidence does not support a finding that nuisance conditions will not be created by the Applicant. RRMT notes that while multiple emission sources exist at the quarry and in the processing plant, Applicant’s estimates, modeling, and toxicological evidence failed to include all sources. RRMT argues that EOG has attempted to omit known sources and yet represent that “worst-case” analyses were conducted.

Somewhat consistent with the ED’s position, EOG responds that this rule merely sets out a ministerial requirement that the agency include general conditions in each new source review permit. Applicant also argues that the special conditions in the Draft Permit are consistent with long-established agency practice for similar operations.

As for Protestant’s substantive arguments, the ALJs have previously found that the Applicant analyzed for emissions sources required by the TCAA and the Commission’s rules. The ALJs’ analysis of RRMT’s nuisance argument is set out in Section III.H below. Based on the ALJs’ analysis of the matters raised by RRMT, the ALJs agree with the ED and EOG that 30 TAC § 116.115 merely grants the ED authority to require certain permit conditions and contains directives that all permit holders must follow.

**G. Whether the permit application includes information demonstrating that the requirements of 30 TAC § 101.3 regarding circumvention are met.**

Commission rules prevent circumvention of the TCAA or Commission rules. Specifically, 30 TAC § 101.3 states:

No person shall use any plan, activity, device or contrivance which the executive director determines will, without resulting in an actual reduction of air

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<sup>272</sup> 30 TAC § 116.115(a)(2)(H).

contaminants, conceal or appear to minimize the effects of an emission which would otherwise constitute a violation of the [TCAA] or regulations. Air introduced for dilution purposes only is considered a circumvention of the regulations.<sup>273</sup>

As an extension of Protestant's other arguments regarding roads, RRMT argues that EOG circumvented BACT by failing to use a conveyor system to return waste materials to the quarry site. That is, by using roads and trucks, EOG avoided a comprehensive analysis of air pollution impacts because roads are excluded from the definition of facility. RRMT does not challenge that roads are not within the definition of a facility. Instead, Protestant challenges that an activity can be regulated and subject to BACT when the flow of materials is from the quarry to the plant (the regulated conveyor) and yet not be subject to BACT or even air dispersion analysis when the flow of materials is in the opposite direction. RRMT posits that this is illogical and represents circumvention of BACT, represented here by the use of a conveyor system to return material to the quarry, with the knowledge that such a system produces fewer emissions than roads.

The ED argues that Section 101.3 is not a requirement but rather a prohibition. Consistent with the rule, the ED points out that he has not determined that EOG has proposed any plan, activity, device or contrivance that will conceal or appear to minimize the effects of an emission which would otherwise constitute a violation of the TCAA or Commission rules, as evidenced by the ED's preliminary decision to issue the permit.<sup>274</sup>

The Applicant notes that Section 101.3 is a general air quality rule constituting a prohibition on an existing operation, not a required showing for a preconstruction new source review permit, as sought here. EOG repeats that neither trucks nor roads are permitted facilities subject to BACT requirements set forth in the Commission's rules and the TCAA. EOG argues there is no concealment or attempt to minimize the effects of any emissions, which is the only substantive element of this air quality rule.

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<sup>273</sup> 30 TAC § 101.3.

<sup>274</sup> ED Ex. A.

The ALJs have previously found that roads do not meet the definition of facility in the Commission's rules and the TCAA. As a result, EOG was not required to model road emissions, nor does BACT apply to roads. As stated throughout this PFD, EOG could have exclusively used roads to and from the quarry, as it has at another sand plant.<sup>275</sup> There is no circumvention of a TCEQ requirement.

As for the language of the rule, it requires a determination by the ED of some form of circumvention or concealment. There has been no such determination. There is no evidence that EOG's choice to use roads is an attempt to "conceal or . . . to minimize the effects of an emission which would otherwise constitute a violation of the [TCAA] or regulations."<sup>276</sup> Although the Applicant did not analyze road emissions as part of the application, this was legally proper under Commission rules and the TCAA. The ALJs understand that Protestant's point is that roads are still expected to be a source of emissions. There are, however, mitigation and enforcement mechanisms in the Draft Permit to limit those emissions, which the ALJs find to be adequate and which have been addressed above. The ALJs find that Applicant's use of roads to return waste material to the quarry does not constitute circumvention of the Commission's rules or the TCAA as prohibited by 30 TAC § 101.3.

**H. Whether the permit application includes information demonstrating that the requirements of 30 TAC § 101.4 regarding nuisance are met.**

Commission rules prohibit EOG from creating a nuisance condition through its operations at the proposed plant. Specifically, 30 TAC § 101.4 states:

No person shall discharge from any source whatsoever one or more air contaminants or combinations thereof, in such concentration and of such duration as are or may tend to be injurious to or to adversely affect human health or welfare, animal life, vegetation, or property, or as to interfere with the normal use and enjoyment of animal life, vegetation, or property.

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<sup>275</sup> Tr. at 386-87.

<sup>276</sup> 30 TAC § 101.3.

Protestants note that, unlike preconstruction rules regarding new sources, the nuisance rule is not limited to a source that is a defined facility. RRMT argues that under this rule, no person may discharge from any source whatsoever one or more pollutants that cause health problems. RRMT points out that there will be emissions from roads and the quarry during plant operations, which will add to background air pollution levels surrounding the site. Protestant contends that, despite this prohibition applicable to all sources, the Applicant never evaluated the combined effects of these sources on the surrounding land uses including the Red River Motorcycle Park, a family recreational facility.

RRMT also acknowledges the Draft Permit's prohibition on nuisance conditions. Protestant argues, however, that the mere placement of such a provision in the Draft Permit means nothing, because a possible nuisance condition (and related health issues) would have to arise to compel a comprehensive evaluation of all emission sources such as roads and the quarry. Instead, RRMT asserts that under 30 TAC § 101.4, an assessment of the concentrations and health-related issues of all sources should have been required.

EOG and the ED argue that Section 101.4 is not a preconstruction requirement for a new source review permit, but rather a prohibition on creating a nuisance once the plant is in operation. EOG asserts that there is no objective threshold or standard for nuisance with which to compare the predicted emission from the proposed facilities for preconstruction review purposes.<sup>277</sup> EOG points out that, based on EOG's air dispersion modeling analysis, EOG's permit engineer, modeler, and the toxicologist all testified that nuisance conditions are not expected to occur at the plant.<sup>278</sup> Mr. Buller concurred, opining that the use of BMPs as required by the Draft Permit will be adequate to prevent nuisance conditions.<sup>279</sup>

As the ALJs have noted throughout this PFD, roads and the quarry are expected to generate some emissions. Nevertheless, the Commission's rules and the TCAA do not require

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<sup>277</sup> Tr. at 125; App. Ex. 28 at 15; App. Ex. 29 at 11.

<sup>278</sup> Tr. at 124-26; App. Ex. 28 at 15; App. Ex. 29 at 11.

<sup>279</sup> Tr. at 423.

the modeling of these emission sources for a new source permit review. As a result, the ALJs do not find that it was necessary for EOG to establish the non-existence of nuisance conditions at the proposed plant as part of the application process. While EOG may be correct that there is no objective threshold for nuisance with which to compare the predicted emissions from the proposed facilities for preconstruction review purposes, the Applicant's and the ED's experts concluded that operations at the plant are not expected to create such conditions. The ALJs agree with the ED and the Applicant that, so long as the proposed plant is operated within the bounds of the Draft Permit, and the Applicant uses BACT and BMPs, nuisance conditions are not expected to arise at the plant. Finally, in the event that a complainant reports suspected nuisance conditions at the plant, the TCEQ has the means to monitor and prohibit such emissions as reflected in the testimony of Ms. Taylor, the language of the Draft Permit, and 30 TAC § 101.4. The ALJs conclude that the preponderance of the evidence shows that operations at the proposed plant will comply with 30 TAC § 101.4.

**I. Whether the permit application includes information demonstrating that the requirements of 30 TAC § 101.20 regarding New Source Performance Standards are met.**

Regarding NSPS, 30 TAC § 101.20 mandates compliance with EPA standards, including NSPS. Here, Protestant repeats the argument that the application should have included a manufacturer's guarantee for the dryer baghouse, and no such guarantee was provided. Therefore, according to Protestant, there is no demonstration that the technology can meet NSPS requirements.

In response, the ED and EOG note that initial performance testing is required by 40 CFR Part 60, Subpart UUU to demonstrate compliance with the regulations and the emission rates stated in the Draft Permit. These parties point out that Special Condition 4 mandates that the facilities "shall comply with all applicable requirements of the [EPA] regulation on Standards of Performance for New Stationary Sources (NSPS) . . ." and specifically, Subpart A – General

Provisions and Subpart UUU – Calciners and Dryers in Mineral Industries.<sup>280</sup> The Applicant acknowledges that it is bound by the representations made in the application and must comply with permit general and special conditions.<sup>281</sup>

As the ALJs found in Sections III.C and III.D above, Protestant's concerns over the absence of a vendor's guarantee for the dryer baghouse are adequately addressed by the reliability of AP-42 standards, vendor information, and the initial performance testing required under the NSPS, Commission rules, and the Draft Permit. The ALJs find that the application includes information demonstrating that that the requirements of 30 TAC § 101.20 will be met.

**J. Whether the permit application includes information demonstrating that the requirements of 30 TAC § 101.21 regarding NAAQS are met.**

NAAQS are enforced by TCEQ throughout Texas, pursuant to 30 TAC § 101.21. Therefore, an applicant must demonstrate to the Commission by a preponderance of evidence that there is “no indication that the emissions from the facility will contravene the intent of [the TCAA], including protection of the public's health and physical property.”

The Applicant contends that its modeling is accurate and shows no adverse effects to the environment, public health, or to the use and enjoyment of property around the proposed site. Protestant disagrees, however, contending that accurate modeling would show there is a potential for harm to the environment, the health of the public, and the use and enjoyment of property around the site. The ED points out that his witnesses have determined based on their independent reviews of the application, that an exceedance of the NAAQS is not expected to occur.

The ALJs find that that the permit application included information demonstrating that the requirements of 30 TAC § 101.21 regarding NAAQS are met, as outlined in a previous

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<sup>280</sup> ED Ex. 21 (Draft Permit Special Condition No. 4).

<sup>281</sup> 30 TAC § 116.115.

section. Given the protective limitations expressed in the draft permit and the requirement to implement various technologies and BMPs to control emissions, the Applicant has demonstrated that the permit properly controls for emissions as represented in the application. Further, the modeling demonstrates that when the facility is operated in compliance with all terms and conditions of the proposed permit, no NAAQS exceedances are expected.

In sum, the ALJs conclude that the preponderant evidence supports a finding that Applicant has properly demonstrated that it has complied with primary and secondary NAAQS and therefore, demonstrated that the requirements of 30 TAC § 101.21 are met.

**K. Whether the permit application includes information demonstrating that the requirements of the TCAA are met.**

The Applicant has applied for an authorization under Texas Health and Safety Code § 382.0518, which states that “[b]efore work is begun on the construction of a new facility or a modification of an existing facility that may emit air contaminant, the person planning the construction or modification must obtain a permit or permit amendment from the commission.” Section 382.0518 further states that:

[T]he commission shall grant within a reasonable time a permit or permit amendment to construct or modify a facility if, from the information available to the commission, including information presented at any hearing . . . the commission finds:

1. The proposed facility for which a permit . . . is sought will use at least best available control technology . . . and
2. No indication that the emissions from the facility will contravene the intent of [the TCAA] including the protection of the public’s health and physical property.

Protestants argue that, based on the modeling completed by Mr. Tarr, the evidence shows that the requirements of the TCAA will not be met.

Applicant responds that the evidence meets the burden of proof to show that the predicted emissions from the proposed facilities will be protective of public health and welfare given that the emissions of all federal criteria pollutants met the NAAQS, and that the health effects reviews performed by Applicant and the ED found no adverse health effects are expected from the predicted silica emissions.

The ED points out that a BACT evaluation was conducted by Mr. Buller for all the proposed facilities. Mr. Buller concluded that the application meets or exceeds BACT requirements. The ED also points out that the application is not expected to cause an exceedance of NAAQS and a toxicology review was conducted with the conclusion that no adverse health or welfare effects would be expected.

Because the ALJs have addressed the BACT and NAAQS arguments, the ALJs will consider whether the requirements of the TCAA are met in regards to the ESLs. Of the contaminants for which there are ESLs, only silica will be emitted by Applicant in significant quantity. Silica was modeled by assuming the sand mined at the site contains up to 100% silica, although there may be rocks, soil, or other substances mixed in with the sand. As applicable, the short-term ESL for silica is  $14 \mu\text{g}/\text{m}^3$ , while the long-term silica ESL is  $0.27 \mu\text{g}/\text{m}^3$ .

As pertains to the contested issues in this case, Applicant's modeling analysis of silica concluded the following: (1) the ESL level for silica was exceeded at off-site locations, for both short-term (24-hours) and long-term (annual) and a review by TCEQ's toxicology division was required and performed; and (2) the ESL levels for silica of  $0.27 \mu\text{g}/\text{m}^3$  for long-term exposure and  $14 \mu\text{g}/\text{m}^3$  for short-term exposure were exceeded. The modeling predicted a maximum annual (long-term) average silica concentration of  $0.44 \mu\text{g}/\text{m}^3$ . The modeling also predicted a maximum 1-hour (short-term) average silica concentration off-site as  $16.4 \mu\text{g}/\text{m}^3$ .

TCEQ Toxicologist Angela Curry evaluated the potential adverse health effects of silica beginning at the property line of the proposed plant. She considered all the factors required for a case-by-case Tier Three review in arriving at her conclusion that the predicted silica

concentrations are “allowable.” The term “allowable” means that the predicted ground level concentrations are not “acceptable” but the permit engineer has provided justification to the Toxicologist Division that the predicted GLCs are not likely to occur or that they occur in a location where public access is limited.

The ALJs find that the  $GLC_{max}$  will occur at the Applicant’s property line adjacent to undeveloped land, and it was conservatively reviewed as non-industrial property. There is no long-term ESL exceedance at the  $GLC_{ni}$  and the long-term  $GLC_{max}$  is predicted to occur in a location where prolonged exposure to the general public is unlikely and in short duration, if it does occur. The long-term ESL is set to be protective for a lifetime exposure, which is considered to be exposure of 24 hours a day, 7 days a week for 70 years. Members of the public at most could be exposed for just a few hours per year at a location that is generally not accessible or used by the public.

Accordingly, the ALJs are convinced that the permit application includes information demonstrating that the requirements of the TCAA are met in compliance with 30 TAC § 101.21.

**L. Whether the permit application includes information demonstrating that the requirements of Texas Water Code § 5.130 are met.**

Texas Water Code Section 5.130 states that the Commission shall:

1. develop and implement policies, by specific environmental media, to protect the public from cumulative risks in areas of concentrated operations; and
2. give priority to monitoring and enforcement in areas in which regulated facilities are concentrated.

RRMT asserts that the project presents cumulative risks associated with several different emissions sources combining to cause a violation or an exceedance. RRMT contends that, despite the presence of cumulative risks, Applicant chose not to evaluate sources such as roads and the quarry and failed to include background concentrations in its analysis of  $PM_{10}$  or silica.

As a result, Protestant argues that EOG failed to conduct a cumulative impacts analysis of all sources, and without a full consideration of background concentrations and all sources, the Commission cannot meet the requirements of Section 5.130 to protect the public from cumulative risks in areas of concentrated operations.

The ED and EOG argue that Water Code Section 5.130 is not a requirement for an air authorization and is therefore outside the scope of issues to be determined in this contested case. Rather, this provision is a directive to the Commission to develop policies to protect the public from cumulative risks in areas of concentrated operations – a directive the ED contends the Commission has met. The Applicant and the ED argue that this provision is inapplicable to individual permit applications and has no bearing on an application for facilities at a rural site with no other identified sources of relevant emissions.

Even if Water Code Section 5.130 applied to the application, the ED argues that conservatism in modeling subsumes cumulative risk. The ED explained that cumulative exposure is exposure to multiple airborne chemicals. Aggregate exposure is exposure to a single airborne chemical multiple times or from multiple sources. Cumulative risk combines consideration for both cumulative and aggregate exposure.<sup>282</sup> While the PM NAAQS are set by the EPA, the ED points out that the Commission's method for deriving ESLs addresses both cumulative and aggregate exposures. For noncancer-causing chemicals (i.e. short-term silica ESL), the ED asserts that the TCEQ derives a scientifically sound, safe level, then reduces that number by 70% for evaluating air permit applications to account for cumulative and aggregate exposures. The risk-management goal for cancer-causing chemicals (long-term silica ESL) is 1 in 100,000, which is the theoretical added cancer risk that a chemical may cause over a lifetime of exposure in the most sensitive portions of the population.

The ED and EOG both note Ms. Curry's testimony that the long-term cancer-based ESL could be increased by a factor of 10 and still be within the risk range deemed acceptable by the

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<sup>282</sup> App Ex. 37 at 6 (TCEQ Guidelines to Develop Toxicity Factors).

EPA.<sup>283</sup> Ms. Curry stated that ESLs have a built-in safety factor to account for possible aggregate exposures.<sup>284</sup> Even if the ESL was increased by a factor of 10, the ED argues that ESLs are only guidelines and are not standards that may not be exceeded. The ED contends there is a high degree of conservatism in the ESL and layers of conservative assumptions are made in the worst-case modeling analysis. Additionally, each facility the TCEQ Toxicology Division staff reviews is evaluated against the same criterion, so multiple facilities in areas of concentration have all been reviewed to the same level of protectiveness.<sup>285</sup>

Having addressed cumulative risk, Applicant points out that Protestant offered no evidence that the proposed plant is in an area of concentrated operations. Instead, Applicant notes that there are no other industrial operations in the vicinity of the proposed plant.<sup>286</sup> EOG argues that, not only is Water Code Section 5.310 outside the scope of issues to be determined in this particular case but the evidence in the record demonstrates that the Applicant has not proposed to construct its plant in an area of concentrated operations.

The ALJs find that Water Code Section 5.130 is not relevant to the application in this matter. The provision requires the Commission to “develop and implement *policies . . . to protect the public from cumulative risks in areas of concentrated operations.*”<sup>287</sup> It is the Commission’s prerogative to create and institute such policies as evidenced by its rules and guidelines. This provision does not create grounds to deny a minor source application that has otherwise met the legal and regulatory requirements. Furthermore, there is no evidence that the project will operate in an area of concentrated regulated facilities. Although Water Code Section 5.130 deals with the Commission’s authority to protect the public from environmental risks through monitoring and enforcement, this provision falls outside the scope of this air authorization review.

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<sup>283</sup> ED Ex. 37 at 743.

<sup>284</sup> ED Ex. 37 at 10; App. Ex. 18 at 16-17; Tr. at 845-846.

<sup>285</sup> ED Ex. 37 at 738.

<sup>286</sup> ED Ex. 37 at 740-42; Tr. at 596.

<sup>287</sup> 30 TAC § 5.130(1) (emphasis added).

#### IV. OTHER ISSUES

The parties presented no additional issues to be addressed in this proceeding.<sup>288</sup>

#### V. ASSESSMENT OF TRANSCRIPT COSTS

A certified court reporter must make a verbatim record and transcript of any contested case hearing.<sup>289</sup> The Commission may assess reporting and transcription costs to one or more of the parties participating in the proceeding. However, under the Commission's rules, transcription costs may not be assessed against the ED or OPIC.<sup>290</sup> The Commission shall consider the following factors in assessing reporting and transcription costs:

- (A) the party who requested the transcript;
- (B) the financial ability of the party to pay the costs;
- (C) the extent to which the party participated in the hearing;
- (D) the relative benefits to the various parties of having a transcript;
- (E) the budgetary constraints of a state or federal administrative agency participating in the proceeding;
- (F) in rate proceedings, the extent to which the expense of the rate proceeding is included in the utility's allowable expenses; and
- (G) any other factor which is relevant to a just and reasonable assessment of costs.<sup>291</sup>

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<sup>288</sup> Protestant Initial Brief at 51-52, Protestant Response at 20; ED Initial Brief at 24, ED Response at 17; and Applicant Initial Brief at 41, Applicant Response at 20.

<sup>289</sup> 30 TAC § 80.23(a).

<sup>290</sup> 30 TAC § 80.23(d)(2).

<sup>291</sup> 30 TAC § 80.23(d)(1).

While the Applicant only requested in briefing that transcription costs be assessed pursuant to the Commission's rules, it does not appear to oppose assuming all transcription costs.<sup>292</sup> The ED takes no position on the assessment of transcription costs.<sup>293</sup>

Protestant requests that the Commission assess all transcript costs to the Applicant. Regarding financial ability to pay costs, RRMT argues that EOG is one of the largest independent oil and gas companies in the United States, and has the financial ability to pay all costs of this transcript. RRMT, on the other hand, is a small recreation area in North Texas, without the resources of EOG. RRMT also notes it has already paid for its own copy of the transcript.

Regarding the extent to which the parties participated in the hearing, RRMT argues that participation by all parties was appropriate, and none of the parties burdened the transcript with frivolous arguments or unnecessary questioning of witnesses.

As for the relative benefits to the various parties of having a transcript, RRMT argues that EOG stands to benefit most from the ability to cite to the transcript, and the record in their briefs. Protestant notes that a favorable ruling on the application will benefit EOG to a much greater extent than a favorable ruling for RRMT. In other words, a favorable ruling for RRMT will mean that RRMT may return to normal but there is no way to recover funds expended in opposition to the application. EOG, on the other hand, will gain a significant financial benefit by receiving a permit to operate the plant.

In considering the factors and what is just and reasonable, the ALJs recommend that the Commission assess all transcript costs to EOG. The Applicant bears the burden of proof, participated in the hearing extensively, used the transcript throughout its briefing, has the financial resources to bear the costs, and, considering that the ALJs recommend approval of the application, stands to benefit most from the transcript.

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<sup>292</sup> Applicant Response at 20.

<sup>293</sup> ED Initial Brief at 24, ED Response at 17.

The ALJs do not recommend that Protestant should be allocated any share of transcription costs. RRMT has already sustained substantial litigation costs throughout the course of this proceeding. As noted in Section I.B of this PFD, a fair number of individuals, groups, and local entities requested party status at the initial prehearing. Although some of these parties participated during the prehearing stage of this matter, RRMT was the only Protestant that participated in the hearing and post-hearing briefing. As a result, RRMT bore all of the costs and burden of litigating a case against the granting of this application – in which a fair number of local parties had an interest.

During the portion of the hearing that occurred in Gainesville, significant local interest was evident, as reflected in attendance by the public and the local press. As a result, the ALJs believe that holding a portion of the hearing in Gainesville was a worthy endeavor and was appreciated by all local interested persons. However, were it not for RRMT's continued participation throughout the course of this litigation, the public benefit of this hearing may not have been realized.

Finally, although the ALJs have found in favor of the Applicant on every major contested issue, the ALJs note that Protestant presented a reasonable case with clear presentations of evidence and cross-examination, well-organized arguments, expressed valid concerns, and openly acknowledged weaknesses, while making reasonable legal arguments. The Applicant prevailed through the presentation of solid and substantial evidence that its analysis was reliable through extensive expert testimony and backup documentation. This does not mean that Protestant did not succeed in raising issues regarding Applicant's evidence at hearing and in briefing. Rather, upon full consideration of the evidence, those issues resolved in favor of the Applicant. The ALJs' disagreement with Protestant on substantive arguments should not detract from its efforts.

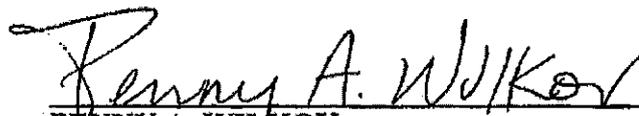
Although Applicant has not openly stated that it is unopposed to assuming all transcription costs, it did not argue for any particular outcome on this issue, and it offered a proposed Conclusion of Law assessing all such costs to itself. Considering all of the factors in

30 TAC § 80.23(d), the ALJs find that it would be just and reasonable to allocate all transcription costs to the Applicant.

## VI. SUMMARY AND CONCLUSION

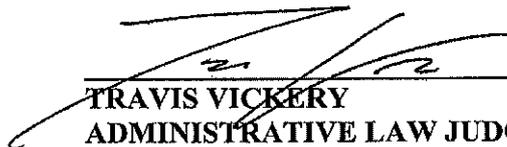
The ALJs propose that the Commission adopt the attached order granting EOG's application and allocating all transcript costs to Applicant. Based on the reasons stated in this PFD, the ALJs reject all proposed Findings of Fact and Conclusions of Law not included in the proposed order.

**SIGNED October 18, 2013.**



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**PENNY A. WILKOV  
ADMINISTRATIVE LAW JUDGE  
STATE OFFICE OF ADMINISTRATIVE HEARINGS**



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**TRAVIS VICKERY  
ADMINISTRATIVE LAW JUDGE  
STATE OFFICE OF ADMINISTRATIVE HEARINGS**

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



**AN ORDER Approving the Application of  
EOG RESOURCES, INC. for a New Air Quality Permit Number 95412  
in Cooke County, Texas  
TCEQ Docket No. 2012-0971-AIR  
SOAH Docket No. 582-12-6347**

On \_\_\_\_\_, the Texas Commission on Environmental Quality (TCEQ or Commission) considered the application of EOG Resources Inc. (EOG or Applicant) for a new Air Quality Permit No. 95412, in Cooke County, Texas. Administrative Law Judges (ALJs) Penny A. Wilkov and Travis Vickery of the State Office of Administrative Hearings (SOAH) presented a Proposal for Decision (PFD) recommending that the Commission approve the application. After considering the PFD, the Commission adopts the following Findings of Fact and Conclusions of Law.

**FINDINGS OF FACT**

**General and Procedural Findings**

1. On March 25, 2011, Applicant filed an application with the Commission requesting an air quality permit to construct and operate multiple facilities as part of a sand processing plant at 14596 N. FM 373 in rural southwest Cooke County, Texas (Application).
2. Amendments to and correspondence regarding the Application were subsequently submitted to TCEQ on July 8, 2011, September 27, 2011, December 9, 2011, and January 11, 2012.
3. The TCEQ Executive Director (ED) declared the Application administratively complete on April 7, 2011. The ED also issued a draft air quality permit (Draft Permit).
4. The Notice of Receipt and Intent to Obtain an Air Quality Permit was published in the *Muenster Enterprise* on April 15, 2011, and in the *Saint Jo Tribune* on May 27, 2011, both newspapers of general circulation in Cooke County, Texas. In addition, Applicant arranged for placement of the completed Application for inspection and copying at the Bettie M. Luke Muenster Public Library beginning April 15, 2011.

5. Signs were posted on April 15, 2011, along the fence line of the property where the proposed plant would be constructed and operated.
6. In response to requests from the public, the TCEQ Chief Clerk held a public meeting to discuss the Application on August 23, 2011, at the Muenster Independent School District cafeteria.
7. On January 18, 2012, Applicant submitted a request to the TCEQ Chief Clerk for direct referral of the Application to SOAH for a hearing.
8. Applicant's Air Quality Modeling Report was submitted to TCEQ's Air Permit Division on February 14, 2012, as part of the Application.
9. On May 31, 2012, the TCEQ Chief Clerk notified Applicant that the ED had completed a technical review of the Application and made a preliminary decision to issue the permit based on demonstrated compliance with all applicable rules and regulations.
10. On June 8, 2012, a combined Notice of Application and Preliminary Decision for an Air Quality Permit and Notice of Hearing was published in three newspapers (*Saint Jo Tribune*, *Muenster Enterprise* and *Gainesville Daily Register*), informing the public of the ED's decision and scheduling the preliminary hearing for July 12, 2012.
11. The TCEQ Chief Clerk scheduled a second public meeting regarding the Application, which was held on July 11, 2012, at the Gainesville Civic Center.
12. On July 12, 2012, ALJs Penny A. Wilkov and Travis Vickery assumed SOAH jurisdiction over this case without objection, and the parties were aligned. At the preliminary hearing, the following were made parties:
  - a. Applicant;
  - b. ED;
  - c. Office of Public Interest Counsel (OPIC);
  - d. Protestants Red River Motorcycle Trails, Inc., Rebecca Harris and Holly Harris-Bayer (RRMT);
  - e. Protestant Save the Trinity Aquifer (STA);
  - f. Protestant Red River Tourism and Wildlife;
  - g. Protestant Kathy Neilsen; and
  - h. Protestant Cooke County Commissioners' Court.
13. On November 6, 2012, the ED issued a Response to Public Comment.
14. On February 8, 2013, Protestant Save the Trinity Aquifer sought to withdraw as a party. On February 21, 2013, Order No. 7 granted Save the Trinity Aquifer's Motion to Withdraw all members of the group from this case.

15. On April 9, 2013, the Cooke County Commissioners' Court sought to withdraw as a party; a request that was granted by Order No. 10 issued on April 11, 2013.
16. On April 15-17, 2013, the hearing on the merits convened in Austin, Texas; recessed and reconvened in Gainesville, Texas, on April 22-23, 2013; and recessed and reconvened for a final day on April 25, 2013, in Austin, Texas, with ALJs Penny A. Wilkov and Travis Vickery presiding. The record closed on August 23, 2013.
17. All parties appeared at the hearing on the merits, with the exception of Red River Tourism and Wildlife and Kathy Neilsen, who retained party status but did not attend. RRMT was the only protestant to enter an appearance and participate in the hearing and post-hearing briefing.

### **Description of the Proposed Facilities**

18. The proposed facilities will be located at 14596 N. FM 373 in rural southwest Cooke County, Texas, on approximately 1445 acres. The permitted facilities will consist of hoppers, belt conveyors, bucket elevators, screens, stockpiles, a dryer with a baghouse and truck-load out bins, which will be used to supply sand for oil and gas well operations.
19. Wet sand will be mined on the property and will be transported by a conveying system to a stockpile, and then to the sand processing plant. This conveying system includes hoppers, belt conveyors, and a screen. The screen will remove larger material, which is temporarily stored in a stockpile and ultimately returned to the quarry. The smaller material will be sent to the sand processing plant for cleaning, screening, and drying.
20. The sand processing plant will consist of a wet processing operation and a dry processing operation. The wet processing operation will screen, wash, and separate the material. Hoppers and belt conveyors will be used to transfer the material up to and through the scalping screen. At that point, the material will be in slurry form and will be pumped in enclosed piping through the washing, separation, and dewatering process, and then conveyed to a surge bin. From the surge bin, the material will be conveyed to the dry processing operation where it will be dried and screened into product sizes, stored in silos, and loaded into trucks. Hoppers, belt conveyors, and bucket elevators will be used to transfer the material throughout the dry processing operation.
21. Waste material will be returned to the sand quarry by trucks over paved roads.

### **New Source Review Air Quality Permits**

22. The Draft Permit authorizes the emission of particulate matter (PM), particulate matter equal to or less than 10 micrometers in diameter (PM<sub>10</sub>), and particulate matter equal to or less than 2.5 micrometers in diameter (PM<sub>2.5</sub>), as well as ozone (O<sub>3</sub>); sulfur dioxide (SO<sub>2</sub>); carbon monoxide (CO); nitrogen dioxide (NO<sub>2</sub>); and lead (Pb).

23. Predicted off-property concentrations of CO, SO<sub>2</sub>, NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> due to emissions from the proposed facilities are evaluated using National Ambient Air Quality Standards (NAAQS) set by the United States Environmental Protection Agency (EPA). The NAAQS for each of these air contaminants are set at levels protective of public health, welfare, and the environment with an adequate margin of safety.
24. Predicted off-property concentrations of silica due to emissions from the proposed facilities are evaluated using Effects Screening Levels (ESLs). ESLs are established by the TCEQ for evaluation of potential impacts of air contaminants for which no NAAQS has been established by the EPA, and to trigger case-by-case review when appropriate to ensure the protection of public health and welfare.
25. Applicant employed appropriate emission factors and methodology to calculate the estimated emission rates for CO, SO<sub>2</sub>, NO<sub>2</sub>, volatile organic compounds (VOC), PM<sub>10</sub>, PM<sub>4</sub>, and PM<sub>2.5</sub> that will be emitted from the proposed facilities.
26. Using applicable TCEQ guidance and current TCEQ practices, including the EPA's guidance on air pollutant emission factors (AP-42) in calculating emission rates, Applicant applied standardized and acceptable emission factors in calculating emissions from the proposed facilities.
27. Using the Application's description of emission points at the proposed plant, the calculated emission rates from those points and other relevant information from the Application, and conducting a site investigation to assess the surrounding terrain, Applicant performed an air dispersion modeling analysis at the ED's request to predict maximum off-property concentrations of air contaminant emissions from the facilities at the proposed plant.

#### **Best Available Control Technology (BACT)**

28. Applicant has proposed, and the Draft Permit requires the following controls at the proposed plant:
  - a. No visible fugitive emissions may leave the property that exceed a cumulative 30 seconds in duration in any 6-minute period;
  - b. An opacity limit of 5% applies to the dryer baghouse stack, including the surge bin dust collector baghouse, the Tank 250 dust collector baghouse, the product silo dust collector baghouse stacks, and the dry plant transfer dust collector baghouse;
  - c. Opacity of emissions from the screen and from any transfer point on belt conveyors is limited to 7% over a 6-minute period, under most conditions;
  - d. No visible emissions, except for water vapor or fog, are allowed from the wet plant screen or the saturated processes including cyclones, attrition cells, density separators, dewatering tanks, and associated pumps and conveyors;

- e. Partial enclosures will be installed on all material transfer points with complete enclosure of the vibrating scalping screen, except for openings for material entry and exit;
  - f. Permanently mounted water spray bars will be installed at the vibrating scalping screen and all material transfer points prior to the dryer, except for the saturated processes;
  - g. The dryer baghouse, the dry plant transfer dust collector baghouse, the surge bin dust collector, and the product silo dust collectors will be designed to meet outlet grain loading specifications;
  - h. All hoppers will be partially enclosed with extended sides, and no material will be dropped into a hopper at a height above the partial enclosures;
  - i. As a best management practice (BMP), on-property roads will be paved and cleaned or sprayed with water upon detection of visible particulate matter emissions; and
  - j. The cumulative area and height of stockpiles at the proposed plant will be limited, and stockpiles will be sprayed with water upon detection of visible particulate matter emissions.
29. Applicant's proposed control measures meet or exceed BACT requirements for facilities of the type proposed by the Application.
30. The emission controls represented in the Application have been accepted by TCEQ as BACT in recent permit reviews for similar operations, and there have been no recent technical developments associated with BACT for materials handling industries.
31. The dryer baghouse fabric filter proposed in the Application is designed such that the emissions from the dryer will be lower than those resulting from the application of the typical BACT at comparable facilities.
32. Water sprays will be used to achieve particulate matter control, which is a well-established control method commonly prescribed and accepted by the TCEQ for comparable operations.
33. The longest conveyor at the proposed plant will be enclosed, and the largest storage pile at the plant will sit over funnels and gravity-feed to a tunnel conveyor in order to minimize emissions, which exceeds BACT accepted at similar operations.
34. The dryer will be natural-gas fired, and thus meet BACT for CO, PM, SO<sub>2</sub>, and VOC.

**New Source Performance Standards (NSPS)**

35. The Application incorporates emissions information obtained from the vendor of the dryer. This information was used to calculate the predicted emission rates, using commonly-accepted methodology recommended, reviewed, and approved by the ED.

36. Sampling results have shown that emissions from the type of dryer represented in the Application met or were lower than those originally represented by the vendor or manufacturer.
37. Pursuant to the Draft Permit, Applicant will be required to conduct initial stack testing from the dryer within 180 days of startup to demonstrate compliance.
38. Applicant has reasonably demonstrated that the proposed plant will operate in accordance with the performance specified in both the Application and the Draft Permit.
39. The Application demonstrates that the proposed plant will employ conventional, well-established control equipment and techniques, which are consistently prescribed and accepted by the TCEQ. Applicant will also apply TCEQ-established BMPs, including watering and/or cleaning of stockpiles, work areas, in-plant roads and other traffic areas.

#### **Circumvention**

40. The Application does not improperly conceal or appear to minimize the effect of emissions from the proposed facilities.

#### **Nuisance**

41. The ED has the ability to monitor emissions from the plant and enforce the conditions of the Draft Permit, including the ability to monitor for emissions at night.
42. The facilities will not create nuisance conditions if operated pursuant to the representations in the application in accordance with the Draft Permit.

#### **Emission Sources**

##### **Roads**

43. The BMPs in the Draft Permit are effective in controlling and minimizing potential road dust emissions.
44. The Draft Permit's protections against prohibited off-property emission impacts have been used historically by the TCEQ for materials handling facilities, and include well-established BMPs to minimize road emissions and a "no visible emissions" limitation at the property line.
45. The conservative background levels of particulate matter assumed in the analysis performed by Applicant account for emission impacts, if there are any, from the roads.
46. EOG will pave all in-plant roads, as authorized under the Draft Permit BMPs for minimizing emissions from plant roads.
47. Paved roads are considered the best BMP for minimizing emissions.

48. Because the roads at the proposed plant will be paved and given the Draft Permit requirement that Applicant use BMPs for washing and cleaning the roads to prevent visible emissions, emissions from in-plant roads will be minimized if not eliminated.

### **Quarries**

49. The significant moisture inherent in the material at the site serves to prevent emissions from the quarry, or will render them insignificant.
50. With the protective limitations expressed in the Draft Permit, including the enforceable “no visible emissions” limitation at the property line set forth in Special Condition No. 5 of the Draft Permit, along with the requirement to implement BMPs, the Applicant has demonstrated that the permit properly controls for potential quarry emissions.
51. The conservative background levels of particulate matter assumed in Applicant’s analysis account for emission impacts, if any, from the quarry.

### **Combined Water**

52. The water to be used for emission control for the proposed facilities will not constitute particulate matter.

### **Background Levels**

53. There are no significant or permitted facilities in the area near the proposed facilities.
54. There are no ambient monitoring sites in the area surrounding the proposed facilities.
55. Ambient air monitors located in Dallas and Tarrant Counties were appropriate to represent the background concentration at the Applicant’s proposed project.
56. The use of ambient air monitors in Dallas and Tarrant Counties was conservative because the population and reported emissions from those counties are greater than the population and reported emissions for Cooke County.
57. The monitor with the highest background concentration in Dallas and Tarrant Counties for each averaging time was used to sufficiently and conservatively represent the background concentrations for Cooke County.
58. Dallas and Tarrant Counties have three years of complete data as required by recent EPA guidance documentation.
59. Background levels of silica were considered in the Applicant’s health effects evaluation.

## **Emission Estimates/Calculations**

### **AP-42 Factors**

60. The EPA's AP-42 emission factors represent a regulatory and industry standard for calculating emissions.
61. TCEQ experience over the history of the air quality permit program supports the Applicant's use of AP-42 emission factors in its emission rate calculations.
62. The D and E emission factors from AP-42 used by the Applicant are reasonably reliable, both as characterized in AP-42 and as historically used by the TCEQ, and there is no basis for revising those factors up or down.
63. The AP-42 emission factors used by Applicant are based on sampling at plants processing material with lower moisture content and containing more fines than are anticipated at the proposed plant, making emission estimates in the Application conservative.
64. The use of AP-42 emission factors to determine emission rates for the type of facilities proposed in the Application is a common engineering practice and is the accepted method for TCEQ engineers when evaluating a permit application of this type.

### **Dryer Baghouse**

65. As part of the project, Applicant proposes to use a dryer that will generate significant emissions. Applicant proposes to use a baghouse at the dryer stack as an AP-42 approved form of emissions control.
66. The calculations used by Applicant incorporating performance information provided by the vendor created reasonable projections of emissions from the baghouse.
67. Historical sampling reports for this type of dryer reasonably confirm the emission rates Applicant calculated for the dryer proposed in the Application.
68. Emissions from the proposed dryer were calculated using methodology recommended, accepted, and approved by the ED.
69. The Draft Permit requires initial stack testing of the dryer and baghouse within 180 days of the start of operations at the plant in order to confirm compliance with emission limits and NSPS.
70. If the sampling results in emissions beyond the permitted limit or NSPS, Applicant will be required to bring the baghouse into compliance and may be subject to a TCEQ enforcement proceeding.

### **Use of PM<sub>4</sub> for Silica**

71. The TCEQ Toxicology Division has determined that the long-term (annual) impact of silica must be evaluated as smaller-sized particulate matter, or PM<sub>4</sub>, and the short-term (hourly) impact of silica must be evaluated as the total concentration of larger-sized particulate matter, or PM<sub>10</sub>.
72. Silica particles that range in size from 1-4 micrometers are small enough to enter the deeper regions of the respiratory tract and can lead to acute silicosis, a very rare and non-cancerous respiratory disease.
73. Under the long-term ESL for silica and accepted toxicological analysis, the respirable size of particulate matter is PM<sub>4</sub>.
74. TCEQ guidance properly evaluates long-term exposure to silica as an ESL.
75. The Application made the conservative assumption that 100% of the PM<sub>10</sub> and PM<sub>4</sub> emissions expected from the proposed facilities were respirable silica.
76. Applicant modeled all of the PM<sub>10</sub> and PM<sub>4</sub> emissions as respirable silica in order to compare the maximum modeled off-property concentrations to the long-term annual average ESL.
77. Applicant properly modeled all the sand as silica and conservatively modeled the silica as 100% of PM<sub>10</sub> for the short-term analysis and 100% of PM<sub>4</sub> for the long-term analysis of emissions, as provided by TCEQ guidance.

### **Point Source Emissions Reduced by 10% for Long-Term Analysis**

78. EOG's initial calculation of emission rates was based on an operational schedule of 24 hours per day for 365 days per year, or 8,760 hours annually.
79. Later, EOG revised the schedule to provide that the plant will operate 8,760 hours per year, except for various pieces of equipment which will have a maximum operating schedule not to exceed 7,884 hours per year in any rolling 12-month period.
80. The equipment operating under the reduced schedule (such as the dryer baghouse and associated dryer, the dry plant transfer dust collector baghouse and associated dry feed bins, and dry screens and conveyors) will generate greater emissions than any other source at the site.
81. Based on the reduced operating hours of certain equipment, the emission rates were reduced by 10% to reflect the new operational schedule.
82. The application was reviewed by a TCEQ air permit engineer, who tracked throughput at the facilities to ensure that the hours of operation and hourly and annual throughput were consistent with the representations in the application.

83. Even with the 10% reduction due to the reduced operational schedule, the emission rates were properly calculated as represented in the application

### **Air Dispersion Modeling/Results**

84. Air dispersion modeling is used to predict whether the off-property ground-level air concentrations (GLCs) of constituents will comply with NAAQS and the Texas property line standards, and whether non-criteria pollutants (silica) will adversely impact human health and welfare.
85. The ED required Modeling to be completed by EOG and audited by the TCEQ Air Dispersion Modeling Team (ADMT).
86. The ADMT also required that Applicant use “refined modeling,” a more complex model with more detail and precise input data.
87. The input data used in the modeling was land-use information (urban or rural), topographical elevation data (flat or complex terrain), variable emission rates, building wake effects (downwash), emission point parameters (receptor grid locations, elevations, and spacing), and meteorological data (standard surface and upper-air observations).
88. Modeling predicts the maximum ground-level concentration beginning at the facility’s nearest property line, expressed as maximum ground-level concentration or  $GLC_{max}$ , expressed in micrograms per cubic meter ( $\mu g/m^3$ ).
89. The “de minimis,” or significant impact level (SIL), of air contaminant concentration is a concentration below which the air quality is not anticipated to be affected.
90. When a modeled impact is deemed insignificant, or de minimis, using the NAAQS SIL as a threshold for significance, it is not necessary to incorporate background levels or emissions from other sources in the analysis.
91. If the modeled concentration of a pollutant for the project is greater than the NAAQS SIL then a “full impact analysis” is performed.
92. Receptors are an important element of capturing the  $GLC_{max}$ . The receptor elevations were determined by use of the EPA AERMAP program.

### **Criteria Pollutants**

93. The following results were shown by Applicant’s modeling of criteria pollutants:
- a. **PM<sub>10</sub>**. The SIL for PM<sub>10</sub> was not exceeded at any off-site location for any period of time, either short-term or long-term, and thus no full impact analysis was required or performed.

- b. **PM<sub>2.5</sub>.** The SIL level for PM<sub>2.5</sub> was exceeded at locations within one kilometer of the proposed facility for both short-term and long-term; therefore, a full impact analysis was required and performed.
1. The full impact analysis concluded that for a 24-hour period, the maximum ground level concentration of PM<sub>2.5</sub> was expected to be 26.47  $\mu\text{g}/\text{m}^3$ , which fell below the 24-hour NAAQS of 35  $\mu\text{g}/\text{m}^3$ .
  2. The full impact analysis concluded that for an annual average period, the maximum ground level concentration of PM<sub>2.5</sub> was expected to be 11.11  $\mu\text{g}/\text{m}^3$ , which fell below the then-existing annual PM<sub>2.5</sub> NAAQS of 15  $\mu\text{g}/\text{m}^3$ , and the new annual PM<sub>2.5</sub> NAAQS of 12  $\mu\text{g}/\text{m}^3$ .
- c. **Carbon Monoxide.** Carbon monoxide was modeled and evaluated for the proposed facility. The SIL level of carbon monoxide is 2,000  $\mu\text{g}/\text{m}^3$  (1-hour) and 500  $\mu\text{g}/\text{m}^3$  (8-hour). Modeling of this facility resulted in predicted air concentrations of carbon monoxide to be 10  $\mu\text{g}/\text{m}^3$  (1-hour) and 3  $\mu\text{g}/\text{m}^3$  (8-hour). Therefore, no full impact analysis was required or performed.
- d. **Nitrogen Dioxide.** Nitrogen dioxide was modeled and evaluated for the proposed facility. The SIL level for nitrogen dioxide was exceeded short-term (1-hour) but not long-term (annual). A full impact analysis was therefore required and performed for the 1-hour time period.
1. The SIL level of nitrogen dioxide is 1  $\mu\text{g}/\text{m}^3$  (annual). Modeling of this facility resulted in predicted air concentrations of 0.66  $\mu\text{g}/\text{m}^3$ . Therefore, no full impact analysis of nitrogen dioxide was required or performed.
  2. The full impact analysis showed that when TCEQ's screening background concentration for Cooke County (derived from Dallas and Tarrant Counties) of 102.9  $\mu\text{g}/\text{m}^3$  was added to the 15.2  $\mu\text{g}/\text{m}^3$  maximum modeled concentration of nitrogen dioxide, the result was 118.11  $\mu\text{g}/\text{m}^3$ . The short-term (1-hour) nitrogen dioxide NAAQS is 188  $\mu\text{g}/\text{m}^3$ , and 118.11  $\mu\text{g}/\text{m}^3$  does not exceed this NAAQS.
- e. **Sulfur Dioxide.** Sulfur dioxide was modeled and evaluated for the proposed facility. The de minimis or SIL level of sulfur dioxide is 7.8  $\mu\text{g}/\text{m}^3$  (1-hour), 25  $\mu\text{g}/\text{m}^3$  (3-hour), 5  $\mu\text{g}/\text{m}^3$  (24-hour), and 1  $\mu\text{g}/\text{m}^3$  (annual). Modeling of this facility resulted in predicted air concentrations of sulfur dioxide of 1.7  $\mu\text{g}/\text{m}^3$  (1-hour), 0.7  $\mu\text{g}/\text{m}^3$  (3-hour), 0.4  $\mu\text{g}/\text{m}^3$  (24-hour), and 0.07  $\mu\text{g}/\text{m}^3$  (annual). Thus, a full impact analysis was not required or performed.

### Non-criteria Pollutants

94. Silica has not been designated as a criteria pollutant or a hazardous air pollutant.

95. The TCEQ's ESLs are guidelines developed by TCEQ toxicologists for non-criteria pollutants, based on data concerning health effects, odor/nuisance potential, and effects on vegetation.
96. The ESLs are set at levels lower than those reported to produce adverse health effects, and are set to protect the general public, including sensitive subgroups such as children, the elderly, or people with existing respiratory conditions.
97. If a predicted or measured airborne level of a constituent does not exceed the ESL, adverse health or welfare would not be expected to result.
98. If ambient levels of constituents in the air exceed the ESL, a health effect evaluation is required to assess whether a health issue is presented.
99. The objective of a health effect evaluation is to evaluate GLCs for the potential to cause adverse health or welfare effects; and to consider the "worst-case scenario emissions" in order to predict maximum potential exposure levels.
100. The  $GLC_{max}$  is evaluated first, and if needed, the GLC at the maximally affected non-industrial receptor ( $GLC_{ni}$ ) is evaluated next.
101. Applicant's modeling analysis of silica, as reviewed by ADMT, concluded the following:
  - a. The ESL for silica was exceeded at off-site locations, for both periods of time—short-term (24-hour) and long-term (annual)—and therefore, a review by TCEQ's Toxicology Division was required and performed.
  - b. The ESL for silica of  $0.27 \mu\text{g}/\text{m}^3$  for long-term exposure and  $14 \mu\text{g}/\text{m}^3$  for short-term exposure were exceeded. The modeling predicted a maximum annual (long-term) average silica concentration of  $0.44 \mu\text{g}/\text{m}^3$ . The modeling also predicted a maximum 1-hour (short-term) average silica concentration off-site as  $16.4 \mu\text{g}/\text{m}^3$ .

#### **Worst-Case Conditions for Modeling**

102. The Application's maximum operational conditions, evaluated in accordance with TCEQ practice and guidance, represent a reasonable worst-case for air dispersion modeling purposes.
103. The AERMOD model used by Applicant for the air dispersion modeling analysis is known to produce results that are conservative and over-predictive.

#### **Number of Years for Analyses**

104. Applicant used the National Weather Service (NWS) surface meteorological data (met data) for 1988 from Dallas/Fort Worth, Texas and NWS upper air met data from Stephenville, Texas for both the short-term and long-term modeling.

105. Meteorological conditions affect where airborne particles disperse in the atmosphere, as influenced by wind speed, wind direction, temperature, humidity, station pressure, amount of incoming solar radiation, and insulating cloud cover.
106. The modeling conducted by Applicant was compliant with Air Quality Modeling Guidelines (guidelines), which direct modelers to use data for 1988 and to use Appendix C, a table of meteorological stations and counties for selection.
107. According to Appendix C, for Cooke County the surface air met data to use is Dallas/Fort Worth, while the upper air data is Stephenville.
108. Daily weather conditions can vary within a given year but the worst-case conditions that occur during a year are typically the same as other years, particularly with 8,700 hourly samples gathered for the year and used for analysis.

#### **Source of Meteorological Data (DFW/Denton)**

109. A new set of met data from the NWS station at the Denton airport (Denton met data), covering 2006 to 2010 was published on the TCEQ website on December 20, 2012.
110. The Denton met data was not available for modeling when Applicant submitted its modeling report on February 14, 2012.
111. The Denton met data incorporates the use of the Automated Surface Observing System (ASOS) to record hourly meteorological observation and AERMINUTE to minimize data gaps due to calm or missing winds.
112. A March 8, 2013, EPA memoranda recommends that lower wind speeds recorded of 0.5 meters-per-second or below, or "calm wind bias," be eliminated so that the revised datasets using ASOS and AERMINUTE are consistent with past datasets which had a threshold of 1- 1.5 meters-per-second wind speeds recorded.
113. The Denton met data is presently being reviewed and revised by the ADMT team in accordance with the March 2013 EPA recommendation to remove the calm wind bias.
114. The use of Dallas/Ft. Worth met data in Applicant's air dispersion modeling analysis was reasonable, appropriate, and acceptable.
115. The differences between the meteorological conditions at the DFW and Denton locations would not be considered significant in the overall analysis since they are 30 miles apart.

#### **BACT**

116. Applicant will use an enclosed conveyor system to transport sand from the quarry to the processing facilities.
117. Unusable and unmarketable material will be returned from the processing area to the quarry via trucks.

118. Applicant may use either roads or conveyors to transport sand to the processing facilities or to transport unusable/unmarketable material from the processing facility to the quarry.

#### **NAAQS for PM<sub>10</sub> (full impact analysis)**

119. Applying the Denton met data with no other input adjustments, the maximum modeled concentration of PM<sub>10</sub> is 5.8 µg/m<sup>3</sup>.
120. When TCEQ's screening background concentration for Cooke County of 60 µg/m<sup>3</sup> is added to the 5.8 µg/m<sup>3</sup> maximum modeled concentration of PM<sub>10</sub>, the result is 66 µg/m<sup>3</sup>; which does not exceed the short-term (24-hour) PM<sub>10</sub> NAAQS of 150 µg/m<sup>3</sup>.
121. The Application reasonably demonstrated that a full impact analysis was not required for PM<sub>10</sub>.

#### **Silica Evaluation**

122. The TCEQ effects review guideline provides for a three tier review to evaluate the health and welfare effects: Tier One occurs only if all off-property short- and long-term GLC<sub>max</sub> are below the ESLs; Tier Two proceeds if the GLC<sub>max</sub> occurs on industrial property only and does not exceed the ESL by more than two-fold; and Tier Three ensues if the GLC<sub>max</sub> occurs in a non-industrial area or the ESL is exceeded by more than twice.
123. Because an ESL was exceeded at a non-industrial area, a Tier Three review was performed by the Toxicology Division.
124. A Tier Three review requires analysis of case-specific factors that have a bearing on exposure: surrounding land use; magnitude of the concentration; the frequency of exceedence; the type of toxic effect (acute or chronic); the margin of safety between the toxicity value and known effects levels; degree of confidence in the toxicity database; and acceptable reductions from existing ground level concentrations.

#### **Worst-Case Scenario/Conditions**

125. The air dispersion modeling performed by Applicant predicted the maximum silica concentrations of the facility at various points off-property under reasonable worst-case conditions.
126. The silica ESLs are set sufficiently low that they account for potential silica in the background either naturally occurring, or as a result of other nearby sources.
127. It was assumed that 100% of PM<sub>10</sub> emissions from the proposed facilities would be silica, which overestimated the off-property silica impacts.
128. The silica emission rates used in the Application to conduct the air dispersion modeling analysis were reasonable.

129. The maximum off-property silica concentrations predicted by Applicant's modeling analysis are overestimated.

### **Exceedance of ESL**

130. The magnitudes for the short-term ESL exceedances showed that the  $GLC_{max}$  was exceeded by 1.17 times (or the ratio of the  $GLC_{max}$  of  $16.4 \mu\text{g}/\text{m}^3$  to the ESL of  $14 \mu\text{g}/\text{m}^3$ ) and exceeded at the  $GLC_{ni}$  by 1.07 times (or the ratio of the  $GLC_{max}$  of  $15 \mu\text{g}/\text{m}^3$  to the ESL of  $14 \mu\text{g}/\text{m}^3$ ).
131. The predicted frequency of the short-term ESL exceedance at the  $GLC_{max}$  is 5 hours per year and 1 hour per year at the  $GLC_{ni}$ .
132. Adverse health effects would not be expected from the exposure to these small magnitudes and frequencies of silica.
133. The risk-goal for the long-term silica ESL is set at "no significant risk level" of  $1 \times 10^5$  (1 in 100,000) or 1 cancer death per 100,000 population, which is within the range of what the EPA has designated as an acceptable risk range of  $1 \times 10^4$  (1 in 10,000) to  $1 \times 10^6$  (1 in 1,000,000).
134. The exceedances at the  $GLC_{max}$  occur in an area where public exposure is unlikely, and the long-term ESL is not exceeded at the  $GLC_{ni}$ .
135. ESLs are set at extremely low levels in order to protect even the most sensitive members of the general public. Most health-based ESLs are set at levels between 100 to 1,000 times lower than exposure levels that are safe for workers exposed to the air contaminant in an occupational setting.
136. The ESLs were peer-reviewed outside of TCEQ by experts in inhalation toxicology and risk assessment.
137. There are no other industrial facilities with silica emissions near the Applicant's proposed facilities.
138. No adverse health or welfare effects are expected to occur as a result of the predicted silica concentrations, based on the amount, frequency, and location of the ESL exceedances.
139. The Application and supporting evidence demonstrates that emissions from the proposed facilities at the proposed sand processing plant will be protective of the public's health, welfare, and property.
140. The Application and supporting evidence demonstrate that operation of the proposed facilities in accordance with the Draft Permit will not adversely affect human health or welfare, animal life, vegetation, or property or as to interfere with normal use and enjoyment of animal life, vegetation, or property.

## CONCLUSIONS OF LAW

1. The Commission has jurisdiction to consider the Applicant's application pursuant to Tex. Health & Safety Code §§ 382.011, 392.051, and 382.0518.
2. SOAH has jurisdiction to conduct a hearing and to prepare a Proposal for Decision in this matter. Tex. Gov't Code § 2003.047.
3. Proper notice was given as required by Tex. Health & Safety Code § 382.056, Tex. Gov't Code §§ 2001.051 and 2004.052; 30 Tex. Admin. Code (TAC) § 39.601, *et seq.*
4. The Commission has the authority to issue a permit to construct a new facility or modify an existing facility that may emit air contaminants. Tex. Health & Safety Code § 382.051(a)(1).
5. Air contaminants are defined to include particulate matter, dust, fumes, smoke, vapor, or odor. Tex. Health & Safety Code § 382.003(2).
6. Air pollution is defined as the discharge of air contaminants in such concentration and such duration as may be injurious or adversely affect human health or welfare, animal life, vegetation, or property. Tex. Health & Safety Code § 382.003(3).
7. A project that meets the applicable requirements is entitled to an air quality permit. Tex. Health & Safety Code § 382.0518(b) and 30 TAC § 116.111.
8. The burden is on the Applicant to prove by a preponderance of the evidence that the Application complies with all applicable statutory and regulatory requirements. 30 TAC §§ 55.210(b) and 80.17(a).
9. The Commission may not issue an air quality permit unless the permit is protective of public health and welfare. 30 TAC § 116.111(a)(2)(A).
10. A facility is a "discrete or identifiable structure, device, item, equipment, or enclosure that constitutes or contains a stationary source, including appurtenances other than emission control equipment. A mine, quarry, well test, or road is not considered to be a facility." Tex. Health & Safety Code § 382.003(6) and 30 TAC § 116.10(4).
11. Before issuing a permit for a facility, the Commission must find that the facility will employ "at least the best available control technology (BACT), considering the technical practicability and economic reasonableness of reducing or eliminating the emissions resulting from the facility . . . and there is no indication that the emissions from the facility will contravene the intent of [the TCAA], including protection of the public's health and physical property." Tex. Health & Safety Code § 382.0518.
12. BACT represents the best technology available, within technical practicability and economic reasonableness, to reduce or eliminate emissions from the facility. 30 TAC § 116.10(3).

13. The Applicant will apply BACT to the facilities at the plant and there is no indication that emissions from the facilities will contravene the intent of the TCCA. Tex. Health & Safety Code § 382.0518(b)(1); 30 TAC § 116.111(a)(2)(B)-(C).
14. The roads and the quarry are not facilities, and the BACT requirements do not apply to the roads and quarries. Tex. Health & Safety Code §§ 382.003 and 382.0578
15. All representations in the Application with regard to construction plans, operating procedures and maximum emission rates become conditions on which the proposed plant must be constructed and operated. The Applicant's representations in the Application are legally binding requirements under which the proposed plant must be operated. 30 TAC § 116.116.
16. One NSPS is applicable to the facilities proposed in the Application. Subpart UUU of 40 Code of Federal Regulations (CFR) Part 60, as amended September 28, 1992, relating to Calciners and Dryers in Mineral Industries, applies to dryers installed in sand processing plants, including Applicant's proposed dryer.
17. Emissions from the baghouse dryer will meet 40 CFR Part 60, Subpart UUU. 30 TAC §§ 101.20 and 116.111(a)(2)(D).
18. Applicant demonstrated that the proposed plant will operate in accordance with the performance specified in the Application and the Draft Permit. 30 TAC § 116.111(a)(2)(G).
19. Section 5.130 of the Texas Water Code does not apply to the Application.
20. NAAQS are enforced by TCEQ throughout all parts of Texas. 30 TAC § 101.21.
21. NAAQS are set for six principal pollutants, which are referred to as "criteria" pollutants, i.e. pollutants for which a standard exists: (1) particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>); (2) particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>); (3) ozone (O<sub>3</sub>); (4) sulfur dioxide (SO<sub>2</sub>); (5) carbon monoxide (CO); (6) nitrogen dioxide (NO<sub>2</sub>); and (7) lead (Pb). 42 United States Code (U.S.C.) § 7409(a); 40 CFR § 50.
22. Primary NAAQS define levels of air quality that the EPA Administrator has determined are necessary to protect the public health. Primary NAAQS are set to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. 42 U.S.C. § 7409(b)(1); 40 CFR § 50.2(b).
23. Secondary NAAQS define levels of air quality that the EPA Administrator has determined are requisite to protect the public welfare from any known or anticipated adverse effects. Secondary NAAQS are designed to protect the public welfare against non-health-related effects such as decreased visibility; effects to animals, crops, and vegetation; and damage to and deterioration of property. 42 U.S.C. § 7409(b)(2).

24. No person in Texas may allow or permit emissions of SO<sub>2</sub> from a source operated on a property to exceed a net ground level concentration of 0.4 per million by volume averaged over any 30-minute period. 30 TAC § 112.4.
25. Computerized air dispersion modeling may be required by the ED to determine air quality impacts from a proposed new facility or source modification. 30 TAC § 116.111(J).
26. The Commission's rules provide a list of factors to be considered when determining a proper allocation of transcript costs. 30 TAC § 80.23(d).
27. Based on the above Findings of Fact and Conclusions of Law, the proposed industrial sand processing facility will not have adverse effects on air quality or cause violations of the TCAA or other applicable state or federal requirements.
28. Based on the above Findings of Fact and Conclusions of Law, the Draft Permit conditions will fully comply with applicable air quality regulations, including BACT, enforceability, and consideration of emission sources and emission rates.
29. Based on the above Findings of Fact and Conclusions of Law, the Draft Permit conditions contain adequate monitoring, reporting, and recordkeeping requirements to ensure Applicant's compliance with the permit.
30. Based on the above Findings of Fact and Conclusions of Law, the Applicant's air dispersion modeling of proposed particulate matter emissions was accurate and appropriate including proper use of emission factors, met data, and background concentrations.
31. Based on the above Findings of Fact and Conclusions of Law, the proposed facility's predicted emissions do not exceed the NAAQS and are allowable.
32. Based on the above Findings of Fact and Conclusions of Law, the proposed facility's emissions of silica will not adversely impact the public health, welfare, or physical property.
33. Based on the above Findings of Fact and Conclusions of Law, the proposed facility's emissions will not adversely affect livestock, wildlife, including endangered species, or vegetation, including agricultural activities of the public.
34. Based on the above Findings of Fact and Conclusions of Law, emissions from the proposed facility will not cause or contribute to nuisance conditions.
35. Based on the above Findings of Fact and Conclusions of Law, the potential air emissions from the proposed facility will not adversely affect air quality, and the Draft Permit complies with the TCAA and other applicable state and federal requirements.
36. Based on the above Findings of Fact and Conclusions of Law, the Applicant has met its burden of proof.

37. Based on the above Findings of Fact and Conclusions of Law, the Application complies with all statutory and regulatory requirements.
38. Based on the above Findings of Fact and Conclusions of Law, the Application is approved and the Draft Permit issued.
39. Based on the above Findings of Fact and Conclusions of Law, and based on factors established in 30 TAC § 80.23, it would be just to allocate 100% of the transcript costs to Applicant.

**NOW, THEREFORE, BE IT ORDERED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY THAT:**

1. The application of EOG Resources, Inc. is granted and the attached permit is issued.
2. EOG Resources, Inc. shall pay all of the transcript costs.
3. All other motions, requests for entry of specific Findings of Fact or Conclusions of Law, and any other requests for general or specific relief, if not expressly granted herein, are hereby denied.
4. The effective date of this Order is the date the Order is final, as provided by 30 TAC § 80.273 and Tex. Gov't Code § 2001.144.
5. The Commission's Chief Clerk shall forward a copy of this Order to all Parties.
6. If any provision, sentence, clause, or phrase of this Order is for any reason held to be invalid, the invalidity of any provision shall not affect the validity of the remaining portions of this Order.

Issue Date:

**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**

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**Bryan W. Shaw, Ph.D., Chairman  
For the Commission**

**SOAH DOCKET NO. 582-12-6347**  
**TCEQ DOCKET NO. 2012-0971-AIR**

<b>APPLICATION BY</b> <b>EOG RESOURCES, INC. FOR</b> <b>PROPOSED AIR</b> <b>QUALITY PERMIT NO. 95412</b>	§ § § §	<b>BEFORE THE STATE OFFICE</b> <b>OF</b> <b>ADMINISTRATIVE HEARINGS</b>
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**ATTACHMENT A**

Acronyms and Abbreviations

ADMT	TCEQ Air Dispersion Modeling Team
AER	allowable emission rate
AERMOD	American Meteorological Society (AMS)/Environmental Protection Agency (EPA)/Regulatory Model (Air Modeling Program)
AERMET	AERMOD Meteorological Preprocessor
ALJ	Administrative Law Judge
AOI	area of impact
AP-42	compilation of air pollutant emission factors
APD	Air Permits Division
APWL	Air Pollutant Watch List
BACT	best available control technology
BLLC	Bartush Land and Cattle Company
BMP	Best Management Practice (usually plural BMPs)
CAA	Clean Air Act, <i>see also</i> FCAA, TCAA
CAMS	continuous air monitoring station
CCH	contested case hearing
CFR	Code of Federal Regulations
CID	Commissioners' Integrated Database
CN	Customer Number, <i>see also</i> RN
CO	carbon monoxide
COL	Conclusion of Law, <i>see also</i> FOF
DFW	Dallas-Fort Worth (TCEQ Regional Office – Region 4)
ED	TCEQ Executive Director
EI	emissions inventory
EOG	EOG Resources, Inc.
EPA	U.S. Environmental Protection Agency; <i>see also</i> USEPA
EPN	emission point number
ESL	effects screening level

FCAA	Federal Clean Air Act <i>see also</i> CAA, TCAA
FM	farm-to-market highway
FOF	Finding of fact, <i>see also</i> COL
GLC	ground-level concentration
GLC <sub>max</sub>	maximum ground-level concentration
GLC <sub>ni</sub>	maximum non-industrial ground-level concentration
HAP	hazardous air pollutant
lb/hr	pounds per hour
LOAEL	Lowest observed adverse effect level
µg/m <sup>3</sup>	micrograms per cubic meter
MAERT	Maximum Allowable Emission Rate Table
m/s	meters per second
MSS	Maintenance, start-up, and shut-down
MSL	Modeling significance level
NAAQS	National Ambient Air Quality Standards
NAPD	Notice of Application and Preliminary Decision (second public notice), <i>see also</i> NORI
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NIOSH	National Institute of Occupational Health and Safety
NO <sub>x</sub>	nitrogen oxides
NO <sub>2</sub>	nitrogen dioxide
NOAEL	No observed adverse effect level
NOE	Notice of Enforcement, <i>see also</i> NOV
NORI	Notice of Receipt of Application and Intent to Obtain Permit (first public notice), <i>see also</i> NAPD
NOV	Notice of Violation, <i>see also</i> NOE
NSPS	New Source Performance Standards
NSR	New Source Review
NWS	National Weather Service
OCC	TCEQ Office of the Chief Clerk ( <i>also</i> CCO)
OCE	TCEQ Office of Compliance and Enforcement
OGC	TCEQ Office of General Counsel
OPIC	TCEQ Office of Public Interest Counsel, <i>see also</i> PIC
OSHA	Occupational Safety & Health Administration
PBR	Permit by Rule
P.E.	Professional Engineer
PFD	Proposal for Decision
PIC	Public Interest Counsel, <i>see also</i> OPIC
PM	particulate matter
PM <sub>10</sub>	Particulate matter with an aerodynamic diameter less than or equal to 10 micrometers
PM <sub>4</sub>	Particulate matter with an aerodynamic diameter less than or equal to 4 micrometers/ (Silica)
PM <sub>2.5</sub>	Particulate matter with an aerodynamic

	diameter less than or equal to 2.5 micrometers
ppb	parts per billion
ppm	parts per million
PSD	Prevention of significant deterioration
QA/QC	quality assurance/ quality control
ReV	Reference Value
RFC	Request for Comments
RG-25	TCEQ Air Quality Modeling Guidelines
RN	Regulated Entity Number, <i>see also</i> CN/Facility Number
RRMT	Red River Motorcycle Trails, Inc.
RTC	Response to Comments <i>or</i> Response to Public Comments
SIL	significance impact level
SIP	State Implementation Plan
SO <sub>2</sub>	sulfur dioxide
SOAH	State Office of Administrative Hearings
TAC	Texas Administrative Code
TBPE	Texas Board of Professional Engineers
TCAA	Texas Clean Air Act, <i>see also</i> CAA, FCAA
TCEQ	Texas Commission on Environmental Quality, <i>formerly</i> TNRCC
tph	tons per hour
tpy	tons per year
TSP	total suspended particulate
URF	Unit Risk Factor
USEPA	U.S. Environmental Protection Agency, <i>see also</i> EPA
VOC	volatile organic compound

**SOAH DOCKET NO. 582-12-6347  
TCEQ DOCKET NO. 2012-0971-AIR**

<b>APPLICATION BY EOG</b>	<b>§</b>	<b>BEFORE THE STATE OFFICE</b>
	<b>§</b>	
<b>RESOURCES, INC., FOR AIR</b>	<b>§</b>	<b>OF</b>
	<b>§</b>	
<b>QUALITY PERMIT NUMBER 95412</b>	<b>§</b>	<b>ADMINISTRATIVE HEARINGS</b>

**DRAFT PERMIT**

Special Conditions

Permit Number 95412

THE STATE OF TEXAS  
COUNTY OF TARRANT  
HEREBY CERTIFY THAT THIS IS A TRUE AND CORRECT COPY  
OF A TEXAS COMMISSION ON ENVIRONMENTAL QUALITY  
DOCUMENT, SIGNATURE OF THE PERMITTEE  
JUL - 9 2011  
E. J. ...  
...  
...

Emission Limitations

1. This permit covers only those sources of emissions listed in the attached table entitled "Emission Sources - Maximum Allowable Emission Rates," and those sources are limited to the emission limits and other conditions specified in the table.

Fuel Specifications

2. This permit does not authorize the operation of an internal combustion engine in conjunction with this facility. The holder of this permit shall obtain prior authorization for any internal combustion engine that remains at a single point or location for more than 12 consecutive months. Any engine that remains at a single point or location for less than or equal to 12 consecutive months is not considered a stationary source and therefore no authorization is required.

3. Fuel for the Dryer (Emission Point No. [EPN] DR150) shall be pipeline-quality sweet natural gas. Use of any other fuel will require prior approval of the Executive Director of the Texas Commission on Environmental Quality (TCEQ).

Upon request by the Executive Director of the TCEQ or the TCEQ Regional Director or any local air pollution control program having jurisdiction, the holder of this permit shall provide a sample and/or an analysis of the fuel used in these facilities or shall allow air pollution control program representatives to obtain a sample for analysis.

Federal Applicability

4. These facilities shall comply with all applicable requirements of the U.S. Environmental Protection Agency (EPA) regulations on Standards of Performance for New Stationary Sources (NSPS) promulgated in Title 40 Code of Federal Regulations (40 CFR) Part 60, specifically the following:
  - A. Subpart A - General Provisions; and
  - B. Subpart UUU - Calciners and Dryers in Mineral Industries.

Opacity/Visible Emission Limitations

5. There shall be no visible fugitive emissions leaving the property. Observations for visible emissions shall be performed and recorded quarterly. The visible emissions determination shall be made during normal plant operations. Observations shall be made on the downwind property line for a minimum of six minutes. If visible emissions are observed, an evaluation must be accomplished in accordance with EPA 40 CFR Part 60, Appendix A, Test Method (TM) 22, using the criteria that visible emissions shall not exceed a cumulative 30 seconds in duration in any six-minute period. If visible emissions exceed the TM 22 criteria, immediate action shall be taken to eliminate the excessive visible

emissions. The corrective action shall be documented within 24 business hours of completion.

6. Opacity of particulate matter emissions from the Dryer Baghouse Stack (EPN DR150), The Surge Bin Dust Collector Baghouse (EPN BV90), the Tank 250 Dust Collector Baghouse (EPN BV350), the Product Silo Dust Collector Baghouse Stacks (EPNs BV400, BV310, BV320, and BV330) and from the Dry Plant Transfer Dust Collector Baghouse (EPN DC100) shall not exceed five percent. Determination of compliance with this requirement shall be made first by observing for visible emissions during normal plant operations. Observations shall be made at least 15 feet and no more than 0.25 mile from the emission point. If visible emissions are observed from the emission point, opacity shall be determined by 40 CFR Part 60, Appendix A, TM 9. Determination of compliance with this requirement shall be performed and the results recorded quarterly.

In accordance with 40 CFR Part 60, Appendix A, TM 9 or equivalent, and except for those periods described in Title 30 Texas Administrative Code (30 TAC) §§ 101.201 and § 101.211, opacity of emissions from the screen (EPN SCRNMINE) and from any transfer point on belt conveyors shall not exceed seven percent over a six-minute period.

7. There shall be no visible emissions, except for visible water vapor or fog, from the saturated Wet Plant Screen (EPN SCREEN) nor from the saturated processes consisting of the Cyclones, Attrition Cells, Density Separators, Dewatering Tanks and associated pumps and conveyors.

Operational Limitations, Work Practices, and Plant Design

8. The facility shall be limited to the following hourly and annual throughput rates:

Source	Tons per hour	Tons per year in any rolling 12-month period
Vibrating Scalping Screen (EPN SCRNMINE)	500	4,380,000
Wash Screen (EPN SCREEN)	300	2,628,000
Dryer Throughput	158	1,182,600

9. All facilities are authorized to operate up to 8,760 hours per year except the Dryer Baghouse (EPN DR150) and associated Dryer, the Dry Plant Transfer Dust Collector Baghouse (EPN DC100) and associated dry feed bins, dry screens and conveyors, the Surge Bin Dust Collector (EPN BV90), and the Product Silo Dust Collectors (EPNs BV250, BV300, BV310, BV320 and BV330) and associated product load facilities which shall each be limited to a maximum operating schedule not to exceed 7,884 hours per year in any rolling 12-month period.
10. All material transfer points prior to the dryer shall be partially enclosed and the Vibrating Scalping Screen (EPN SCRNMINE) shall be completely enclosed except for openings to allow material to enter and exit the screen. Additionally, permanently mounted spray bars shall be installed at the Vibrating Scalping Screen (EPN SCRNMINE) and at all material

transfer points prior to the dryer, except for those processes defined as being saturated in the section above on Opacity/Visible Emission Limitations. All spray bars shall be operated as necessary to minimize emissions and maintain compliance with TCEQ rules and regulations.

11. The Wet Plant Screen (EPN SCREEN) shall operate under saturated conditions at all times.
12. The Dryer (EPN 150) shall be vented to the Dryer Baghouse (EPN DR150) designed to meet an outlet grain loading of no greater than 0.005 grain per dry standard cubic feet of air flow (gr/dscf) and exhaust vertically uninhibited (without a rain cap) through a stack at least 95 feet above ground level.
13. All screening and material handling operations after the dryer and prior to the product storage silos shall be enclosed and vented to the Dry Plant Transfer Dust Collector Baghouse (EPN DC100) designed to meet an outlet grain loading of no greater than 0.001 gr/dscf and exhaust vertically uninhibited (without a rain cap) through a stack at least 28 feet above ground level.
14. The Surge Bin (EPN 90) shall be vented to the Surge Bin Dust Collector (EPN BV90) designed to meet an outlet grain loading of no greater than 0.001 gr/dscf and exhaust vertically uninhibited (without a rain cap) through a stack at least 51 feet above ground level.
15. The Overs/Fines Tank (EPN TK250) shall be vented to the Product Silo Dust Collector (EPN BV250) designed to meet an outlet grain loading of no greater than 0.001 gr/dscf and exhaust vertically uninhibited (without a rain cap) through a stack at least 87.5 feet above ground level.
16. All Product Silos (EPN TK300, TK310, TK320 and TK330) shall be vented to the Product Silo Dust Collector (EPN BV250, BV310, BV320 and BV330 respectively) designed to each meet an outlet grain loading of no greater than 0.001 gr/dscf and each exhaust vertically uninhibited (without a rain cap) through individual stacks at least 100 feet above ground level.
17. A visible and/or audible warning device shall be installed on each silo to warn operators when the silos are full so that silos are not overloaded. The silos shall not be overloaded at any time.
18. All hoppers shall be partially enclosed with extended sides. No material shall be dropped into a hopper at a height above the partial enclosures. Loading of material into open bed trucks (EPN TS250) for returning material to the mine shall be controlled with water sprays operated as necessary to minimize emissions and maintain compliance with TCEQ rules and regulations. Loading of product trucks (EPNs TS300, TS310, TS320 and TS330) shall be via enclosed chutes with emissions vented to the respective silo baghouses.
19. All in-plant roads, traffic areas and active work areas shall be cleaned or sprayed with water upon detection of visible particulate matter emissions to maintain compliance with

all applicable TCEQ rules and regulations.

20. Stockpiles shall not exceed a cumulative area of 2.1 acres. Stockpiles shall be constructed and controlled as represented in the application and shall not exceed 50 feet in height unless approved by the TCEQ Regional Director or any local air pollution control program having jurisdiction. All stockpiles shall be sprayed with water upon detection of visible particulate matter emissions to maintain compliance with all applicable TCEQ rules and regulations.
21. Spillage of any aggregate material, silica sand and/or industrial sand shall be cleaned up immediately to minimize emissions and maintain compliance with TCEQ rules and regulations.

#### Determination of Compliance

22. To demonstrate compliance with the maximum allowable emission rates table (MAERT) and with emission performance levels as specified in the special conditions, the holder of this permit shall comply with the NSPS Subpart A and UUU requirements within the specified time frame. Sampling must be conducted in accordance with the TCEQ Sampling Procedures Manual or in accordance with the applicable EPA 40 CFR procedures. Any deviations from those procedures must be approved by the TCEQ Executive Director prior to sampling.
23. Upon request by the TCEQ Executive Director or the TCEQ Regional Director having jurisdiction, the holder of this permit shall perform stack sampling and/or other testing as required to establish the actual pattern and quantities of air contaminants being emitted into the atmosphere to demonstrate compliance with the MAERT and with emission performance levels as specified in the special conditions and/or otherwise prove satisfactory equipment performance. Sampling must be conducted in accordance with the TCEQ Sampling Procedures Manual or in accordance with the applicable EPA 40 CFR procedures. Any deviations from those procedures must be approved by the TCEQ Executive Director or the appropriate TCEQ Regional Director prior to conduction sampling.
24. The capture and control system of the Dryer Baghouse (EPN DR150) and the Dry Plant Transfer Dust Collector Baghouse (EPN DC100) shall be operated and maintained in accordance with the manufacturers' recommendations as to assure that the minimum control efficiency is met at all times when the system is required to be operated. A pressure drop gauge shall be installed across the filter bank showing differential pressure, in inches water column, or equivalent pressure drop scale. The monitoring device for each system shall be calibrated at least annually in accordance with the manufacturer's specifications. Pressure drop reading shall be recorded at least once per day that the system is required to be operated. Filters shall be replaced whenever the pressure drop across the filter no longer meets the manufacturer's recommendation. Records of maintenance performed, including dates of filter replacement, shall be included in a log as they occur. If the filter system operating performance parameters are outside of the manufacturer's recommended operating range, the affected facility shall not be in operation until the abatement equipment is repaired.

Sampling Requirements

25. The holder of this permit is responsible for providing sampling and testing facilities and conducting the sampling and testing operations at their own expense. Sampling ports and platforms shall be incorporated into the design of the stacks according to the specifications set forth in the attachment entitled "Chapter 2, Stack Sampling Facilities" prior to stack sampling. Alternate sampling facility designs may be submitted for approval by the TCEQ Regional Office with jurisdiction.
26. All sampling shall be conducted in accordance with the Special Conditions listed below except for sampling conducted for demonstration of compliance with the Opacity/Visible Emissions Limitations section of this permit.
27. Sampling shall be conducted in accordance with the TCEQ Sampling Procedures Manual and EPA TMs.
28. A pretest meeting shall be held with personnel from the TCEQ before the required tests are performed. The TCEQ Regional Office with jurisdiction shall be notified not less than 45 days prior to sampling to schedule a pretest meeting. The notice shall include:
  - (A) Date for pretest meeting;
  - (B) Date sampling will occur;
  - (C) Points or sources to be sampled;
  - (D) Name of firm conducting sampling;
  - (E) Type of sampling equipment to be used; and
  - (F) Method or procedure to be used in sampling.

The purpose of the pretest meeting is to review the necessary sampling and testing procedures, to provide the proper data forms for recording pertinent data, and to review the format procedures for submitting the test results.

29. Alternate sampling methods and representative unit testing may be proposed by the permit holder. A written proposed description of any deviation from sampling procedures or emission sources specified in permit conditions or TCEQ or EPA sampling procedures shall be made available to the TCEQ prior to the pretest meeting. Such a proposal must be approved, in writing, by the TCEQ Regional Office with jurisdiction at least two weeks prior to sampling.
30. Requests to waive testing for any pollutant specified shall be submitted, in writing, for approval to the TCEQ Office of Air, Air Permits Division in Austin.
31. During stack sampling emission testing, the facilities shall operate at maximum represented throughput rates. Primary operating parameters that enable determination of throughput rates shall be monitored and recorded during the stack test. These parameters

are to be determined at the pretest meeting.

If the plant is unable to operate at the maximum represented throughput rates during testing, then additional stack testing shall be required when the throughput rate exceeds the previous stack test throughput rate by +10 percent unless otherwise determined, in writing, by the TCEQ Executive Director.

32. Requests for additional time to perform sampling shall be submitted to the TCEQ Regional Office with jurisdiction.
33. Copies of the final sampling report shall be forwarded to the TCEQ within 60 days after sampling is completed. Sampling reports shall comply with the attached provisions of Chapter 14 of the TCEQ Sampling Procedures Manual. The reports shall be distributed as follows:

One copy to the TCEQ Regional Office with jurisdiction.  
One copy to each appropriate local air pollution control program with jurisdiction.  
One copy to the TCEQ Office of Air, Air Permits Division in Austin.

#### Recordkeeping Requirements

34. In addition to the recordkeeping requirements specified in General Condition No. 7 and 40 CFR Part 60, Subparts A and UUU, the following records shall be maintained at this facility site and made available at the request of personnel from the TCEQ or any other air pollution control program having jurisdiction to demonstrate compliance with permit limitations. These records shall be totaled for each calendar month, retained for a rolling 24-month period, and include the following:
  - A. Quarterly observations for visible emissions and opacity observations as specified in Opacity/Visible Emission Limitations;
  - B. Daily, monthly, and annual amounts of materials processed, summarized in tons per hour, tons per month, and tons per year;
  - C. Actual hours of operation of the Dryer Baghouse (EPN DR150), the Dry Plant Transfer Dust Collector Baghouse (EPN DC100), the Surge Bin Dust Collector (EPN BV90), and the Product Silo Dust Collectors (EPNs BV250, BV300, BV310, BV320 and BV330);
  - D. Records of road cleaning, application of road dust control, or road maintenance for dust control;
  - E. Records of daily pressure drop readings for the Dryer Baghouse (EPN DR150) and the Dry Plant Transfer Dust Collector Baghouse (EPN);
  - F. Records of manufacturer's recommended calibration specifications and records of calibration of the monitoring devices as required in Determination of Compliance;

- G. Inspections, malfunctions, repairs, and maintenance of abatement equipment, which includes the manufacturer's suggested cleaning and maintenance schedule; and
- H. A copy of the manufacturer's suggested cleaning and maintenance schedule for abatement equipment.

Date: \_\_\_\_\_

DRAFT

Emission Sources - Maximum Allowable Emission Rates

Permit Number 95412

This table lists the maximum allowable emission rates and all sources of air contaminants on the applicant's property covered by this permit. The emission rates shown are those derived from information submitted as part of the application for permit and are the maximum rates allowed for these facilities, sources, and related activities. Any proposed increase in emission rates may require an application for a modification of the facilities covered by this permit.

Air Contaminants Data

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
SCRNMINE	Vibrating Scalping Screen (5)	PM	0.18	0.79
		PM <sub>10</sub>	0.11	0.48
		PM <sub>2.5</sub>	0.03	0.14
SCREEN	Wet Plant Screen 100 (5)	PM	0.09	0.39
		PM <sub>10</sub>	0.02	0.09
		PM <sub>2.5</sub>	0.01	0.03
TRSFMINE	Mine Area Material Handling Fugitives (5), (6)	PM	0.50	2.21
		PM <sub>10</sub>	0.17	0.73
		PM <sub>2.5</sub>	0.05	0.21
CONVEY	Overland Belt Conveyors (5), (7)	PM	0.40	1.76
		PM <sub>10</sub>	0.15	0.64
		PM <sub>2.5</sub>	0.04	0.18
TRSFRR	Raw Sand Area Material Handling Fugitives (5), (8)	PM	0.09	0.41
		PM <sub>10</sub>	0.03	0.13
		PM <sub>2.5</sub>	0.01	0.04
TRSFDRY	Product Sand Area Material Handling Fugitives (5), (9)	PM	0.01	0.03
		PM <sub>10</sub>	<0.01	0.01
		PM <sub>2.5</sub>	<0.01	<0.01
LOADOUT	Loadout Material Handling Fugitives (5), (10)	PM	0.07	0.10
		PM <sub>10</sub>	0.03	0.04
		PM <sub>2.5</sub>	0.01	0.01

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
LOAD	Hoppers Loading Operations (5), (11)	PM	0.02	0.07
		PM <sub>10</sub>	0.01	0.02
		PM <sub>2.5</sub>	<0.01	0.01
PILES	Stockpile Fugitives (5)	PM	---	1.46
		PM <sub>10</sub>	---	0.73
		PM <sub>2.5</sub>	---	0.21
DR150	Dryer Baghouse Stack	PM	2.04	8.04
		PM <sub>10</sub>	2.04	8.04
		PM <sub>2.5</sub>	2.04	8.04
		NO <sub>x</sub>	6.01	26.32
		CO	3.13	13.71
		VOC	0.20	0.90
		SO <sub>2</sub>	0.53	2.33
BV90	TK90 Dust Collector Stack	PM	<0.01	0.02
		PM <sub>10</sub>	<0.01	0.02
		PM <sub>2.5</sub>	<0.01	0.02
BV250	Tank 250 Dust Collector Stack	PM	<0.01	0.02
		PM <sub>10</sub>	<0.01	0.02
		PM <sub>2.5</sub>	<0.01	0.02
BV300	Product Silo 300 Dust Collector Stack	PM	<0.01	0.02
		PM <sub>10</sub>	<0.01	0.02
		PM <sub>2.5</sub>	<0.01	0.02
BV310	Product Silo 310 Dust Collector Stack	PM	<0.01	0.02
		PM <sub>10</sub>	<0.01	0.02
		PM <sub>2.5</sub>	<0.01	0.02

Emission Sources - Maximum Allowable Emission Rates

Emission Point No. (1)	Source Name (2)	Air Contaminant Name (3)	Emission Rates	
			lbs/hour	TPY (4)
BV320	Product Silo 320 Dust Collector Stack	PM	<0.01	0.02
		PM <sub>10</sub>	<0.01	0.02
		PM <sub>2.5</sub>	<0.01	0.02
BV330	Product Silo 330 Dust Collector Stack	PM	<0.01	0.02
		PM <sub>10</sub>	<0.01	0.02
		PM <sub>2.5</sub>	<0.01	0.02
DC100	Dry Plant Transfer Dust Collector Stack	PM	0.09	0.37
		PM <sub>10</sub>	0.09	0.37
		PM <sub>2.5</sub>	0.09	0.37

- (1) Emission point identification - either specific equipment designation or emission point number from plot plan.
- (2) Specific point source name. For fugitive sources, use area name or fugitive source name.
- (3) PM - total particulate matter, suspended in the atmosphere, including PM<sub>10</sub> and PM<sub>2.5</sub>, as represented
  - PM<sub>10</sub> - total particulate matter equal to or less than 10 microns in diameter, including PM<sub>2.5</sub>, as represented
  - PM<sub>2.5</sub> - particulate matter equal to or less than 2.5 microns in diameter
- NO<sub>x</sub> - total oxides of nitrogen
- CO - carbon monoxide
- VOC - volatile organic compounds as defined in Title 30 Texas Administrative Code § 101.1
- SO<sub>2</sub> - sulfur dioxide
- (4) Compliance with annual emission limits (tons per year) is based on a 12 month rolling period.
- (5) Emission rate is an estimate and is enforceable through compliance with the applicable special condition(s) and permit application representations.
- (6) Includes EPNs TRANS1 through TRANS10.
- (7) Includes EPNs CONVEY1 and CONVEY2.
- (8) Includes EPNs TRANS11 through TRANS19.
- (9) Includes EPNs TRANS 20 through TRANS22.
- (10) Includes EPNs TS250, TS300, TS310, TS320 and TS330 loading operations as defined in the applicable Special Conditions.
- (11) Includes EPNs FH100, FH103, LOADHOPR.

Date: \_\_\_\_\_

## Construction Permit Source Analysis & Technical Review

Company	EOG Resources, Inc.	Permit Number	95412
City	Saint Jo	Project Number	164348
County	Cooke	Account Number	N/A
Project Type	Initial	Regulated Entity Number	RN106078322
Project Reviewer	Mr. Larry Buller, P.E.	Customer Reference Number	CN600564520
Site Name	Industrial Sand Processing Plant		

### Project Overview

EOG Resources, Inc. has submitted an application requesting authorization to construct and operate an Industrial Sand Processing Plant to be located in Cooke County near Saint Jo, Texas, to supply sand for oil and gas well service operations. The original application was received on March 25, 2011 and revised on September 2011, December 2011 and January 2011.

The proposed plant will consist of a wet plant area where sand is mined, screened, and washed, a natural gas fired dryer, and a dry plant area where the final product is further screened and loaded into product trucks. Plant wide throughput is expected to be 500 tons per hour with an annual throughput of 4,380,000 tons per year. Production through the dryer would be limited to 158 tons per hour producing a final product output of 1,182,600 tons per year of industrial sand. The plant would operate 8,760 hours per year with the dryer and associated conveyors, screens and loading facilities following the dryer limited to an operating schedule not to exceed 7,884 hours per year in any rolling 12 month period. The expected emissions from this plant, based on the proposed throughput and operating schedule, are shown in the table below.

At the time of this draft, there have been 526 public comments received with 159 requests for a hearing and 190 requests for a public meeting. Due to the interest from the public, a public meeting was held in Muenster, Cook County, Texas on August 23, 2011. The applicant has requested the direct referral of this application to the State Office of Administrative Hearings (SOAH).

### Emission Summary

Air Contaminant	Current Allowable Emission Rates (tpy)	Proposed Allowable Emission Rates (tpy)	Change in Allowable Emission Rates (tpy)
PM	0.00	17.49	17.49
PM <sub>10</sub>	0.00	12.04	12.04
PM <sub>2.5</sub>	0.00	9.55	9.55
VOC	0.00	0.90	0.90
NO <sub>x</sub>	0.00	26.23	26.23
CO	0.00	13.71	13.71
SO <sub>2</sub>	0.00	2.33	2.33

### Compliance History Evaluation - 30 TAC Chapter 60 Rules

A compliance history report was reviewed on:	April 2, 2012
Compliance period:	March 26, 2006 through March 25, 2011
Site rating & classification:	3.01 [Average by Default]
Company rating & classification:	2.90 [Average]
If the rating is 40<RATING<45, what was the outcome, if any, based on the findings in the formal report:	NA
Has the permit changed on the basis of the compliance history or rating?	No

### Public Notice Information - 30 TAC Chapter 39 Rules

Rule Citation	Requirement
39.403	Date Application Received: <span style="float: right;">March 25, 2011</span>
	Date Administratively Complete: <span style="float: right;">April 7, 2011</span>

**Construction Permit**  
**Source Analysis & Technical Review**

Permit No. 95412

Regulated Entity No. RN106078322

Page 2

<b>Rule Citation</b>	<b>Requirement</b>
	Small Business Source? <span style="float: right;">No</span>
	Date Leg Letters mailed: <span style="float: right;">April 7, 2011</span>
39.603	Date Published: <span style="float: right;">April 15, 2011 and May 27, 2011</span>
	Publication Name: <span style="float: right;">Originally published in Cooke County in the <i>Muenster Enterprise</i>. Subsequently published in the nearest municipality, Montague County's <i>Saint Jo Tribune</i></span>
	Pollutants: <span style="float: right;">organic compounds, nitrogen dioxides, sulfur dioxide, carbon monoxide and particulate matter including particulate matter with diameters of 10 microns or less and 2.5 microns or less</span>
	Date Affidavits/Copies Received: <span style="float: right;">April 19, 2011 and June 1, 2011</span>
	Is bilingual notice required? <span style="float: right;">No, the company certifies that students who attend the nearest elementary school (St. Jo Elementary) or middle school (St. Jo Middle School) are not eligible to be enrolled in a bilingual program provided by the district.</span>
	Date Certification of Sign Posting / Application Availability Received: <span style="float: right;">May 23, 2011 and June 30, 2011</span>
39.604	Public Comments Received? <span style="float: right;">Yes (526)</span>
	Hearing Requested? <span style="float: right;">Yes (159)</span>
	Meeting Request? <span style="float: right;">Yes (190)</span>
	Date Meeting Held: <span style="float: right;">August 23, 2011</span>
	Date Response to Comments sent to OCC: <span style="float: right;">TBD</span>
	Request(s) withdrawn? <span style="float: right;">No</span>
	Date Withdrawn: <span style="float: right;">NA</span>
	Consideration of Comments: Is 2nd Public Notice required? <span style="float: right;">Yes</span>
39.419	Date 2nd Public Notice/Preliminary Decision Letter Mailed:
39.603	Date Published:
	Publication Name:
	Pollutants:
	Date Affidavits/Copies Received:
	Is bilingual notice required?
	Language:
	Date Published:
	Publication Name:
	Date Affidavits/Copies Received:
	Date Certification of Sign Posting / Application Availability Received:
	Public Comments Received?
	Meeting Request?
	Date Meeting Held:
	Hearing Request?
	Date Hearing Held:
	Request(s) withdrawn?

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Rule Citation	Requirement
	Date Withdrawn:
	Consideration of Comments:
39.421	Date RTC, Technical Review & Draft Permit Conditions sent to OCC:
	Request for Reconsideration Received?
	Final Action:
	Are letters Enclosed?

**Construction Permit & Amendment Requirements - 30 TAC Chapter 116 Rules**

Rule Citation	Requirement	
116.111(a)(2)(G)	Is the facility expected to perform as represented in the application?	Yes
116.111(a)(2)(A)(i)	Are emissions from this facility expected to comply with all TCEQ air quality Rules & Regulations, and the intent of the Texas Clean Air Act?	Yes
116.111(a)(2)(B)	Emissions will be measured using the following method: Comments on emission verification	Stack sampling, record keeping, and applicable NSPS requirements Stack sampling may be used to verify emissions from stacks. Records will be kept of hourly and annual throughput from which fugitive emissions can be calculated
116.111(a)(2)(D)	Subject to NSPS? Subparts A& UUU [Standards of Performance for Calciners and Dryers in Mineral Industries]	Yes
116.111(a)(2)(E)	Subject to NESHAP? The facility does not trigger any of the requirements for hazardous air pollutants as listed under Title 40 CFR Part 61, promulgated by the EPA under the authority of the Federal Clean Air Act (FCAA), §112, as amended.	No
116.111(a)(2)(F)	Subject to NESHAP (MACT) for source categories? This facility does not trigger any of the requirements of any applicable maximum achievable control technology standard as listed under 40 CFR Part 63, promulgated by the EPA under the FCAA, §112, or as listed under Title 30 TAC §113, Subchapter C relating to National Emissions Standards for Hazardous Air Pollutants for Source Categories (FCAA §112, 40 CFR 63).	No
116.111(a)(2)(H)	Nonattainment review applicability: The site is located in Cooke County, which is not a nonattainment county. Therefore, nonattainment review does not apply.	
116.111(a)(2)(I)	PSD review applicability: The facility is not a named source and has allowable emissions of less than 100 tons per year of regulated pollutants. Since the facility is not a major source and the project is not major, PSD does not apply.	
116.111(a)(2)(L)	Is Mass Emissions Cap and Trade applicable to the new or modified facilities? This site is not located in the Houston-Galveston-Brazoria ozone nonattainment area.	No
116.140 - 141	Permit Fee: \$75,000.00	Fee certification: R120088

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### Title V Applicability - 30 TAC Chapter 122 Rules

Rule Citation	Requirement
122.10(13)	<b>Title V applicability:</b> The site is not located in a nonattainment county and has less than 100 tons per year of regulated pollutants (not a major source). The site does not emit hazardous air pollutants listed under the FCAA §112(b). Thus, Title V is not applicable.
122.602	<b>Periodic Monitoring (PM) applicability:</b> The site is not subject to the Federal Operating Permits Program, therefore the site is not subject to Periodic Monitoring.
122.604	<b>Compliance Assurance Monitoring (CAM) applicability:</b> The site is not subject to the Federal Operating Permits Program, therefore the site is not subject to Compliance Assurance Monitoring.

### Request for Comments

Received From	Program/Area Name	Reviewed By	Comments
Region:	4	Mr. Neal Penney	Added record keeping requirements for calibration of baghouse pressure drop monitoring devices.
Toxicology:	TCEQ Toxicology Division	Ms. Angela Curry, M.S.	No adverse health effects are expected to occur among the general public as a result of exposure to the described emissions.

### Process/Project Description

Wet sand from the mine area will be dropped into a mobile hopper equipped with side walls and then transported to an enclosed vibrating scalping screen by a conveyor system. From the screen, the material will be transferred by a conveyor system onto the main stockpile. The screen may also transfer materials to a secondary screen pile. The material from the screen pile will be returned to the mine.

Material from the stockpile will sit on top of funnels which will drop the sand onto a conveyor below grade, thereby eliminating any heavy equipment work in the stockpile. From the tunnel belt conveyor the wet sand will be transferred to another belt conveyor and then into the flood hopper and into a flood screen where water is added to form a slurry. Should the mine conveying system be out of service, front-end loaders will transfer sand to a hopper which will then be dropped onto a belt conveyor and transported to the flood hopper.

The screen will send oversized material to the "overs storage" pile which is located in a 3-sided bunker. The slurried undersized material will be pumped to the wet plant where the sand will be sent to cyclones, attrition cells, density separators and a dewatering operation where excess water will be drawn off and sent to the thickener tank. The attrition cells also send water to the thickener tank. After dewatering, belt conveyors will transport the sand to a surge bin. Also from the wet plant, wet cake material (saturated) from the thickener's belt filter press will be conveyed to the "cake stockpile" and returned to the mine.

From the surge bin, the sand will be transported to the dry plant and to the dryer. Alternatively, the sand can be diverted to the bypass stockpile which is located in a building. When necessary, front-end loaders will take sand from the bypass pile and load the sand into the alternate feed hopper which transfers the sand back to the surge bin via belt conveyors.

After being dried, the sand will be fed to screens for product sizing and then to the final product storage silos. From the storage silos, sand will be loaded into transport trucks for off-site delivery.

### Pollution Prevention, Sources, Controls and BACT- [30 TAC 116.111(a)(2)(C)]

The two conveyors from the mine are over 300 ft. long and both are covered. Additionally, they will [1] be designed with a 31° trough, [2] handle material with an expected moisture content of 3% or greater, and [3] will have water sprays located at every material drop point and used as necessary to control emissions.

All transfer emissions at this plant will be minimized by wet suppression measures (spray bars), enclosures, or dust collection systems. Particulate matter emissions from the dry plant transfers will be controlled by enclosures venting to a dryer plant dust collector system achieving an outlet grain loading of no greater than 0.001 grain per dry standard cubic foot of air flow (gr/dscf).

All hoppers used at this site will have extended sides to shield drops from wind. All drops into hoppers will be from a distance no higher than the extended sides.

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Emissions from vibrating screening operations in the mine area will be controlled by permanently mounted spray bars and by enclosures. The sand transferring in the wet plant screen will first be flooded with water at the flood hopper and then transferred to the flood screen. Additional water will be added to ensure that a slurry is formed. The screen will be enclosed as well. The remaining wet plant sand processing equipment will be hard piped together resulting in a completely enclosed system. The dry plant screens will all be enclosed units and vented to the dry plant dust collector.

Two storage piles will be located within three sided bunkers. One storage pile will be in an enclosed building. With the exception of the storage pile in the building, water sprays will be implemented at all stock piles to control emissions.

Particulate matter emissions from the dryer will be controlled by a baghouse capable of meeting an outlet grain loading of no greater than 0.005 gr/dscf. The dryer will be fired by natural gas with a sulfur content not to exceed 0.0015 percent by weight.

Storage silos and the surge bin prior to the dryer will each be controlled by a baghouse or cartridge filter system which will meet and outlet grain loading of no more than 0.001 gr/dscf. Enclosed truck loading will also be controlled with bin vent filter that will control emissions with an efficiency of at least 99.7%. When loading into an open top truck, the emissions will be controlled with a water spray.

These controls meet BACT for a plant of this type with consideration given to the technical practicability and economic reasonableness of reducing emissions from the facility.

### Impacts Evaluation - 30 TAC 116.111(a)(2)(J)

Was modeling conducted? <b>Yes</b>	Type of Modeling: <b>AERMOD (Version 11353)</b>
Will GLC of any air contaminant cause violation of NAAQS?	<b>No</b>
Is this a sensitive location with respect to nuisance?	<b>Low, per site review conducted by Region 4</b>
[§116.111(a)(2)(A)(ii)] Is the site within 3000 feet of any school?	<b>No</b>
Additional site/land use information: <b>Open rangeland within 2,000 ft. in all directions with widely scattered oil and gas wells (per Region 4 site review). A recreational area - an off-road motorcycle park used for various outdoor activities - is located on adjacent property.</b>	

### Summary of Modeling Results

The EPA's approved AERMOD (Version 11353) used in refined screening mode was utilized by the applicant to evaluate site wide contaminant dispersion. The modeling methodology and results were audited by the TCEQ Air Dispersion Modeling Team (ADMT). Of all State and Federal regulated contaminants applicable to this plant, only PM<sub>2.5</sub> (24-hour and annual time averaging periods) and NO<sub>2</sub> (1 hour time averaging period) were found to be above the *de minimis* levels. The *de minimis* level is defined as a quantity of contaminant concentration below which the air quality is not anticipated to degrade due to these emissions.

The table below provides the total maximum ground level concentrations (GLC<sub>max</sub>) in micrograms per cubic meter (µg/m<sup>3</sup>) for each pollutant found to be above the *de minimis* levels over the respective time averaging period. The table also gives the background concentration used which, when added to the GLC<sub>max</sub> concentration, results in the total concentration for that contaminant for that time period. These results are compared to the NAAQS standard provided in the last column.

Pollutant	Averaging Time	GLC <sub>max</sub> (µg/m <sup>3</sup> )	Background Concentration (µg/m <sup>3</sup> )	Total Concentration (µg/m <sup>3</sup> )	NAAQS Standard (µg/m <sup>3</sup> )
PM <sub>2.5</sub>	24-hour	1.97	24.5	26.47	35
PM <sub>2.5</sub>	Annual	0.41	10.7	11.11	15
NO <sub>2</sub>	1-hour	15.2	102.9	118.10	188

For PM<sub>2.5</sub> concentrations the applicant reviewed monitors in Dallas and Tarrant Counties that had three years of complete data. The monitor with the highest background concentration for each averaging time was used to represent the background concentration at the applicant's site. The use of monitors in either Dallas or Tarrant Counties is conservative since the populations and 2008 reported PM<sub>2.5</sub> emissions in Dallas County (population of 2,368, 139 and emissions of 7,089 tons of PM<sub>2.5</sub>) and Tarrant County (population of 1,809,034 with emissions of 5,190 tons of PM<sub>2.5</sub>) are greater than the population and 2008 reported PM<sub>2.5</sub> emissions in Cooke County (population of 38,437 with emissions of 961 tons). Thus, the 24-hour PM<sub>2.5</sub> background concentration was obtained from the EPA AIRS monitor 484391006 located at 600 1/2 Congress Street in Fort Worth, Tarrant County. The annual PM<sub>2.5</sub> concentration was obtained from the EPA AIRS monitor 481130050 located at 717 South Akard in Dallas, Dallas County. The ADMT reviewed more recent monitoring data for each time averaging period and determined that it would not change the overall result.

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For the NO<sub>2</sub> concentrations at the one hour time averaging period, the applicant also reviewed the monitors in Dallas and Tarrant Counties for the reasons given above. In this instance, the one hour NO<sub>2</sub> concentration was obtained from the EPA AIRS monitor 481130069 located at 1415 Hinton Street in Dallas, Dallas County. The ADMT reviewed more recent monitoring data for this contaminant and time averaging period and determined that it would not change the overall result.

As shown in the table above, the maximum ground level concentration of PM<sub>2.5</sub> and NO<sub>2</sub> over the time periods specified, when combined with the appropriate (and conservative) background concentrations, do not exceed the respective NAAQS limitations.

To determine any potential effects of silica emissions it was conservatively assumed for this evaluation that 100% of the particulate matter being emitted from this site would be silica. For the one hour and annual averaging time periods required, the modeling evaluation provided the maximum ground level concentration in micrograms per cubic meter as well as the maximum concentration at the closest non-industrial location (GLCni). These values were compared to the Effects Screening Level (ESL) value determined by the Toxicology Division and defined as the potential for effects to occur as a result of exposure to concentrations of constituents in the air. ESLs are based on data concerning health effects, the potential for odors to be a nuisance, and effects on vegetation. If predicted ambient levels of constituents in air exceed the screening levels, it does not necessarily indicate a problem but rather triggers a review in more depth. Results of this analysis are shown in the table below.

Pollutant & CAS No.	Averaging Time	GLCmax (µg/m <sup>3</sup> )	GLCni (µg/m <sup>3</sup> )	ESL (µg/m <sup>3</sup> )
Silica, Crystalline (Quartz) CAS No. 14808-60-7	1-hour (PM <sub>10</sub> )	16.4	15.0	14
Silica, Crystalline (Quartz) CAS No. 14808-60-	Annual (PM <sub>4</sub> )	0.44	0.19	0.27

The modeling evaluation indicated that the GLCmax location would occur along the property line adjacent to vacant land. Therefore, these values were used by the Toxicology Division to assess any potential affects at a non industrial receptor.

As depicted in the table above, the short term ESL is exceeded at the GLCmax location by 1.17 times. The modeling report shows that this will happen with a frequency of exceedance of five hours per year. The predicted long term ESL is exceeded at the GLCmax location by 1.63 times. After a review of this data, considering the magnitude and frequency of the ESL exceedances, the Toxicology Division determined that the silica concentrations and frequency of occurrence are allowable and no adverse health effects are expected to occur among the general public.

### Permit Concurrence and Related Authorization Actions

Is the applicant in agreement with special conditions?	Yes
Company representative(s):	Ms. Lisa A. Hoover, P.E., Waid Environmental
Contacted Via:	e-mail
Date of contact:	April 24, 2012
Other permit(s) or permits by rule affected by this action:	None
List permit and/or PBR number(s) and actions required or taken:	NA

Project Reviewer	Date	Team Leader/Section Manager/Backup	Date
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