TCEQ DOCKET NO. 2014-0847-AIR

APPLICATION BY INDECK WHARTON, LLC	**§**	**BEFORE THE**
INDECK WHARTON ENERGY CENTER	**§**	
DANEVANG, WHARTON COUNTY	**§**	**TEXAS COMMISSION ON**
AIR QUALITY PERMIT NO. 111724,	**§**	
PSDTX 1374	**§**	**ENVIRONMENTAL QUALITY**

APPLICANT'S RESPONSE TO HEARING REQUESTS

TO THE HONORABLE COMMISSIONERS:

Indeck Wharton, LLC ("Indeck") submits the following response ("Response") in opposition to the requests for a contested case hearing that have been filed regarding Indeck's application ("Application") for TCEQ Air Quality Permit Nos. 111724 and PSDTX 1374 (the "Permits") seeking authorization to construct its proposed natural gas-fired peaking power plant near Danevang, Texas (the "Project"). A separate permit for greenhouse gas emissions was issued by the U.S. Environmental Protection Agency ("EPA") in June 2014.

In support thereof, Indeck would show the Commission as follows:

I. BACKGROUND AND DESCRIPTION OF FACILITY

Indeck is proposing to construct a natural gas-fired peaking power plant near Danevang, Wharton County, Texas designed to provide electric power to the State of Texas when power demands require supplementation to the electric grid. This Project will play an important role in ensuring that Texans have an adequate supply of electric power at times when such power is most needed. The Project will not be in continuous operation. Instead, it will only be operated when needed with a maximum operating time of 2500 hours per year.

Because the proposed power plant is a facility that may emit air contaminants, Indeck has applied to the TCEQ for New Source Review Authorization under the Texas Clean Air Act ("TCAA") § 382.0518. Specifically, the Permits will authorize Indeck to construct three new natural gas-fired combustion turbine generators ("CTGs") operating as peaking units in simple cycle mode. The Executive Director ("ED") has recommended issuance of the Permits, which would authorize the emission of nitrogen oxides (NOx), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (PM) including particulate matter with diameters of ten microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$), lead, and volatile organic compounds (VOCs) including some hazardous air pollutants (HAPs).

On June 18, 2013 Indeck applied for the Permits to construct this peaking power plant. The ED declared the Application administratively complete on July 11, 2013. The Notice of Receipt and Intent to Obtain an Air Quality Permit was published on August 7, 2013, in the *El Campo Leader-News.* The Notice of Application and Preliminary Decision for an Air Quality Permit and the Draft Permit was mailed on May 14, 2014, and was published on May 17, 2014 in the *El Campo Leader-News.* A public meeting was held on September 30, 2014, in El Campo, Texas. The notice of public meeting was mailed on September 9, 2014. The notice of public meeting was published on September 10, 2014, in the *El Campo Leader-News.* Public comments were accepted until September 30, 2014, which resulted in more than a year for public comments to be filed. The ED issued his Response to Comments on October 31, 2014. The final decision letter and copy of the ED's Response to Comments was mailed on November 6, 2014. The final opportunity to request a contested case hearing or request a reconsideration of the ED's decision concluded on December 8, 2014. No additional requests for a contested case hearing or supplementation to the existing requests for contested case hearing or requests for reconsideration have been filed.

A large number of individuals filed form comment letters. These individuals are referred to as Group A in the ED's Response to Comments and Indeck herein adopts the same method of designation. None of the Group A comment letters requested a contested case hearing. The majority of those comment letters came from commenters who reside at distances significantly greater than one mile from the facility.

There are only two Requests for a Contested Case Hearing ("Requests") filed. One request was a letter signed by Doyle Schaer on behalf of Danevang Lutheran Church, which included a petition signed by sixteen individuals. This group of sixteen individuals is referred to as Group B in the ED's Response to Comments and Indeck will also refer to them as Group B. Of the sixteen individuals, three, Erin Rivera, Irene Ocampo, and Annabel Gonzalez, wrote the word "health" next to their signatures. Indeck will refer to these three individuals, a sub-group of Group B, as "Group B1." Indeck will refer to the remainder of Group B as "Group B2." For purposes of this response, Indeck will treat the Danevang Lutheran Church as a separate requestor, and refer to it as the "Church."

The second Request was filed by Farryl David Holub. Mr. Holub filed his request via U.S. mail, e-mail, and facsimile. The Chief Clerk has counted these as three different hearing requests, however, there is only one set of substantive comments from Mr. Holub, as all three documents are identical. Mr. Holub states he is filing his request on behalf of his wife and his two daughters, all of whom live at the same residence or are enrolled in school. Collectively, Indeck will refer to the Holub family as the "Holub Family" and Mr. Holub individually as "Mr. Holub." Finally, Mr. Holub states that he is filing his request on behalf of a group he refers to as LISTEN. Indeck will refer to all of the requestors collectively as "Requestors."

Indeck is filing this written Response pursuant to 30 Tex. Admin. Code § 55.209(e) and other applicable statutes and rules and contends that none of the hearing requests should be granted because:

(1) The Holub Family, the Church, and LISTEN do not meet the requirements for associational standing, because they are not "organizations" as that term is used in the applicable regulations and because the interests each group or association seeks to protect are not germane to the organization's purpose.

(2) Although the Church, if treated as an individual property owner rather than an association, is closer than one mile to the Project and the three members of Group B1 live approximately one mile from the Project, neither has alleged an interest that is protected by the law under which the application will be considered or that is relevant and material to the application being considered, nor did either raise a disputed issue of fact. Further, modeling shows that neither the Church, nor any member of Group B1 (nor any of the 142 receptors within two miles of the Project, modeled by Indeck and Tetra Tech) will be adversely impacted by the emissions from the facility.[1] Any receptors beyond two miles will have even smaller impacts and none of these receptors will be adversely impacted.[2] Accordingly, neither the Church nor Group B1 are subject to "actual or imminent" adverse impacts and so will not be, much less "likely to be" (the legal standard) affected in "a way not common to the general public";

(3) All members of Group B2 live farther than one mile from the Project and, as such, all live so far away that their interest is the same as that of the general public. Group B2 also did not raise a disputed issue of fact, and did not raise an issue relevant and material to the decision on the Application;

(4) Mr. Holub resides more than one mile from the facility and, as such, lives so far away that his interest is the same as that of the general public, and did not raise a disputed issue of fact;

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1 Dr. Thomas Dydek Aff. at 5-6 (attached as Exhibit 2)

2 *Id.*

(5) None of the Requestors (nor any other of the 142 receptors modeled) are likely to be adversely impacted by the regulated activity.

Of significant importance is the fact that the air quality modeling analysis in the Application, the ED's review of the Application's modeling and independent analysis as summarized in his Response to Comments,[3] and the affidavit of Dr. Thomas Dydek, Ph.D., D.A.B.T., P.E.[4] establish that the *de minimis* level of emissions using worst-case analyses at all of the 142 modeled receptors (including the Church and all of the Requestors' locations), will not have any adverse impact on the health, safety or welfare of the Requestors or their property.

II. APPLICABLE REGULATIONS AND PRECEDENT

This response is organized to address each of the requirements in Tex. Admin. Code § 55.209(e). This Section II discusses applicable regulations and case law precedents. Section III discusses whether each Requestor is an "affected person." Sections IV through VII discuss the remaining requirements of § 55.209(e).

Section 55.209(e) states that responses to hearing requests must specifically address:

> (1) whether the requestor is an affected person;
> (2) which issues raised in the hearing request are disputed;
> (3) whether the dispute involves questions of fact or of law;
> (4) whether the issues were raised during the public comment period;
> (5) whether the hearing request is based on issues raised solely in a public comment withdrawn by the commenter in writing . . . ;

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[3] Executive Director's Response to Public Comments (attached as Exhibit 1) at 5 (stating that "The permit reviewer used modeling results to verify that predicted ground level concentrations (GLCs) from the proposed facilities are not likely to adversely impact off-property receptors."); *id.* at 7 (after going through a pollutant-by-pollutant analysis, concluding that "based on the potential concentrations reviewed by the Executive Director's staff, it is not expected that existing health conditions will worsen, or that there will be adverse health effects in the general public, sensitive sub groups, or animal life as a result of exposure to the expected levels of PM_{10}, $PM_{2.5}$, SO_2, NOx or CO."); *id.* (stating the conclusion of the TCEQ Air Dispersion Modeling Team that "The following pollutants were below their respective ESLs and would not be expected to cause adverse health effects" and listing all of the required state-regulated non criteria pollutants).

[4] *See* Dr. Thomas Dydek Aff. at 5-6 (concluding that there will not be any adverse effects on the health of the Requestors).

(6) whether the issues are relevant and material to the decision on the application; and
(7) a maximum expected duration for the contested case hearing.[5]

Section 55.211(c)(2) of the TCEQ rules provide that a Request for Contested Case Hearing ("CCH") shall be granted if the request is made by an "affected person," but only if it:

(A) raises disputed issues of fact that were raised during the comment period, that were not withdrawn by the commenter... and that are relevant and material to the commission's decision on the application;
(B) is timely filed with the chief clerk;
(C) is pursuant to a right to hearing authorized by law; and
(D) complies with the requirements of § 55.201 regarding timing and contents of hearing requests.[6]

The Court in *Sierra Club v. TCEQ and Waste Control Specialists* ("*Sierra Club*"), established two criteria upon which the Commission could deny party status to a hearing requestor. One criteria the Court used to uphold the TCEQ's decision to deny party status to the Sierra Club was the criteria of "likely impact of the regulated activity on the health, safety, and use of property of the person."[7] The Court stated:

> TCEQ enjoys the discretion to weigh and resolve matters that may go to the merits of the underlying application, including the likely impact the regulated activity ... will have on the health, safety, and use of property by the hearing requestor and on the use of natural resources. *See* 30 Tex. Admin. Code § 55.256(c); *City of Waco*, 413 S.W.3d at 420. TCEQ's inquiry into these and the other factors may include reference to the permit application, attached expert reports, the analysis and opinions of professionals on its staff, and any reports, opinions, and data it has before it. *See City of Waco*, 413 S.W.3d at 420-21 (describing these evidentiary items as relevant to inquiry and holding that there was evidence in record to support TCEQ's determination.)[8]

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5 30 Tex. Admin. Code § 55.209(e).

6 *Id.* at § 55.211(c)(2).

7 *Sierra Club v. Tex. Comm'n on Envtl. Quality*, No. 03-11-000102-CV, 2014 WL 1349014, at *5, 8 (Tex. App.—Austin Apr. 4, 2014, no pet.).

8 *Id.* at *6.

The *Sierra Club* Court also approved the TCEQ's reliance on modeling to inform the Agency's decision, in part upholding the decision because "Modeling indicates 'no detrimental impact to a potential offsite resident at the property boundary.'"[9]

The other applicable criteria established by the *Sierra Club* court originated in the case of *TCEQ v. City of Waco*[10] and was quoted approvingly in *Sierra Club*.[11] In the *Waco* case, the Texas Supreme Court incorporated an important judicial and constitutional component into the analysis of the concept of "affected person." The Court stated:

> As a matter of statutory interpretation, the court of appeals concluded that section 5.115's affected-person definition embodies the constitutional principles of standing. *See* 346 S.W.3d at 801 (observing that the "cornerstone" of the definition "denotes the constitutionally minimal requirements for litigants to have standing to challenge governmental actions in court"). The court explained that those principles required the City to establish a concrete and particularized injury in fact, not common to the general public, that is: (1) actual or imminent; (2) fairly traceable to the issuance of the permit as proposed; and (3) likely to be redressed by a favorable decision on its complaint.[12]

Indeck brings these regulations and cases to the Commission's attention to point out that the Courts have recognized that the Commission has the discretion to deny a hearing requestor party status at the agenda hearing stage of the process based on "the sworn application, attached expert reports, the analysis and opinions of professionals on its staff, and reports, opinions, and data" it has before it.[13] The Courts have upheld that discretion when it is based on either or both (1) distance (too far away such that the alleged concern is common to the general public), or (2) the fact that adverse impacts are demonstrably unlikely and not actual or imminent. As shown

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9 *Id.* at *7.

10 *Tex. Comm'n on Envtl. Quality v. City of Waco*, 413 S.W.3d 409, 417 (Tex. 2013).

11 *Sierra Club*, 2014 WL 1349014, at *4 n.6.

12 *City of Waco*, 413 S.W.3d at 417 (emphasis added).

13 *Id.* at 420-21.

below, substantial evidence, similar in nature to the evidence in *Sierra Club* and *Waco*, is contained in this record and can be relied upon by the Commission in reaching its decision.

III. WHETHER THE REQUESTORS ARE AFFECTED PERSONS [§ 55.209(e)(1)]

The Commission's rules provide that:

> [A]n affected person is one who has a personal justiciable interest related to a legal right, duty, privilege, power, or economic interest affected by the application. An interest common to members of the general public does not qualify as a personal justiciable interest.[14]

In determining whether an individual is an affected person, the rules require consideration of:

> ... all factors...including, but not limited to, the following:
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> (1) whether the interest claimed is one protected by the law under which the application will be considered;
> (2) distance restrictions or other limitations imposed by law on the affected interest;
> (3) whether a reasonable relationship exists between the interest claimed and the activity regulated;
> (4) likely impact of the regulated activity on the health and safety of the person, and on the use of property of the person; [and]
> (5) likely impact of the regulated activity on use of the impacted natural resource by the person . . . [15]

Indeck addresses each of these five factors, and the requirements of associational standing, in this section.

1. Whether Associational Standing requirements are met.

To establish associational standing, a group or association must meet all of the following requirements:

> (1) one or more members of the group or association would otherwise have standing to request a hearing in their own right;
> (2) the interests the group or association seeks to protect are germane to the organization's purpose; and

[14] 30 Tex. Admin. Code § 55.203(a).

[15] *Id.* at § 55.203(c) and § 55.256.

(3) neither the claim asserted nor the relief requested requires the participation of the individual members in the case.[16]

Mr. Holub states that he is filing his request on behalf of a group he refers to as LISTEN. This is the one and only comment or hearing request purporting to be from the group LISTEN. LISTEN has filed no independent letter request nor asserted any justiciable interest. It is not registered with the Secretary of State. Indeck can find no other evidence of LISTEN's existence and so this group should not be granted party status.

Even if LISTEN is a legitimate association, it fails to meet the requirements for associational standing. Mr. Holub's letter fails to state the organization's purpose, so there is no evidence in the record to establish that the group's interests are germane to that purpose. Further, since Mr. Holub's letter makes no distinction between his interests and LISTEN's interests, LISTEN's claim requires his participation. Finally, even if the Commission were to decide that Mr. Holub's letter is otherwise sufficient to establish LISTEN's standing, Mr. Holub is the only member named, so the group's standing must fail if Mr. Holub's personal standing fails for the reasons described in this Response.

The Holub Family, to the extent that Mr. Holub raises their interests collectively, likewise fails to meet the requirements for associational standing. A family is not the kind of organization intended to qualify for associational standing, as a family is not an "organization" of the sort that is contemplated by the relevant rules, and does not have a "purpose" to apply the standards to. Further, neither Mr. Holub nor any other member of the Holub family meets the individual standing requirements, so the Holub Family's standing must fail.

The Church fails to meet the requirements for associational standing for the same reason: the interests specified in the letter are not germane to a Church's purpose. The interests specified

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[16] *Id.* at § 55.205(a).

by the Church in its request are visual beauty of the area and impacts on tourism, neither of which are interests which a Church is generally formed to protect. In fact, it appears from the Church's request that these are essentially interests it is raising on behalf of the community (designated the "Danish Capital of Texas") and a nearby museum, as opposed to the interests of the Church.

2. Whether the interest claimed is one protected by the law under which the application will be considered.

Group B (Group B1 and Group B2 inclusively) signed a petition that was attached to the Church's Request. Since the Church's Request refers to the petition, it appears that the petition existed before the Request. Therefore (except for Group B1's addition of the word "health" by their respective signatures addressed below), it appears that Group B raised no issues at all, or even requested a hearing. On that basis alone, Group B as a whole failed to meet the requirements to be an affected person. In the event that the Church's issues are imputed to Group B, however, Indeck continues to address the standing of the two sub-groups, Group B1 and Group B2, below.

Group B2 raised no issues beyond those raised by the Church in its Request. Group B2 and the Church raised only issues related to the visual beauty of the area and impacts on tourism (that the Project will ruin the beauty of the area and that visitors will stop visiting the community). These are not interests that are protected by the TCAA[17] and, therefore, are not relevant and material to the issues to be considered in an air permit application. The TCEQ, consequently, has no jurisdiction to consider these issues.

Group B2 and the Church never raised any concern over adverse health effects. When they used the phrase that they "would be adversely affected by the application and air

[17] *See* Executive Director's Response to Public Comment at 4.

emissions," they specifically qualified or explained the reason as "because . . . we attract visitors from all over the country," and "we feel that the beauty of our place will be ruined by the close proximity of the proposed huge energy center and visitors will stop coming."

Group B1 also signed the petition attached to the Request from the Church, but additionally wrote the word "health" adjacent to their telephone numbers in the petition submitted by the Church. Health impacts are interests protected under the TCAA, however, as discussed in Sections IV and VI below, simply putting one word on a petition, with no explanation or even conclusory assertion as to what the word means, is not adequate to raise either an issue that is relevant and material to the law under which the application is being considered, or a disputed issue of fact. This requirement for greater specificity when making a hearing request was spelled out in the case of *Bosque River Coalition v. Texas Commission on Environmental Quality,* where the Court stated:

> The Commission's rules, which are more specific with regard to the procedures for the "affected person" determination, impose what are essentially pleading requirements – the hearing requestor must file a written hearing request that "identif[ies] the person's personal justiciable interest affected by the application," including a "brief, but specific, written statement explaining in plain language . . . how and why the requestor believes he or she will be adversely affected by the proposed facility or activity in a manner not common to members of the public . . ." [18]

Group B1 did not satisfy this requirement. They did not even specify whose health they were referring to (i.e., their own, the public's in general, the health of the Church, or the health of the nation), what type of health they were referring to (i.e., personal health, economic health, or spiritual health), or more importantly, how or why they believe whatever health they are referring to might be adversely impacted in a way not common to the general public. Therefore,

[18] *Bosque River Coal. v. Tex. Comm'n on Envtl. Quality,* 347 S.W.3d 366, 379-80 (Tex. App.—Austin 2011), *rev'd on other grounds*, 413 S.W.3d 403 (Tex. 2013).

their request fails to raise an issue at all, much less an issue that is relevant and material to the application. Further, as explained in the discussion of § 55.203(c)(4) below, these Requestors' health is not (or, at least, is not likely) to be impacted at all.

Mr. Holub's concern that the chemicals placed on the crops "may somehow interact" with the emissions from the proposed Project, though mere speculation as discussed below, is a property interest of the sort that is protected by the TCAA. However, his hearing request fails for other reasons.

3. Distance restrictions or other limitations imposed by law on the affected interest.

A key factor the Commission frequently uses as guidance on the distance issue is the one-mile "rule of thumb." It has been consistently cited by the ED in his Responses to Comments and Responses to Hearing Requests for other air quality permit applications. While it is not an immutable rule, the Commission frequently uses it as a guide in determining whether a hearing requestor is affected in a way not common to the general public in air quality cases. The purpose behind the rule of thumb is to aid the Commission in determining when a requestor is affected in a manner not common to the general public. It is not found in any statute, regulation or guidance document. Instead, it is founded in common sense and experience. The Commission can use its discretion to determine that a requestor that lives further away than one mile can be an affected person if that requestor can show a particularized adverse impact. Conversely, simply living within the one-mile rule of thumb does not automatically make a requestor an affected person. For example, as here, the requestor must satisfy the other criteria in § 55.203(c).

Ted Guertin, Indeck's Air Quality Meteorologist who performed the air quality modeling analysis for the Project, calculated the distance from each Requestor to the project utilizing two different methodologies.[19] In the first method, the distance is measured from the point on the nearest wall of the receptor building to the closest turbine emission stack.[20] In the second method, the distance is measured from the point on the nearest wall of the receptor building to the nearest ancillary emission source. The TCEQ used a third method, measuring the distance from the point on the nearest wall of the receptor building to the nearest edge of Project building or other structure. This method does not provide a distance from an emission source. Rather, it is used by convention since the edge of the Project building is a defined location on a map in the application, and so is the starting point traditionally used by the TCEQ for these measurements.

All persons in Group B2 live more than one mile from the facility, as measured by any of the three methods.[21] Thus applying the Commission's "rule of thumb," they are not impacted in a manner differently than the general public.

Mr. Holub also resides more than one mile from the facility as measured by any of the three methods. Mr. Holub's request mentions that he owns other property, but fails to specifically identify where his other property is located as required by 30 Tex. Admin. Code § 55.201(d)(2), nor does he allege that he spends any time on that property. More to the point, the appropriate receptor is his residence, not some unspecified tract of land where he may (or may not) intermittently spend time at continually varying locations within that tract of land. This issue was specifically addressed by the Austin Court of Appeals in the case of *Collins v. Texas Natural Resource Conservation Commission*, which held that an organic farmer was not a person affected because he lived 1.3 miles from the applicant poultry farm, even though his property

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[19] Ted Guertin Aff. (attached as Exhibit 3) at Ex. 3-B (distance calculations table and maps depicting each receptor and each requestor).

[20] *Id.* at Ex. 3-B (distance calculations table).

[21] *Id.*

was only 590 feet away.[22] Thus, also applying the Commission's "rule of thumb," Mr. Holub is not impacted in a manner differently than the general public.

The Church is located within one mile of the facility, no matter which method is used.[23] However, the distance criteria is moot as to the Church because the Church's request fails for other reasons, including, as discussed in Section III.2 above, the fact that it did not raise an interest protected under the TCAA.

The three Requestors that make up Group B1 live approximately one mile from the facility; so close to one mile, in fact, that the different methods of measuring the distance only becomes relevant if their use of the word "health" by their signatures is sufficient to raise an issue. However, because Group B1 fails satisfy other § 55.203(c) criteria, even if they reside within one mile of the facility, their proximity cannot resurrect their affected person status.

Using method 1, the distance to Group B1's residence is measured from the point on their nearest property line to the closest stack, a distance of 1.03 miles,[24] outside the 1.0 mile "rule of thumb."

Using method 2, the distance to Group B1's residence is measured from the nearest point on their residence to the nearest ancillary emission source, a distance of 0.98 miles from the B1 receptors.[25] There are three ancillary emission sources presently designed to be located closer than the main turbine emission stacks. The three ancillary sources are (1) an emergency diesel generator, (2) an emergency fire pump engine, and (3) a natural gas fired line heater. All three qualify for permits by rule ("PBRs") because their emissions are below the PBR thresholds. The

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22 *Collins v. Tex. Natural Res. Conservation Comm'n*, 94 S.W.3d 876, 880 (Tex. App.—Austin 2002, no pet.).

23 Ted Guertin Aff. at Ex. 3-B (distance calculations table).

24 *Id.*

25 *Id.*

two engines qualify for the PBR for emergency stationary combustion engines. The heater qualifies for the PBR for gas fired combustion devices with a rating less than 40 MMbtu/hr. No registration with TCEQ is required to operate this unit.

Using method 3, the distance to Group B1's residence is measured from the nearest point on their residence to the nearest edge of the Project building, a distance of 0.88 miles.

Indeck believes that the most appropriate measurement method is method 1, measuring the distance from the location of the nearest main turbine emission stack, because the nearest turbine emission stack is the closest emission source that could reasonably impact a receptor. Method 2 is not appropriate because it is based on emissions from ancillary sources that are so small that they qualify for PBRs. The legislature and the TCEQ have determined that emission from sources that qualify for PBRs will not make a significant contribution of air contaminants to the atmosphere.[26] As such, they do not constitute threats to public health. However, even if the ancillary sources are used, the nearest receptor in Group B1 is 0.98 miles from the facility – close enough for a discretionary rule of thumb. Method 3 is the method generally used by the TCEQ, presumably based on the fact that these locations are generally called out in the application, but is not appropriate where the Applicant provides more detailed information, because it does not measure from a source of emissions at all. The proper measuring point should be from the location where the emissions might actually impact someone. As such, Group B1 falls outside of the one mile "rule of thumb," and are not impacted in a manner different than the general public.

Even ignoring the one-mile "rule of thumb" altogether, modeling confirms that no member of Group B1, nor the Church, nor any other Requestor (nor any of the 142 receptors

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[26] Tex. Health & Safety Code §§ 382.057 and 382.05916 (West 1999); 30 Tex. Admin. Code § 106.1.

modeled) will be impacted in a manner different than members of the general public.[27] Mr. Guertin calculated the ground level concentrations (GLCs) of all of the applicable federal and state pollutants using worst-case impacts to demonstrate their *de minimis* nature in comparison to the NAAQS for this Attainment area and to the already existing emissions found from sources in the area and in comparison to the State of Texas Net Ground Level Concentration (NGLC) standards.[28]

Mr. Guertin also used worst-case impacts assumptions to calculate the off-property impacts of air contaminants that do not have either applicable NAAQS or NGLCs. These predicted impacts were then compared to the respective TCEQ Effects Screening Levels (ESLs) for those air contaminants to demonstrate similar *de minimis* impacts.[29] These concentrations were then evaluated by Dr. Thomas Dydek, who concluded that "the maximum (conservatively estimated) levels of air contaminants emitted from the proposed Indeck Plant at the Hearing Requestors' residences and at the nearby church . . . are not great enough to cause any adverse effects . . . ."[30]

As discussed in the *Sierra Club* case, the Court of Appeals upheld the TCEQ's decision to deny party status to the Sierra Club because the project would have "minimal effect" on the requestor's "health, safety, use of property, and use of natural resources."[31] The modeling results and toxicological analyses in this case demonstrate that the risk of adverse health effects to any

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[27] *See* Dr. Thomas Dydek Aff. at 5-6 (concluding that the maximum impacts at the Requestors' residences and the Church are from 30 to millions of times lower than all Federal and State of Texas standards and guidelines and that these standards and guidelines are set low enough to protect even the most sensitive members of the general population).

[28] Ted. Guertin Aff. at Ex. 3-B (distance calculations table and bar charts).

[29] *See id.* at Ex. 3-B (bar charts).

[30] Dr. Thomas Dydek Aff. at 6.

[31] *Sierra Club,* 2014 WL 1349014, at *8.

of the 142 receptors modeled and analyzed, including Group B1, the Church, and all of the other Requestors, is, at minimum, extremely unlikely. As a result, all the Requestors' interests are common to members of the general public. Indeed, both the Requestors and the general public share the same status of no (or unlikely) adverse health effects. This is particularly true at the Church, where the parishioners generally spend only a few hours a week.

The ultimate point of this discussion is that, even if Group B1 (the only Requestors that even arguably raised health effects) has properly raised health as an issue (which it has not), they are far enough away from these *de minimis* emissions (whichever starting emission point is used), that they are not going to be affected in a manner not common to the general public. In short, the rule of thumb is either satisfied expressly or the distance being far enough away when combined with the minimal emissions lead to the same conclusion; the B1 requestors do not satisfy this criteria.

In the event the issue of the importance of distance in recent Commission decisions requires additional discussion, we provide the following summary of various recent decisions involving the distance criteria and a more detailed discussion of the facts of this matter.

In the matter entitled *In re Regency Field Services*, the ED stated that the "distance from the proposed facility is key to the issue of whether or not there is a likely impact of the regulated activity on a person's interests (such as the health and safety of the person) and on the use of property of the person" and that "[t]he Executive Director has generally determined that hearing requestors who reside greater than one mile from the facility are not likely to be impacted differently than any other member of the general public."[32] The Commission denied all the hearing requests in the *Regency Field Services* matter.[33]

The recent decision by the Commission to deny all hearing requestors party status in the "Application by Freeport LNG Development, LP Liquefaction Plant Air Quality Permit Nos. 100114, PSDTX 1282, and NCAP 150" was based in part on the fact that the hearing requestors lived more than one mile from that facility, as well as other criteria similar to those discussed herein.[34]

In applying the substantial evidence standard to the TCEQ's decision, the first item on the *Sierra Club* Court's evidentiary list was distance.[35] The court upheld the Commission's decision to deny party status in part because Gardner and Williams, the individuals put forth as associational representatives for the Sierra Club, "live more than three miles from the proposed facility and neither work nor spend any substantial time in or around the [proposed] facility" as well as the fact that they did not identify any credible predicted adverse impacts.[36]

For these reasons, none of the Requestors are affected in a way different from the general public, and their hearing requests should therefore be denied.

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[32] Executive Director's Response to Hearing Requests, *In re Regency Field Services, LLC*, TCEQ Docket No. 2010-0843-AIR at 8 (emphasis added). *Accord* Executive Director's Response to Hearing Requests, *TPCO America Corporation*, TCEQ Docket No. 2010-0280-AIR at 5 (stating that "[t]he ED considers persons residing more than one mile of the proposed facility to be unlikely to be impacted differently from the general public .... Because the requestors reside more than one mile from the proposed facility, they are not likely to be impacted differently than other members of the general public.") (emphasis added); Executive Director's Response to Hearing Requests, *Jobe Materials, LP*, TCEQ Docket No. 2007-0491-AIR at 5 (the ED contending that requests for hearing should be denied because the requestors "reside more than 1 mile from the proposed facility, [and so] they are not likely to be impacted differently than any other member of the general public") (emphasis added).

[33] Tex. Comm'n on Envtl. Quality, *An Order Concerning the Application by Regency Field Services, LLC, for renewal of Air Quality Permit No. 6051 and PSD TX-55M3*, Docket No. 2010-0843-AIR (Aug. 9, 2010)

[34] Tex. Comm'n on Envtl. Quality, An Order Concerning the Application by Freeport LNG Development, L.P. for Air Quality Permit No. 100114; PSD Permit No. PSDTX1282; and Nonattainment Permit No. N150, Docket No. 2014-0691-AIR (July 10, 2014); Executive Director's Response to Hearing Requests, Freeport LNG Development, L.P. Liquefaction Plant, TCEQ Docket No. 2014-0691-AIR at 6-11.

[35] *Sierra Club*, 2014 WL 1349014, at *7.

[36] *Id.* at *7-8.

4. Whether a reasonable relationship exists between the interests claimed and the activity regulated.

As discussed above, Group B2's and the Church's interests in visual beauty of the area and impacts on tourism are not protected by the TCAA. Therefore, there is either no relationship between those interests claimed and the activity regulated, or whatever unsubstantiated relationship might exist is not material or relevant to this air permit application.

The word "health" written by Group B1 does not provide enough information to determine what health interest they are claiming, much less whether a reasonable relationship exists between their health interest claims and the activity regulated. However, as discussed above, the uncontroverted evidence establishes that even if the Commission determines that health effects related to the activity regulated were asserted, no actual or imminent adverse impacts to anyone's health will occur.

Mr. Holub's concern that the chemicals placed on the crops "may somehow interact" with the emissions from the proposed Project is mere speculation and therefore not reasonably related to the activity regulated.

5. Likely impact of the regulated activity on the health and safety of the person, and on the use of property of the person;

As discussed in the *Sierra Club* case, where the proposed project would have "minimal effect on the requestor's health, safety, use of property, and use of natural resources", a requestor was held to not be an affected person.[37] As previously discussed, in Indeck's case, modeling analyses by both the Applicant and the TCEQ similarly indicate there will be no detrimental impact at any of the 142 receptors, including all of the Requestors. The TCEQ staff has analyzed

[37] *Id.* at *8.

the data and has also concluded that the emissions are not likely to adversely impact any offsite receptors.

In the *Waco* case, the Texas Supreme Court incorporated aspects of judicial standing into the analysis of the concept of "affected person." The key aspect is whether the alleged harm is "actual or imminent."[38] The air quality modeling in the Application and explained in Ted Guertin's affidavit, the TCEQ's evaluation of that modeling, the ED's Response to Comments, and the affidavit of Dr. Thomas Dydek, all establish that there is no actual, much less imminent, danger to the health of any Requestor. No Requestor has asserted otherwise nor challenged the positions stated by the ED in its Response to Comments or provided by the Applicant.

Except to the extent discussed in the following section, no Requestor has alleged any impacts to the use of their property.

6. Likely impact of the regulated activity on use of the impacted natural resources by the person.

Although Mr. Holub states that "I am a person affected by emissions of air contaminants and hazardous air pollutants from the above proposed facility," he never says how he is personally affected. He states that his concern is that emissions from the facility "may somehow interact" with the "various chemicals [that] have, are, or will be applied to various crops and pastures in the area. Those chemicals also drift from other areas and deposit in Danevang."[39] He has not asserted that these chemicals are used on lands that he owns; just on land in the area, and so he does not allege that his concern is based on his property or that his interest is different than the general public's. Therefore, he has not alleged an impact on his natural resources.

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[38] *City of Waco*, 413 S.W.3d at 417.

[39] Farryl Holub's Hearing Request Letter, at 2, item 4 (June 13, 2014).

Further, Mr. Holub's concern that the chemicals he and other residents (not Indeck) placed and will continue to place on their crops and land "may somehow interact" with the emissions is too speculative a concern to evaluate whether or how the regulated activity would impact his or anyone else's natural resources.

Finally, the undisputed evidence from Tetra Tech and CDM Smith shows this is not a valid concern.[40]

7. Conclusion: No Hearing Requestor is an "Affected Person"

In summary, none of the Requestors qualify as affected persons for the following reasons:

- Modeling shows that no Requestor's health is likely to be adversely impacted, and so none of the Requestors are affected in a way different than the general public.
- The interests that Group B2 and the Church claim (loss of natural beauty and impact on tourism) are not interests protected by the TCAA and are beyond the scope/jurisdiction of the TCEQ and this air quality permit application process.
- All of the Requestors, other than the Church and perhaps Group B1, live more than one mile from the facility.
- The word "health" written next to the phone numbers of three members of Group B1 is too vague to qualify as an interest raised in the hearing request.
- The interest claimed by Mr. Holub that chemicals may somehow interact with the emissions is too speculative, and the record shows that, even if such interactions were to take place, there would be no adverse impact. Further, Mr. Holub does not allege that this concern is specific to his property.

[40] Supplemental Air Quality Evaluation prepared by TetraTech (Aug. 2014) (attached as Exhibit 3-C to Ted Guertin Affidavit); Letter Report prepared by CDM Smith (Aug. 19, 2014) (attached as Exhibit 4).

- None of the groups (LISTEN, the Church, or the Holub Family) meet the requirements for associational standing.

The ultimate point of the *Sierra Club* and *Waco* Courts' analyses is that one cannot achieve standing based on nothing more than unsubstantiated speculation. It would be unreasonable to put the State and the parties through the exercise of a contested case hearing when there is no basis to be concerned about this issue in light of the minuscule percentages Indeck's emissions contribute as compared to the NAAQS standards, the State of Texas NGLCs and the ESLs, as modeled by the applicant and as reviewed and approved by the TCEQ.

IV. WHETHER THE ISSUES RAISED IN THE HEARING REQUEST ARE DISPUTED QUESTIONS OF FACT [55.209(e)(2) AND (e)(3)]

The determination of whether a person is affected is only the first step in the Commission's analysis. The Requestors must also raise disputed questions of fact that are relevant and material to the decision on the application.[41]

Group B2's and the Church's issues regarding beauty and impacts on tourism, while they may raise a disputed issue of fact, are neither interests protected by the TCAA or relevant or material to the application.[42]

As discussed above, Group B1's inclusion of the word "health" adjacent to their names on the petition submitted by the Church, with no explanation or even conclusory assertion as to what the word means, is not adequate to satisfy a hearing requestor's obligation to raise a disputed question of fact. While § 55.201(d) requires that the Requestors only "substantially comply" with the requirements of that section, the relevant case law imposes an obligation that the request include "a brief, but specific, written statement in plain language . . . [as to] how and

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41 30 Tex. Admin. Code §55.209(e).

42 Executive Director's Response to Public Comments at 4.

why the requestor believes he or she will be adversely affected . . . in a manner not common to the general public."[43] A single word cannot reasonably be considered substantial compliance with the requirement to "list all relevant and material disputed issues of fact . . . that are the basis of the hearing request"[44] as it provides absolutely no notice to the applicant or to the ED of what the concern might be or what facts might be at issue. There must be enough specificity to enable the applicant, the ED, and OPIC to evaluate and respond to a sufficiently clearly stated disputed issue of fact. There must be more than an unexplained single word, or there is no fact in dispute.

Mr. Holub's concern that the chemicals placed on the crops "may somehow interact" with the emissions from the proposed Project is mere speculation, not a disputed issue of fact. Mr. Holub does not specifically identify whether the chemicals he is concerned about are on his property; where his other property is located or what crops may be affected. Nor does he allege that he spends any time on that property. This concern does not raise a disputed issue of fact because Mr. Holub does not assert that the potential interaction of the emissions with the chemicals will cause harm to either his crops or his health. Instead, he simply says that he is concerned that they "may somehow interact" but he does not know if they will. He has just asked a question and has not disputed anything about Indeck's application or Indeck's Supplemental Studies. The studies by Tetra Tech and CDM Smith show that there might be some interaction, but that it would have no detrimental effect.[45] If there ever was a dispute about this fact, there is no dispute now in that the only evidence in the record shows there will be no harm and Mr. Holub has not challenged that conclusion.

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[43] *Bosque River Coal.*, 347 S.W.3d at 379-80.

[44] 30 Tex. Admin. Code § 55.201(d)(4).

[45] Supplemental Air Quality Evaluation prepared by TetraTech (Aug. 2014) (attached as Exhibit 3-C of Ted Guertin Affidavit); Letter Report prepared by CDM Smith (Aug. 19, 2014) (attached as Exhibit 4).

V. WHETHER THE ISSUES WERE RAISED DURING THE PUBLIC COMMENT PERIOD [§55.209(e)(4)] AND BASED ON ISSUES RAISED SOLELY IN A PUBLIC COMMENT WITHDRAWN BY THE COMMENTER IN WRITING [§55.209(e)(5)]

Indeck acknowledges that the Requestors raised their comments during the comment period and have not withdrawn any comments.

VI. WHETHER THE ISSUES ARE RELEVANT AND MATERIAL TO THE DECISION ON THE APPLICATION [§55.209(e)(6)]

As discussed in § III.2 above, Group B (inclusive of Group B1 and Group B2), raised no issues at all, because the petition appears to have been signed before the letter listing the issues was drafted. However, even if the issues in the Church's request are imputed to Group B, then those issues (related to the visual beauty of the area and impacts on tourism) are not relevant and material to the issues to be considered in an air permit application.

While health impacts are relevant and material to the decision on the application, the single word "health" from Group B1 does not sufficiently raise the issue, and all of the evidence in the record shows that none of the Requestors' health is likely to be adversely impacted.

Mr. Holub's concern that the chemicals placed on the crops "may somehow interact" with the emissions from the proposed Project, is relevant and material to the application, but fails to raise a disputed issue of fact.

VII. MAXIMUM EXPECTED DURATION OF HEARING [§55.209(e)(7)]

If this case is referred to SOAH for a contested case hearing, the issues will be extremely limited; perhaps only one. Preparation and hearing time can and should accordingly be limited. Indeck suggests that the case can be heard and a final PFD delivered to the Commission in six months or less. Indeck's estimated maximum time for the hearing itself would be three days.

VIII. CONCLUSION

This case should not be referred to hearing.

Indeck summarizes its response to each item as follows:

1) Affected Persons:

a) Group A did not request a hearing;

b) Group B (inclusive of Group B1 and Group B2) raised no issues at all because the petition appears to have been signed before the letter listing the issues was drafted.

c) The Church did not raise an issue that is relevant and material to the law under which the application will be considered, did not raise a disputed issue of fact, and based on modeling, will not be impacted in a manner different than the general public;

c) Group B1 did not raise an issue that is relevant and material to the law under which the application will be considered with enough specificity to evaluate the issue, did not raise a disputed issue of fact, are located too far away from the Project to be impacted in a manner than the general public, and based on modeling will not be impacted in a manner different than the general public;

d) Group B2 did not raise an issue that is relevant and material to the law under which the application will be considered, did not raise a disputed issue of fact, and are all more than one mile from the facility, so are not affected in a manner different from the general public;

e) Mr. Holub did not raise a disputed issue of fact, and resides more than one mile from the facility, so is not affected in a manner different from the general public;

f) LISTEN, the Holub Family, and the Church all fail to meet the requirements for associational standing, and did not raise a disputed issue of fact.

2) Disputed Issues of Fact:

a) The issues relating to beauty of the area and tourism are disputed (though not relevant to the TCAA).

b) The word "health" does not raise a disputed issue of fact.

c) The issue of chemical interaction is mere speculation, not a disputed issue of fact. Moreover, the only actual evidence in the record reflects no dispute: there is no detrimental interaction.

3) Issues were raised during the public comment period: All issues were raised during the public comment period.

4) Requests based on withdrawn comments: None of the requests were based on withdrawn comments.

5) Relevant and material:

a) The issues relating to beauty of the area and tourism are not relevant and material to the TCAA.

b) Health impacts are relevant and material, but were either not raised at all or not raised with enough specificity, and the uncontroverted evidence shows adverse health impacts are unlikely and are not actual or imminent.

c) The issue of chemical interaction is relevant and material but does not raise a disputed issue of fact.

6) Duration of hearing:

a) The maximum expected duration of a hearing, if required, would be three days.

b) The hearing can be held and a final PFD delivered to the Commission in six months or less.

For the reasons stated, Indeck believes this request is exactly the kind of request that should not be granted. The limited issues are either not within the scope/jurisdiction of an air quality application before the TCEQ; not relevant and material; involve vague inferences about health effects that are not likely, are not actual or imminent and are, at most, common to the general public.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing Applicant's Response to Hearing Requests has been served on the following counsel/parties of record by electronic mail, certified mail (return receipt requested), regular U.S. Mail, facsimile transmission and/or hand delivery on this 29th day of December, 2014.

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EXHIBIT 1

TCEQ AIR QUALITY PERMIT NUMBERS 111724 and PSDTX1374

APPLICATION BY	§	BEFORE THE
INDECK WHARTON, LLC	§	
INDECK WHARTON ENERGY	§	TEXAS COMMISSION ON
CENTER	§	
DANEVANG, WHARTON	§	ENVIRONMENTAL QUALITY
COUNTY	§	
	§	

EXECUTIVE DIRECTOR'S RESPONSE TO PUBLIC COMMENT

The Executive Director of the Texas Commission on Environmental Quality (TCEQ) files this Response to Public Comment (Response) on the New Source Review Authorization application and Executive Director's preliminary decision.
As required by Title 30 Texas Administrative Code (TAC) § 55.156, before an application is approved, the Executive Director prepares a response to all timely, relevant and material, or significant comments. The Office of Chief Clerk received timely comments from numerous persons. Commenters listed in Appendix A submitted comments using form letters with substantially the same content; these commenters are annotated with "Group A" in the comments. Commenters listed in Appendix B submitted comments with one co-signed letter; these commenters are annotated with "Group B" in the comments. Also, five individuals and one group had unique comments: Doyle and Ann Schaer, Betty and Eddie Vacek, Farryl Holub, and the organization LISTEN! An Alliance to Protect the People and Property of Wharton County (LISTEN!). This Response addresses all timely public comments received, whether or not withdrawn. If you need more information about this permit application or the permitting process please call the TCEQ Public Education Program at 1-800-687-4040. General information about the TCEQ can be found at our website at www.tceq.texas.gov.

BACKGROUND

Description of Facility

Indeck Wharton, LLC has applied to the TCEQ for a New Source Review Authorization under Texas Clean Air Act (TCAA), §382.0518. This will authorize the construction of a new facility that may emit air contaminants.

This permit will authorize the applicant to construct three new natural gas fired combustion turbine generators (CTGs). The CTGs will either be the General Electric 7FA (~214 MW each) or the Siemens SGT6-5000F (~227 MW each) operating as peaking units in simple cycle mode. The facility is located on west side of State Route 71, 3350 feet south of the intersection of Route 71 and County Road 424 in Danevang, about 0.50 mile south of the center of Danevang, in Wharton County, Texas. Contaminants authorized under this permit include nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter (PM) including particulate matter with diameters of 10 microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$), volatile organic compounds (VOC), and hazardous air pollutants.

Procedural Background

Before work is begun on the construction of a new facility that may emit air contaminants, the person planning the construction must obtain a permit from the TCEQ. This permit application is for an initial issuance of Air Quality Permit Numbers 111724 and PSDTX1374.

The permit application was received on June 18, 2013, and declared administratively complete on July 11, 2013. The Notice of Receipt and Intent to Obtain an Air Quality Permit (public notice) for this permit application was published in English on August 7, 2013, in the *El Campo Leader-News.* The Notice of Application and Preliminary Decision for an Air Quality Permit was published on May 17, 2014, in English in the *El Campo Leader-News.* A public meeting was held on September 30, 2014, in El Campo. The notice of public meeting was mailed to interested parties on September 9, 2014. The notice of public meeting was published in English on September 10, 2014, in the *El Campo Leader-News.* Although the public notices were also required to be published in a Spanish language newspaper of general circulation, this requirement was waived pursuant to 30 TAC § 39.405(h)(8) because the applicant certified that no Spanish language newspaper of general circulation exists in the municipality or county where the proposed facility is located. The public comment period ended on September 30, 2014.

COMMENTS AND RESPONSES

COMMENT 1: Commenters request a copy of the complete TCEQ Form Number 20244 submitted by the applicant. (Betty and Eddie Vacek)

RESPONSE 1: The completed form was emailed to the commenters on May 9, 2014.

COMMENT 2: Commenters state they have not seen any newspaper notices nor required signs posted on the proposed property and were not notified about the project. (Betty and Eddie Vacek)

Notices were disguised or lacked adequate disclosure so as to have gone unnoticed by local residents and that residents and property owners were not informed. (Group A)

Commenter states the applicant attempted to hide the project from the public and that required signs were obscured from public view. (LISTEN!, Farryl Holub)

RESPONSE 2: The Executive Director directs applicants to provide public notice as required by TCEQ rules, in accordance with statutory requirements. The required newspaper notice invites citizens to request mailed notice on matters of interest by submitting their contact information to the Office of the Chief Clerk, so that they may receive information regarding particular matters. The Executive Director is required to mail notice to persons on mailing lists maintained by the Office of the Chief Clerk. Additionally, for certain air quality applications, including this application, applicants are required to post signs at the site that provide notice of the filing of an application and TCEQ contact information.

For Notice of Receipt and Intent to Obtain an Air Quality Permit, the applicant submitted a sworn affidavit dated August 7, 2013 from the publisher of the El Campo Leader-News stating the public notice was published on August 7, 2013.

Additionally, per 30 TAC § 39.604, signs must be placed, at the applicant's expense, at the site of the existing or proposed facility. The sign(s) must declare the filing of an application for a permit and state the manner in which the TCEQ may be contacted for further information. The applicant must provide verification to the commission that the sign posting was conducted in accordance with TCEQ rules. Each sign placed at the site must be located within ten feet of every property line paralleling a public highway, street, or road. Signs must be also visible from the street and spaced at not more than 1,500-foot intervals. A minimum of one sign, but no more than three signs shall be required along any property line paralleling a public highway, street, or road. The applicant certified that it met the requirements of the rule. The applicant submitted the Public Notice Verification Form signed September 12, 2013, stating that the required signs were posted in accordance with the regulations and instruction of the TCEQ.

For Notice of Application and Preliminary Decision, the applicant submitted a sworn affidavit dated May 19, 2014 from the publisher of the El Campo Leader-News stating the public notice was published on May 17, 2014.

COMMENT 3: Commenters want to know when the Notice of Receipt and Intent to Obtain an Air Quality Permit public comment period ends. (Betty and Eddie Vacek)

Commenters request more time for the public to learn about the project and comment. (LISTEN!, Farryl Holub)

RESPONSE 3: The public comment period lasted over a year, beginning on August 7, 2013, and ending at the close of the public meeting held on September 30, 2014. The application was submitted on June 18, 2013, and made available for public review at TCEQ offices in Austin, the TCEQ Regional Office in Corpus Christi, and at the El Campo City Hall for that time period. The application continues to be available for review at until such time the commissioners of the TCEQ take action on the application or refer issues to the State Office of Administrative Hearings.

In addition to the information about the project contained in the public notices, a public meeting held on September 30, 2014. The public meeting provided additional information about the project and offered an opportunity for an informal question and answer session between the public, representatives for the applicant, and representatives from TCEQ. The public meeting also included a formal comment session.

COMMENT 4: Commenters state they have not seen the draft permit nor had an opportunity to review it. (Betty and Eddie Vacek)

RESPONSE 4: Prior to publication of the Notice of Application and Preliminary Decision, the applicant is required to place the draft permit in a public place identified in the public notice, where it is to remain through the public comment period. The applicant submitted the TCEQ's Public Notice Verification Form signed July 1, 2014, stating that the draft permit was made available at the El Campo City Hall, 315 E. Jackson Street, El Campo, Wharton County, Texas.

As noted in the public notice, the documents are also available at http://www.tceq.texas.gov/goto/cid.

COMMENT 5: Commenters are concerned about the effect of the project on their property values. (Betty and Eddie Vacek)

Commenters are concerned about the effect of the proposed facilities on the beauty of their property and the effect on tourism to their property. (Group B)

Commenters state the building will be unsightly and the sound will be an environmental hazard to area wildlife and people. (Doyle and Ann Schaer)

Commenters request that the applicant move to a different site. (Group A, Group B)

RESPONSE 5: The TCEQ's jurisdiction is established by the Legislature and is limited to the issues set forth in statute. Accordingly, the TCEQ does not have jurisdiction to consider noise or light pollution, zoning, visual appearance, or effects on property values when determining whether to approve or deny a permit application, unless state law imposes specific distance limitations that are enforceable by the TCEQ. Zoning and land use are beyond the authority of the TCEQ for consideration when reviewing air quality permit applications and such issues should be directed to local officials.

COMMENT 6: Commenters are concerned about the effect of the project on their health, the health of sensitive population groups with respiratory and other health problems, and in general, the emission of air contaminants from the proposed facilities. (Group A, Group B, Doyle and Ann Schaer, and Farryl Holub)

Commenters are concerned about the reaction of stack emissions from the proposed facilities with chemicals used on the surrounding agricultural land. (Group A, LISTEN!, and Farryl Holub)

Commenters note that they grow crops and raise horses and cattle on tracts of land near the proposed site. (LISTEN!, Farryl Holub)

RESPONSE 6: TCEQ has reviewed the permit application and has found it to be in compliance with all applicable federal and state regulatory requirements.

For many permits, potential impacts to human health and welfare or the environment are determined by comparing air dispersion modeling predicted emission concentrations from the proposed facility to appropriate state and federal standards and effects screening levels.[1, 2] The specific health-based standards or guidance levels employed in evaluating the potential emissions include the National Ambient Air Quality Standards (NAAQS); TCEQ standards

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[1] See the document "Air Quality Modeling Guidelines" for details on air modeling at the TCEQ website at www.tceq.texas.gov/permitting/air/guidance/newsourcereview/nsr_mod_guidance.html. Also visit the agency air modeling page at www.tceq.texas.gov/permitting/air/nav/modeling_index.html.

[2] Documents referenced in this response that are available on the TCEQ website are also available in printed form at a small cost from the TCEQ Publications office at 512-239-0028.

contained in 30 TAC Chapter 111, Control of Air Pollution from Visible Emissions and Particulate Matter, specifically 30 TAC § 111.151, Allowable Emissions Limits, and 30 TAC § 112.3, Net Ground Level Concentrations; and TCEQ Effect Screening Levels (ESLs).[3]

NAAQS are created by the United States Environmental Protection Agency (EPA) and are defined in the federal regulations 40 CFR § 50.2, Scope, include both primary and secondary standards. The primary standards are those which the Administrator of the EPA determines are necessary, with an adequate margin of safety, to protect the public health, including sensitive members of the population such as children, the elderly, and individuals with existing lung or cardiovascular conditions. Secondary NAAQS are those which the Administrator determines are necessary to protect the public welfare and the environment, including animals, crops, vegetation, and buildings, from any known or anticipated adverse effects associated with the presence of an air contaminant in the ambient air. The standards are set for criteria pollutants: ozone, lead, carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), and particulate matter (PM) including particulate matter with diameters of 10 micrometers or less (PM_{10}) and 2.5 micrometers or less ($PM_{2.5}$).

For most permit applications, including the applications for these permits, air dispersion modeling is performed. After a permit application's modeling review is complete, in most instances, the modeling results are then sent to the TCEQ's toxicology section to evaluate whether emissions from the proposed facility are expected to cause health or nuisance problems. The toxicology section reviews the results from air dispersion modeling by comparing those results to the TCEQ Effects Screening Levels (ESLs).

ESLs are constituent-specific guideline concentrations used in TCEQ's effects evaluation of constituent concentrations in air. These guidelines are derived by the Toxicology Division and are based on a constituent's potential to cause adverse health effects, odor nuisances, and effects on vegetation. Health-based screening levels are set at levels lower than levels reported to produce adverse health effects, and as such are set to protect the general public, including sensitive subgroups such as children, the elderly, or people with existing respiratory conditions. Adverse health or welfare effects are not expected to occur if the air concentration of a constituent is below its ESL. If an air concentration of a constituent is above the screening level, it is not necessarily indicative that an adverse effect will occur, but rather that further evaluation is warranted. Generally, maximum concentrations predicted to occur at a sensitive receptor which are at or below the ESL would not be expected to cause adverse effects.

For this specific permit application, appropriate air dispersion modeling was performed with the air quality model AERMOD. The likelihood of whether adverse health effects caused by emissions from the applicant's proposed facilities could occur in members of the general public, including sensitive subgroups such as children, the elderly, or people with existing respiratory conditions, was determined by comparing each facility's predicted air dispersion computer modeling concentrations to the relevant state and federal standards and effects screening levels. The permit reviewer used modeling results to verify that predicted ground level concentrations (GLC) from the proposed facilities are not likely to adversely impact off-property receptors.

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[3] To view the ESL list or obtain more information on ESLs, visit the TCEQ website at www.tceq.texas.gov/toxicology/esl/list_main.html

TCEQ approved background concentrations from the geographic area surrounding the site or other appropriate background are added to the modeled concentrations when applicable. The overall evaluation process provides a conservative prediction that is protective of the public. The modeling predictions were reviewed by the TCEQ Air Dispersion Modeling Team (ADMT), and the modeling analysis was determined to be acceptable.

An air dispersion modeling analysis was performed for the following criteria pollutants: PM_{10}, $PM_{2.5}$, SO_2, NO_2, and CO.

Particulate matter consists of solid particles and liquid droplets found in the air. PM_{10} is referred to as "coarse" particles and $PM_{2.5}$ is referred to as "fine" particles. Sources of coarse particles include wind-blown dust, dust generated by vehicles traveling on unpaved roads, and material handling. Fine particles are usually produced via industrial and residential combustion processes and vehicle exhaust.

The NAAQS for PM_{10} is based on a 24-hour time period. The measurement for predicted concentrations of air contaminants in modeling exercises is expressed in terms of micrograms per cubic meter ($\mu g/m^3$). One microgram is 1/1,000,000 of a gram, or 2.2/1,000,000,000 of a pound (approximately the weight of a dust mite) of air contaminant per cubic meter of ambient air. The air volume of a cubic meter is approximately the size of a washing machine. Predicted air concentrations occurring below the 24-hour NAAQS of 150 $\mu g/m^3$ are not expected to exacerbate existing conditions or cause adverse health effects. Modeling for this facility resulted in predicted maximum GLC of PM_{10} concentrations to be 1.19 $\mu g/m^3$ (24-hour) which is below the de minimis level for the NAAQS of 5 $\mu g/m^3$ and therefore would not be expected to cause significant deterioration of the ambient air.

The NAAQS for $PM_{2.5}$ is based on 24-hour and annual time periods. Predicted air concentrations occurring below the 24-hour NAAQS of 35 $\mu g/m^3$ and the annual NAAQS of 12 $\mu g/m^3$ are not expected to exacerbate existing conditions or cause adverse health effects. Modeling for this facility resulted in predicted maximum GLC of $PM_{2.5}$ concentrations to be 0.66 $\mu g/m^3$ (24-hour) and 0.1 $\mu g/m^3$ (annual) which are below the de minimis levels for the NAAQS of 1.2 $\mu g/m^3$ (24 hour) and 0.3 $\mu g/m^3$ (annual) and therefore would not be expected to cause significant deterioration of the ambient air.

SO_2 was also evaluated for Indeck Wharton's facilities. The SO_2 NAAQS is based on one-hour, 24-hour, and annual time periods. Predicted SO_2 air concentrations occurring below the one-hour, twenty-four hour, and annual NAAQS of 196 $\mu g/m^3$, 365 $\mu g/m^3$, and 80 $\mu g/m^3$, respectively, are not expected to exacerbate existing conditions or cause adverse health effects. Modeling of this facility resulted in predicted air concentrations of SO_2 of 1.37 $\mu g/m^3$ (one-hour), 2.53 $\mu g/m^3$ (twenty-four hour), and 0.05 $\mu g/m^3$ (annual), which are below the de minimis levels for the SO_2 NAAQS of 7.8 $\mu g/m^3$ (one-hour), 5 $\mu g/m^3$ (twenty-four hour), and 1 $\mu g/m^3$ (annual) and therefore would not be expected to cause significant deterioration of the ambient air quality.

Nitrogen dioxide (NO_2) was also evaluated. The NO_2 NAAQS is based on one-hour and annual time periods. Predicted NO_2 air concentrations occurring below the one-hour and annual NAAQS of 188 $\mu g/m3$ and 100 $\mu g/m^3$, respectively, are not expected to exacerbate existing conditions or cause adverse health effects. Modeling of this facility resulted in predicted air concentrations of NO_2 of 19.3 µg/m^3 (one-hour) and 1.8 µg/m^3 (annual) which are above the de minimis levels for the NAAQS of 7.5 µg/m^3 (one-hour) and 1 µg/m^3 (annual) requiring a full NAAQS analysis. The result of the full analysis was 173.3 µg/m^3 (one-hour) and 21.5 µg/m^3 (annual) which are below the NAAQS. Since the predicted concentrations are below the NO_2 NAAQS for each of the respective averaging times, adverse effects from emissions of this pollutant are not expected to cause adverse health effects.

Carbon monoxide (CO) was also evaluated for Indeck Wharton. The CO NAAQS is based on one-hour and 8-hour time periods. Predicted CO air concentrations occurring below the one-hour and 8-hour NAAQS of 40,000 µg/m3 and 10,000 µg/m^3, respectively, are not expected to exacerbate existing conditions or cause adverse health effects. Modeling of these facilities resulted in predicted air concentrations of CO to be 363 µg/m^3 (one-hour) and 65.5 µg/m^3 (8-hour), which are below the de minimis levels for the NAAQS of 2000 µg/m^3 (one-hour) and 500 µg/m^3 (8-hour) and therefore would not be expected to cause deterioration of the ambient air quality.

In summary, based on the potential concentrations reviewed by the Executive Director's staff, it is not expected that existing health conditions will worsen, or that there will be adverse health effects in the general public, sensitive subgroups, or animal life as a result of exposure to the expected levels of PM_{10}, $PM_{2.5}$,SO_2, NO_X, or CO.

Additionally, the applicant performed an air dispersion modeling analysis for the following non-criteria pollutants according to TCEQ's guidance entitled, "Modeling Effects and Review Applicability." The following pollutants were below their respective ESLs and would not be expected to cause adverse effects: acetaldehyde, acrolein, arsenic (metal and inorganic compounds), benzene, cadmium (metal & compounds), chromium metal, formaldehyde, mercury (alkyls), naphthalene, nickel (metal & compounds), polycyclic aromatic HC's (particulate, <10% b(a)p, not otherwise classified), propylene oxide, selenium oxide, toluene, and xylene mixture.

ESLs are chemical concentrations in the air that are safe. ESLs are mainly used in the air permitting process to assess the protectiveness of substance-specific emission rate limits for facilities undergoing air permit reviews. If predicted airborne levels of a chemical did not exceed its ESL, the TCEQ Toxicology Division (TD) did not review the predicted levels of chemicals. If predicted airborne levels of a chemical exceeded its ESL, adverse health or welfare effects would not necessarily be expected to result, but a more in-depth review would be triggered. In this review, the TD examines the modeled worst-case off-property ground-level air concentrations resulting from the emissions from a new or existing facility and compares them to the ESLs to determine whether any adverse health or welfare effects would be expected. Because the modeled concentrations are based on a proposed facility's worst-case operating scenario, it assumes the facility is operating at full capacity at all times, which rarely happens.

The method for deriving ESLs addresses both cumulative and aggregate exposures. For noncancer-causing chemicals, the TCEQ derives a scientifically sound, safe level, and then tightens that number by 70 percent for evaluating air permit applications to account for cumulative and aggregate exposures. The risk-management goal for cancer-causing chemicals 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. Thus, the ESL derivation includes conservative safety factors to acknowledge that some members of the general population such as children, the elderly, and people with pre-existing disease, may be more susceptible to the effects of an air constituent than other people; ESLs are derived to protect these susceptible populations.

The TCEQ evaluates cumulative and aggregate exposures from air during the air permitting process. Typically, when evaluating the maximum concentration predicted to occur at a sensitive receptor, the concentration must be at or below the ESL. The ESL is derived conservatively and layers of conservative assumptions are made in the worst-case modeling analysis itself. Each facility the TCEQ TD staff reviews is evaluated against this criterion, so multiple facilities in the area have been reviewed to the same level of protectiveness.

Modeled emissions that are predicted to occur at the Indeck Wharton facilities are less than their respective ESLs. Based on the fact that there are no exceedances of the ESL, which takes into account cumulative and aggregate exposures, and considering the conservative nature of the model, short- or long-term adverse health effects are not anticipated to occur among the general public as a result of exposure to the proposed emissions from these facilities.

COMMENT 7: Commenters request the TCEQ deny the permit application. (Doyle and Ann Schaer)

RESPONSE 7: Air quality permit applications are evaluated to determine whether standards outlined in the TCAA and applicable state and federal rules and regulations are met. As part of the permit evaluation process, the permit reviewer identifies all sources of air contaminants at the proposed facility, assures that the facility will be using Best Available Control Technology for the sources and types of contaminants emitted, and determines that no adverse effects to public health, general welfare, or physical property are expected to result from a facility's proposed emissions. TCEQ will not issue the permit until a demonstration is made.

COMMENT 8: Commenters state that a pipeline ruptured on property immediately adjacent to the applicant's proposed site. Various wells are used to monitor groundwater contamination from the spill. Commenters are concerned that this groundwater and/or surface contamination may somehow interact with applicant's operation and emissions. (LISTEN!, Farryl Holub)

RESPONSE 8: While the TCEQ is responsible for the environmental protection of all media, including water, this is an application for an air quality permit. The TCAA specifically addresses air-related issues. The scope of this air quality permit application review does not include a water assessment or consideration of issues involving groundwater monitoring on adjacent property. The issuance of an air quality permit does not negate the responsibility of an applicant to apply for any additionally required authorizations prior to constructing or operating a facility.

CHANGES MADE IN RESPONSE TO COMMENT

No changes to the draft permit have been made in response to public comment.

Respectfully submitted,

Texas Commission on Environmental Quality

Richard A. Hyde, P.E., Executive Director

Caroline Sweeney, Deputy Director
Office of Legal Services

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REPRESENTING THE
EXECUTIVE DIRECTOR OF THE
TEXAS COMMISSION ON
ENVIRONMENTAL QUALITY

APPENDIX A ("Group A")

Commenters listed in this appendix submitted comments against the permit using form letters with substantially the same content.

Domingo Acuna Jr., Ignacia Acuna, E.A. Adams, Jimmy Adams, Mary Adams, Christina Aguilar, Rebecca Aguilar, Laura Alba, Elvie Araguz, Delores Balderas, E.E. Berndt, Suzan Berndt, Barbara Bram, Clifton Bram, Craig Bram, Tanya Bram, Ann Brown, Frank Bubela, Patsy Bubela, Jennifer Cadriel, Rachel Castro, Paul Cerny, Tim S. Cerny, Carlos A. Chavez, Isaias Chavez, Maria Chavez, Susan Chlebek, Kenneth Christiensen, Nestor Contreras, Debra Cates Cook, Joe Tom Davis, Katherine H. Davis, Patricia A. Deleon, Donna Dippel, Dorabel M. Dippel, John A. Dippel, Mary K. Dippel, Neil Dippel, Evelyn Dybala, Rachel Goynes Eilts, Carolyn Ellis, Jesse Ellis, John W. Ely, Linda Espitia, Mary Fink, Walter Fink, Juan Flores, Daniel Gaona Jr., Venessa Gaona, Andrea Garay, Carolyn W. Goelzer, Daniel Gonzales, Rose Mary Gonzales, Cecelia Gonzales, Jose Antonio Gonzalez, Kevin Gordon, Fred Goynes, Valerie Kim Goynes, Sher Larsen Green, Jaime Gutierrez, Blanca Guzman, Octavio Guzman, Kevin Hale, Charlotte Hansen, James Hansen, Jeff Hansen, Myrna Hansen, Jennifer Harton, Jim W. Harton, Laverne Harton, Robert W. Hernandez, Oscar J. Herrera, Estefania Hinojosa, Barbara Hlavaty, Doug Hlavaty, Paisley Hlavaty, Glenn H. Holland, Edmund Holub, Farryl David Holub, Gloria Holub, Jillian Holub, Marti Holub, Joyce Jasinski, Brian Jensen, Brianna Jensen, Carl H. Jensen, Jackson Jensen, Sarah J. Jensen, Stephanie Jensen, Frank S. Kacal, Hubert B. Kaiser, Mary Jane Kaiser, Jay Kristiansen, Ronal Lafour, Bobbie Landress, James H. Leach, Alan Guzman Limon, Keyly Guzman Limon, Melina Limon, Anthony Mahalitc, Cindy Mahalitc, Tina Marek, Sharon Mayhall, Carol Means, Mary A. Mehnert, Diana Melanson, Antonio Mendez, Alexandero Mendoza, Mirna Mendoza, Galon Mills, Kristen Mills, Tyler Mills, Eddie B. Murray, Mae Jean Murray, Jimmie Joyce Netardus, Julia Ontiveros, Antonio Ortiz, Cesar Antonio Perez, Robert Perez, Ralph E. Petersen, Sandra F. Petersen, Lindsey Poenitzsch, Madeline Priesmeyer, Carlos Rangel, Christopher Rangel, Hector Rangel, Joann Rangel, Juan Rangel, Karen Rangel, Edward Reyna, Ben Rumbaugh, Jessica Rumbaugh, Antonio Sanchez (two separate commenters), Jorge Sanchez, Rosario Sanchez, Lydia Sanders, Adeline Schmidt, Earl Schmidt, Jeanette Schmidt, Johanna Schmidt, Stacy L. Schmidt, Staven Schmidt, Linda Skinner, Recie Staff, Robert W. Strnader, Damion Taylor, Jose Terrazas, Raquel Terrazas, Rosie Thompson, Alma Torres, Baltazar Torres, Manuel Torres, Miguel Torres, Mary Treybig, Danny Tupa, Matthew W. Tupa, Betty Vacek, Eddie Vacek, Bootsie Vajdos, Elias Valdez, Ellie Valdez, Joe A. Valdez, Joe Valdez Jr., Juan Valdez, Kaylee Valdez, Sanjuana Vargas, Eusebio Vega, Francisco Velasquez, Marina Velasquez, Remigio Velasquez, Cecilia Velazquez, Humberto Velaquez, Maria Carmen Velazquez, Norma Velazquez, Helen Ward, Melissa Welsh, Gina Wilson, Steven Wilson, Betty and Manual Yanez, Martin Yanez, and Rafael Yanez.

APPENDIX B ("Group B")

Commenters listed in this appendix submitted comments in opposition to the permit using a petition with a list of signatures.

Maria Barnes, Marilyn Chappell, O.V. Christensen, Ashley Garza, Annabel Gonzales, Darleen Miksik, Juhl Miksik, Wesley Miksik, , Maria O. Navarro, Irene Ocampo, Ben Rivera, Erin Rivera, Esther Rivera, Meagan Rivera, Ann Schaer, Doyle Schaer, Damion Taylor.

EXHIBIT 2

TCEQ DOCKET NO. 2014-0847-AIR

APPLICATION BY	§	**BEFORE THE**
INDECK WHARTON, LLC	§	
INDECK WHARTON ENERGY	§	**TEXAS COMMISSION ON**
CENTER, PERMIT NOS. 111724	§	
AND PSDTX1374	§	**ENVIRONMENTAL QUALITY**
DANEVANG, WHARTON COUNTY	§	

AFFIDAVIT OF DR. THOMAS DYDEK, PhD, DABT, PE

State of Texas §
County of Travis §

Before me, the undersigned Notary Public in and for Travis County Texas, personally appeared THOMAS DYDEK, Ph.D., D.A.B.T., P.E., the affiant, whose identity is known to me. After I administered an oath, affiant testified as follows:

1. My name is Thomas Dydek. I am over 18 years of age, of sound mind, and capable of making this affidavit. The facts in this affidavit are within my personal knowledge and are true and correct.

2. I am a Board Certified Toxicologist as a Diplomat of the American Board of Toxicology (D.A.B.T.) and a Licensed Professional Engineer (P.E.). I have over 30 year's continuous experience in the environmental field as a toxicologist focusing on human health risk assessments and evaluations of the potential for adverse public health effects of exposure to air contaminants. I have a Bachelor's Degree in Mechanical Engineering and a Master's Degree in Environmental Science and Engineering from Rice University in Houston, Texas. My doctoral degree is in Environmental Science and Engineering from the University of North Carolina School of Public Health. I have also done a Post-Doctoral Fellowship in Toxicology in the College of Pharmacy at the University of Texas at Austin.

3. Board certification in toxicology is similar to that in the medical fields. The American Board of Toxicology is the organization that conducts board certification activities for toxicology in this country. Candidates for certification must demonstrate a high level of education and a sufficient number of years in professional practice to qualify to sit for the Board Certification examination. The examination is a two-day written test that covers all aspects of toxicology. If that examination is passed, the candidate becomes a Diplomate of the American Board of Toxicology, or D.A.B.T. for short. To keep one's certification current, it must be renewed every five years. I became Board-Certified in 1995 and I have been re-certified in 2000, 2005, and 2010. I became a Licensed Professional Engineer in Texas in 1992 and I have kept my P.E. license current since that time.

4. My chief area of expertise is the evaluation of human health and welfare effects of exposure to environmental pollution. While with the U.S. Fish and Wildlife Service in Albuquerque, New Mexico, I was responsible for control of air, water, and solid waste pollution at agency facilities in an eight-state area. I also worked for the U.S. Environmental Protection Agency in Dallas, Texas as a permit engineer in the National Pollutant Discharge Elimination System (NPDES) program. During my doctoral program, I worked for the EPA in North Carolina in the area of air pollution research and air pollutant exposure studies using human volunteers. After returning to Texas in 1982, I taught several courses in the Environmental Studies Program at St. Edward's University in Austin. I then entered my Post-doctoral program at the University of Texas.

5. From 1984 to 1991, I was the Senior Staff Toxicologist at the Texas Air Control Board (a predecessor agency to the TCEQ) in Austin. In that job, I performed health and welfare effects evaluations for over 1,000 permit applications. I also reviewed many ambient air and contaminated soil sampling reports to determine the potential for adverse effects on public health. I participated in many Public Meetings and gave extensive expert toxicological testimony at agency Public Hearings.

6. In 1991, I joined the staff of Jones and Neuse, Inc., an environmental consulting services company in Austin, Texas. In that job, I performed quantitative human health risk assessments for chemical contamination of air, water, and soil. I have owned and operated my own toxicology and engineering consulting firm, Dydek Toxicology Consulting, since 1994. In my current job, I have continued my work on human health risk assessments for air quality permitting and other agency-related programs.

7. My additional professional activities include active membership in many technical associations and service on various City and State citizen committees in the areas of air quality, toxicology, risk assessment, and solid waste management. I have also served as an Adjunct Professor in the Environmental Health Division of the University of Texas School of Public Health in San Antonio (1987-2000). I have attended more than 130 technical environmental conferences and made presentations at more than 25 of these meetings. My current curriculum vitae is attached to this Affidavit as Exhibit 2-A.

8. I have prepared this Affidavit in support of Applicant Indeck Wharton, L.L.C.'s ("Indeck's") Response to Hearing Request filed in the above identified docket. The opinions I give in this Affidavit were formulated based upon my experience, training and education in the fields of toxicology and engineering, and my review of information concerning air emissions from Indeck's proposed plant.

9. That information included the results of air dispersion modeling performed by Tetra Tech, Inc. Specific modeling determined the maximum possible off-property impacts of air contaminants to be emitted by the proposed plant at any location off-property, at the residences of the individual Hearing Requestors who live within two miles of the proposed plant, and at the Danevang Lutheran Church.

10. Based on my review of this information, and on my expertise and experience as a toxicologist, I have reached the conclusions set forth as follows in this affidavit.

11. It is one of the basic tenets of toxicology that "the dose makes the poison". In other words, a person's exposure to a potentially toxic chemical will not result in any adverse effects unless that exposure is of sufficient magnitude, duration, and frequency to cause those effects. It is my opinion in this matter that the levels of air contaminants to be emitted from the proposed Indeck plant will not be of a magnitude, duration, or frequency great enough to cause any adverse human health or welfare effects to the Hearing Requestors in this case.

12. There are two major categories of air contaminants of concern in this type of health effects evaluation process: criteria air pollutants and non-criteria air pollutants. Criteria air contaminants are those for which a National Ambient Air Quality Standard (NAAQS) or a Texas Commission on Environmental Quality (TCEQ) Property Line or "Net Ground Level Concentration" (NGLC) Standard has been set. The NAAQS and the State of Texas standards have been set at levels protective of the health and welfare of even the most sensitive members of the general population with an adequate margin of safety. Sensitive members of the population include the very young, the very old, and people with pre-existing medical conditions such as asthma and other respiratory diseases and diseases of the cardiovascular system.

13. Non-criteria air pollutants are those that have neither a NAAQS nor a State of Texas standard. While there are no air quality standards for these air contaminants, the TCEQ has established guideline exposure levels which are used to evaluate the potential for adverse health or welfare effects of community exposures to these air contaminants. Non-criteria air contaminants include, but are not limited to, those recognized as Hazardous Air Pollutants (HAPS) by the U.S. Environmental Protection Agency. These guideline levels are called Effects Screening Levels (ESLs). ESLs have been set at levels at or below which no adverse human health or welfare effects are expected.

14. Health-based ESLs have been set based on human or animal data that show the levels of chemical exposures at which no adverse effects (what's called a no adverse effects level or NOAEL) or very minor adverse effects (a low adverse effects level or LOAEL) occur. These NOAELs or LOAELs are then reduced by safety factors designed to make the data applicable to community exposures to air contaminants. ESLs are very conservative because they have been set at levels typically orders of magnitude smaller than exposure levels that can actually cause adverse health effects.

15. Welfare-based ESLs are based on prevention of odor nuisance and effects on vegetation. Most welfare-based ESLs have been set to prevent odor nuisances. These ESLs are set at the odor thresholds for chemicals as determined in a laboratory setting. These ESLs are very conservative as well, since the levels at which odors can be detected in the laboratory will be lower than those likely to be detected in a community setting. There are only a few vegetation-based ESLs (for hydrogen fluoride, other fluorides, and ethylene). These ESLs have been set at levels at which minor damage to plant species has been found.

16. The proposed Indeck plant will emit six air contaminants that have NAAQS: carbon monoxide, lead, nitrogen dioxide, sulfur dioxide, particulate matter less than 10 microns in

diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). The proposed Plant will also emit two air contaminants that have State of Texas standards: sulfur dioxide and sulfuric acid mist. Non-criteria air contaminants to be emitted from the proposed plant include very small amounts of various volatile organic compounds (VOCs) and metals. These include HAP air contaminants. All HAPs are ESL air contaminants, but not all ESL air contaminants are HAPs.

17. The health effects evaluation procedure used in Texas in air quality permitting matters is to first predict the expected off-property airborne levels of air contaminants to be emitted from an industrial source and then to compare those predicted levels to the air quality standards and guidelines mentioned above. If predicted levels do not exceed health- and welfare-based standards and guidelines, no adverse effects will occur. This is a well-recognized, accepted, and scientifically reliable method of evaluating the human health and welfare risks (if any) of chemicals emitted into the air. As an independent toxicologist, I agree that this is the best way to evaluate the potential for adverse effects from air contaminant emissions in air quality permitting situations.

18. Since the TCEQ air quality permits are "pre-construction" permits, computer-based methods are used to predict the impacts of emissions that will occur after the plants are built. This type of computer modeling is referred to as air dispersion modeling. Air dispersion modeling is a well-accepted and almost universally used method by which off-property air concentrations of chemicals emitted from emission sources are predicted. The model used in Texas is called AERMOD. This model was developed and tested by the U.S. Environmental Protection Agency and is used by permit applicants seeking air quality permits from the TCEQ.

19. Tetra Tech, Inc. has performed air dispersion modeling on behalf of the Applicant to determine the maximum possible off-property impacts (i.e. airborne concentrations) of the air contaminants to be emitted from the proposed Indeck plant. It is a common and accepted practice to rely on the results of such modeling when determining compliance with NAAQS and Texas NGLC Standards. I relied on those modeling results in the preparation of this Affidavit. That modeling showed that the maximum impacts of these type of air contaminants anywhere off of the Indeck property would meet all applicable federal and state guidelines. The TCEQ Air Dispersion Modeling Team has reviewed and approved the modeling submitted by the Applicant for this plant as documented in the TCEQ Preliminary Determination Summary (see Exhibit 2-B).

20. It is also a common and accepted practice to rely on the results of such modeling when performing human health effects evaluations for chemicals without Federal or State of Texas standards. To analyze potential impacts at individual Hearing Requestor's residences and other potentially sensitive receptors (churches, businesses, and other important sites), 142 such receptors within two miles of the proposed plant were located and the predicted values of air contaminants were determined by the air dispersion model.

21. The table in the Supplemental Air Quality Assessment prepared by Tetra Tech (dated August 2014) shows the applicable NAAQS and the maximum predicted impacts for air contaminants having NAAQS at the locations of the residences of the Hearing Requestors and other sensitive

sites including the Danevang Lutheran Church (see Exhibit 2-C). Information concerning the impacts of air contaminants having State of Texas standards and those having ESLs was also provided by Tetra Tech (see Exhibit 2-D).

22. The airborne concentrations predicted by the Applicant's air dispersion modeling are conservative; that is, they likely over-predict the levels of air contaminants that could actually occur in the vicinity of the proposed Indeck Plant and/or at the residences of the Hearing Requestors. For example, it was assumed that the maximum emissions would occur during the hours in which meteorological conditions least favor the dispersion of those air contaminants.

23. Table 1 in Exhibit 2-E below summarizes the maximum predicted impacts resulting from the emissions of air contaminants having NAAQS at any of the sensitive receptors identified above. These impacts ranged from 0.0036% to 3.31% of the applicable standards. Another way to express this is that the predicted impacts were from 30 to 27,500 times lower than the applicable NAAQS. Since these data pertain to the one sensitive receptor having the greatest predicted impact, the impacts at the other receptors would be even smaller percentages of the NAAQS.

24. Table 2 in Exhibit 2-E shows the maximum predicted impacts of air contaminants having State of Texas NGLC standards at any of the sensitive receptors. Those impacts ranged from 0.07% to 0.11% of the State of Texas Property Line Standards. In other words, these impacts were from 900 to 1,400 times lower than those standards.

25. Table 3 in Exhibit 2-E shows the maximum predicted impacts at all sensitive receptors for chemicals having ESLs ranged from 0.00000057% to 1.9% of the respective ESLs for those chemicals. Put another way, the highest impacts at these sites were from 50 to 176 million times lower than the applicable ESLs.

26. Impacts of air contaminants at the nearby Danevang Lutheran Church are an issue about which some concern has been raised by the Requestors, so I have evaluated the impacts of air contaminants at that site separately. Tables 4, 5, and 6 in Exhibit 2-E summarize the maximum predicted air contaminant impacts at the church for NAAQS, NGLC, and ESL air contaminants respectively. The predicted impacts at the church were either equal to or less than those at any sensitive receptor (see Tables 1, 2, and 3). Thus the impacts at the church will be the same or smaller fractions of the NAAQS, the Texas NGLCs, and the ESLs.

27. Note that three of the Hearing Requestors (Chappell, Taylor, and Garza) live farther than two miles from the proposed Indeck plant. As a general rule, impacts of air emissions decline with increasing distance from their sources. This is true for the proposed Indeck plant as well. As noted in Mr. Guertin's Affidavit, the impacts at distance beyond two miles from the site will be even smaller than those for which specific air dispersion modeling results were obtained.

28. In conclusion, the maximum levels of all air contaminants to be emitted from the proposed Indeck plant near Danevang, Texas have been determined by air dispersion modeling. The predicted maximum impacts at the Hearing Requestors' residences and at the nearby church are from 30 to millions of times lower than all Federal and State of Texas standards and guidelines,

even considering the conservative assumptions that went into the dispersion modeling as mentioned above.

29. Those air quality standards and guidelines have been set at levels low enough to protect even the most sensitive members of the general population, including the very young, the very old, and people with pre-existing medical conditions such as asthma and other respiratory diseases and diseases of the cardiovascular system. These standards and guidelines are also in place to protect the safety and welfare of the public and of their property.

30. Going back to the point I made earlier in this Affidavit, the maximum (conservatively estimated) levels of air contaminants emitted from the proposed Indeck Plant at the Hearing Requestors' residences and at the nearby church (the "dose") are not great enough to cause any adverse effects (the "poison"). This analysis has shown the emissions from the proposed Indeck facility will pose no actual or imminent risk of adverse effects on the health, safety, or welfare of the Requestors or their property.

Furthermore Affiant sayeth not.

Thomas Dydek

Thomas Dydek, PhD, DABT, PE

Sworn and subscribed before me by Thomas Dydek on Dec. 23, 2014.

SHARON L BARNEY
NOTARY PUBLIC
State of Texas
Comm. Exp. 01-16-2015

Sharon L Barney

Notary Public in and for the State of Texas

My commission expires: 1-16-2015

EXHIBIT 2-A.

Current curriculum vitae for Dr. Thomas Dydek

CURRICULUM VITAE
Dr. Thomas Dydek, Ph.D., D.A.B.T., P.E.
Board-Certified Toxicologist and Professional Engineer

Dydek Toxicology Consulting
5208 Avenue H
Austin, Texas 78751

Phone: (512) 280-5477
Mobile: (512) 663-7836

E-mail: dydek@tox-expert.com
Web Page: http://www.tox-expert.com

I. AREAS OF EXPERTISE:

Evaluating the potential human health effects associated with exposure to toxic chemicals such as metals, gases, pesticides, petroleum products, oil and gas fracking emissions, solvents, and many other chemicals in occupational and community settings.

Evaluating the potential for odor nuisance conditions caused by airborne emissions of industrial chemicals such as those listed above.

Evaluating the potential for adverse health effects of implanted medical devices.

Preparing Baseline Risk Assessments, establishing clean-up guidelines or standards, conducting state of the art reviews, and doing chemical exposure assessments.

Investigating indoor air quality including projects involving exposure to molds and/or bacteria, and

Functioning as an expert witness in toxic tort cases, criminal proceedings, worker's compensation matters, and administrative hearings before environmental agencies.

II. EDUCATION:

A. Rice University, Houston, Texas. Bachelor of Arts degree in Mechanical Engineering. Major subjects were engineering, chemistry, physics, and mathematics.

B. Rice University, Houston, Texas. Master of Science degree in Environmental Science and Engineering. Major subjects were water and wastewater engineering and biology.

C. University of North Carolina School of Public Health. Doctorate in Environmental Science and Engineering, majoring in toxicology and minoring in epidemiology and biostatistics. Other major subjects were air pollution engineering and chemistry, aerosol science, biochemistry, and industrial hygiene.

D. University of Texas at Austin. Post-doctoral research fellowship in toxicology in the UT School of Pharmacy. Chief area of research was the effects of drugs and environmental contaminants on the respiratory systems of experimental animals.

III. WORK EXPERIENCE:

A. Dydek Toxicology Consulting, Austin, Texas. Dr. Dydek operates his own environmental consulting firm that specializes in toxicology and human health risk assessment. His work includes health risk analyses for site remediations, health effects evaluations for air and hazardous waste permitting, and other toxicological evaluations. He is very familiar with the State of Texas and the U.S. Environmental Protection Agency quantitative risk assessment methodologies and with other methods for assessing the potential for adverse effects from exposure to environmental contaminants. Dr. Dydek also serves as an expert witness in toxic tort cases, regulatory agency public hearings, and other legal proceedings.

B. Jones and Neuse, Inc., Austin, Texas. Dr. Dydek was employed as Senior Toxicologist and Project Engineer for this environmental consulting firm for three and one-half years. This job entailed health risk assessments, air emissions calculations, writing proposals, doing cost estimates and other functions associated with assisting clients in obtaining necessary permits and other authorizations to operate within the existing framework of environmental regulations in this country and abroad. This included work on Superfund and other remediation activities using the Risk Reduction Rules, air quality permitting, Resource and Recovery Act (RCRA) activities, preparing No-Migration Petitions, and expert testimony in public hearings as well as toxic tort and other legal cases.

C. Private Environmental Consulting Work, Austin, Texas. Dr. Dydek worked on several human health risk analysis projects on his own time while at the Texas Air Control Board. These included two reports on the potential human health effects of exposures to ambient levels of air pollutants in the Mexico City area, and an analysis of sulfur dioxide levels in an industrial area in Hong Kong.

D. Texas Air Control Board, Austin, Texas. Dr. Dydek was employed as the Senior Staff Toxicologist in the Health Effects Division. His major duty in this job was to assess the potential for adverse public health and welfare effects from emissions of air pollutants. He conducted extensive independent evaluations of the impacts of potentially-toxic air contaminants on human health and welfare. He participated in public meetings and testified as an expert witness in public hearings concerning air pollution hazards. He also monitored the scientific literature, attended workshops and conferences, and kept the health effects computerized databases current.

E. Saint Edward's University, Austin, Texas. Dr. Dydek taught several undergraduate courses in the Environmental Studies Program in the Department of Physical and Biological Sciences. These courses included Environmental Studies, Toxicology, Industrial Hygiene, and Urban Planning.

F. U.S. Environmental Protection Agency, Research Triangle Park, North Carolina. Dr. Dydek worked as a research scientist in the planning, implementation, and evaluation of air pollution control research projects, either as principal investigator or as project officer.

G. U.S. Environmental Protection Agency, Research Triangle Park, North Carolina. Dr. Dydek held several 20-hour per week appointments in various EPA research laboratories during doctoral program at the University of North Carolina School of Public Health. This work was in the areas of air quality data analysis and in human health effects of exposures to air pollutants at the EPA Human Exposures Laboratory.

H. U.S. Environmental Protection Agency, Dallas, Texas. Dr. Dydek worked as an environmental engineer in the area of water pollution control, writing water pollution (National Pollutant Discharge Elimination System) permits and compliance schedules for major industrial and Federal facilities.

I. U.S. Fish and Wildlife Service, Albuquerque, New Mexico. Dr. Dydek was in charge of planning, designing, and inspecting facilities for water supply, wastewater pollution control, and solid waste management at Federal hatcheries and refuges in an eight-state area.

IV. CERTIFICATIONS, LICENSES, AFFILIATIONS, AND PROFESSIONAL ACTIVITIES:

A. Board Certified Toxicologist as a Diplomate of the American Board of Toxicology (D.A.B.T.).

B. Licensed and authorized to practice as a Professional Engineer in Texas (License No. 71831).

C. Adjunct Professor of Environmental Health at the University of Texas School of Public Health at San Antonio, Texas.

CERTIFICATIONS, LICENSES, AFFILIATIONS, AND PROFESSIONAL ACTIVITIES (continued):

D. Member of the Society of Toxicology, the American College of Toxicology, the Society for Risk Analysis, the Roundtable of Toxicology Consultants, the American Conference of Governmental Industrial Hygienists, and the Air and Waste Management Association (Vice-Chair of the Air Toxics Committee, International AWMA; Treasurer of Central Texas Chapter of AWMA; Membership Chair of Central Texas AWMA).

E. Professional Activities at Local Level: Member of the Citizen's Advisory Task Force on Solid Waste Management. Member of an ad hoc committee on air quality issues in Austin. Member of a steering committee which aided the City in working with the local mass transit authority (Capital Metro) on environmental compliance.

F. Professional Activities at State Level: Member of the Human Health Workgroup in the State of Texas Environmental Priorities Project (STEPP). This was the comparative risk project for Texas. Also provided comments for Sunset Review of Texas Natural Resource Conservation Commission.

G. Technical Advisor for television shows "CSI: Las Vegas", and "Bones" (2009 to present).

H. Peer-reviewer for U.S. Environmental Protection Agency "Provisional Toxicity Value" documents (2011 to present).

V. HONORS AND AWARDS:

Dean's List, Rice University.
Special Achievement Award, U.S. Fish and Wildlife Service, Albuquerque, New Mexico.
Special Achievement Award, U.S. Environmental Protection Agency, Dallas, Texas.
Certificate of Appreciation, City of Austin (for work on the Solid Waste Management Task Force).
Outstanding Employee Award, Texas Air Control Board, Austin, Texas.
Austin City Council Award (for work on Clean Air committee).

VI. PERSONAL ACCOMPLISHMENTS

Member, National Championship Soccer Team (Veteran's Cup, Over 50's Division), 2000.
Member, National Championship Soccer Team (Veteran's Cup, Over 60's Division), 2007, 2008, 2009, 2010.
Member of Austin City League Championship Soccer Team (Over 50's Division), 2007, 2010, and 2011.

VII. PUBLICATIONS:

"Spring Creek: Water Resource Planning for Local Development" Dydek, T., et al., Environmental Sciences and Engineering Report No. 1, Rice University, Houston, Texas, 1971.
"Effects of Chlorination on Bacterial Polysaccharide Material", Master's Thesis, Rice University, 1972.
"The Influence of Carbon-Nitrogen Ratio on the Chlorination of Microbial Aggregates", W.G. Characklis and S.T. Dydek, Water Research 10:515-522, 1976.
"Neutralization and Size Changes of Sulfuric Acid Mist Particles", Ph.D. Dissertation, University of North Carolina School of Public Health, 1981.
"Analysis of Pulmonary Collagen Production by HPLC Separation of Radiolabled Hydroxyproline and Proline", Proceedings of the Western Pharmacology Society 27:319, 1984.
"Effects of Sodium Chloride on the HPLC Separation of Hydroxyproline and Proline", Liquid Chromatography 2:536, 1984.
"Effects Evaluation of Accidental Releases of Air Toxics: A Case Study of a Vinyl Chloride/Hydrogen Chloride Release", in Toxics, CAER, and Title III, Proceedings of the APCA Southwest Section Technical Meeting, ed. J. Shields, Corpus Christi, Texas, 1988.

VII. PUBLICATIONS (continued):

"Use of Odor Thresholds for Predicting Off-Property Odor Impacts", Willhite, M.T. and S.T. Dydek, in Recent Developments and Current Practices in Odor Regulations, Controls and Technology, International Specialty Conference, Detroit, Michigan, Derenzo, D.R. and A. Gnyp, eds., Air & Waste Management Association, Pittsburgh, Pennsylvania, 1989, pp. 235-245.
"TNRCC's New Approach to Air Quality Permits", Texas Lawyer Environmental Law Issue, pp. 30-34, 1995.
"Health Risk Analysis Methods and the Law", The Texas Law Reporter, Volume 2, Issue 7, 1996.
"A Review of 'Microbial Toxins. Molecular and Cellular Biology'", International Journal of Toxicology 25:433-434, 2006.
"Investigating Carbon Monoxide Poisonings", book chapter in Carbon Monoxide Poisonings, 3rd Edition, D. Penney, ed., CRC Press, Taylor & Francis Group, Boca Raton, Florida (2008).
"Shale Oil Toxicity", book chapter in the Encyclopedia of Toxicology, 3rd Edition, Elsevier Publishing Company, Waltham, Massachusetts, in press (2011).

VIII. TECHNICAL AND BUSINESS RELATED PRESENTATIONS:

"Effects of Dynamic Operating Parameters on the Calibration Stability of CHAMP Aerometric Sensors", Air Pollution Control Association Annual Meeting, Toronto, Canada (1977).
"Neutralization and Size Changes of Sulfuric Acid Mist Particles in a Model of the Human Upper Airways", American Association for Aerosol Research Annual Meeting; Santa Monica, California (1982).
"Studies of the Behavior of Sulfuric Acid Mist in a Model of the Human Upper Airways", Sixth World Congress on Air Quality, Paris, France (1983).
"Human Exposure to Potentially-Toxic Elements Through Ambient Air in Texas", Air Pollution Control Association Annual Meeting; San Francisco, California (1984).
"Ozone Health Effects", Ozone-Its Environmental and Economic Impact on Southeast Texas; Environmental Quality Council of Southeast Texas; Beaumont, Texas (1984).
"Risk Assessment in Health Effects Review of Air Permits in Texas", Air Pollution Control Association Annual Meeting; Detroit, Michigan (1985).
"Effects Evaluation of Non-Criteria Air Pollutant Emissions from Hazardous Waste Management Facilities in Texas", Control of Air Pollution from Hazardous/Solid Waste Management Facilities; Austin, Texas (1986).
"Texas Procedure for Assessing Air Toxics", Setting Air Toxics Standards; Society for Risk Analysis; Houston, Texas (1987).
"Texas Experience in Hazard, Exposure, and Risk Assessment Methods", Developing and Implementing Air Toxics Control Programs; USEPA; Boston, Massachusetts (1987).
"Texas Procedure for Assessing Air Toxics", Solid and Hazardous Waste Management Symposium; Texas Water Pollution Control Association; Houston, Texas (1987).
"Effects Evaluation of Hazardous Waste Handling Facilities", Annual Technical Meeting of the Southwest Section of the Air Pollution Control Association; Irving, Texas (1987).
"Air Toxics Regulation- Federal and State"; Meeting of the North Texas Chapter of the Air Pollution Control Association; Dallas, Texas (1987).
"Effects Evaluation of Accidental Releases or Air Toxics: A Case Study of a Vinyl Chloride Release", Southwest Section of the APCA Annual Meeting; Corpus Christi, Texas (1988).
"Risk Communication in Air Permitting in Texas" APCA Annual Meeting; Dallas, Texas (1988).
"Air Toxics", Texas Environmental Super Conference; Austin, Texas (1988).
"Update on the Gulf Coast Community Exposure Study", Community Leader/News Media Briefing; Port Arthur, Texas (1988).
"Air Toxics Review", Air Quality Permits Workshop, Texas Air Control Board, Austin, Texas (1988).
"Comparison of Health Risk Assessment Approaches for Carcinogenic Air Pollutants", APCA; Anaheim, California (1989) and Haztech International Conference; Houston, Texas (1990).
"Texas Air Control Board Programs Concerning Air Toxics", North Texas Council of Governments, Dallas, Texas (1989).
"Essentials of Qualitative Risk Assessment", Solid and Hazardous Waste Management Conference, Lafayette, Louisiana (1993).

VIII. TECHNICAL AND BUSINESS RELATED PRESENTATIONS (continued):

"Epidemiology: The Discipline and Its Uses", Sixth Annual Environmental Law Symposium, South Texas College of Law, Houston, Texas (1995).
"Introduction to Risk Assessment and Risk Reduction", Alamo Chapter of the Air and Waste Management Association San Antonio, Texas (1995).
"Toxicology, Epidemiology and Risk Assessment in Environmental Programs", Ninth Annual Texas Environmental Superconference, Austin, Texas (1997).
"Overview of Environmental Risk Assessment Programs", Southwestern Association of Toxicologists, Spring Technical Meeting, Fort Worth, Texas (1998).
"Quantitative Risk Assessment and its Applicability to Industrial Hygiene", American Industrial Hygiene Association Local Chapter meeting, Austin, Texas (1999).
"Adventures of an Expert Witness Toxicologist", Air & Waste Management Association annual meeting, Salt Lake City, Utah (2000).
"So You Want to be a Toxicology Consultant", American College of Toxicology annual meeting, San Diego, California (2000).
"Working with an Expert Witness", Texas Environmental Superconference, Austin, Texas (2005).
"Toxicology in the Media", Society of Environmental Journalists Annual Meeting, Austin, Texas (2005).
"The Toxicologist as an Expert Witness", Roundtable of Toxicology Consultants Mid-Year Meeting, Tucson, Arizona (2008).
"Toxicology Consulting for the Chemical Industry", Continuing Education Course at the American College of Toxicology Annual Meeting, Palm Springs, California (2009).

IX. CONFERENCES, SEMINARS, COURSES, AND WORKSHOPS ATTENDED:

"Environmental Law" (1972).
"New Horizons in Environmental Biology" (1973).
"Air Pollution and Public Health", University of Texas at Dallas course (Fall, 1975).
"Environmental Medicine", Southwestern Medical School course (1975).
"Introduction to Epidemiology", Southwestern Medical School course (1976).
"Principles and Practice of Air Pollution Control" (1976).
Science Seminar, National Institute of Environmental Health Sciences (1977).
* American Association for Aerosol Research Annual Meeting (1982).
"Hazardous Waste Management", University of Texas at Austin course (Fall, 1982).
* "World Congress on Air Quality" (1983).
"Structure-Activity Relationships and Toxicity Assessment" (1984).
"The Occupational Health and Safety Professional in the Legal Environment", Southwest Occupational Health Services (1984).
* Air Pollution Control Association Annual Meeting (1984).
"Update on Cancer in the Deep South", Deep South Section of the American Industrial Hygiene Association (1984).
"Evaluation of the Scientific Basis for the Ozone/Oxidant Standard", Air Pollution Control Association (1984).
* "Ozone-Its Environmental and Economic Impact on Southeast Texas", Environmental Quality Council of Southeast Texas (1984).
Society of Toxicology Annual Meeting (1985).
* Air Pollution Control Association Annual Meeting (1985).
"National Air Toxics Information Clearinghouse Database Seminar", U.S. Environmental Protection Agency (1985).
"Air Toxics Control: Clearing the Air", State and Territorial Air Pollution Program Administrators and the Association of Local Air Pollution Control Officials (1985).
"First National Regulatory Agency Resource Recovery Workshop", Northeast States for Coordinated Air Use Management and California Air Pollution Control Officers Association (1986).

* Dr. Dydek gave a presentation at this meeting or conference

IX. CONFERENCES, SEMINARS, COURSES, AND WORKSHOPS ATTENDED (continued):

American Public Health Association Annual Meeting (1986).
"Energy from Municipal Waste: Opportunities for the Southwest", U.S. Department of Energy (1986).
** State of New Mexico Environmental Improvement Board Hearings concerning an air toxics program for New Mexico (1986).
* "Setting Air Toxics Standards", Lone Star Chapter of the Society for Risk Analysis (1987).
"Drug Metabolism and Toxicokinetics", Continuing Education Course, Society of Toxicology (1987).
Society of Toxicology Annual Meeting (1987).
* "Developing and Implementing Air Toxics Control Programs", State and Territorial Air Pollution Program Administrators and the Association of Local Air Pollution Control Officials (1987).
* "Solid and Hazardous Waste Management Symposium" (1987).
* Annual Technical Meeting, Southwest Section of the Air Pollution Control Association (1987).
* "Air Toxics Regulation- Federal and State", North Texas Chapter of the Air & Waste Management Association (1987).
American Public Health Association Annual Meeting (1987).
Society for Risk Analysis Annual Meeting (1987).
"Respiratory Tract Toxicology", Continuing Education Course, Society of Toxicology (1988).
Society of Toxicology Annual Meeting (1988).
* Southwest Section of the Air Pollution Control Association Annual Meeting (1988).
"Environmental Health Faculty/Employer Forum", Association of Schools of Public Health (1988).
"Hospital Infectious Waste Incineration and Hospital Sterilization Workshop", State and Territorial Air Pollution Program Administrators and the Association of Local Air Pollution Control Officials (1988).
* Air Pollution Control Association Annual Meeting (1988).
* "Air Quality Permits Workshop@, Texas Air Control Board (1988).
"Regional Risk Assessment Workshop", U.S. Environmental Protection Agency (1988).
* "Texas Environmental Superconference", State Bar of Texas and the Southwest Section of the Air & Waste Management Association (1988).
* "Community Leader/News Media Briefing", Joint Industry Council of South Jefferson County (1988).
"Annual Conference on Occupational Health", American Academy of Occupational Medicine (1988).
"Benzene and Leukemia", Lone Star Chapter of the Society for Risk Analysis (1989).
"Regulatory Toxicology", Continuing Education Course, Society of Toxicology (1989).
Society of Toxicology Annual Meeting (1989).
* North Texas Council of Governments (1989).
Southwest Section of the Air Pollution Control Association Annual Meeting (1989).
* Air Pollution Control Association Annual Meeting (1989).
* "Haztech International Conference" (1990).
Air & Waste Management Association Annual Meeting (1990).
"Practical Strategies for Managing Environmental Liabilities" (1993).
* Solid and Hazardous Waste Management Conference, University of Southwest Louisiana and the Louisiana Department of Environmental Quality (1993).
Society of Toxicology Annual Meeting (1994).
Texas Natural Resource Conservation Commission Environmental Trade Fair (1994).
Air Quality Operating Permits Seminar, Texas Natural Resource Conservation Commission (1995).
* Sixth Annual Environmental Law Symposium, South Texas College of Law (1995).
* Lone Star Chapter of the Air & Waste Management Association (1995).
** Environmental Business Development Conference, American Institute for Environmental Education (1995).

* Dr. Dydek gave a presentation at this meeting or conference.
** Dr. Dydek moderated a panel at this meeting or conference.
*** Dr. Dydek provided expert witness testimony at this hearing

IX. CONFERENCES, SEMINARS, COURSES, AND WORKSHOPS ATTENDED (continued):

* Alamo Chapter of the Air & Waste Management Association (1995).
"Advanced Topics in Pharmacokinetics", Continuing Education Course, Society of Toxicology (1996).
Mid-America Toxicology Course, University of Kansas Medical Center (1995).
Air & Waste Management Association Annual Meeting (1995).
Environmental Remediation Opportunities Conference, U.S. Department of the Air Force and the U.S. Small Business Administration (1995).
Texas Natural Resource Conservation Commission Environmental Trade Fair (1995).
Society of Toxicology Annual Meeting (1996).
Texas Natural Resource Conservation Commission Environmental Trade Fair (1996).
Fifth Annual National Expert Witness and Litigation Seminar, S.E.A.K., Inc. (1996).
Texas Environmental Superconference, State Bar of Texas and the Southwest Section of the Air & Waste Management Association (1996).
"Toxicology of Agents: Metals", Continuing Education Course, Society of Toxicology (1997).
Society of Toxicology Annual Meeting (1997).
Texas Natural Resource Conservation Commission Environmental Trade Fair (1997).
"Industrial Hygiene Calculations", Continuing Education Course, American Industrial Hygiene Association (1997).
American Industrial Hygiene Association Annual Meeting (1997).
"EPA's Planned Revisions to the Ozone and Particulate Matter National Ambient Air Quality Standards", Continuing Education Course, Air & Waste Management Association (1997).
Air & Waste Management Association Annual Meeting (1997).
* Texas Environmental Superconference, State Bar of Texas and the Southwest Section of the Air & Waste Management Association (1997).
"Improving the Practice of Risk Assessment", Society for Risk Analysis, Lone Star Chapter First Annual State Conference (1997).
* Southwestern Association of Toxicologists, Spring Technical Meeting (1998).
Texas Natural Resource Conservation Commission Environmental Trade Fair (1998).
Texas Environmental Superconference, State Bar of Texas and the Southwest Section of the Air & Waste Management Association (1998).
"Hot Air Topics" Conference, Gulf Coast Chapter of the Air & Waste Management Association (1998).
"New Endpoints in Risk Assessment", Lone Star Chapter of the Society for Risk Analysis (1998).
"Assessing and Managing Risks in a Democratic Society", Society for Risk Analysis Annual Meeting (1998).
Texas Natural Resource Conservation Commission Environmental Trade Fair (1999).
** Air & Waste Management Association Annual Meeting (1999).
Texas Environmental Superconference, State Bar of Texas and the Southwest Section of the Air & Waste Management Association (1999).
Roundtable of Toxicology Consultants Annual Meeting (1999).
"Hot Air Topics" Conference, Gulf Coast Chapter of the Air & Waste Management Association (1999).
* American Industrial Hygiene Association Hill Country Chapter meeting (1999).
Society for Risk Analysis, Lone Star Chapter Annual Meeting (1999).
Air & Waste Management Association National Conference on Ozone Action Programs (1999).
"The Role of Human Personal Exposure Assessment in Determining Health Impacts of Urban Air Toxics", National Urban Air Toxics Research Center (2000).
Society of Toxicology Annual Meeting (2000).
Texas Natural Resource Conservation Commission Environmental Trade Fair (2000).
* Air & Waste Management Association Annual Meeting (2000).
Texas Environmental Superconference, State Bar of Texas and the Southwest Section of the Air & Waste Management Association (2000).
Indoor Air Quality Association Annual Meeting (2000).

* Dr. Dydek gave a presentation at this meeting or conference.
** Dr. Dydek was co-chairman of a technical session at this meeting or conference.

IX. CONFERENCES, SEMINARS, COURSES, AND WORKSHOPS ATTENDED (continued):

Expert Witness Workshop (2000).
* American College of Toxicology Annual Meeting (2000).
American Industrial Hygiene Association Symposium, "Molds in the Indoor Environment" (2000).
Air & Waste Management Association Annual Meeting (2001).
Texas Environmental Superconference, State Bar of Texas and the Southwest Section of the Air & Waste Management Association (2001).
Texas Natural Resource Conservation Commission Environmental Trade Fair (2002).
Texas Environmental Superconference, State Bar of Texas and the Southwest Section of the Air & Waste Management Association (2002).
Environmental Law Update Seminar, Fulbright & Jaworski (2002).
Society for Risk Analysis Annual Meeting (2002).
"Protecting the Central Texas Environment and Economy", Air and Waste Management Association, Central Texas Chapter (2004).
Texas Commission on Environmental Quality Environmental Trade Fair (2004).
American Bar Association Annual Meeting (as an exhibitor, 2004).
"Hot Air Topics" Conference, Gulf Coast Chapter of the Air & Waste Management Association (2004).
Environmental Law Update Seminar, Fulbright & Jaworski (2004).
Society of Toxicology Annual Meeting (2005).
Texas Commission on Environmental Quality Environmental Trade Fair (2005).
Texas Legislative Update Seminar (2005).
* Texas Environmental Superconference, State Bar of Texas and the Southwest Section of the Air & Waste Management Association (2005).
** Society of Environmental Journalists Annual Meeting (2005).
Society of Toxicology Annual Meeting (2006).
Texas Commission on Environmental Quality Environmental Trade Fair (2006).
Texas Environmental Superconference, State Bar of Texas and the Southwest Section of the Air & Waste Management Association (2006).
Society of Toxicology Annual Meeting (2007).
Texas Commission on Environmental Quality Environmental Trade Fair (2007).
Environmental Law Update Seminar, Fulbright & Jaworski (2007).
Legislative Update Seminar, Vinson & Elkins (2007)
Texas Environmental Superconference, State Bar of Texas and the Southwest Section of the Air & Waste Management Association (2007).
"Chemical Specific Adjustment Factors", continuing education course taken at the Society for Risk Analysis Annual Meeting (2007).
Society for Risk Analysis Annual Meeting (2007).
Society of Toxicology Annual Meeting (2008).
Texas Commission on Environmental Quality Environmental Trade Fair (2008).
Texas Environmental Superconference (2008).
*,*** Roundtable of Toxicology Consultants Annual Meeting (2008).
American College of Toxicology Annual Meeting (2008).
"New Frontiers in Metal Toxicology: Genetic Susceptibility, Early Diagnosis, and Related Biological Indices", Continuing Education Course, Society of Toxicology (2009).
Society of Toxicology Annual Meeting (2009).
Texas Commission on Environmental Quality Environmental Trade Fair (2009).
Roundtable of Toxicologists Mid-Winter Meeting (2009).
* American College of Toxicology Annual Meeting, Continuing Education Course (2009).

* Dr. Dydek gave a presentation at this meeting or conference.
** Dr. Dydek served on a panel at this meeting or conference.
*** Dr. Dydek chaired a session at this meeting or conference.

IX. CONFERENCES, SEMINARS, COURSES, AND WORKSHOPS ATTENDED (continued):

Society of Toxicology Annual Meeting (2010).
Alliance for Risk Assessment, "Beyond Science and Decisions: from Problem Formulation to Dose-Response. Workshop Number 1" (2010).
Air and Waste Management Association Environmental Law Symposium (2010).
Texas Commission on Environmental Quality Environmental Trade Fair (2010).
National Urban Air Toxics Research Center "Air Toxics Symposium" (2010).
"Hot Air Topics" Conference, Gulf Coast Chapter of the Air & Waste Management Association (2011).
Society of Toxicology Annual Meeting (2011).
"Environmental Law Update Seminar", Fulbright & Jaworski (2011).
Society of Toxicology Annual Meeting (2012)
Texas Commission on Environmental Quality Environmental Trade Fair (2012)
"Beyond Science and Decisions" Webinar (2012)
Society of Toxicology Annual Meeting (2013).
Texas Commission on Environmental Quality Environmental Trade Fair (2013)
Roundtable of Toxicology Consultants Mid-year Meeting (2013)

EXHIBIT 2-B.

TCEQ Preliminary Determination Summary

Preliminary Determination Summary

Indeck Wharton, L.L.C.
Permit Numbers 111724 and PSDTX1374

I. Applicant

Indeck Wharton, L.L.C.
600 N Buffalo Grove Rd Ste 300
Buffalo Grove, IL 60089-2432

II. Project Location

Indeck Wharton Energy Center
Located on west side of State Route 71, 3350 feet south of the intersection of Route 71 and County Road 424 in Danevang, about 0.50 mile south of the center of Danevang
Wharton County
Danevang, Texas 77432

III. Project Description

Indeck Wharton, L.L.C. proposes to install three new natural gas fired combustion turbine generators (CTGs). The CTGs will either be the General Electric 7FA (~214 MW each) or the Siemens SGT6-5000F (~227 MW each), operating as peaking units in simple cycle mode.

IV. Emissions

The proposed facility will emit the following pollutants:

	Proposed Allowable Emission Rates (tpy)	
Air Contaminant	**GE 7FA Option**	**Siemens 5000F Option**
$PM/PM_{10}/PM_{2.5}$	111.1	112.9
VOC	58.3	108.1
NO_x	811.7	949.4
CO	624.1	894.1
SO_2	82.5	90.6

The emission factors used in the emission rate calculations for startup and shutdown (SS) activities were provided by the turbine and associated equipment vendors. Hourly and annual emission limitations are included on the Maximum Allowable Emission Rate Table (MAERT) separately if emissions were higher than non-SS emissions on an hourly basis.

V. Federal Applicability

The site is located in an attainment county (Wharton County, city of Danevang). The proposed source is a new major source at a greenfield site. The project was a major source for greenhouse gas emissions and therefore TCEQ is permitting any significant amounts of the other criteria pollutants. The project emissions for nitrogen oxides (NO_x), carbon monoxide (CO), particulate matter, including particulate matter including particulate matter less than 10 microns and less than 2.5 microns in diameter ($PM/PM_{10}/PM_{2.5}$), volatile organic compounds (VOC), and sulfur dioxide (SO_2) were above the Prevention of Significant Deterioration (PSD) major modification significance level; therefore, PSD review was triggered for these pollutants and full modeling and impacts analyses were performed. The following chart illustrates the annual project emissions for each pollutant and whether this pollutant triggers PSD review. The chart is based on the highest emission rate of the two proposed CTG options. These totals include SS emissions.

Pollutant	Project Emissions (tpy)	Major Mod Trigger (tpy)	PSD Triggered Y/N
VOC	108.1	40	Y
NO_x	949.4	40	Y
SO_2	90.6	40	Y
CO	894.1	100	Y
PM	112.9	25	Y
PM_{10}	112.9	15	Y
$PM_{2.5}$	112.9	10	Y

VI. Control Technology Review

In addition to a review of control technology for steady state operations, the best available control technology (BACT) analysis includes startup and shutdown emissions and the numerical emission limits in the draft permit reflect this analysis. Although the units may not meet the ppm by volume dry (ppmvd) limits during startup and shutdown, they will meet the mass emission limits (pounds per hour and tons per year) unless a separate limit was established, and startup and shutdown events will be limited by Special Condition Nos. 7 and 8. Typical startup and shutdown of the turbine are conducted in accordance with manufacturer's recommendations to minimize emissions and maximize efficiencies.

As part of the BACT review process, the Texas Commission on Environmental Quality (TCEQ) evaluates information from the Environmental Protection Agency's (EPA's) RACT/BACT/LAER Clearinghouse (RBLC), on-going permitting in Texas and other states, and the TCEQ's continuing review of emissions control developments.

CTGs

Nitrogen Oxides (NO_x):
Each CTG is gas fired and equipped with dry low-NO_x burners (DLN) to control NO_x emissions to 9 ppmvd at 15% O_2 during steady state operations. DLN is a combustion zone technology that pre-mixes fuel and air to reduce thermal NO_x formation without the need for water or steam injection. Since the CTGs are each limited to 2500 hours per year of operation, based on a rolling 12-month period, installing a selective catalytic reduction unit (SCR) would not be economically reasonable. Recently issued permits in Texas for peaking turbines include Tradinghouse (issued 2/7/14), Guadalupe Power Partners (issued 10/2/2013) and DeCordova (8/29/2013). The permits have a NO_x concentration limit of 9 ppmvd at 15% O_2. Therefore, the use of DLN to control NO_x emissions to 9 ppmvd at 15% O_2 is consistent with recently issued permits for similar facilities and is BACT for the CTGs.

Carbon Monoxide (CO):
With DLN (designed to increase oxidation of CO to CO_2) and operating the CTGs according to good combustion practices, CO emissions will be controlled to 4 ppmvd at 15% O_2 during steady state operations for the Siemens 5000F option and 9 ppmvd at 15% O_2 for the GE 7FA option. Since the CTGs are restricted to the annual operating hours specified in the paragraph above for NO_x, installing an oxidation catalyst would not be economically feasible. Recently issued peaking turbine permit in Texas have been issued at 9 ppmvd at 15% O_2. Therefore, the use of DLN and good combustion practices to control CO emissions to 9 ppmvd at 15% O_2 is consistent with recently issued permits for similar facilities and is BACT for the CTGs.

Volatile Organic Compounds (VOCs):
Through maintenance of optimum combustion conditions and practices and firing the CTGs with pipeline-quality natural gas, VOC emissions will be controlled to 1.4 ppmvd at 15% O_2 during steady state operations for the Siemens 5000F option and 1.0 ppmvd at 15% O_2 GE 7FA option. This meets BACT.

Particulate Matter ($PM/PM_{10}/PM_{2.5}$):
The CTGs will be fired with pipeline-quality natural gas. Pipeline-quality natural gas has very low ash and sulfur contents. This meets BACT.

Sulfur Compounds (SO_2/H_2SO_4):
Emissions of SO_2 and H_2SO_4 from the CTGs will occur from the oxidation of sulfur in the natural gas during combustion, with the majority of the sulfur converted to SO_2 and a small fraction converting to H_2SO_4. The CTGs will be fired with pipeline-quality natural gas with a sulfur content not exceeding 0.2 grain sulfur per 100 dry standard cubic feet, which will minimize the formation of SO_2 and H_2SO_4. This meets BACT.

Turbine Planned Maintenance, Startup, and Shutdown (MSS):
During periods of planned MSS, control devices and process equipment are operated outside the optimal range they were designed to work most effectively, and it is technically infeasible to meet the primary BACT emission rates.

Therefore, secondary BACT limits are necessary during these periods to minimize emissions. BACT will be achieved by minimizing the duration of the MSS events (consistent with standard operating procedures) to minimize the amount of time the equipment is outside the optimal performance mode and meeting the emission limitations on the MAERT.

Also, planned MSS activities must be performed using good air pollution control practices and safe operating practices to minimize emissions.

Gas Line Heater

A small 3.0 MMBtu/hr natural gas-fired gas line heater is also proposed. Given the nature and quantity of emissions, no control is BACT.

Emergency Engines

An emergency generator and a firewater pump are proposed. BACT will be achieved through the installation of an engine which meets the requirements of 40 CFR 60, Subpart IIII. The engines will fire ultra low sulfur diesel fuel, containing no more than 15 parts per million (ppm) sulfur by weight. The emergency generator is limited to 500 hours of non-emergency operation per year. The firewater pump is limited to 26 hours per year of non-emergency operation per year.

Fugitive Emissions

The fugitive emissions include VOC from the natural gas fuel lines (EPN FUG). Given the nature and quantity of the emissions, no control is BACT.

VII. Air Quality Analysis

The air quality analysis (AQA) is acceptable for all review types and pollutants, as supplemented by the ADMT. The results are summarized below.

A. De Minimis Analysis

A De Minimis analysis was initially conducted to determine if a full impacts analysis would be required. The De Minimis analysis modeling results indicate that 1-hr and annual NO_2 exceed the respective de minimis concentrations and require a full impacts analysis. The De Minimis analysis modeling results for 24-hr and annual PM_{10}, 24-hr and annual $PM_{2.5}$ (NAAQS and Increment), and 1-hr and 8-hr CO indicate that the project is below the respective de minimis concentrations and no further analysis is required.

The justification for selecting the EPA's interim 1-hr NO_2 De Minimis level was based on the assumptions underlying EPA's development of the 1-hr NO_2 De Minimis level. As explained in EPA guidance memoranda[1], the EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr NO_2 NAAQS.

The applicant provided an evaluation of ambient $PM_{2.5}$ monitoring data, consistent with draft EPA guidance for $PM_{2.5}$[2], for using the $PM_{2.5}$ De Minimis levels. If monitoring data shows that the difference between the $PM_{2.5}$ NAAQS and the monitored $PM_{2.5}$ background concentrations in the area is greater than the $PM_{2.5}$ De Minimis level, then the proposed project with predicted impacts below the De Minimis level would not cause or contribute to a violation of the $PM_{2.5}$ NAAQS and does not require a full impacts analysis. See the discussion below in the air quality monitoring section for additional information on the evaluation of ambient $PM_{2.5}$ monitoring data.

While the De Minimis levels for both the NAAQS and increment are identical for $PM_{2.5}$ in the table below, the procedures to determine significance (that is, predicted concentrations to compare to the De Minimis levels) are different. This difference occurs because the NAAQS for $PM_{2.5}$ are statistically-based, but the corresponding increments are exceedance-based.

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[1] www.epa.gov/nsr/documents/20100629no2guidance.pdf
[2] www.epa.gov/ttn/scram/guidance/guide/Draft_Guidance_for_PM25_Permit_Modeling.pdf

Table 1. Modeling Results for PSD De Minimis Analysis in Micrograms Per Cubic Meter (μg/m³)

Pollutant	Averaging Time	GLCmax (μg/m³)	De Minimis (μg/m³)
PM_{10}	24-hr	1.19	5
PM_{10}	Annual	0.1	1
$PM_{2.5}$ (NAAQS)	24-hr	0.66	1.2
$PM_{2.5}$ (NAAQS)	Annual	0.1	0.3
$PM_{2.5}$ (Increment)	24-hr	1.19	1.2
$PM_{2.5}$ (Increment)	Annual	0.1	0.3
NO_2	1-hr	19.3	7.5
NO_2	Annual	1.8	1
CO	1-hr	363	2000
CO	8-hr	65.5	500

The 24-hr and annual $PM_{2.5}$ (NAAQS) and the 1-hr NO_2 GLCmax are based on the highest five-year averages of the maximum predicted concentrations determined for each receptor. The GLCmax for all other pollutants and averaging times represent the maximum predicted concentrations over five years of meteorological data.

The applicant reported the 8-hr CO predicted concentration based on a weighted average of the maximum 8-hr predicted concentration under start-up conditions (weighted by 1/8) plus the maximum 8-hr predicted concentration under normal operating conditions (weighted by 7/8).

The applicant provided an evaluation of secondary $PM_{2.5}$ impacts that considers modeling results of the directly emitted $PM_{2.5}$ emissions, ambient background monitoring data representative for the project site, and proposed allowable emission rates of SO_2 and NO_x:

- Modeling results from the directly emitted $PM_{2.5}$ emissions are less than the De Minimis levels.
- Adding the modeling results from the directly emitted $PM_{2.5}$ emissions to representative background concentrations gives total concentrations well below the NAAQS.

- The proposed emissions of SO_2 are less than the Significant Emission Rate (SER) of 40 tons per year (tpy) and would not be expected to result in significant secondary formation of $PM_{2.5}$.
- The proposed emissions of NO_x are greater than the NO_x SER (40 tpy). Secondary $PM_{2.5}$ formation occurs as a result of chemical transformations that occur in the atmosphere gradually over time and only a portion of the NO_x emissions would be affected. Furthermore, secondary $PM_{2.5}$ formation from NO_x is unlikely to overlap in space or time with nearby maximum primary $PM_{2.5}$ impacts associated with the project sources.

In addition, the applicant determined that the Dona Park monitor (EPA AIRS monitor 483550034) is a representative monitor of the project site and considered a review conducted by the ADMT of available $PM_{2.5}$ speciation data to support the conclusions regarding secondary formation of $PM_{2.5}$. Over an eight-year period, on average, ammonium nitrate makes up 5.5 percent of the total 24-hr concentration and 3.4 percent of the total annual concentration. On average, over the last eight years of monitoring data, the maximum 24-hr and annual ammonium nitrate concentrations are 1.4 $\mu g/m^3$ and 0.3 $\mu g/m^3$, respectively. Given that the proposed NO_x emissions are a small fraction of the NO_x emissions in the air shed, and that the ambient monitoring data shows relatively small fractions of ammonium nitrate, secondary PM2.5 formation from the proposed NOx emissions would be expected to be considerably smaller than the monitored concentration of nitrates. The monitoring information supports the applicant's conclusion that the secondary $PM_{2.5}$ formation would not be expected to cause a NAAQS or Increment exceedance.

B. Air Quality Monitoring

The De Minimis analysis modeling results indicate that 24-hr PM_{10}, annual NO_2, and 8-hr CO are below their respective monitoring significance levels.

Table 2. Modeling Results for PSD Monitoring Significance Levels

Pollutant	Averaging Time	GLCmax ($\mu g/m^3$)	Significance ($\mu g/m^3$)
PM_{10}	24-hr	1.19	10
NO_2	Annual	1.8	14
CO	8-hr	65.5	575

The GLCmax for all pollutants and averaging times represent the maximum predicted concentrations over five years of meteorological data.

The applicant evaluated ambient $PM_{2.5}$ monitoring data to satisfy the requirements for the pre-application air quality analysis. Background concentrations for $PM_{2.5}$ were obtained from the EPA AIRS monitor 480290059 located at 14620 Laguna Road, San Antonio, Bexar County. The applicant used a three-year average (2010-2012) of the 98th percentile of the annual distribution of the 24-hr concentrations for the 24-hr value (23 $\mu g/m^3$). The applicant used a three-year average (2010-2012) of the annual mean concentrations for the annual value (9.3 $\mu g/m^3$). The ADMT reviewed monitoring data from 2013 and determined that the overall conclusions would not change. The use of this monitor is reasonable based on a comparison of county-wide emissions, population, and a quantitative analysis of source emissions located within 10 kilometers (km) of the project site and monitor location.

C. National Ambient Air Quality Standards (NAAQS) Analysis

The De Minimis analysis modeling results indicate that 1-hr and annual NO_2 exceed the respective de minimis concentrations and require a full impacts analysis. The full NAAQS modeling results indicate the total predicted concentrations will not result in an exceedance of the NAAQS.

Table 3. Total Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Conc. = [Background + GLCmax] ($\mu g/m^3$)	Standard ($\mu g/m^3$)
NO_2	1-hr	135.6	37.7	173.3	188
NO_2	Annual	6.3	15.2	21.5	100

The 1-hr NO_2 GLCmax is the highest five-year average of the 98th percentile of the annual distribution of the daily maximum 1-hr predicted concentrations. The annual NO_2 GLCmax represents the maximum predicted concentration over five years of meteorological data.

The applicant reported the 1-hr NO_2 predicted concentration incorrectly. The ADMT supplemented this value based on the modeling output files.

Background concentrations for NO_2 were obtained from the EPA AIRS monitor 480391016 located at 109b Brazoria Highway 332 West, Lake Jackson, Brazoria County. The three-year average (2010-2012) of the 98th percentile of the annual distribution of the daily maximum 1-hr concentrations was used for the 1-hr value and the highest annual concentration from three years (2010-2012) was used for the annual value. The ADMT reviewed monitoring data from 2013 and determined that the overall conclusions would not change. The use of this monitor is reasonable based on a comparison of county-wide emissions, population, and a quantitative analysis of source emissions located within 10 km of the project site and monitor location.

Table 4. PSD Ambient Air Quality Analysis for Ozone

Pollutant	Monitor	Averaging Time	Background (ppb)	Standard (ppb)
O_3	480391016	8-hr	72	75

A background concentration for ozone was obtained from the EPA AIRS monitor 480391016 located at 109b Brazoria Highway 332 West, Lake Jackson, Brazoria County. A three-year average (2010-2012) of the annual fourth highest daily maximum 8-hr concentrations was used in the analysis. The ADMT reviewed monitoring data from 2013 and determined that the overall conclusions would not change. The use of this monitor is reasonable based on a comparison of county-wide emissions, population, and a quantitative analysis of source emissions located within 10 km of the project site and monitor location.

EPA Region 6 has previously recommended a conservative analysis based on the NO_2 modeling to estimate the potential impacts on ozone levels. Considering that it takes time for the NO_2 emissions to react to generate ozone, an evaluation of maximum estimated NO_2 concentrations at a distance of 10-to-11 km downwind from the project source could be used to estimate the potential ozone impacts. EPA Region 6 has recommended that emission sources would have an average ozone yield of up to 2-3 ozone molecules per NO_2 molecule. The applicant used AERMOD to calculate a maximum 8-hr NO_x concentration for normal operations and startup operations at a distance of 10 km. The maximum 8-hr NO_x concentration of 0.44 parts per billion (ppb) at a distance of 10 km is based on one hour of startup operations and seven hours of normal operations in an eight hour duration. Assuming 90% conversion of NO_x to NO_2 and an ozone yield of three ozone molecules per molecule of NO_2, the 8-hr maximum predicted increase of ozone would be 1.3 ppb. Adding 1.3 ppb to the 8-hr ozone background of 72 ppb will result in a total 8-hr ozone concentration less than the 8-hr ozone NAAQS of 75 ppb.

D. Increment Analysis

The De Minimis analysis modeling results indicate that annual NO_2 exceeds the de minimis concentration and requires a PSD increment analysis.

Table 5 .Results for PSD Increment Analysis

Pollutant	Averaging Time	GLCmax (µg/m³)	Increment (µg/m³)
NO_2	Annual	6.3	25

The GLCmax represents the maximum predicted concentration over five years of meteorological data.

E. Additional Impacts Analysis

The applicant performed an Additional Impacts Analysis as part of the PSD AQA. The applicant conducted a growth analysis and determined that population will not significantly increase as a result of the proposed project. The applicant conducted a soils and vegetation analysis and determined that all evaluated criteria pollutant concentrations are below their respective secondary NAAQS. The applicant meets the Class II visibility analysis requirement by complying with the opacity requirements of 30 TAC 111. The Additional Impacts Analyses are reasonable and possible adverse impacts from this project are not expected.

The ADMT evaluated predicted concentrations from the proposed site to determine if emissions could adversely affect a Class I area. The nearest Class I area, Big Bend National Park, is located approximately 680 km from the proposed site.

The H_2SO_4 24-hr maximum predicted concentration of 0.05 µg/m³ occurred approximately 185 meters from the fence line towards the southwest. The H_2SO_4 24-hr maximum predicted concentration occurring at the edge of the receptor grid, approximately 54 km from the proposed source, in the direction of the Big Bend National Park Class I area is 0.001 µg/m³. The Big Bend National Park Class I area is an additional 626 km from the edge of the receptor grid. Therefore, emissions of H_2SO_4 from the proposed project are not expected to adversely affect the Big Bend National Park Class I area.

The predicted concentrations of PM_{10}, $PM_{2.5}$, NO_2, and SO_2 for all averaging times, are all less than de minimis levels at a distance of approximately 1.6 km from the proposed source in the direction of Big Bend National Park Class I area. The Big Bend National Park Class I area is an additional 678.4 km from the location where the predicted concentrations of PM_{10}, $PM_{2.5}$,

NO_2, and SO_2 for all averaging times are less than de minimis. Therefore, emissions from the proposed project are not expected to adversely affect the Big Bend National Park Class I area.

F. Minor Source NSR and Air Toxics Review

Table 6. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (μg/m³)	De Minimis (μg/m³)
SO_2	1-hr	4.8	20.4
H_2SO_4	1-hr	0.36	1
H_2SO_4	24-hr	0.05	0.3

The justification for selecting the EPA's interim 1-hr SO_2 De Minimis level was based on the assumptions underlying EPA's development of the 1-hr SO_2 De Minimis level. As explained in EPA guidance memoranda[3], the EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr SO_2 NAAQS.

Table 7. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (μg/m³)	De Minimis (μg/m³)
SO_2	1-hr	1.37	7.8
SO_2	3-hr	2.53	25
SO_2	24-hr	0.6	5
SO_2	Annual	0.05	1

The 1-hr SO_2 GLCmax is based on the highest five-year average of the maximum predicted concentration determined for each receptor. The GLCmax for all other averaging times represent the maximum predicted concentrations over five years of meteorological data.

The applicant reported the 3-hr SO_2 predicted concentration based on a weighted average of the maximum 3-hr predicted concentration under start-up conditions (weighted by 1/3) plus the maximum 3-hr predicted concentration under normal operating conditions (weighted by 2/3).

3 www.epa.gov/region07/air/nsr/nsrmemos/appwso2.pdf

The applicant reported the 24-hr SO_2 predicted concentration based on a weighted average of the maximum 24-hr predicted concentration under start-up conditions (weighted by 1/24) plus the maximum 24-hr predicted concentration under normal operating conditions (weighted by 23/24).

Table 8. Total Concentrations for Minor NSR NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m³)	Background (µg/m³)	Total Conc. = [Background + GLCmax] (µg/m3)	Standard (µg/m³)
Pb	3-mo	0.0005	0.011	0.0115	0.15

The GLCmax represents the maximum 1-hr predicted concentration over five years of meteorological data. Using the maximum 1-hr predicted concentration is a conservative representation of the 3-month rolling average.

The applicant did not provided an evaluation of ambient background concentrations for lead. The ADMT reviewed lead monitoring data in Harris County and used the monitor with the highest lead concentration as a conservative representation of background concentrations for Wharton County. A background concentration for lead was obtained from the EPA AIRS monitor 482011034 located at 1262 ½ Mae Drive, Houston, Harris County. The highest 24-hr concentration from 2013 was used as a conservative representation of the 3-month rolling average. The use of this monitor is reasonable based on a comparison of county-wide emissions, population, and a quantitative analysis of source emissions located within 10 km of the project site and monitor location.

Table 9. Minor NSR Site-wide Modeling Results for Health Effects

Pollutant & CAS#	Averaging Time	GLCmax (µg/m³)	ESL (µg/m³)
acetaldehyde 75-07-0	1-hr	0.41	15
acetaldehyde 75-07-0	Annual	0.001	45
acrolein 107-02-8	1-hr	0.05	3.2
acrolein 107-02-8	Annual	0.0002	0.15
arsenic & inorganic cpds 7440-38-2	1-hr	3.23×10^{-5}	3

Pollutant & CAS#	Averaging Time	GLCmax (µg/m3)	ESL (µg/m3)
arsenic & inorganic cpds 7440-38-2	Annual	1.3×10^{-7}	0.067
benzene 71-43-2	1-hr	0.63	170
benzene 71-43-2	Annual	0.002	4.5
cadmium & compounds (as Cd) NA	1-hr	3.59×10^{-6}	0.1
chromium metal 7440-47-3	1-hr	0.01	3.6
chromium metal 7440-47-3	Annual	3.5×10^{-5}	0.041
formaldehyde 50-00-0	1-hr	0.64	15
formaldehyde 50-00-0	Annual	0.002	3.3
mercury, alkyls 7439-97-6	1-hr	7.21×10^{-6}	0.1
naphthalene 91-20-3	1-hr	0.07	200
naphthalene 91-20-3	Annual	0.0003	50
nickel, metal & cpds 7440-02-0	1-hr	0.001	0.33
nickel, metal & cpds 7440-02-0	Annual	4.17×10^{-6}	0.059
polycyclic aromatic HC's, particulate, <10% b(a)p, not otherwise classified NA	1-hr	0.13	0.5
propylene oxide 75-56-9	1-hr	2.54	70
selenium oxide 7446-08-4	1-hr	0.0002	2
toluene 108-88-3	1-hr	0.26	640
toluene 108-88-3	Annual	0.001	1200
xylene mixture 1330-20-7	1-hr	0.18	350
xylene mixture 1330-20-7	Annual	0.001	180

The location of the GLCmax is not provided since the GLCmax are based on unit modeling. See section 3 for more details. The applicant did not provide a GLCni.

The annual ESL for acrolein reported in Table 9 was the ESL in effect at the time that the modeling analysis was conducted. The current ESLs are available from the Toxicology Division's website.

VIII. Conclusion

Indeck Wharton, L.L.C. has demonstrated that this project meets all applicable rules, regulations and requirements of the Texas and Federal Clean Air Acts. The proposed facilities and controls represent BACT. The modeling analysis indicates that the proposed project will not violate the NAAQS, cause an exceedance of the increment, or have any adverse impacts on soils, vegetation, or Class I Areas. In addition, the modeling predicted no exceedance of ESLs at all receptors for non-criteria contaminants evaluated.

The Executive Director of the TCEQ proposes a preliminary determination of issuance of this permit for Indeck Wharton, L.L.C. to construct the Indeck Wharton Energy Center as proposed.

EXHIBIT 2-C.

Tetra Tech Air Dispersion Modeling Results
for Air Contaminants Having
National Ambient Air Quality Standards

Indeck Wharton Energy Center
AERMOD Predicted Impacts at Sensitive Receptors
1-hour and Annual NO2

Radius from Site	Receptor ID	X (m)	Y (m)	1-HR NO2 (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)	Annual NO2 (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)
< 1 mile	1	771756.2	3218047	5.40081	37.7	43.1	188	0.03714	15.2	15.2	100
	2	771747.4	3217999	5.51088	37.7	43.2	188	0.03808	15.2	15.2	100
	3	771843	3217994	5.71997	37.7	43.4	188	0.03318	15.2	15.2	100
	4	771734.2	3217973	5.57025	37.7	43.3	188	0.03906	15.2	15.2	100
	5	771770.2	3217967	5.64326	37.7	43.3	188	0.0371	15.2	15.2	100
	6	771845.6	3217955	5.88869	37.7	43.6	188	0.03324	15.2	15.2	100
	7	771770	3217942	5.7526	37.7	43.5	188	0.03732	15.2	15.2	100
	8	771778.4	3217902	5.97544	37.7	43.7	188	0.03712	15.2	15.2	100
	9	771845.1	3217865	6.19232	37.7	43.9	188	0.03363	15.2	15.2	100
	10	771848.1	3217839	6.24155	37.7	43.9	188	0.03357	15.2	15.2	100
	11	771777.8	3217835	6.33329	37.7	44.0	188	0.03759	15.2	15.2	100
	12	771841.3	3217810	6.32817	37.7	44.0	188	0.03402	15.2	15.2	100
	13	771780.4	3217778	6.59401	37.7	44.3	188	0.03775	15.2	15.2	100
	14	770237.2	3217775	8.75055	37.7	46.5	188	0.05333	15.2	15.3	100
	15	771847.7	3217764	6.32955	37.7	44.0	188	0.0338	15.2	15.2	100
	16	771772.3	3217746	6.72329	37.7	44.4	188	0.03844	15.2	15.2	100
	17	771845.6	3217732	6.34169	37.7	44.0	188	0.03398	15.2	15.2	100
	18	771842.6	3217707	6.34995	37.7	44.0	188	0.03418	15.2	15.2	100
	19	771847.7	3217694	6.28809	37.7	44.0	188	0.03392	15.2	15.2	100
	20	771786.7	3217689	6.82037	37.7	44.5	188	0.0377	15.2	15.2	100
	21	771853.2	3217670	6.21046	37.7	43.9	188	0.03364	15.2	15.2	100
	22	771771.9	3217645	6.96555	37.7	44.7	188	0.03887	15.2	15.2	100
	23	771854	3217644	6.18858	37.7	43.9	188	0.0336	15.2	15.2	100
	24	771773.6	3217602	6.94142	37.7	44.6	188	0.03883	15.2	15.2	100
	25	771912.9	3217594	6.04482	37.7	43.7	188	0.03042	15.2	15.2	100
	26	770985.2	3217576	11.67268	37.7	49.4	188	0.12559	15.2	15.3	100
	27	771766.9	3217549	6.89955	37.7	44.6	188	0.03938	15.2	15.2	100
	28	772091	3217524	5.87775	37.7	43.6	188	0.02356	15.2	15.2	100
	29	771864	3217519	6.44663	37.7	44.1	188	0.03286	15.2	15.2	100
	30	771190.2	3217511	13.22589	37.7	50.9	188	0.113	15.2	15.3	100
	31	771919.2	3217503	6.51219	37.7	44.2	188	0.02992	15.2	15.2	100
	32	771785.9	3217501	6.59453	37.7	44.3	188	0.03796	15.2	15.2	100
	33	771935.8	3217472	6.61265	37.7	44.3	188	0.02902	15.2	15.2	100
	34	771769.5	3217442	6.7442	37.7	44.4	188	0.03914	15.2	15.2	100
	35	771876.9	3217355	7.29408	37.7	45.0	188	0.03137	15.2	15.2	100
	36	771855.8	3217338	7.37465	37.7	45.1	188	0.03247	15.2	15.2	100
	37	771616.1	3217334	7.74965	37.7	45.4	188	0.05543	15.2	15.3	100
	38	771908	3216801	5.89672	37.7	43.6	188	0.02574	15.2	15.2	100
	39	771824	3216338	7.29287	37.7	45.0	188	0.03476	15.2	15.2	100
	40	771922.5	3216151	8.428	37.7	46.1	188	0.03308	15.2	15.2	100
	41	772312.9	3216070	6.07535	37.7	43.8	188	0.01994	15.2	15.2	100
	42	772336.2	3216054	6.02952	37.7	43.7	188	0.01957	15.2	15.2	100
	43	772294.3	3216049	6.22022	37.7	43.9	188	0.02058	15.2	15.2	100
	44	772107	3216019	8.09366	37.7	45.8	188	0.0268	15.2	15.2	100
	45	771993.6	3216012	8.63846	37.7	46.3	188	0.03185	15.2	15.2	100
	46	770629.3	3215936	6.58144	37.7	44.3	188	0.03247	15.2	15.2	100
	47	771966.3	3215906	8.42131	37.7	46.1	188	0.03481	15.2	15.2	100
	48	771439.9	3215879	9.32066	37.7	47.0	188	0.05782	15.2	15.3	100
< 2 miles	49	770980.6	3219677	4.4062	37.7	42.1	188	0.03179	15.2	15.2	100
	50	770020.9	3219475	4.26171	37.7	42.0	188	0.03909	15.2	15.2	100
	51	773040.4	3219205	2.97842	37.7	40.7	188	0.01124	15.2	15.2	100
	52	772480.1	3219181	3.4923	37.7	41.2	188	0.01546	15.2	15.2	100
	53	772546.2	3219176	3.48649	37.7	41.2	188	0.01478	15.2	15.2	100
	54	772373.4	3219172	3.58837	37.7	41.3	188	0.01675	15.2	15.2	100
	55	772868.1	3219171	3.14463	37.7	40.8	188	0.01224	15.2	15.2	100
	56	772333.9	3219170	3.64789	37.7	41.3	188	0.01728	15.2	15.2	100
	57	772414.1	3219165	3.51423	37.7	41.2	188	0.01624	15.2	15.2	100
	58	772253.2	3219165	3.7351	37.7	41.4	188	0.01847	15.2	15.2	100
	59	772188.4	3219163	3.77057	37.7	41.5	188	0.0195	15.2	15.2	100
	60	772131.3	3219155	3.83863	37.7	41.5	188	0.02045	15.2	15.2	100
	61	772227.4	3219155	3.75897	37.7	41.5	188	0.01889	15.2	15.2	100
	62	772104.6	3219152	3.87031	37.7	41.6	188	0.02091	15.2	15.2	100
	63	772083	3219146	3.93151	37.7	41.6	188	0.02129	15.2	15.2	100
	64	772284.1	3219144	3.71381	37.7	41.4	188	0.01803	15.2	15.2	100
	65	772449.6	3219141	3.51381	37.7	41.2	188	0.01585	15.2	15.2	100
	66	771977.9	3219136	4.27323	37.7	42.0	188	0.02298	15.2	15.2	100
	67	773054.4	3219133	2.93334	37.7	40.6	188	0.01122	15.2	15.2	100
	68	773112.8	3219132	2.90889	37.7	40.6	188	0.01096	15.2	15.2	100
	69	771998.3	3219128	4.20877	37.7	41.9	188	0.02271	15.2	15.2	100
	70	771926.4	3219119	4.41295	37.7	42.1	188	0.02379	15.2	15.2	100
	71	771890.8	3219114	4.4757	37.7	42.2	188	0.02428	15.2	15.2	100
	72	771774.8	3219106	4.91821	37.7	42.6	188	0.02566	15.2	15.2	100
	73	773060.3	3219101	2.92419	37.7	40.6	188	0.01122	15.2	15.2	100
	74	772980.3	3219072	2.98444	37.7	40.7	188	0.01164	15.2	15.2	100
	75	769906.6	3219055	4.82886	37.7	42.5	188	0.03911	15.2	15.2	100
	76	771844.3	3219030	4.70756	37.7	42.4	188	0.02546	15.2	15.2	100

Indeck Wharton Energy Center
AERMOD Predicted Impacts at Sensitive Receptors
1-hour and Annual NO2

[illegible] from Site	Receptor ID	X (m)	Y (m)		1-HR NO2 (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)		Annual NO2 (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)
	77	773197.9	3219017		2.9051	37.7	40.6	188		0.01064	15.2	15.2	100
	78	773229.2	3219014		2.90401	37.7	40.6	188		0.01051	15.2	15.2	100
	79	773030.2	3219001		2.93098	37.7	40.6	188		0.01144	15.2	15.2	100
	80	772975.6	3218999		2.9489	37.7	40.6	188		0.01172	15.2	15.2	100
	81	770173.6	3218999		4.93524	37.7	42.6	188		0.04574	15.2	15.2	100
	82	773322.7	3218967		2.88605	37.7	40.6	188		0.01016	15.2	15.2	100
	83	772980.3	3218959		2.94436	37.7	40.6	188		0.01173	15.2	15.2	100
	84	773272.4	3218926		2.89867	37.7	40.6	188		0.01037	15.2	15.2	100
	85	773349.4	3218918		2.85778	37.7	40.6	188		0.01008	15.2	15.2	100
	86	773040.4	3218913		2.94657	37.7	40.6	188		0.01144	15.2	15.2	100
	87	773328.7	3218900		2.86383	37.7	40.6	188		0.01017	15.2	15.2	100
	88	773313	3218889		2.86952	37.7	40.6	188		0.01023	15.2	15.2	100
	89	770182.2	3218883		5.2311	37.7	42.9	188		0.04696	15.2	15.2	100
	90	773339.7	3218875		2.84487	37.7	40.5	188		0.01014	15.2	15.2	100
	91	771715.6	3218872		5.43159	37.7	43.1	188		0.02855	15.2	15.2	100
	92	771892.9	3218776		4.61502	37.7	42.3	188		0.02648	15.2	15.2	100
	93	771812.5	3218759		4.97261	37.7	42.7	188		0.02817	15.2	15.2	100
	94	771624.9	3218735		6.03092	37.7	43.7	188		0.03154	15.2	15.2	100
	95	771943.3	3218719		4.45479	37.7	42.2	188		0.0257	15.2	15.2	100
	96	771812.9	3218708		4.96427	37.7	42.7	188		0.02862	15.2	15.2	100
	97	771879.4	3218708		4.68566	37.7	42.4	188		0.02723	15.2	15.2	100
	98	773337.6	3218693		2.78095	37.7	40.5	188		0.01024	15.2	15.2	100
	99	771843.8	3218682		4.78769	37.7	42.5	188		0.02821	15.2	15.2	100
	100	770228.4	3218677		5.73599	37.7	43.4	188		0.05007	15.2	15.3	100
	101	771827.3	3218640		4.84699	37.7	42.5	188		0.02895	15.2	15.2	100
	102	771700.3	3218608		5.78958	37.7	43.5	188		0.03193	15.2	15.2	100
	103	771818.5	3218449		4.92331	37.7	42.6	188		0.03091	15.2	15.2	100
	104	770251.7	3218378		6.57713	37.7	44.3	188		0.05339	15.2	15.3	100
	105	771830.5	3218356		4.92179	37.7	42.6	188		0.03133	15.2	15.2	100
	106	771736.1	3218352		5.34225	37.7	43.0	188		0.03446	15.2	15.2	100
	107	771837.5	3218306		4.90688	37.7	42.6	188		0.03146	15.2	15.2	100
	108	768603.9	3218174		3.82192	37.7	41.5	188		0.01821	15.2	15.2	100
	109	770066.5	3218164		6.85383	37.7	44.6	188		0.04558	15.2	15.2	100
	110	771742.5	3218126		5.22511	37.7	42.9	188		0.03697	15.2	15.2	100
	111	773356.5	3218109		2.57989	37.7	40.3	188		0.00947	15.2	15.2	100
	112	768605.6	3218099		3.73134	37.7	41.4	188		0.01849	15.2	15.2	100
	113	770230	3217867		8.30775	37.7	46.0	188		0.05345	15.2	15.3	100
	114	773889.4	3217742		3.39292	37.7	41.1	188		0.00853	15.2	15.2	100
	115	773472	3217611		3.65802	37.7	41.4	188		0.00945	15.2	15.2	100
	116	773685.4	3217609		3.51763	37.7	41.2	188		0.00898	15.2	15.2	100
	117	772848.5	3217552		3.79287	37.7	41.5	188		0.01214	15.2	15.2	100
	118	774127.8	3217541		3.47748	37.7	41.2	188		0.00824	15.2	15.2	100
	119	769828.5	3217528		5.05831	37.7	42.8	188		0.03428	15.2	15.2	100
	120	769556.7	3217426		3.69155	37.7	41.4	188		0.02943	15.2	15.2	100
	121	769076	3217405		3.37121	37.7	41.1	188		0.02185	15.2	15.2	100
	122	768563.6	3217384		3.3985	37.7	41.1	188		0.01598	15.2	15.2	100
	123	768673.3	3217119		3.79956	37.7	41.5	188		0.01438	15.2	15.2	100
	124	768581.1	3217068		3.8252	37.7	41.5	188		0.01329	15.2	15.2	100
	125	774452.8	3216171		3.88807	37.7	41.6	188		0.00665	15.2	15.2	100
	126	773624.4	3216082		3.44699	37.7	41.1	188		0.00805	15.2	15.2	100
	127	774381	3216032		3.79649	37.7	41.5	188		0.00662	15.2	15.2	100
	128	773937.7	3216021		3.51751	37.7	41.2	188		0.00737	15.2	15.2	100
	129	773544	3215991		3.27399	37.7	41.0	188		0.00862	15.2	15.2	100
	130	768536.1	3215973		4.25395	37.7	42.0	188		0.01062	15.2	15.2	100
	131	772826.4	3215942		4.42299	37.7	42.1	188		0.01318	15.2	15.2	100
	132	768978.8	3215786		5.0885	37.7	42.8	188		0.01184	15.2	15.2	100
	133	768644.9	3215776		4.65158	37.7	42.4	188		0.01087	15.2	15.2	100
	134	773583.4	3215310		3.63984	37.7	41.3	188		0.00962	15.2	15.2	100
	135	773451.3	3215211		3.67323	37.7	41.4	188		0.01055	15.2	15.2	100
	136	768782.6	3214951		4.12497	37.7	41.8	188		0.01023	15.2	15.2	100
	137	771988.4	3214946		6.91625	37.7	44.6	188		0.03097	15.2	15.2	100
	138	771997.7	3214715		6.31929	37.7	44.0	188		0.02867	15.2	15.2	100
	139	772003.2	3214401		5.58861	37.7	43.3	188		0.02575	15.2	15.2	100
	140	772630.2	3214344		5.16468	37.7	42.9	188		0.0201	15.2	15.2	100
	141	769702.1	3214291		4.33431	37.7	42.0	188		0.01269	15.2	15.2	100
	142	770869.1	3214195		4.38288	37.7	42.1	188		0.01374	15.2	15.2	100

Indeck Wharton Energy Center
AERMOD Predicted Impacts at Sensitive Receptors
24-hour and Annual PM2.5

Radius from Site	Receptor ID	X	Y	24-HR PM2.5 (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)	Annual PM2.5 (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)
< 1 mile	1	771756.2	3218047	0.21666	23.0	23.2	35	0.006	9.3	9.3	15
	2	771747.4	3217999	0.22177	23.0	23.2	35	0.00614	9.3	9.3	15
	3	771843	3217994	0.19361	23.0	23.2	35	0.00529	9.3	9.3	15
	4	771734.2	3217973	0.22783	23.0	23.2	35	0.00631	9.3	9.3	15
	5	771770.2	3217967	0.21316	23.0	23.2	35	0.00595	9.3	9.3	15
	6	771845.6	3217955	0.19508	23.0	23.2	35	0.00529	9.3	9.3	15
	7	771770	3217942	0.21364	23.0	23.2	35	0.00598	9.3	9.3	15
	8	771778.4	3217902	0.21295	23.0	23.2	35	0.00593	9.3	9.3	15
	9	771845.1	3217865	0.20076	23.0	23.2	35	0.00533	9.3	9.3	15
	10	771848.1	3217839	0.20131	23.0	23.2	35	0.00532	9.3	9.3	15
	11	771777.8	3217835	0.21823	23.0	23.2	35	0.00598	9.3	9.3	15
	12	771841.3	3217810	0.205	23.0	23.2	35	0.00538	9.3	9.3	15
	13	771780.4	3217778	0.22137	23.0	23.2	35	0.00598	9.3	9.3	15
	14	770237.2	3217775	0.40841	23.0	23.4	35	0.01044	9.3	9.3	15
	15	771847.7	3217764	0.20706	23.0	23.2	35	0.00533	9.3	9.3	15
	16	771772.3	3217746	0.22589	23.0	23.2	35	0.00608	9.3	9.3	15
	17	771845.6	3217732	0.2098	23.0	23.2	35	0.00535	9.3	9.3	15
	18	771842.6	3217707	0.21197	23.0	23.2	35	0.00537	9.3	9.3	15
	19	771847.7	3217694	0.21135	23.0	23.2	35	0.00532	9.3	9.3	15
	20	771786.7	3217689	0.22727	23.0	23.2	35	0.00593	9.3	9.3	15
	21	771853.2	3217670	0.21207	23.0	23.2	35	0.00526	9.3	9.3	15
	22	771771.9	3217645	0.23495	23.0	23.2	35	0.00609	9.3	9.3	15
	23	771854	3217644	0.21502	23.0	23.2	35	0.00524	9.3	9.3	15
	24	771773.6	3217602	0.238	23.0	23.2	35	0.00606	9.3	9.3	15
	25	771912.9	3217594	0.20282	23.0	23.2	35	0.00468	9.3	9.3	15
	26	770985.2	3217576	0.51438	23.0	23.5	35	0.02001	9.3	9.3	15
	27	771766.9	3217549	0.2437	23.0	23.2	35	0.0061	9.3	9.3	15
	28	772091	3217524	0.16087	23.0	23.2	35	0.00339	9.3	9.3	15
	29	771864	3217519	0.21937	23.0	23.2	35	0.00502	9.3	9.3	15
	30	771190.2	3217511	0.58381	23.0	23.6	35	0.01917	9.3	9.3	15
	31	771919.2	3217503	0.20089	23.0	23.2	35	0.00451	9.3	9.3	15
	32	771785.9	3217501	0.24443	23.0	23.2	35	0.00582	9.3	9.3	15
	33	771935.8	3217472	0.19586	23.0	23.2	35	0.00432	9.3	9.3	15
	34	771769.5	3217442	0.25406	23.0	23.3	35	0.00593	9.3	9.3	15
	35	771876.9	3217355	0.21195	23.0	23.2	35	0.00456	9.3	9.3	15
	36	771855.8	3217338	0.21773	23.0	23.2	35	0.00471	9.3	9.3	15
	37	771616.1	3217334	0.30768	23.0	23.3	35	0.00812	9.3	9.3	15
	38	771908	3216801	0.16062	23.0	23.2	35	0.00293	9.3	9.3	15
	39	771824	3216336	0.23962	23.0	23.2	35	0.00357	9.3	9.3	15
	40	771922.5	3216151	0.30462	23.0	23.3	35	0.00377	9.3	9.3	15
	41	772312.9	3216070	0.20983	23.0	23.2	35	0.0025	9.3	9.3	15
	42	772336.2	3216054	0.20734	23.0	23.2	35	0.00247	9.3	9.3	15
	43	772294.3	3216049	0.21842	23.0	23.2	35	0.00258	9.3	9.3	15
	44	772107	3216019	0.28044	23.0	23.3	35	0.00332	9.3	9.3	15
	45	771993.6	3216012	0.31754	23.0	23.3	35	0.00396	9.3	9.3	15
	46	770629.3	3215936	0.25655	23.0	23.3	35	0.00465	9.3	9.3	15
	47	771966.3	3215906	0.34187	23.0	23.3	35	0.00464	9.3	9.3	15
	48	771439.9	3215879	0.42509	23.0	23.4	35	0.00793	9.3	9.3	15
< 2 miles	49	770980.6	3219677	0.19967	23.0	23.2	35	0.00604	9.3	9.3	15
	50	770020.9	3219475	0.19928	23.0	23.2	35	0.00683	9.3	9.3	15
	51	773040.4	3219205	0.0648	23.0	23.1	35	0.00174	9.3	9.3	15
	52	772480.1	3219181	0.09559	23.0	23.1	35	0.00247	9.3	9.3	15
	53	772546.2	3219176	0.09211	23.0	23.1	35	0.00236	9.3	9.3	15
	54	772373.4	3219172	0.10181	23.0	23.1	35	0.00268	9.3	9.3	15
	55	772868.1	3219171	0.072	23.0	23.1	35	0.00192	9.3	9.3	15
	56	772333.9	3219170	0.104	23.0	23.1	35	0.00276	9.3	9.3	15
	57	772414.1	3219165	0.09948	23.0	23.1	35	0.0026	9.3	9.3	15
	58	772253.2	3219165	0.10779	23.0	23.1	35	0.00295	9.3	9.3	15
	59	772188.4	3219163	0.11175	23.0	23.1	35	0.00312	9.3	9.3	15
	60	772131.3	3219155	0.11724	23.0	23.1	35	0.00328	9.3	9.3	15
	61	772227.4	3219155	0.10901	23.0	23.1	35	0.00302	9.3	9.3	15
	62	772104.6	3219152	0.11978	23.0	23.1	35	0.00336	9.3	9.3	15
	63	772083	3219146	0.1219	23.0	23.1	35	0.00343	9.3	9.3	15
	64	772284.1	3219144	0.10697	23.0	23.1	35	0.00288	9.3	9.3	15
	65	772449.6	3219141	0.09776	23.0	23.1	35	0.00253	9.3	9.3	15
	66	771977.9	3219136	0.13111	23.0	23.1	35	0.00378	9.3	9.3	15
	67	773054.4	3219133	0.06344	23.0	23.1	35	0.00172	9.3	9.3	15
	68	773112.8	3219132	0.06119	23.0	23.1	35	0.00166	9.3	9.3	15
	69	771998.3	3219128	0.12975	23.0	23.1	35	0.00371	9.3	9.3	15
	70	771926.4	3219119	0.13551	23.0	23.1	35	0.00397	9.3	9.3	15
	71	771890.8	3219114	0.13829	23.0	23.1	35	0.0041	9.3	9.3	15
	72	771774.8	3219106	0.14798	23.0	23.1	35	0.00456	9.3	9.3	15
	73	773060.3	3219101	0.06319	23.0	23.1	35	0.00171	9.3	9.3	15
	74	772980.3	3219072	0.06656	23.0	23.1	35	0.00179	9.3	9.3	15
	75	769906.6	3219055	0.23655	23.0	23.2	35	0.00744	9.3	9.3	15
	76	771844.3	3219030	0.14613	23.0	23.1	35	0.00435	9.3	9.3	15

Indeck Wharton Energy Center
AERMOD Predicted Impacts at Sensitive Receptors
24-hour and Annual PM2.5

Radius from Site	Receptor ID	X	Y		24-HR PM2.5 (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)		Annual PM2.5 (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)
	77	773197.9	3219017		0.05625	23.0	23.1	35		0.00157	9.3	9.3	15
	78	773229.2	3219014		0.05484	23.0	23.1	35		0.00155	9.3	9.3	15
	79	773030.2	3219001		0.06415	23.0	23.1	35		0.00173	9.3	9.3	15
	80	772975.6	3218999		0.06649	23.0	23.1	35		0.00179	9.3	9.3	15
	81	770173.6	3218999		0.23759	23.0	23.2	35		0.00803	9.3	9.3	15
	82	773322.7	3218967		0.05269	23.0	23.1	35		0.00147	9.3	9.3	15
	83	772980.3	3218959		0.06623	23.0	23.1	35		0.00178	9.3	9.3	15
	84	773272.4	3218926		0.05406	23.0	23.1	35		0.0015	9.3	9.3	15
	85	773349.4	3218918		0.05263	23.0	23.1	35		0.00144	9.3	9.3	15
	86	773040.4	3218913		0.06297	23.0	23.1	35		0.00171	9.3	9.3	15
	87	773328.7	3218900		0.05324	23.0	23.1	35		0.00145	9.3	9.3	15
	88	773313	3218889		0.05371	23.0	23.1	35		0.00146	9.3	9.3	15
	89	770182.2	3218883		0.25006	23.0	23.3	35		0.00833	9.3	9.3	15
	90	773339.7	3218875		0.05321	23.0	23.1	35		0.00144	9.3	9.3	15
	91	771715.6	3218872		0.16655	23.0	23.2	35		0.00508	9.3	9.3	15
	92	771892.9	3218776		0.15163	23.0	23.2	35		0.00433	9.3	9.3	15
	93	771812.5	3218759		0.16414	23.0	23.2	35		0.00473	9.3	9.3	15
	94	771624.9	3218735		0.18956	23.0	23.2	35		0.00578	9.3	9.3	15
	95	771943.3	3218719		0.14816	23.0	23.1	35		0.00413	9.3	9.3	15
	96	771812.9	3218708		0.16697	23.0	23.2	35		0.00478	9.3	9.3	15
	97	771879.4	3218708		0.15656	23.0	23.2	35		0.00444	9.3	9.3	15
	98	773337.6	3218693		0.05389	23.0	23.1	35		0.00141	9.3	9.3	15
	99	771843.8	3218682		0.16367	23.0	23.2	35		0.00464	9.3	9.3	15
	100	770228.4	3218677		0.27711	23.0	23.3	35		0.00898	9.3	9.3	15
	101	771827.3	3218640		0.16856	23.0	23.2	35		0.00478	9.3	9.3	15
	102	771700.3	3218608		0.18735	23.0	23.2	35		0.00556	9.3	9.3	15
	103	771818.5	3218449		0.18014	23.0	23.2	35		0.00504	9.3	9.3	15
	104	770251.7	3218378		0.31981	23.0	23.3	35		0.00995	9.3	9.3	15
	105	771830.5	3218356		0.1815	23.0	23.2	35		0.00507	9.3	9.3	15
	106	771736.1	3218352		0.20334	23.0	23.2	35		0.00574	9.3	9.3	15
	107	771837.5	3218306		0.18142	23.0	23.2	35		0.00507	9.3	9.3	15
	108	768603.9	3218174		0.10704	23.0	23.1	35		0.00282	9.3	9.3	15
	109	770066.5	3218164		0.35367	23.0	23.4	35		0.00915	9.3	9.3	15
	110	771742.5	3218126		0.21699	23.0	23.2	35		0.00603	9.3	9.3	15
	111	773356.5	3218109		0.04967	23.0	23.0	35		0.00127	9.3	9.3	15
	112	768605.6	3218099		0.10485	23.0	23.1	35		0.00279	9.3	9.3	15
	113	770230	3217867		0.40384	23.0	23.4	35		0.01053	9.3	9.3	15
	114	773889.4	3217742		0.05185	23.0	23.1	35		0.0011	9.3	9.3	15
	115	773472	3217611		0.06053	23.0	23.1	35		0.00121	9.3	9.3	15
	116	773685.4	3217609		0.05654	23.0	23.1	35		0.00115	9.3	9.3	15
	117	772848.5	3217552		0.07761	23.0	23.1	35		0.00154	9.3	9.3	15
	118	774127.8	3217541		0.04812	23.0	23.0	35		0.00107	9.3	9.3	15
	119	769828.5	3217528		0.18803	23.0	23.2	35		0.00534	9.3	9.3	15
	120	769556.7	3217426		0.15317	23.0	23.2	35		0.00402	9.3	9.3	15
	121	769076	3217405		0.11397	23.0	23.1	35		0.00296	9.3	9.3	15
	122	768563.6	3217384		0.09041	23.0	23.1	35		0.00235	9.3	9.3	15
	123	768673.3	3217119		0.08341	23.0	23.1	35		0.00225	9.3	9.3	15
	124	768581.1	3217068		0.07959	23.0	23.1	35		0.00214	9.3	9.3	15
	125	774452.8	3216171		0.04822	23.0	23.0	35		0.00106	9.3	9.3	15
	126	773624.4	3216082		0.06855	23.0	23.1	35		0.00122	9.3	9.3	15
	127	774381	3216032		0.0496	23.0	23.0	35		0.00107	9.3	9.3	15
	128	773937.7	3216021		0.05875	23.0	23.1	35		0.00115	9.3	9.3	15
	129	773544	3215991		0.07198	23.0	23.1	35		0.00125	9.3	9.3	15
	130	768536.1	3215973		0.07319	23.0	23.1	35		0.00158	9.3	9.3	15
	131	772826.4	3215942		0.12933	23.0	23.1	35		0.00174	9.3	9.3	15
	132	768978.8	3215786		0.08038	23.0	23.1	35		0.00172	9.3	9.3	15
	133	768644.9	3215776		0.07201	23.0	23.1	35		0.0016	9.3	9.3	15
	134	773583.4	3215310		0.09326	23.0	23.1	35		0.00139	9.3	9.3	15
	135	773451.3	3215211		0.1045	23.0	23.1	35		0.0015	9.3	9.3	15
	136	768782.6	3214951		0.07041	23.0	23.1	35		0.00159	9.3	9.3	15
	137	771988.4	3214946		0.2906	23.0	23.3	35		0.00464	9.3	9.3	15
	138	771997.7	3214715		0.28936	23.0	23.3	35		0.00427	9.3	9.3	15
	139	772003.2	3214401		0.29209	23.0	23.3	35		0.00383	9.3	9.3	15
	140	772630.2	3214344		0.18966	23.0	23.2	35		0.00301	9.3	9.3	15
	141	769702.1	3214291		0.1443	23.0	23.1	35		0.00233	9.3	9.3	15
	142	770869.1	3214195		0.1551	23.0	23.2	35		0.00281	9.3	9.3	15

Indeck Wharton Energy Center
AERMOD Predicted Impacts at Sensitive Receptors
24-hour PM10

Radius from Site	Receptor ID	X	Y		24-HR PM10 (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)
< 1 mile	1	771756.2	3218047		0.29314	23.0	23.3	35
	2	771747.4	3217999		0.29675	23.0	23.3	35
	3	771843	3217994		0.24721	23.0	23.2	35
	4	771734.2	3217973		0.30272	23.0	23.3	35
	5	771770.2	3217967		0.28461	23.0	23.3	35
	6	771845.6	3217955		0.24303	23.0	23.2	35
	7	771770	3217942		0.28386	23.0	23.3	35
	8	771778.4	3217902		0.27739	23.0	23.3	35
	9	771845.1	3217865		0.23528	23.0	23.2	35
	10	771848.1	3217839		0.23068	23.0	23.2	35
	11	771777.8	3217835		0.27349	23.0	23.3	35
	12	771841.3	3217810		0.23458	23.0	23.2	35
	13	771780.4	3217778		0.26685	23.0	23.3	35
	14	770237.2	3217775		0.24661	23.0	23.2	35
	15	771847.7	3217764		0.23602	23.0	23.2	35
	16	771772.3	3217746		0.2688	23.0	23.3	35
	17	771845.6	3217732		0.23797	23.0	23.2	35
	18	771842.6	3217707		0.2396	23.0	23.2	35
	19	771847.7	3217694		0.23743	23.0	23.2	35
	20	771786.7	3217689		0.2598	23.0	23.3	35
	21	771853.2	3217670		0.23411	23.0	23.2	35
	22	771771.9	3217645		0.26869	23.0	23.3	35
	23	771854	3217644		0.23205	23.0	23.2	35
	24	771773.6	3217602		0.27151	23.0	23.3	35
	25	771912.9	3217594		0.18565	23.0	23.2	35
	26	770985.2	3217576		0.52049	23.0	23.5	35
	27	771766.9	3217549		0.27633	23.0	23.3	35
	28	772091	3217524		0.13463	23.0	23.1	35
	29	771864	3217519		0.20375	23.0	23.2	35
	30	771190.2	3217511		0.48173	23.0	23.5	35
	31	771919.2	3217503		0.15448	23.0	23.2	35
	32	771785.9	3217501		0.26151	23.0	23.3	35
	33	771935.8	3217472		0.15127	23.0	23.2	35
	34	771769.5	3217442		0.26524	23.0	23.3	35
	35	771876.9	3217355		0.1715	23.0	23.2	35
	36	771855.8	3217338		0.17484	23.0	23.2	35
	37	771616.1	3217334		0.3605	23.0	23.4	35
	38	771908	3216801		0.11116	23.0	23.1	35
	39	771824	3216336		0.41892	23.0	23.4	35
	40	771922.5	3216151		0.46945	23.0	23.5	35
	41	772312.9	3216070		0.33702	23.0	23.3	35
	42	772336.2	3216054		0.33051	23.0	23.3	35
	43	772294.3	3216049		0.34929	23.0	23.3	35
	44	772107	3216019		0.37963	23.0	23.4	35
	45	771993.6	3216012		0.33604	23.0	23.3	35
	46	770629.3	3215936		0.17782	23.0	23.2	35
	47	771966.3	3215906		0.30471	23.0	23.3	35
	48	771439.9	3215879		0.42863	23.0	23.4	35
< 2 miles	49	770980.6	3219677		0.18804	23.0	23.2	35
	50	770020.9	3219475		0.24872	23.0	23.2	35
	51	773040.4	3219205		0.05642	23.0	23.1	35
	52	772480.1	3219181		0.09829	23.0	23.1	35
	53	772546.2	3219176		0.09172	23.0	23.1	35
	54	772373.4	3219172		0.1147	23.0	23.1	35
	55	772868.1	3219171		0.05702	23.0	23.1	35
	56	772333.9	3219170		0.12267	23.0	23.1	35
	57	772414.1	3219165		0.10659	23.0	23.1	35
	58	772253.2	3219165		0.13994	23.0	23.1	35
	59	772188.4	3219163		0.15458	23.0	23.2	35
	60	772131.3	3219155		0.16778	23.0	23.2	35
	61	772227.4	3219155		0.1456	23.0	23.1	35
	62	772104.6	3219152		0.17402	23.0	23.2	35
	63	772083	3219146		0.17908	23.0	23.2	35
	64	772284.1	3219144		0.13277	23.0	23.1	35
	65	772449.6	3219141		0.10134	23.0	23.1	35
	66	771977.9	3219136		0.20267	23.0	23.2	35
	67	773054.4	3219133		0.05522	23.0	23.1	35
	68	773112.8	3219132		0.05434	23.0	23.1	35
	69	771998.3	3219128		0.19852	23.0	23.2	35
	70	771926.4	3219119		0.21351	23.0	23.2	35
	71	771890.8	3219114		0.22009	23.0	23.2	35
	72	771774.8	3219106		0.23512	23.0	23.2	35
	73	773060.3	3219101		0.05459	23.0	23.1	35
	74	772980.3	3219072		0.05514	23.0	23.1	35
	75	769906.6	3219055		0.23797	23.0	23.2	35
	76	771844.3	3219030		0.23176	23.0	23.2	35

Indeck Wharton Energy Center
AERMOD Predicted Impacts at Sensitive Receptors
24-hour PM10

Radius from Site	Receptor ID	X	Y		24-hr PM10 (ug/m3)	Ambient Background (ug/m3)	Total Concentration (ug/m3)	NAAQS (ug/m3)
	77	773197.9	3219017		0.05021	23.0	23.1	35
	78	773229.2	3219014		0.04941	23.0	23.0	35
	79	773030.2	3219001		0.05315	23.0	23.1	35
	80	772975.6	3218999		0.05393	23.0	23.1	35
	81	770173.6	3218999		0.28069	23.0	23.3	35
	82	773322.7	3218967		0.04643	23.0	23.0	35
	83	772980.3	3218959		0.05307	23.0	23.1	35
	84	773272.4	3218926		0.04735	23.0	23.0	35
	85	773349.4	3218918		0.04771	23.0	23.0	35
	86	773040.4	3218913		0.05098	23.0	23.1	35
	87	773328.7	3218900		0.0482	23.0	23.0	35
	88	773313	3218889		0.04847	23.0	23.0	35
	89	770182.2	3218883		0.28538	23.0	23.3	35
	90	773339.7	3218875		0.04881	23.0	23.0	35
	91	771715.6	3218872		0.2567	23.0	23.3	35
	92	771892.9	3218776		0.23184	23.0	23.2	35
	93	771812.5	3218759		0.25131	23.0	23.3	35
	94	771624.9	3218735		0.27017	23.0	23.3	35
	95	771943.3	3218719		0.21873	23.0	23.2	35
	96	771812.9	3218708		0.25378	23.0	23.3	35
	97	771879.4	3218708		0.23728	23.0	23.2	35
	98	773337.6	3218693		0.05274	23.0	23.1	35
	99	771843.8	3218682		0.24757	23.0	23.2	35
	100	770228.4	3218677		0.29241	23.0	23.3	35
	101	771827.3	3218640		0.25357	23.0	23.3	35
	102	771700.3	3218608		0.28004	23.0	23.3	35
	103	771818.5	3218449		0.26321	23.0	23.3	35
	104	770251.7	3218378		0.28262	23.0	23.3	35
	105	771830.5	3218356		0.28129	23.0	23.3	35
	106	771736.1	3218352		0.29217	23.0	23.3	35
	107	771837.5	3218306		0.25906	23.0	23.3	35
	108	768603.9	3218174		0.09233	23.0	23.1	35
	109	770066.5	3218164		0.24573	23.0	23.2	35
	110	771742.5	3218126		0.29913	23.0	23.3	35
	111	773356.5	3218109		0.05895	23.0	23.1	35
	112	768605.6	3218099		0.08733	23.0	23.1	35
	113	770230	3217867		0.26264	23.0	23.3	35
	114	773889.4	3217742		0.03958	23.0	23.0	35
	115	773472	3217611		0.04405	23.0	23.0	35
	116	773685.4	3217609		0.04287	23.0	23.0	35
	117	772848.5	3217552		0.08215	23.0	23.1	35
	118	774127.8	3217541		0.04565	23.0	23.0	35
	119	769828.5	3217528		0.17088	23.0	23.2	35
	120	769556.7	3217426		0.14655	23.0	23.1	35
	121	769076	3217405		0.09886	23.0	23.1	35
	122	768563.6	3217384		0.0688	23.0	23.1	35
	123	768673.3	3217119		0.09023	23.0	23.1	35
	124	768581.1	3217068		0.0942	23.0	23.1	35
	125	774452.8	3216171		0.05563	23.0	23.1	35
	126	773624.4	3216082		0.06958	23.0	23.1	35
	127	774381	3216032		0.05572	23.0	23.1	35
	128	773937.7	3216021		0.06113	23.0	23.1	35
	129	773544	3215991		0.07363	23.0	23.1	35
	130	768536.1	3215973		0.14216	23.0	23.1	35
	131	772826.4	3215942		0.18617	23.0	23.2	35
	132	768978.8	3215786		0.11939	23.0	23.1	35
	133	768644.9	3215776		0.10746	23.0	23.1	35
	134	773583.4	3215310		0.11716	23.0	23.1	35
	135	773451.3	3215211		0.1161	23.0	23.1	35
	136	768782.6	3214951		0.09257	23.0	23.1	35
	137	771988.4	3214946		0.31597	23.0	23.3	35
	138	771997.7	3214715		0.35529	23.0	23.4	35
	139	772003.2	3214401		0.3677	23.0	23.4	35
	140	772630.2	3214344		0.27399	23.0	23.3	35
	141	769702.1	3214291		0.07436	23.0	23.1	35
	142	770869.1	3214195		0.14561	23.0	23.1	35

Indeck Wharton Energy Center
AERMOD Predicted Impacts at Sensitive Receptors
1-hour and 8-hour CO

Radius from Site	Receptor ID	X	Y	1-HR CO (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)	8-HR CO (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)
< 1 mile	1	771756.2	3218047	55.50028	3381	3436.5	40000	15.24132	2479	2494.2	10000
	2	771747.4	3217999	57.11026	3381	3438.1	40000	15.8736	2479	2494.9	10000
	3	771843	3217994	62.74787	3381	3443.7	40000	17.1621	2479	2496.2	10000
	4	771734.2	3217973	57.14555	3381	3438.1	40000	16.02585	2479	2495.0	10000
	5	771770.2	3217967	60.53625	3381	3441.5	40000	16.86627	2479	2495.9	10000
	6	771845.6	3217955	63.78644	3381	3444.8	40000	17.61111	2479	2496.6	10000
	7	771770	3217942	61.63245	3381	3442.6	40000	17.27968	2479	2496.3	10000
	8	771778.4	3217902	63.66305	3381	3444.7	40000	18.00867	2479	2497.0	10000
	9	771845.1	3217865	64.97514	3381	3446.0	40000	18.4065	2479	2497.4	10000
	10	771848.1	3217839	64.83576	3381	3445.8	40000	18.51596	2479	2497.5	10000
	11	771777.8	3217835	65.60725	3381	3446.6	40000	18.93413	2479	2497.9	10000
	12	771841.3	3217810	64.91447	3381	3445.9	40000	18.7414	2479	2497.7	10000
	13	771780.4	3217778	66.52256	3381	3447.5	40000	19.56379	2479	2498.6	10000
	14	770237.2	3217775	71.13496	3381	3452.1	40000	16.79656	2479	2495.8	10000
	15	771847.7	3217764	63.58023	3381	3444.6	40000	18.66557	2479	2497.7	10000
	16	771772.3	3217746	66.69966	3381	3447.7	40000	19.87737	2479	2498.9	10000
	17	771845.6	3217732	62.66487	3381	3443.7	40000	18.63981	2479	2497.6	10000
	18	771842.6	3217707	61.87244	3381	3442.9	40000	18.60516	2479	2497.6	10000
	19	771847.7	3217694	60.66197	3381	3441.7	40000	18.34441	2479	2497.3	10000
	20	771786.7	3217689	65.59325	3381	3446.6	40000	19.97785	2479	2499.0	10000
	21	771853.2	3217670	58.53514	3381	3439.5	40000	17.90058	2479	2496.9	10000
	22	771771.9	3217645	65.04864	3381	3446.0	40000	20.26005	2479	2499.3	10000
	23	771854	3217644	56.54796	3381	3437.5	40000	17.51898	2479	2496.5	10000
	24	771773.6	3217602	62.9638	3381	3444.0	40000	20.03562	2479	2499.0	10000
	25	771912.9	3217594	45.09357	3381	3426.1	40000	13.54951	2479	2492.5	10000
	26	770985.2	3217576	104.2057	3381	3485.2	40000	27.96712	2479	2507.0	10000
	27	771766.9	3217549	60.06225	3381	3441.1	40000	19.70909	2479	2498.7	10000
	28	772091	3217524	42.53612	3381	3423.5	40000	11.01441	2479	2490.0	10000
	29	771864	3217519	48.63963	3381	3429.6	40000	14.0855	2479	2493.1	10000
	30	771190.2	3217511	109.4684	3381	3490.5	40000	30.31237	2479	2509.3	10000
	31	771919.2	3217503	50.63405	3381	3431.6	40000	13.10528	2479	2492.1	10000
	32	771785.9	3217501	53.03653	3381	3434.0	40000	17.92653	2479	2496.9	10000
	33	771935.8	3217472	51.11482	3381	3432.1	40000	13.26313	2479	2492.3	10000
	34	771769.5	3217442	52.13331	3381	3433.1	40000	17.16447	2479	2496.2	10000
	35	771876.9	3217355	56.08596	3381	3437.1	40000	14.87383	2479	2493.9	10000
	36	771855.8	3217338	57.84526	3381	3438.8	40000	15.41237	2479	2494.4	10000
	37	771616.1	3217334	63.00794	3381	3444.0	40000	20.43103	2479	2499.4	10000
	38	771908	3216801	69.84421	3381	3450.8	40000	29.27142	2479	2508.3	10000
	39	771824	3216336	74.2301	3381	3455.2	40000	24.07368	2479	2503.1	10000
	40	771922.5	3216151	64.98288	3381	3446.0	40000	21.44062	2479	2500.4	10000
	41	772312.9	3216070	50.69102	3381	3431.7	40000	16.05495	2479	2495.1	10000
	42	772336.2	3216054	51.47605	3381	3432.5	40000	16.22519	2479	2495.2	10000
	43	772294.3	3216049	56.04476	3381	3437.0	40000	17.86225	2479	2496.9	10000
	44	772107	3216019	68.69192	3381	3449.7	40000	23.52025	2479	2502.5	10000
	45	771993.6	3216012	71.71926	3381	3452.7	40000	22.09832	2479	2501.1	10000
	46	770629.3	3215936	64.32576	3381	3445.3	40000	17.95757	2479	2497.0	10000
	47	771966.3	3215906	68.76182	3381	3449.8	40000	18.27739	2479	2497.3	10000
	48	771439.9	3215879	83.25011	3381	3464.3	40000	24.9279	2479	2503.9	10000
< 2 miles	49	770980.6	3219677	34.50269	3381	3415.5	40000	8.0104	2479	2487.0	10000
	50	770020.9	3219475	36.13811	3381	3417.1	40000	8.84856	2479	2487.8	10000
	51	773040.4	3219205	32.71105	3381	3413.7	40000	7.74104	2479	2486.7	10000
	52	772480.1	3219181	33.70248	3381	3414.7	40000	7.97798	2479	2487.0	10000
	53	772546.2	3219176	34.18171	3381	3415.2	40000	8.08548	2479	2487.1	10000
	54	772373.4	3219172	34.24288	3381	3415.2	40000	7.95487	2479	2487.0	10000
	55	772868.1	3219171	33.92949	3381	3414.9	40000	8.02339	2479	2487.0	10000
	56	772333.9	3219170	34.42889	3381	3415.4	40000	8.00772	2479	2487.0	10000
	57	772414.1	3219165	33.96438	3381	3415.0	40000	7.88796	2479	2486.9	10000
	58	772253.2	3219165	34.13911	3381	3415.1	40000	7.97121	2479	2487.0	10000
	59	772188.4	3219163	33.17715	3381	3414.2	40000	8.0184	2479	2487.0	10000
	60	772131.3	3219155	31.98896	3381	3413.0	40000	8.32238	2479	2487.3	10000
	61	772227.4	3219155	34.03376	3381	3415.0	40000	7.96212	2479	2487.0	10000
	62	772104.6	3219152	32.10355	3381	3413.1	40000	8.42459	2479	2487.4	10000
	63	772083	3219146	32.70083	3381	3413.7	40000	8.49611	2479	2487.5	10000
	64	772284.1	3219144	34.80253	3381	3415.8	40000	8.11976	2479	2487.1	10000
	65	772449.6	3219141	33.66991	3381	3414.7	40000	7.92488	2479	2486.9	10000
	66	771977.9	3219138	34.56036	3381	3415.6	40000	8.95997	2479	2488.0	10000
	67	773054.4	3219133	31.86646	3381	3412.9	40000	7.55512	2479	2486.6	10000
	68	773112.8	3219132	31.12644	3381	3412.1	40000	7.38599	2479	2486.4	10000
	69	771998.3	3219128	34.42259	3381	3415.4	40000	8.93122	2479	2487.9	10000
	70	771926.4	3219119	34.90942	3381	3415.9	40000	9.08062	2479	2488.1	10000
	71	771890.8	3219114	34.79969	3381	3415.8	40000	9.07114	2479	2488.1	10000
	72	771774.8	3219106	37.79698	3381	3418.8	40000	9.22018	2479	2488.2	10000
	73	773060.3	3219101	31.44515	3381	3412.4	40000	7.46136	2479	2486.5	10000
	74	772980.3	3219072	32.08816	3381	3413.1	40000	7.6098	2479	2486.6	10000
	75	769906.6	3219055	34.42765	3381	3415.4	40000	8.37875	2479	2487.4	10000
	76	771844.3	3219030	36.76099	3381	3417.8	40000	9.34439	2479	2488.3	10000

Indeck Wharton Energy Center
AERMOD Predicted Impacts at Sensitive Receptors
1-hour and 8-hour CO

Radius from Site	Receptor ID	X	Y	1-HR CO (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)	8-HR CO (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)
	77	773197.9	3219017	28.42922	3381	3409.4	40000	6.7757	2479	2485.8	10000
	78	773229.2	3219014	27.8885	3381	3408.9	40000	6.65173	2479	2485.7	10000
	79	773030.2	3219001	30.65552	3381	3411.7	40000	7.28605	2479	2486.3	10000
	80	772975.6	3218999	31.3377	3381	3412.3	40000	7.44218	2479	2486.4	10000
	81	770173.6	3218999	36.51304	3381	3417.5	40000	9.00279	2479	2488.0	10000
	82	773322.7	3218967	25.62498	3381	3406.6	40000	6.6021	2479	2485.6	10000
	83	772980.3	3218959	30.79145	3381	3411.8	40000	7.31925	2479	2486.3	10000
	84	773272.4	3218926	25.81136	3381	3406.8	40000	6.66854	2479	2485.7	10000
	85	773349.4	3218918	25.76318	3381	3406.8	40000	6.90876	2479	2485.9	10000
	86	773040.4	3218913	29.33058	3381	3410.3	40000	6.98625	2479	2486.0	10000
	87	773328.7	3218900	25.86462	3381	3406.9	40000	6.95795	2479	2486.0	10000
	88	773313	3218889	25.87931	3381	3406.9	40000	6.97791	2479	2486.0	10000
	89	770182.2	3218883	38.56811	3381	3419.6	40000	9.43837	2479	2488.4	10000
	90	773339.7	3218875	26.35858	3381	3407.4	40000	7.09089	2479	2486.1	10000
	91	771715.6	3218872	42.06395	3381	3423.1	40000	10.51196	2479	2489.5	10000
	92	771892.9	3218776	38.28507	3381	3419.3	40000	10.45702	2479	2489.5	10000
	93	771812.5	3218759	39.80631	3381	3420.8	40000	10.61849	2479	2489.6	10000
	94	771624.9	3218735	45.57955	3381	3426.6	40000	11.47517	2479	2490.5	10000
	95	771943.3	3218719	38.20426	3381	3419.2	40000	10.28987	2479	2489.3	10000
	96	771812.9	3218708	39.94493	3381	3420.9	40000	10.87024	2479	2489.9	10000
	97	771879.4	3218708	38.86912	3381	3419.9	40000	10.74634	2479	2489.7	10000
	98	773337.6	3218693	28.17202	3381	3409.2	40000	7.67434	2479	2486.7	10000
	99	771843.8	3218682	39.42993	3381	3420.4	40000	10.96427	2479	2490.0	10000
	100	770228.4	3218677	42.75241	3381	3423.8	40000	10.51794	2479	2489.5	10000
	101	771827.3	3218640	39.83647	3381	3420.8	40000	11.17211	2479	2490.2	10000
	102	771700.3	3218608	45.91125	3381	3426.9	40000	11.90257	2479	2490.9	10000
	103	771818.5	3218449	41.08176	3381	3422.1	40000	11.87943	2479	2490.9	10000
	104	770251.7	3218378	50.16414	3381	3431.2	40000	12.38715	2479	2491.4	10000
	105	771830.5	3218356	46.30192	3381	3427.3	40000	11.94346	2479	2490.9	10000
	106	771736.1	3218352	44.69046	3381	3425.7	40000	12.52934	2479	2491.5	10000
	107	771837.5	3218306	49.18821	3381	3430.2	40000	12.74723	2479	2491.7	10000
	108	768603.9	3218174	29.93084	3381	3410.9	40000	7.91365	2479	2486.9	10000
	109	770066.5	3218164	53.3967	3381	3434.4	40000	12.95546	2479	2492.0	10000
	110	771742.5	3218126	49.91716	3381	3430.9	40000	13.55258	2479	2492.6	10000
	111	773356.5	3218109	22.36311	3381	3403.4	40000	5.61487	2479	2484.6	10000
	112	768605.6	3218099	30.46898	3381	3411.5	40000	7.57693	2479	2486.6	10000
	113	770230	3217867	67.03587	3381	3448.0	40000	16.17232	2479	2495.2	10000
	114	773889.4	3217742	31.01795	3381	3412.0	40000	7.44211	2479	2486.4	10000
	115	773472	3217611	39.31534	3381	3420.3	40000	8.91299	2479	2487.9	10000
	116	773685.4	3217609	35.61446	3381	3416.6	40000	7.99039	2479	2487.0	10000
	117	772848.5	3217552	40.17423	3381	3421.2	40000	9.77908	2479	2488.8	10000
	118	774127.8	3217541	34.7654	3381	3415.8	40000	8.35301	2479	2487.4	10000
	119	769828.5	3217528	55.22323	3381	3436.2	40000	14.31213	2479	2493.3	10000
	120	769556.7	3217426	31.28127	3381	3412.3	40000	9.8678	2479	2488.9	10000
	121	769076	3217405	28.76868	3381	3409.8	40000	7.88462	2479	2486.9	10000
	122	768563.6	3217384	27.89294	3381	3408.9	40000	6.92927	2479	2485.9	10000
	123	768673.3	3217119	35.86625	3381	3416.9	40000	8.37152	2479	2487.4	10000
	124	768581.1	3217068	35.53423	3381	3416.5	40000	8.23148	2479	2487.2	10000
	125	774452.8	3216171	31.99501	3381	3413.0	40000	8.9205	2479	2487.9	10000
	126	773624.4	3216082	27.72219	3381	3408.7	40000	8.33998	2479	2487.3	10000
	127	774381	3216032	32.71225	3381	3413.7	40000	9.16298	2479	2488.2	10000
	128	773937.7	3216021	29.95249	3381	3411.0	40000	8.90222	2479	2487.9	10000
	129	773544	3215991	25.85358	3381	3406.9	40000	8.09431	2479	2487.1	10000
	130	768536.1	3215973	59.57688	3381	3440.6	40000	14.45222	2479	2493.5	10000
	131	772826.4	3215942	39.09151	3381	3420.1	40000	12.39362	2479	2491.4	10000
	132	768978.8	3215786	74.07026	3381	3455.1	40000	18.02383	2479	2497.0	10000
	133	768644.9	3215776	70.58041	3381	3451.6	40000	17.07041	2479	2496.1	10000
	134	773583.4	3215310	33.94253	3381	3414.9	40000	8.76796	2479	2487.8	10000
	135	773451.3	3215211	38.38371	3381	3419.4	40000	8.93894	2479	2487.9	10000
	136	768782.6	3214951	67.14014	3381	3448.1	40000	16.23599	2479	2495.2	10000
	137	771988.4	3214946	56.52772	3381	3437.5	40000	14.9761	2479	2494.0	10000
	138	771997.7	3214715	47.70865	3381	3428.7	40000	12.67398	2479	2491.7	10000
	139	772003.2	3214401	44.24	3381	3425.2	40000	10.91822	2479	2489.9	10000
	140	772630.2	3214344	37.08554	3381	3418.1	40000	9.24626	2479	2488.2	10000
	141	769702.1	3214291	35.26214	3381	3416.3	40000	8.70792	2479	2487.7	10000
	142	770869.1	3214195	40.67155	3381	3421.7	40000	10.34765	2479	2489.3	10000

Indeck Wharton Energy Center
AERMOD Predicted Impacts at Sensitive Receptors
1-hour and 3-hour SO2

Radius from Site	Receptor ID	X	Y		1-HR SO2 (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)		3-HR SO2 (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)
< 1 mile	1	771756.2	3218047		0.49745	42.9	43.4	196		0.32423	55.0	55.3	1300
	2	771747.4	3217999		0.50752	42.9	43.4	196		0.32908	55.0	55.3	1300
	3	771843	3217994		0.527	42.9	43.4	196		0.31032	55.0	55.3	1300
	4	771734.2	3217973		0.51292	42.9	43.4	196		0.33919	55.0	55.3	1300
	5	771770.2	3217967		0.51958	42.9	43.4	196		0.32061	55.0	55.3	1300
	6	771845.6	3217955		0.54252	42.9	43.4	196		0.32762	55.0	55.3	1300
	7	771770	3217942		0.52963	42.9	43.4	196		0.32564	55.0	55.3	1300
	8	771778.4	3217902		0.55032	42.9	43.5	196		0.33809	55.0	55.3	1300
	9	771845.1	3217865		0.57042	42.9	43.5	196		0.36479	55.0	55.4	1300
	10	771848.1	3217839		0.57493	42.9	43.5	196		0.37523	55.0	55.4	1300
	11	771777.8	3217835		0.58322	42.9	43.5	196		0.36054	55.0	55.4	1300
	12	771841.3	3217810		0.58286	42.9	43.5	196		0.38644	55.0	55.4	1300
	13	771780.4	3217778		0.60717	42.9	43.5	196		0.39157	55.0	55.4	1300
	14	770237.2	3217775		0.8084	42.9	43.7	196		0.59447	55.0	55.6	1300
	15	771847.7	3217764		0.58291	42.9	43.5	196		0.40214	55.0	55.4	1300
	16	771772.3	3217746		0.61901	42.9	43.5	196		0.40623	55.0	55.4	1300
	17	771845.6	3217732		0.58397	42.9	43.5	196		0.41221	55.0	55.4	1300
	18	771842.6	3217707		0.58452	42.9	43.5	196		0.4198	55.0	55.4	1300
	19	771847.7	3217694		0.57881	42.9	43.5	196		0.4209	55.0	55.4	1300
	20	771786.7	3217689		0.62789	42.9	43.5	196		0.43676	55.0	55.4	1300
	21	771853.2	3217670		0.57128	42.9	43.5	196		0.42247	55.0	55.4	1300
	22	771771.9	3217645		0.64112	42.9	43.5	196		0.45738	55.0	55.5	1300
	23	771854	3217644		0.56906	42.9	43.5	196		0.42487	55.0	55.4	1300
	24	771773.6	3217602		0.63879	42.9	43.5	196		0.47482	55.0	55.5	1300
	25	771912.9	3217594		0.55558	42.9	43.5	196		0.41267	55.0	55.4	1300
	26	770985.2	3217576		1.07683	42.9	44.0	196		0.86858	55.0	55.9	1300
	27	771766.9	3217549		0.6347	42.9	43.5	196		0.49524	55.0	55.5	1300
	28	772091	3217524		0.54089	42.9	43.4	196		0.37983	55.0	55.4	1300
	29	771864	3217519		0.59222	42.9	43.5	196		0.44998	55.0	55.4	1300
	30	771190.2	3217511		1.2201	42.9	44.1	196		1.15139	55.0	56.2	1300
	31	771919.2	3217503		0.59855	42.9	43.5	196		0.4413	55.0	55.4	1300
	32	771785.9	3217501		0.60582	42.9	43.5	196		0.48935	55.0	55.5	1300
	33	771935.8	3217472		0.6079	42.9	43.5	196		0.4529	55.0	55.5	1300
	34	771769.5	3217442		0.61892	42.9	43.5	196		0.50529	55.0	55.5	1300
	35	771876.9	3217355		0.67005	42.9	43.6	196		0.5059	55.0	55.5	1300
	36	771855.8	3217338		0.67725	42.9	43.6	196		0.51973	55.0	55.5	1300
	37	771616.1	3217334		0.71036	42.9	43.6	196		0.64177	55.0	55.6	1300
	38	771908	3216801		0.53627	42.9	43.4	196		0.40249	55.0	55.4	1300
	39	771824	3216336		0.66486	42.9	43.6	196		0.65404	55.0	55.7	1300
	40	771922.5	3216151		0.77423	42.9	43.7	196		0.67992	55.0	55.7	1300
	41	772312.9	3216070		0.55864	42.9	43.5	196		0.53272	55.0	55.5	1300
	42	772336.2	3216054		0.55475	42.9	43.5	196		0.52559	55.0	55.5	1300
	43	772294.3	3216049		0.57233	42.9	43.5	196		0.5567	55.0	55.6	1300
	44	772107	3216019		0.74531	42.9	43.6	196		0.6032	55.0	55.6	1300
	45	771993.6	3216012		0.79557	42.9	43.7	196		0.70083	55.0	55.7	1300
	46	770629.3	3215936		0.60382	42.9	43.5	196		0.56077	55.0	55.6	1300
	47	771966.3	3215906		0.77525	42.9	43.7	196		0.62893	55.0	55.6	1300
	48	771439.9	3215879		0.85667	42.9	43.8	196		0.74685	55.0	55.7	1300
< 2 miles	49	770980.6	3219677		0.40643	42.9	43.3	196		0.27215	55.0	55.3	1300
	50	770020.9	3219475		0.39204	42.9	43.3	196		0.26984	55.0	55.3	1300
	51	773040.4	3219205		0.27389	42.9	43.2	196		0.18268	55.0	55.2	1300
	52	772480.1	3219181		0.32083	42.9	43.2	196		0.20176	55.0	55.2	1300
	53	772546.2	3219176		0.32034	42.9	43.2	196		0.18656	55.0	55.2	1300
	54	772373.4	3219172		0.33004	42.9	43.2	196		0.21979	55.0	55.2	1300
	55	772868.1	3219171		0.28905	42.9	43.2	196		0.17531	55.0	55.2	1300
	56	772333.9	3219170		0.33552	42.9	43.2	196		0.22426	55.0	55.2	1300
	57	772414.1	3219165		0.3232	42.9	43.2	196		0.21355	55.0	55.2	1300
	58	772253.2	3219165		0.34352	42.9	43.2	196		0.22874	55.0	55.2	1300
	59	772188.4	3219163		0.34678	42.9	43.2	196		0.22719	55.0	55.2	1300
	60	772131.3	3219155		0.35314	42.9	43.3	196		0.22233	55.0	55.2	1300
	61	772227.4	3219155		0.34572	42.9	43.2	196		0.22911	55.0	55.2	1300
	62	772104.6	3219152		0.35666	42.9	43.3	196		0.21889	55.0	55.2	1300
	63	772083	3219146		0.36225	42.9	43.3	196		0.21587	55.0	55.2	1300
	64	772284.1	3219144		0.34158	42.9	43.2	196		0.22832	55.0	55.2	1300
	65	772448.6	3219141		0.32278	42.9	43.2	196		0.20604	55.0	55.2	1300
	66	771977.9	3219136		0.39455	42.9	43.3	196		0.23141	55.0	55.2	1300
	67	773054.4	3219133		0.2698	42.9	43.2	196		0.18771	55.0	55.2	1300
	68	773112.8	3219132		0.26762	42.9	43.2	196		0.18766	55.0	55.2	1300
	69	771998.3	3219128		0.38859	42.9	43.3	196		0.22352	55.0	55.2	1300
	70	771926.4	3219119		0.40747	42.9	43.3	196		0.24899	55.0	55.2	1300
	71	771890.8	3219114		0.41327	42.9	43.3	196		0.26022	55.0	55.3	1300
	72	771774.8	3219106		0.45431	42.9	43.4	196		0.28697	55.0	55.3	1300
	73	773060.3	3219101		0.26896	42.9	43.2	196		0.18952	55.0	55.2	1300
	74	772980.3	3219072		0.27442	42.9	43.2	196		0.19046	55.0	55.2	1300
	75	769906.6	3219055		0.44619	42.9	43.3	196		0.30087	55.0	55.3	1300
	76	771844.3	3219030		0.43477	42.9	43.3	196		0.27406	55.0	55.3	1300

Indeck Wharton Energy Center
AERMOD Predicted Impacts at Sensitive Receptors
1-hour and 3-hour SO2

Radius from Site (km)	Receptor ID	X	Y	1-HR SO2 (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)	3-HR SO2 (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)
	77	773197.9	3219017	0.26755	42.9	43.2	196	0.18616	55.0	55.2	1300
	78	773229.2	3219014	0.26737	42.9	43.2	196	0.18373	55.0	55.2	1300
	79	773030.2	3219001	0.26961	42.9	43.2	196	0.1943	55.0	55.2	1300
	80	772975.6	3218999	0.27119	42.9	43.2	196	0.19485	55.0	55.2	1300
	81	770173.6	3218999	0.45601	42.9	43.4	196	0.32266	55.0	55.3	1300
	82	773322.7	3218967	0.26561	42.9	43.2	196	0.17274	55.0	55.2	1300
	83	772980.3	3218959	0.27078	42.9	43.2	196	0.19677	55.0	55.2	1300
	84	773272.4	3218926	0.26674	42.9	43.2	196	0.17635	55.0	55.2	1300
	85	773349.4	3218918	0.26304	42.9	43.2	196	0.16635	55.0	55.2	1300
	86	773040.4	3218913	0.27123	42.9	43.2	196	0.19608	55.0	55.2	1300
	87	773328.7	3218900	0.26358	42.9	43.2	196	0.16767	55.0	55.2	1300
	88	773313	3218889	0.2641	42.9	43.2	196	0.16893	55.0	55.2	1300
	89	770182.2	3218883	0.48332	42.9	43.4	196	0.34152	55.0	55.3	1300
	90	773339.7	3218875	0.26188	42.9	43.2	196	0.16418	55.0	55.2	1300
	91	771715.6	3218872	0.50172	42.9	43.4	196	0.30572	55.0	55.3	1300
	92	771892.9	3218776	0.42604	42.9	43.3	196	0.24882	55.0	55.2	1300
	93	771812.5	3218759	0.45914	42.9	43.4	196	0.28169	55.0	55.3	1300
	94	771624.9	3218735	0.55709	42.9	43.5	196	0.32047	55.0	55.3	1300
	95	771943.3	3218719	0.4112	42.9	43.3	196	0.22101	55.0	55.2	1300
	96	771812.9	3218708	0.45834	42.9	43.4	196	0.27971	55.0	55.3	1300
	97	771879.4	3218708	0.43253	42.9	43.3	196	0.2502	55.0	55.3	1300
	98	773337.6	3218693	0.25562	42.9	43.2	196	0.14467	55.0	55.1	1300
	99	771843.8	3218682	0.44194	42.9	43.3	196	0.26499	55.0	55.3	1300
	100	770228.4	3218677	0.52995	42.9	43.4	196	0.37881	55.0	55.4	1300
	101	771827.3	3218640	0.4474	42.9	43.3	196	0.26972	55.0	55.3	1300
	102	771700.3	3218608	0.53466	42.9	43.4	196	0.31445	55.0	55.3	1300
	103	771818.5	3218449	0.45424	42.9	43.4	196	0.27963	55.0	55.3	1300
	104	770251.7	3218378	0.60766	42.9	43.5	196	0.41414	55.0	55.4	1300
	105	771830.5	3218356	0.45393	42.9	43.4	196	0.27743	55.0	55.3	1300
	106	771736.1	3218352	0.49306	42.9	43.4	196	0.32062	55.0	55.3	1300
	107	771837.5	3218306	0.4525	42.9	43.4	196	0.27352	55.0	55.3	1300
	108	768603.9	3218174	0.34986	42.9	43.2	196	0.23298	55.0	55.2	1300
	109	770066.5	3218164	0.63339	42.9	43.5	196	0.45497	55.0	55.5	1300
	110	771742.5	3218126	0.48165	42.9	43.4	196	0.33544	55.0	55.3	1300
	111	773356.5	3218109	0.23661	42.9	43.1	196	0.12569	55.0	55.1	1300
	112	768605.6	3218099	0.34169	42.9	43.2	196	0.22442	55.0	55.2	1300
	113	770230	3217867	0.76764	42.9	43.7	196	0.5731	55.0	55.6	1300
	114	773889.4	3217742	0.31187	42.9	43.2	196	0.13583	55.0	55.1	1300
	115	773472	3217611	0.33633	42.9	43.2	196	0.14365	55.0	55.1	1300
	116	773685.4	3217609	0.32325	42.9	43.2	196	0.14006	55.0	55.1	1300
	117	772848.5	3217552	0.3493	42.9	43.2	196	0.19345	55.0	55.2	1300
	118	774127.8	3217541	0.31865	42.9	43.2	196	0.16413	55.0	55.2	1300
	119	769828.5	3217528	0.46642	42.9	43.4	196	0.31049	55.0	55.3	1300
	120	769556.7	3217426	0.34003	42.9	43.2	196	0.24075	55.0	55.2	1300
	121	769076	3217405	0.31003	42.9	43.2	196	0.18728	55.0	55.2	1300
	122	768563.6	3217384	0.31243	42.9	43.2	196	0.18531	55.0	55.2	1300
	123	768673.3	3217119	0.34947	42.9	43.2	196	0.27294	55.0	55.3	1300
	124	768581.1	3217068	0.35184	42.9	43.3	196	0.27485	55.0	55.3	1300
	125	774452.8	3216171	0.35559	42.9	43.3	196	0.15284	55.0	55.2	1300
	126	773624.4	3216082	0.3169	42.9	43.2	196	0.15751	55.0	55.2	1300
	127	774381	3216032	0.34721	42.9	43.2	196	0.14005	55.0	55.1	1300
	128	773937.7	3216021	0.32122	42.9	43.2	196	0.1326	55.0	55.1	1300
	129	773544	3215991	0.30102	42.9	43.2	196	0.15767	55.0	55.2	1300
	130	768536.1	3215973	0.38969	42.9	43.3	196	0.22857	55.0	55.2	1300
	131	772826.4	3215942	0.4074	42.9	43.3	196	0.29696	55.0	55.3	1300
	132	768978.8	3215786	0.46716	42.9	43.4	196	0.24418	55.0	55.2	1300
	133	768644.9	3215776	0.42663	42.9	43.3	196	0.24149	55.0	55.2	1300
	134	773583.4	3215310	0.33351	42.9	43.2	196	0.22797	55.0	55.2	1300
	135	773451.3	3215211	0.33798	42.9	43.2	196	0.29659	55.0	55.3	1300
	136	768782.6	3214951	0.37691	42.9	43.3	196	0.20842	55.0	55.2	1300
	137	771988.4	3214946	0.63896	42.9	43.5	196	0.46196	55.0	55.5	1300
	138	771997.7	3214715	0.58391	42.9	43.5	196	0.41399	55.0	55.4	1300
	139	772003.2	3214401	0.51644	42.9	43.4	196	0.39103	55.0	55.4	1300
	140	772630.2	3214344	0.47736	42.9	43.4	196	0.33316	55.0	55.3	1300
	141	769702.1	3214291	0.4005	42.9	43.3	196	0.30544	55.0	55.3	1300
	142	770869.1	3214195	0.40492	42.9	43.3	196	0.27516	55.0	55.3	1300

Indeck Wharton Energy Center
AERMOD Predicted Impacts at Sensitive Receptors
24-hour and Annual SO2

Radius from Site	Receptor ID	X	Y		24-HR SO2 (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)		Annual SO2 (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)
< 1 mile	1	771756.2	3218047		0.14744	12.3	12.4	365		0.00285	7.3	7.3	80
	2	771747.4	3217999		0.14923	12.3	12.4	365		0.00291	7.3	7.3	80
	3	771843	3217994		0.12434	12.3	12.4	365		0.00253	7.3	7.3	80
	4	771734.2	3217973		0.15223	12.3	12.5	365		0.00298	7.3	7.3	80
	5	771770.2	3217967		0.14312	12.3	12.4	365		0.00283	7.3	7.3	80
	6	771845.6	3217955		0.12222	12.3	12.4	365		0.00253	7.3	7.3	80
	7	771770	3217942		0.14274	12.3	12.4	365		0.00284	7.3	7.3	80
	8	771778.4	3217902		0.13947	12.3	12.4	365		0.00282	7.3	7.3	80
	9	771845.1	3217865		0.11942	12.3	12.4	365		0.00255	7.3	7.3	80
	10	771848.1	3217839		0.12017	12.3	12.4	365		0.00254	7.3	7.3	80
	11	771777.8	3217835		0.13749	12.3	12.4	365		0.00284	7.3	7.3	80
	12	771841.3	3217810		0.12237	12.3	12.4	365		0.00257	7.3	7.3	80
	13	771780.4	3217778		0.13413	12.3	12.4	365		0.00284	7.3	7.3	80
	14	770237.2	3217775		0.29679	12.3	12.6	365		0.00457	7.3	7.3	80
	15	771847.7	3217764		0.1227	12.3	12.4	365		0.00254	7.3	7.3	80
	16	771772.3	3217746		0.13548	12.3	12.4	365		0.00288	7.3	7.3	80
	17	771845.6	3217732		0.12371	12.3	12.4	365		0.00255	7.3	7.3	80
	18	771842.6	3217707		0.12462	12.3	12.4	365		0.00256	7.3	7.3	80
	19	771847.7	3217694		0.12345	12.3	12.4	365		0.00253	7.3	7.3	80
	20	771786.7	3217689		0.13677	12.3	12.4	365		0.00281	7.3	7.3	80
	21	771853.2	3217670		0.12203	12.3	12.4	365		0.0025	7.3	7.3	80
	22	771771.9	3217645		0.14165	12.3	12.4	365		0.00288	7.3	7.3	80
	23	771854	3217644		0.1255	12.3	12.4	365		0.00249	7.3	7.3	80
	24	771773.6	3217602		0.14258	12.3	12.4	365		0.00286	7.3	7.3	80
	25	771912.9	3217594		0.12753	12.3	12.4	365		0.00224	7.3	7.3	80
	26	770985.2	3217576		0.33576	12.3	12.6	365		0.00993	7.3	7.3	80
	27	771766.9	3217549		0.14465	12.3	12.4	365		0.00288	7.3	7.3	80
	28	772091	3217524		0.10335	12.3	12.4	365		0.00169	7.3	7.3	80
	29	771864	3217519		0.13778	12.3	12.4	365		0.00239	7.3	7.3	80
	30	771190.2	3217511		0.40559	12.3	12.7	365		0.00685	7.3	7.3	80
	31	771919.2	3217503		0.12868	12.3	12.4	365		0.00217	7.3	7.3	80
	32	771785.9	3217501		0.14444	12.3	12.4	365		0.00275	7.3	7.3	80
	33	771935.8	3217472		0.1285	12.3	12.4	365		0.00209	7.3	7.3	80
	34	771769.5	3217442		0.15241	12.3	12.5	365		0.0028	7.3	7.3	80
	35	771876.9	3217355		0.14118	12.3	12.4	365		0.0022	7.3	7.3	80
	36	771855.8	3217338		0.14507	12.3	12.4	365		0.00227	7.3	7.3	80
	37	771616.1	3217334		0.18825	12.3	12.5	365		0.00375	7.3	7.3	80
	38	771908	3216801		0.13196	12.3	12.4	365		0.00146	7.3	7.3	80
	39	771824	3216336		0.20809	12.3	12.5	365		0.00183	7.3	7.3	80
	40	771922.5	3216151		0.23542	12.3	12.5	365		0.00201	7.3	7.3	80
	41	772312.9	3216070		0.17284	12.3	12.5	365		0.00142	7.3	7.3	80
	42	772336.2	3216054		0.17161	12.3	12.5	365		0.0014	7.3	7.3	80
	43	772294.3	3216049		0.17926	12.3	12.5	365		0.00146	7.3	7.3	80
	44	772107	3216019		0.19178	12.3	12.5	365		0.00181	7.3	7.3	80
	45	771993.6	3216012		0.19597	12.3	12.5	365		0.0021	7.3	7.3	80
	46	770629.3	3215936		0.17031	12.3	12.5	365		0.00175	7.3	7.3	80
	47	771966.3	3215906		0.25267	12.3	12.6	365		0.00243	7.3	7.3	80
	48	771439.9	3215879		0.26955	12.3	12.6	365		0.0039	7.3	7.3	80
< 2 miles	49	770980.6	3219677		0.14581	12.3	12.4	365		0.00299	7.3	7.3	80
	50	770020.9	3219475		0.1255	12.3	12.4	365		0.00356	7.3	7.3	80
	51	773040.4	3219205		0.03782	12.3	12.3	365		0.00089	7.3	7.3	80
	52	772480.1	3219181		0.06788	12.3	12.4	365		0.00124	7.3	7.3	80
	53	772546.2	3219176		0.06548	12.3	12.4	365		0.00119	7.3	7.3	80
	54	772373.4	3219172		0.07071	12.3	12.4	365		0.00134	7.3	7.3	80
	55	772868.1	3219171		0.04779	12.3	12.3	365		0.00097	7.3	7.3	80
	56	772333.9	3219170		0.07137	12.3	12.4	365		0.00139	7.3	7.3	80
	57	772414.1	3219165		0.06995	12.3	12.4	365		0.00131	7.3	7.3	80
	58	772253.2	3219165		0.07207	12.3	12.4	365		0.00148	7.3	7.3	80
	59	772188.4	3219163		0.07785	12.3	12.4	365		0.00155	7.3	7.3	80
	60	772131.3	3219155		0.0845	12.3	12.4	365		0.00163	7.3	7.3	80
	61	772227.4	3219155		0.07333	12.3	12.4	365		0.00151	7.3	7.3	80
	62	772104.6	3219152		0.08764	12.3	12.4	365		0.00166	7.3	7.3	80
	63	772083	3219146		0.09019	12.3	12.4	365		0.00169	7.3	7.3	80
	64	772284.1	3219144		0.07239	12.3	12.4	365		0.00144	7.3	7.3	80
	65	772449.6	3219141		0.06923	12.3	12.4	365		0.00127	7.3	7.3	80
	66	771977.9	3219136		0.10208	12.3	12.4	365		0.00185	7.3	7.3	80
	67	773054.4	3219133		0.03504	12.3	12.3	365		0.00088	7.3	7.3	80
	68	773112.8	3219132		0.03374	12.3	12.3	365		0.00086	7.3	7.3	80
	69	771998.3	3219128		0.09998	12.3	12.4	365		0.00182	7.3	7.3	80
	70	771926.4	3219119		0.10753	12.3	12.4	365		0.00193	7.3	7.3	80
	71	771890.8	3219114		0.11085	12.3	12.4	365		0.00198	7.3	7.3	80
	72	771774.8	3219106		0.11842	12.3	12.4	365		0.00217	7.3	7.3	80
	73	773060.3	3219101		0.03489	12.3	12.3	365		0.00088	7.3	7.3	80
	74	772980.3	3219072		0.03799	12.3	12.3	365		0.00091	7.3	7.3	80
	75	769906.6	3219055		0.15564	12.3	12.5	365		0.00366	7.3	7.3	80
	76	771844.3	3219030		0.11672	12.3	12.4	365		0.00209	7.3	7.3	80

Indeck Wharton Energy Center
AERMOD Predicted Impacts at Sensitive Receptors
24-hour and Annual SO2

Distance from Site	Receptor ID	X	Y	24-HR SO2 (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)	Annual SO2 (µg/m3)	Ambient Background (µg/m3)	Total Concentration (µg/m3)	NAAQS (µg/m3)
	77	773197.9	3219017	0.0329	12.3	12.3	365	0.00082	7.3	7.3	80
	78	773229.2	3219014	0.03214	12.3	12.3	365	0.00081	7.3	7.3	80
	79	773030.2	3219001	0.03635	12.3	12.3	365	0.00089	7.3	7.3	80
	80	772975.6	3218999	0.03744	12.3	12.3	365	0.00091	7.3	7.3	80
	81	770173.6	3218999	0.14162	12.3	12.4	365	0.00413	7.3	7.3	80
	82	773322.7	3218967	0.02938	12.3	12.3	365	0.00077	7.3	7.3	80
	83	772980.3	3218959	0.0376	12.3	12.3	365	0.00091	7.3	7.3	80
	84	773272.4	3218926	0.03064	12.3	12.3	365	0.00079	7.3	7.3	80
	85	773349.4	3218918	0.02848	12.3	12.3	365	0.00076	7.3	7.3	80
	86	773040.4	3218913	0.03698	12.3	12.3	365	0.00088	7.3	7.3	80
	87	773328.7	3218900	0.02884	12.3	12.3	365	0.00077	7.3	7.3	80
	88	773313	3218889	0.02911	12.3	12.3	365	0.00077	7.3	7.3	80
	89	770182.2	3218883	0.14398	12.3	12.4	365	0.00425	7.3	7.3	80
	90	773339.7	3218875	0.02889	12.3	12.3	365	0.00076	7.3	7.3	80
	91	771715.6	3218872	0.12927	12.3	12.4	365	0.0024	7.3	7.3	80
	92	771892.9	3218776	0.11673	12.3	12.4	365	0.00209	7.3	7.3	80
	93	771812.5	3218759	0.12654	12.3	12.4	365	0.00226	7.3	7.3	80
	94	771624.9	3218735	0.13603	12.3	12.4	365	0.00269	7.3	7.3	80
	95	771943.3	3218719	0.11012	12.3	12.4	365	0.00201	7.3	7.3	80
	96	771812.9	3218708	0.12778	12.3	12.4	365	0.00229	7.3	7.3	80
	97	771879.4	3218708	0.11946	12.3	12.4	365	0.00215	7.3	7.3	80
	98	773337.6	3218693	0.03164	12.3	12.3	365	0.00076	7.3	7.3	80
	99	771843.8	3218682	0.12465	12.3	12.4	365	0.00223	7.3	7.3	80
	100	770228.4	3218677	0.16091	12.3	12.5	365	0.00452	7.3	7.3	80
	101	771827.3	3218640	0.12766	12.3	12.4	365	0.00229	7.3	7.3	80
	102	771700.3	3218608	0.14098	12.3	12.4	365	0.00262	7.3	7.3	80
	103	771818.5	3218449	0.13249	12.3	12.4	365	0.00242	7.3	7.3	80
	104	770251.7	3218378	0.21606	12.3	12.5	365	0.00483	7.3	7.3	80
	105	771830.5	3218356	0.1315	12.3	12.4	365	0.00243	7.3	7.3	80
	106	771736.1	3218352	0.14704	12.3	12.4	365	0.00272	7.3	7.3	80
	107	771837.5	3218306	0.13037	12.3	12.4	365	0.00244	7.3	7.3	80
	108	768603.9	3218174	0.07545	12.3	12.4	365	0.00138	7.3	7.3	80
	109	770066.5	3218164	0.24303	12.3	12.5	365	0.00411	7.3	7.3	80
	110	771742.5	3218126	0.15048	12.3	12.5	365	0.00286	7.3	7.3	80
	111	773356.5	3218109	0.03246	12.3	12.3	365	0.0007	7.3	7.3	80
	112	768605.6	3218099	0.0711	12.3	12.4	365	0.00138	7.3	7.3	80
	113	770230	3217867	0.29554	12.3	12.6	365	0.00466	7.3	7.3	80
	114	773889.4	3217742	0.03898	12.3	12.3	365	0.00062	7.3	7.3	80
	115	773472	3217611	0.0473	12.3	12.3	365	0.00068	7.3	7.3	80
	116	773685.4	3217609	0.04317	12.3	12.3	365	0.00065	7.3	7.3	80
	117	772848.5	3217552	0.05195	12.3	12.4	365	0.00085	7.3	7.3	80
	118	774127.8	3217541	0.03214	12.3	12.3	365	0.00062	7.3	7.3	80
	119	769828.5	3217528	0.11255	12.3	12.4	365	0.00244	7.3	7.3	80
	120	769556.7	3217426	0.10186	12.3	12.4	365	0.00193	7.3	7.3	80
	121	769076	3217405	0.09193	12.3	12.4	365	0.00143	7.3	7.3	80
	122	768563.6	3217384	0.07031	12.3	12.4	365	0.00111	7.3	7.3	80
	123	768673.3	3217119	0.05379	12.3	12.4	365	0.00101	7.3	7.3	80
	124	768581.1	3217068	0.04744	12.3	12.3	365	0.00094	7.3	7.3	80
	125	774452.8	3216171	0.02886	12.3	12.3	365	0.0006	7.3	7.3	80
	126	773624.4	3216082	0.0455	12.3	12.3	365	0.00069	7.3	7.3	80
	127	774381	3216032	0.03179	12.3	12.3	365	0.0006	7.3	7.3	80
	128	773937.7	3216021	0.03884	12.3	12.3	365	0.00065	7.3	7.3	80
	129	773544	3215991	0.05026	12.3	12.4	365	0.00073	7.3	7.3	80
	130	768536.1	3215973	0.07164	12.3	12.4	365	0.00079	7.3	7.3	80
	131	772826.4	3215942	0.11084	12.3	12.4	365	0.00101	7.3	7.3	80
	132	768978.8	3215786	0.06009	12.3	12.4	365	0.00086	7.3	7.3	80
	133	768644.9	3215776	0.05411	12.3	12.4	365	0.00081	7.3	7.3	80
	134	773583.4	3215310	0.08873	12.3	12.4	365	0.00078	7.3	7.3	80
	135	773451.3	3215211	0.09366	12.3	12.4	365	0.00083	7.3	7.3	80
	136	768782.6	3214951	0.04667	12.3	12.3	365	0.00077	7.3	7.3	80
	137	771988.4	3214946	0.18878	12.3	12.5	365	0.00275	7.3	7.3	80
	138	771997.7	3214715	0.17925	12.3	12.5	365	0.00258	7.3	7.3	80
	139	772003.2	3214401	0.18554	12.3	12.5	365	0.00238	7.3	7.3	80
	140	772630.2	3214344	0.13826	12.3	12.4	365	0.00183	7.3	7.3	80
	141	769702.1	3214291	0.12609	12.3	12.4	365	0.00082	7.3	7.3	80
	142	770869.1	3214195	0.08976	12.3	12.4	365	0.00105	7.3	7.3	80

EXHIBIT 2-D.

Tetra Tech Air Dispersion Modeling Results
for Air Contaminants Having
TCEQ Effects Screening Levels

Pollutant / Avg. Period	Sensitive Receptors									MAX
	43 Church	52 Barnes	64 Ocanas	80 Gonzales	94 Holub	110 O'Campo	120 Christensen	128 Shaer	141 Mikalk	
NO2										
1-hour	6.22E+00	3.49E+00	3.59E+00	3.84E+00	6.03E+00	5.23E+00	3.69E+00	3.89E+00	4.33E+00	6.22E+00
Annual	2.06E-02	1.55E-02	1.68E-02	2.05E-02	3.15E-02	3.70E-02	2.94E-02	6.65E-03	1.27E-02	3.70E-02
PM2.5										
24-hour	2.18E-01	9.56E-02	1.02E-01	1.17E-01	1.90E-01	2.17E-01	1.53E-01	4.82E-02	1.44E-01	2.18E-01
Annual	2.58E-03	2.47E-03	2.68E-03	3.28E-03	5.78E-03	6.03E-03	4.02E-03	1.06E-03	2.33E-03	6.03E-03
PM10										
24-hour	3.49E-01	9.83E-02	1.15E-01	1.68E-01	2.70E-01	2.99E-01	1.47E-01	5.56E-02	7.44E-02	3.49E-01
CO										
1-hour	5.60E+01	3.37E+01	3.42E+01	3.20E+01	4.56E+01	4.99E+01	3.13E+01	3.20E+01	3.53E+01	5.60E+01
8-hour	1.79E+01	7.98E+00	7.95E+00	8.32E+00	1.15E+01	1.36E+01	9.87E+00	8.92E+00	8.71E+00	1.79E+01
SO2										
1-hour	5.72E-01	3.21E-01	3.30E-01	3.53E-01	5.57E-01	4.82E-01	3.40E-01	3.56E-01	4.01E-01	5.72E-01
3-hour	5.57E-01	2.02E-01	2.20E-01	2.22E-01	3.20E-01	3.35E-01	2.41E-01	1.53E-01	3.05E-01	5.57E-01
24-hour	1.79E-01	6.79E-02	7.07E-02	8.45E-02	1.36E-01	1.50E-01	1.02E-01	2.89E-02	1.26E-01	1.79E-01
Annual	1.46E-03	1.24E-03	1.34E-03	1.63E-03	2.69E-03	2.86E-03	1.93E-03	6.00E-04	8.20E-04	2.86E-03
SO2										
30-min	7.42E-01	4.40E-01	4.54E-01	4.24E-01	6.05E-01	6.61E-01	4.14E-01	4.12E-01	4.68E-01	7.42E-01
H2SO4										
1-hour	5.63E-02	3.34E-02	3.45E-02	3.22E-02	4.59E-02	5.02E-02	3.14E-02	3.13E-02	3.55E-02	5.63E-02
24-hour	1.37E-02	5.19E-03	5.41E-03	6.46E-03	1.04E-02	1.15E-02	7.79E-03	2.21E-03	9.64E-03	1.37E-02
Acetaldehyde										
1-hour	3.34E-02	1.86E-02	1.88E-02	1.96E-02	2.30E-02	2.91E-02	2.60E-02	1.68E-02	1.83E-02	3.34E-02
Annual	5.59E-06	3.07E-06	3.30E-06	4.10E-06	5.45E-06	8.12E-06	7.96E-06	1.76E-06	4.60E-06	8.12E-06
Acrolein										
1-hour	4.09E-03	2.29E-03	2.32E-03	2.41E-03	2.83E-03	3.56E-03	3.19E-03	2.08E-03	2.26E-03	4.09E-03
Annual	7.05E-07	3.88E-07	4.18E-07	5.19E-07	6.92E-07	1.03E-06	1.00E-06	2.21E-07	5.77E-07	1.03E-06
Benzene										
1-hour	4.85E-02	3.02E-02	3.05E-02	3.15E-02	3.61E-02	4.34E-02	3.96E-02	2.81E-02	2.99E-02	4.85E-02
Annual	1.14E-05	6.49E-06	7.04E-06	6.74E-06	1.19E-05	1.68E-05	1.65E-05	3.60E-06	8.88E-06	1.68E-05
Formaldehyde										
1-hour	5.19E-02	2.90E-02	2.94E-02	3.05E-02	3.59E-02	4.52E-02	4.04E-02	2.63E-02	2.86E-02	5.19E-02
Annual	8.86E-06	4.87E-06	5.25E-06	6.51E-06	8.68E-06	1.29E-05	1.26E-05	2.78E-06	7.26E-06	1.29E-05
Napthalene										
1-hour	5.03E-03	3.35E-03	3.38E-03	3.47E-03	3.92E-03	4.58E-03	4.24E-03	3.15E-03	3.32E-03	5.03E-03
Annual	1.40E-06	8.09E-07	8.81E-07	1.09E-06	1.50E-06	2.09E-06	2.05E-06	4.43E-07	1.07E-06	2.09E-06
PAH										
1-hour	9.50E-03	6.17E-03	6.23E-03	6.41E-03	7.27E-03	8.59E-03	7.91E-03	5.79E-03	6.12E-03	9.50E-03
Annual	2.49E-06	1.43E-06	1.56E-06	1.94E-06	2.64E-06	3.71E-06	3.64E-06	7.89E-07	1.92E-06	3.71E-06
Propylene										
1-hour	1.95E-01	1.24E-01	1.26E-01	1.29E-01	1.47E-01	1.75E-01	1.61E-01	1.16E-01	1.23E-01	1.95E-01
Annual	4.89E-05	2.80E-05	3.06E-05	3.78E-05	5.16E-05	7.26E-05	7.13E-05	1.55E-05	3.78E-05	7.26E-05
Toluene										
1-hour	2.06E-02	1.26E-02	1.28E-02	1.32E-02	1.52E-02	1.84E-02	1.67E-02	1.17E-02	1.25E-02	2.06E-02
Annual	4.62E-06	2.62E-06	2.85E-06	3.53E-06	4.79E-06	6.83E-06	6.70E-06	1.46E-06	3.63E-06	6.83E-06
Xylene										
1-hour	1.44E-02	8.78E-03	8.87E-03	9.16E-03	1.05E-02	1.26E-02	1.16E-02	8.13E-03	8.69E-03	1.44E-02
Annual	3.21E-06	1.82E-06	1.97E-06	2.45E-06	3.32E-06	4.74E-06	4.65E-06	1.01E-06	2.52E-06	4.74E-06
Arsenic										
1-hour	2.48E-06	1.57E-06	1.59E-06	1.64E-06	1.87E-06	2.23E-06	2.04E-06	1.47E-06	1.56E-06	2.48E-06
Annual	6.10E-10	3.49E-10	3.80E-10	4.71E-10	6.42E-10	9.06E-10	8.89E-10	1.93E-10	4.73E-10	9.06E-10
Cadmium										
1-hour	2.76E-07	1.75E-07	1.77E-07	1.82E-07	2.08E-07	2.48E-07	2.27E-07	1.63E-07	1.73E-07	2.76E-07
Annual	6.78E-11	3.88E-11	4.22E-11	5.24E-11	7.13E-11	1.01E-10	9.88E-11	2.15E-11	5.26E-11	1.01E-10
Chromium										
1-hour	6.66E-04	4.22E-04	4.27E-04	4.39E-04	5.01E-04	5.98E-04	5.49E-04	3.94E-04	4.18E-04	6.66E-04
Annual	1.64E-07	9.38E-08	1.02E-07	1.27E-07	1.72E-07	2.43E-07	2.39E-07	5.19E-08	1.27E-07	2.43E-07
Mercury										
1-hour	5.54E-07	3.51E-07	3.54E-07	3.65E-07	4.17E-07	4.97E-07	4.56E-07	3.27E-07	3.48E-07	5.54E-07
Annual	1.36E-10	7.79E-11	8.47E-11	1.05E-10	1.43E-10	2.02E-10	1.98E-10	4.31E-11	1.06E-10	2.02E-10
Nickel										
1-hour	7.95E-06	5.04E-06	5.09E-06	5.24E-06	5.99E-06	7.14E-06	6.55E-06	4.70E-06	4.99E-06	7.95E-06
Annual	1.96E-09	1.12E-09	1.22E-09	1.51E-09	2.06E-09	2.90E-09	2.85E-09	6.19E-10	1.52E-09	2.90E-09
Selenium										
1-hour	1.38E-05	8.74E-06	8.83E-06	9.09E-06	1.04E-05	1.24E-05	1.14E-05	8.16E-06	8.66E-06	1.38E-05
Annual	3.39E-09	1.94E-09	2.11E-09	2.62E-09	3.57E-09	5.03E-09	4.94E-09	1.07E-09	2.63E-09	5.03E-09
Lead										
1-hour	4.1384E-05	2.62341E-05	2.64935E-05	2.72732E-05	3.114E-05	3.71627E-05	3.40786E-05	2.44687E-05	2.59867E-05	4.14E-05

EXHIBIT 2-E.

Emissions Impact Analysis Tables

Table 1. Emissions Impact Analysis for Air Contaminants Having NAAQS (at any Sensitive Receptor*)

Air Contaminant	Averaging Time	Maximum Impact at Any Receptor (ug/m3)	NAAQS for Air Contaminant (ug/m3)	Maximum Impact as a Percentage of NAAQS
carbon monoxide	1-hr	56	40,000	0.14%
carbon monoxide	8-hr	17.9	10,000	0.18%
lead**	3-month	4.14E-05	0.15	0.028%
nitrogen dioxide	1-hr	6.22	188	3.31%
nitrogen dioxide	Annual	0.037	100	0.04%
PM10	24-hr	0.349	150	0.23%
PM2.5	24-hr	0.218	35	0.63%
PM2.5	Annual	0.006	12	0.050%
sulfur dioxide	1-hr	0.572	196	0.29%
sulfur dioxide	3-hr	0.557	1,300	0.043%
sulfur dioxide	24-hr	0.179	365	0.049%
sulfur dioxide	Annual	0.0029	80	0.0036%

* The sensitive receptors included the Requestors' residences within two miles and the Danevang Lutheran Church

** The predicted 1-hr average lead impact (which would be greater than a 3-month average) was compared to the NAAQS 3-month average. Thus the percentage of the NAAQS would be even smaller in actuality.

Table 2. Emissions Impact Analysis for Air Contaminants Having State of Texas Standards (at any Sensitive Receptor*)

Air Contaminant	Averaging Time	Maximum Predicted Impact at the Receptors (ug/m3)	NGLC for Air Contaminant (ug/m3)	Maximum Impact as a Percentage of the NGLC
sulfur dioxide	30-min	0.742	1,021	0.07%
sulfuric acid	1-hr	0.0563	50	0.11%
sulfuric acid	24-hr	0.0137	15	0.09%

* The sensitive receptors included the Requestors' residences within two miles and the Danevang Lutheran Church

Table 3. Emissions Impact Analysis for Air Contaminants Having ESLs (Sensitive Receptors)

Air Contaminant	Averaging Time	Maximum Predicted Impact at any Receptor (ug/m3)	ESL for Air Contaminant (ug/m3)	Maximum Impact as Percentage of ESL
acetaldehyde	1-hr	3.3E-02	15	0.22%
acetaldehyde	annual	8.1E-06	45	0.000018%
Acrolein	1-hr	4.1E-03	3.2	0.13%
Acrolein	annual	1.0E-06	0.15	0.00067%
Arsenic	1-hr	2.5E-06	3	0.000083%
Arsenic	annual	9.1E-10	0.067	0.0000014%
Benzene	1-hr	4.9E-02	170	0.028%
Benzene	annual	1.7E-05	4.5	0.00038%
Beryllium	1-hr	0.0E+00	0.02	0.0000%
Beryllium	annual	0.0E+00	0.002	0.0000%
Cadmium	1-hr	2.8E-07	0.1	0.00028%
Cadmium	annual	1.0E-10	0.01	0.0000010%
Chromium	1-hr	6.7E-04	3.6	0.019%
Chromium	annual	2.4E-07	0.041	0.0006%
Cobalt	1-hr	0.0E+00	0.2	0.0000%
Cobalt	annual	0.0E+00	0.02	0.0000%
formaldehyde	1-hr	5.2E-02	15	0.35%
formaldehyde	annual	1.3E-05	3.3	0.00039%
Mercury	1-hr	5.5E-07	0.1	0.00055%
Mercury	annual	2.0E-10	0.01	0.0000020%
Naphthalene	1-hr	5.0E-02	200	0.025%
Naphthalene	annual	2.1E-06	50	0.0000042%
Nickel	1-hr	8.0E-06	0.33	0.0024%
Nickel	annual	2.9E-09	0.059	0.0000049%
PAHs	1-hr	9.5E-03	0.5	1.90%
PAHs	annual	3.7E-06	0.05	0.0074%
propylene*	1-hr	2.0E-01	70	0.29%
propylene*	annual	7.3E-05	7	0.0010%
Selenium	1-hr	1.4E-05	2	0.00070%
Selenium	annual	5.0E-09	0.2	0.0000025%
Toluene	1-hr	2.1E-02	640	0.0032%
Toluene	annual	6.8E-06	1200	0.00000057%
Xylene	1-hr	1.4E-02	350	0.0041%
Xylene	annual	4.7E-06	180	0.0000026%

*ESL for propylene oxide conservatively used in analysis

Table 4. Emissions Impact Analysis for Air Contaminants Having NAAQS (at the Church)

Air Contaminant	Averaging Time	Maximum Impact at the Church (ug/m3)	NAAQS for Air Contaminant (ug/m3)	Maximum Impact as a Percentage of NAAQS
carbon monoxide	1-hr	56	40,000	0.14%
carbon monoxide	8-hr	17.9	10,000	0.18%
lead*	3-month	4.14E-05	0.15	0.028%
nitrogen dioxide	1-hr	6.22	188	3.31%
nitrogen dioxide	Annual	0.02	100	0.020%
PM10	24-hr	0.349	150	0.23%
PM2.5	24-hr	0.218	35	0.63%
PM2.5	Annual	0.0026	12	0.021%
sulfur dioxide	1-hr	0.572	196	0.29%
sulfur dioxide	3-hr	0.557	1,300	0.043%
sulfur dioxide	24-hr	0.179	365	0.049%
sulfur dioxide	Annual	0.0015	80	0.0019%

* The predicted 1-hr average lead impact (which would be greater than a 3-month average) was compared to the NAAQS 3-month average. Thus the percentage of the NAAQS would be even smaller in actuality.

Table 5. Emissions Impact Analysis for Air Contaminants Having State of Texas Standards (at the Church)

Air Contaminant	Averaging Time	Maximum Predicted Impact at the Church (ug/m3)	NGLC for Air Contaminant (ug/m3)	Maximum Impact as a Percentage of the NGLC
sulfur dioxide	30-min	0.742	1,021	0.07%
sulfuric acid	1-hr	0.0563	50	0.11%
sulfuric acid	24-hr	0.0137	15	0.09%

Table 6. Emissions Impact Analysis for Air Contaminants Having ESLs (at the Church)

Air Contaminant	Averaging Time	Maximum Predicted Impact at the Church (ug/m3)	ESL for Air Contaminant (ug/m3)	Maximum Impact as Percentage of ESL
acetaldehyde	1-hr	3.3E-02	15	0.22%
acetaldehyde	Annual	5.6E-06	45	0.000012%
Acrolein	1-hr	4.1E-03	3.2	0.13%
Acrolein	Annual	7.0E-07	0.15	0.00046%
Arsenic	1-hr	2.5E-06	3	0.00083%
Arsenic	annual	6.1E-10	0.067	0.00000091%
benzene	1-hr	4.9E-02	170	0.028%
benzene	annual	1.1E-05	4.5	0.00024%
beryllium	1-hr	0.0E+00	0.02	0.0000%
beryllium	annual	0.0E+00	0.002	0.0000%
cadmium	1-hr	2.8E-07	0.1	0.00028%
cadmium	annual	6.8E-11	0.01	0.00000068%
chromium	1-hr	6.7E-04	3.6	0.019%
chromium	annual	2.4E-07	0.041	0.0006%
Cobalt	1-hr	0.0E+00	0.2	0.0000%
Cobalt	annual	0.0E+00	0.02	0.0000%
formaldehyde	1-hr	5.2E-02	15	0.35%
formaldehyde	annual	8.9E-06	3.3	0.00027%
mercury	1-hr	5.5E-07	0.1	0.00055%
mercury	annual	1.4E-10	0.01	0.0000014%
naphthalene	1-hr	5.0E-02	200	0.025%
naphthalene	annual	1.4E-06	50	0.0000028%
Nickel	1-hr	8.0E-06	0.33	0.0024%
Nickel	annual	2.0E-09	0.059	0.0000033%
PAHs	1-hr	9.5E-03	0.5	1.90%
PAHs	annual	2.5E-06	0.05	0.0050%
propylene*	1-hr	2.0E-01	70	0.29%
propylene*	annual	4.9E-05	7	0.00070%
selenium	1-hr	1.4E-05	2	0.00070%
selenium	annual	3.4E-09	0.2	0.0000017%
Toluene	1-hr	2.1E-02	640	0.0032%
Toluene	annual	4.6E-06	1200	0.00000038%
Xylene	1-hr	1.4E-02	350	0.0041%
Xylene	annual	3.2E-06	180	0.0000018%

*ESL for propylene oxide conservatively used in analysis

EXHIBIT 3

TCEQ DOCKET NO. 2014-0847-AIR

APPLICATION BY INDECK	§	**BEFORE THE**
WHARTON, LLC,	§	
INDECK WHARTON ENERGY CENTER	§	**TEXAS COMMISSION ON**
AIR QUALITY PERMIT	§	
NOS. 111724, PSDTX 1374	§	**ENVIRONMENTAL QUALITY**

AFFIDAVIT OF TED W. GUERTIN

State of Texas §
County of Wharton §

Before me, the undersigned Notary Public in and for Middlesex County, Massachusetts, personally appeared TED W. GUERTIN, the affiant, whose identity is known to me. After I administered an oath, affiant testified as follows:

1. My name is Ted W. Guertin. I am over 18 years of age, of sound mind, and capable of making this affidavit. The facts in this affidavit are within my personal knowledge and are true and correct.

2. I am an Air Quality Meteorologist and I hold the position of Senior Scientist, Air Quality at Tetra Tech, Inc. ("Tetra Tech"), a provider of consulting, engineering, program management, and technical services worldwide. My experience includes more than 25 years of work in the field of air quality, including experience with air permitting, air quality impact evaluations, and emissions calculations.

3. I have prepared this Affidavit in support of Applicant Indeck Wharton, LLC ("Indeck") Response to Hearing Requests on Indeck's air quality permit applications for its proposed Peaking Power Plant Project. The Project will be located in the Danevang, Texas area and will be referred to herein as the "Project." On behalf of Indeck, Tetra Tech prepared the air quality permit application for the Project.

4. The Project is a natural gas fired combustion turbine peaking power plant which requires a Prevention of Significant Deterioration ("PSD") permit from the Texas Commission on Environmental Quality ("TCEQ") in accordance with New Source Review Authorization under the Texas Clean Air Act ("TCAA") § 382.0518. The permit will authorize construction of a new facility that may emit air contaminants including nitrogen oxides ("NOx"), carbon monoxide ("CO"), sulfur dioxide ("SO_2"), particulate matter ("PM") with diameters 10 microns and less ("PM_{10}") and 2.5 micron and less ("$PM_{2.5}$"), volatile organic compounds ("VOC"), sulfuric acid mist ("H_2SO_4), lead ("Pb"), and hazardous air pollutants ("HAPs"). Under my direction Tetra Tech prepared the PSD Permit Application including the air quality modeling analysis to determine maximum off-property impacts (ground level airborne concentrations) of the pollutants to be emitted from the Project.

5. The proposed Project will emit six air contaminants that have a national ambient air quality standard ("NAAQS"): CO, nitrogen dioxide ("NO_2"), SO_2, "PM_{10}", $PM_{2.5}$, and Pb. The

Project will also emit two air contaminants that have State of Texas standards: SO_2, and H_2SO_4. Non-criteria air contaminants to be emitted from the Project include various VOCs, and HAPs.

6. TCEQ air quality permits are "pre-construction" permits. Therefore, computer-based methods are used to predict the impacts of emissions that will occur once the plant is operating. This type of computer modeling is referred to as air dispersion modeling. Air dispersion modeling is a well-accepted method by which off-property air concentrations of pollutants emitted from emission sources are predicted. The model used by permit applicants seeking air quality permits from the TCEQ is called AERMOD, and this is the model that was used by Tetra Tech to perform the air dispersion modeling discussed in paragraphs 7-13 below. This model was developed and tested by the U.S. Environmental Protection Agency ("EPA") and is the TCEQ and EPA recommended dispersion model for this application.

7. The air modeling analysis involved the following steps: the Significance Analysis, the PSD NAAQS Analysis, and the PSD Increment Analysis. Under my direction, the Significance Analysis was conducted to determine if the emissions increases from the Project cause a significant impact upon the area surrounding the facilities, with the term "significant" being defined by ambient concentration thresholds referred to as the Significant Impacts Levels ("SIL"). See 40 CFR § 51. l65(b). The Significance Analysis addressed the predicted impacts from emissions of criteria pollutants CO, NO_2, SO_2, PM_{10}, and $PM_{2.5}$. Because maximum predicted concentrations were all less than the corresponding SILs for CO, SO_2, $PM_{2.5}$ and PM_{10}, no further analysis was required for those pollutants. A PSD NAAQS and Increment Analysis was required for the NO_2 1-hour and annual averaging periods because modeled impacts indicated that emissions of NO_2 would result in maximum predicted concentrations exceeding the PSD NAAQS and Increment forms of the SIL for the 1-hour and annual averaging periods. Therefore, under my direction, Tetra Tech performed a Full Impact Analysis, consisting of a PSD NAAQS Analysis and a PSD Increment Analysis, for the NO_2 1-hour and annual averaging periods. The results of these analyses showed that maximum predicted concentrations at all significantly impacted receptors within the radius of impact were below the PSD NAAQS Standard and the PSD Increment Standard for the NO_2 1-hour and annual averaging periods. No PSD Increment has been established for 1-hour NO_2. Therefore, compliance with the PSD NAAQS and the PSD Increment standards was demonstrated.

8. In addition, under my direction, Tetra Tech performed a State Property Line Analysis. This involved modeling of site-wide SO_2, and H_2SO_4 emissions from the Project to demonstrate compliance with State Property Line Standards. The results of this analysis were that maximum predicted concentrations were less than State Property Line Standards, meaning that compliance with the standard was demonstrated and no further analysis was required.

9. Under my direction, Tetra Tech also performed a State Health Effects evaluation, wherein site-wide emissions of the following non-criteria HAP pollutants were evaluated in accordance with the Modeling and Effects Review Applicability ("MERA") guidance from the TCEQ Toxicology Division. Using Step 11 of the MERA flowchart, the maximum predicted concentrations for acetaldehyde, acrolein, arsenic, benzene, cadmium, chromium, formaldehyde, mercury, naphthalene, nickel, polycyclic aromatic hydrocarbons (PAHs), propylene, selenium oxide, toluene, and xylene were compared to the appropriate effects screening levels ("ESLs"). The results of this analysis showed that maximum predicted concentrations for these constituents were less than their respective ELS, meaning that no further analysis was required.

10. The air dispersion modeling discussed in paragraphs 7-9 was conducted in accordance with standard and accepted modeling protocols. The modeling results were reviewed and approved by the TCEQ Air Dispersion Modeling Team, as shown by the May 13, 2014 preliminary Determination Summary (see section VII) attached hereto as Exhibit 3-A.

11. Under my direction, Tetra Tech subsequently performed a supplemental air modeling analysis to determine impacts of air contaminants emitted from the proposed Project at 142 receptors, including all residences located within 2 miles of the proposed Project. All of the modeling for the residences was conducted in accordance with standard and accepted modeling protocols. The maximum predicted impact concentrations are less than the corresponding NAAQS, State Property Line Standards, and ESLs at all 142 receptors located within 2 miles of the Project. A true and correct copy of the results of this analysis is attached hereto as Exhibit 3-B, along with impact concentrations for specific Hearing Requestors as described below in #12. Note that, as shown by the bar charts provided in Exhibit 3-B, maximum impact concentrations predicted at all 142 receptors within 2 miles of the proposed Project are just a small fraction of the standards and thresholds designed to protect public health. As shown on the bar charts, the concentrations are well below the standards and thresholds designed to protect public health.

12. I obtained the location of the individual Hearing Requestors' residences from address information that they provided in their hearing requests, available from the TCEQ docket for this proceeding, as well as from municipal emergency (911) map data. Under my direction Tetra Tech mapped the houses for the hearing requestors along with the Danevang Lutheran Church, and calculated the distances to the Project using the ArcGIS software program licensed by Environmental Systems Research Institute. The residences evaluated include the homes of the following individual Hearing Requestors' residences: Marilyn Chappell, Farryl Holub, Irene O'Campo, O.V. Christensen, Doyle and Ann Schaer, Maria Barnes, Anabel Gonzales, Damion Taylor, Ashley Garza, Rosando and Judy Ocanas, Wesley and Darlene Miksik, and Ben and Ester Riveras. The residences for all Hearing Requestors are located beyond 1 mile from the Project's nearest turbine stack location. Three (3) of the Hearing Requestors' residences (Marilyn Chappel, Damion Taylor, and Ashley Garza) are located beyond 2 miles. In addition to individual Hearing Requestor residences, the Danevang Lutheran Church was also mapped and considered as part of the assessment of potential impacts to the Hearing Requestors. Maximum dispersion model predicted impact concentrations considering all receptors representing Hearing Requestor residences located within 2 miles, and the Danevang Lutheran Church, were determined. True and correct copies of this map and the distance calculations, along with a the maximum predicted impact concentrations for these locations, presented as a series bar charts for each pollutant, are attached hereto as Exhibit 3-B. Note that, as shown in Exhibit 3-B, maximum impact concentrations predicted at receptors representative of the Hearing Requestor residences within 2 miles of the proposed Project are just a small fraction of the standards and thresholds designed to protect public health. As shown on the bar charts, the concentrations are well below the standards and thresholds designed to protect public health.

13. The airborne air concentrations predicted by the air dispersion modeling referenced above are conservative; that is, they likely over-predict the levels of air contaminants that could actually occur in the vicinity of the proposed Project and/or at the residences of the Hearing Requestors. For example, it was assumed that the maximum emissions would occur during the hours in which meteorological conditions least favor the dispersion of those air contaminants.

14. The results of the air dispersion modeling referred to in paragraphs 7-13 above were provided to Dr. Thomas Dydek for his use in analyzing the impacts of emissions from Indeck's Project.

15. Issues were raised by hearing requestor Farryl Holub regarding concerns that pollutants emitted by the project may chemically react with the various chemicals or compounds that could be present in the soils of the surrounding area. An evaluation of this issue was prepared by Tetra Tech under my direction and is provided in Exhibit 3-C. The evaluation discusses potential pollutant deposition rates from the proposed Project and compares them with existing ambient deposition rates, as well as, with manual application of chemicals as part of the agricultural process (i.e. fertilizers, pesticides, etc.). The evaluation demonstrates that potential pollutant deposition from the proposed Project would occur at rates far less than the current existing ambient deposition rates and will not cause adverse chemical reactions based on comparison to existing rates of pollutant deposition from existing emissions and lack of evidence of adverse chemical reactions occurring under existing conditions.

Ted W. Guertin

Ted W. Guertin

Sworn and subscribed before me by Ted W. Guertin Dec 23rd, 2014.

Notary Public in and for the State of Massachusetts
My commission expires: Feb 19th 2021

ANH C DUONG
MY COMMISSION EXPIRES FEBRUARY 19, 2021
NOTARY PUBLIC
COMMONWEALTH OF MASSACHUSETTS

V. Federal Applicability

The site is located in an attainment county (Wharton County, city of Danevang). The proposed source is a new major source at a greenfield site. The project was a major source for greenhouse gas emissions and therefore TCEQ is permitting any significant amounts of the other criteria pollutants. The project emissions for nitrogen oxides (NO_x), carbon monoxide (CO), particulate matter, including particulate matter including particulate matter less than 10 microns and less than 2.5 microns in diameter ($PM/PM_{10}/PM_{2.5}$), volatile organic compounds (VOC), and sulfur dioxide (SO_2) were above the Prevention of Significant Deterioration (PSD) major modification significance level; therefore, PSD review was triggered for these pollutants and full modeling and impacts analyses were performed. The following chart illustrates the annual project emissions for each pollutant and whether this pollutant triggers PSD review. The chart is based on the highest emission rate of the two proposed CTG options. These totals include SS emissions.

Pollutant	Project Emissions (tpy)	Major Mod Trigger (tpy)	PSD Triggered Y/N
VOC	108.1	40	Y
NO_x	949.4	40	Y
SO_2	90.6	40	Y
CO	894.1	100	Y
PM	112.9	25	Y
PM_{10}	112.9	15	Y
$PM_{2.5}$	112.9	10	Y

VI. Control Technology Review

In addition to a review of control technology for steady state operations, the best available control technology (BACT) analysis includes startup and shutdown emissions and the numerical emission limits in the draft permit reflect this analysis. Although the units may not meet the ppm by volume dry (ppmvd) limits during startup and shutdown, they will meet the mass emission limits (pounds per hour and tons per year) unless a separate limit was established, and startup and shutdown events will be limited by Special Condition Nos. 7 and 8. Typical startup and shutdown of the turbine are conducted in accordance with manufacturer's recommendations to minimize emissions and maximize efficiencies.

As part of the BACT review process, the Texas Commission on Environmental Quality (TCEQ) evaluates information from the Environmental Protection Agency's (EPA's) RACT/BACT/LAER Clearinghouse (RBLC), on-going permitting in Texas and other states, and the TCEQ's continuing review of emissions control developments.

CTGs

Nitrogen Oxides (NO_x):
Each CTG is gas fired and equipped with dry low-NO_x burners (DLN) to control NO_x emissions to 9 ppmvd at 15% O_2 during steady state operations. DLN is a combustion zone technology that pre-mixes fuel and air to reduce thermal NO_x formation without the need for water or steam injection. Since the CTGs are each limited to 2500 hours per year of operation, based on a rolling 12-month period, installing a selective catalytic reduction unit (SCR) would not be economically reasonable. Recently issued permits in Texas for peaking turbines include Tradinghouse (issued 2/7/14), Guadalupe Power Partners (issued 10/2/2013) and DeCordova (8/29/2013). The permits have a NO_x concentration limit of 9 ppmvd at 15% O_2. Therefore, the use of DLN to control NO_x emissions to 9 ppmvd at 15% O_2 is consistent with recently issued permits for similar facilities and is BACT for the CTGs.

Carbon Monoxide (CO):
With DLN (designed to increase oxidation of CO to CO_2) and operating the CTGs according to good combustion practices, CO emissions will be controlled to 4 ppmvd at 15% O_2 during steady state operations for the Siemens 5000F option and 9 ppmvd at 15% O_2 for the GE 7FA option. Since the CTGs are restricted to the annual operating hours specified in the paragraph above for NO_x, installing an oxidation catalyst would not be economically feasible. Recently issued peaking turbine permit in Texas have been issued at 9 ppmvd at 15% O_2. Therefore, the use of DLN and good combustion practices to control CO emissions to 9 ppmvd at 15% O_2 is consistent with recently issued permits for similar facilities and is BACT for the CTGs.

Volatile Organic Compounds (VOCs):
Through maintenance of optimum combustion conditions and practices and firing the CTGs with pipeline-quality natural gas, VOC emissions will be controlled to 1.4 ppmvd at 15% O_2 during steady state operations for the Siemens 5000F option and 1.0 ppmvd at 15% O_2 GE 7FA option. This meets BACT.

Particulate Matter ($PM/PM_{10}/PM_{2.5}$):
The CTGs will be fired with pipeline-quality natural gas. Pipeline-quality natural gas has very low ash and sulfur contents. This meets BACT.

Sulfur Compounds (SO_2/H_2SO_4):
Emissions of SO_2 and H_2SO_4 from the CTGs will occur from the oxidation of sulfur in the natural gas during combustion, with the majority of the sulfur converted to SO_2 and a small fraction converting to H_2SO_4. The CTGs will be fired with pipeline-quality natural gas with a sulfur content not exceeding 0.2 grain sulfur per 100 dry standard cubic feet, which will minimize the formation of SO_2 and H_2SO_4. This meets BACT.

Turbine Planned Maintenance, Startup, and Shutdown (MSS):
During periods of planned MSS, control devices and process equipment are operated outside the optimal range they were designed to work most effectively, and it is technically infeasible to meet the primary BACT emission rates.

Therefore, secondary BACT limits are necessary during these periods to minimize emissions. BACT will be achieved by minimizing the duration of the MSS events (consistent with standard operating procedures) to minimize the amount of time the equipment is outside the optimal performance mode and meeting the emission limitations on the MAERT.

Also, planned MSS activities must be performed using good air pollution control practices and safe operating practices to minimize emissions.

Gas Line Heater

A small 3.0 MMBtu/hr natural gas-fired gas line heater is also proposed. Given the nature and quantity of emissions, no control is BACT.

Emergency Engines

An emergency generator and a firewater pump are proposed. BACT will be achieved through the installation of an engine which meets the requirements of 40 CFR 60, Subpart IIII. The engines will fire ultra low sulfur diesel fuel, containing no more than 15 parts per million (ppm) sulfur by weight. The emergency generator is limited to 500 hours of non-emergency operation per year. The firewater pump is limited to 26 hours per year of non-emergency operation per year.

Fugitive Emissions

The fugitive emissions include VOC from the natural gas fuel lines (EPN FUG). Given the nature and quantity of the emissions, no control is BACT.

VII. Air Quality Analysis

The air quality analysis (AQA) is acceptable for all review types and pollutants, as supplemented by the ADMT. The results are summarized below.

A. De Minimis Analysis

A De Minimis analysis was initially conducted to determine if a full impacts analysis would be required. The De Minimis analysis modeling results indicate that 1-hr and annual NO_2 exceed the respective de minimis concentrations and require a full impacts analysis. The De Minimis analysis modeling results for 24-hr and annual PM_{10}, 24-hr and annual $PM_{2.5}$ (NAAQS and Increment), and 1-hr and 8-hr CO indicate that the project is below the respective de minimis concentrations and no further analysis is required.

The justification for selecting the EPA's interim 1-hr NO_2 De Minimis level was based on the assumptions underlying EPA's development of the 1-hr NO_2 De Minimis level. As explained in EPA guidance memoranda[1], the EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr NO_2 NAAQS.

The applicant provided an evaluation of ambient $PM_{2.5}$ monitoring data, consistent with draft EPA guidance for $PM_{2.5}$[2], for using the $PM_{2.5}$ De Minimis levels. If monitoring data shows that the difference between the $PM_{2.5}$ NAAQS and the monitored $PM_{2.5}$ background concentrations in the area is greater than the $PM_{2.5}$ De Minimis level, then the proposed project with predicted impacts below the De Minimis level would not cause or contribute to a violation of the $PM_{2.5}$ NAAQS and does not require a full impacts analysis. See the discussion below in the air quality monitoring section for additional information on the evaluation of ambient $PM_{2.5}$ monitoring data.

While the De Minimis levels for both the NAAQS and increment are identical for $PM_{2.5}$ in the table below, the procedures to determine significance (that is, predicted concentrations to compare to the De Minimis levels) are different. This difference occurs because the NAAQS for $PM_{2.5}$ are statistically-based, but the corresponding increments are exceedance-based.

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[1] www.epa.gov/nsr/documents/20100629no2guidance.pdf
[2] www.epa.gov/ttn/scram/guidance/guide/Draft_Guidance_for_PM25_Permit_Modeling.pdf

Table 1. Modeling Results for PSD De Minimis Analysis in Micrograms Per Cubic Meter (µg/m³)

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
PM_{10}	24-hr	1.19	5
PM_{10}	Annual	0.1	1
$PM_{2.5}$ (NAAQS)	24-hr	0.66	1.2
$PM_{2.5}$ (NAAQS)	Annual	0.1	0.3
$PM_{2.5}$ (Increment)	24-hr	1.19	1.2
$PM_{2.5}$ (Increment)	Annual	0.1	0.3
NO_2	1-hr	19.3	7.5
NO_2	Annual	1.8	1
CO	1-hr	363	2000
CO	8-hr	65.5	500

The 24-hr and annual $PM_{2.5}$ (NAAQS) and the 1-hr NO_2 GLCmax are based on the highest five-year averages of the maximum predicted concentrations determined for each receptor. The GLCmax for all other pollutants and averaging times represent the maximum predicted concentrations over five years of meteorological data.

The applicant reported the 8-hr CO predicted concentration based on a weighted average of the maximum 8-hr predicted concentration under start-up conditions (weighted by 1/8) plus the maximum 8-hr predicted concentration under normal operating conditions (weighted by 7/8).

The applicant provided an evaluation of secondary $PM_{2.5}$ impacts that considers modeling results of the directly emitted $PM_{2.5}$ emissions, ambient background monitoring data representative for the project site, and proposed allowable emission rates of SO_2 and NO_x:

- Modeling results from the directly emitted $PM_{2.5}$ emissions are less than the De Minimis levels.
- Adding the modeling results from the directly emitted $PM_{2.5}$ emissions to representative background concentrations gives total concentrations well below the NAAQS.

- The proposed emissions of SO_2 are less than the Significant Emission Rate (SER) of 40 tons per year (tpy) and would not be expected to result in significant secondary formation of $PM_{2.5}$.
- The proposed emissions of NO_x are greater than the NO_x SER (40 tpy). Secondary $PM_{2.5}$ formation occurs as a result of chemical transformations that occur in the atmosphere gradually over time and only a portion of the NO_x emissions would be affected. Furthermore, secondary $PM_{2.5}$ formation from NO_x is unlikely to overlap in space or time with nearby maximum primary $PM_{2.5}$ impacts associated with the project sources.

In addition, the applicant determined that the Dona Park monitor (EPA AIRS monitor 483550034) is a representative monitor of the project site and considered a review conducted by the ADMT of available $PM_{2.5}$ speciation data to support the conclusions regarding secondary formation of $PM_{2.5}$. Over an eight-year period, on average, ammonium nitrate makes up 5.5 percent of the total 24-hr concentration and 3.4 percent of the total annual concentration. On average, over the last eight years of monitoring data, the maximum 24-hr and annual ammonium nitrate concentrations are 1.4 $\mu g/m^3$ and 0.3 $\mu g/m^3$, respectively. Given that the proposed NO_x emissions are a small fraction of the NO_x emissions in the air shed, and that the ambient monitoring data shows relatively small fractions of ammonium nitrate, secondary PM2.5 formation from the proposed NOx emissions would be expected to be considerably smaller than the monitored concentration of nitrates. The monitoring information supports the applicant's conclusion that the secondary $PM_{2.5}$ formation would not be expected to cause a NAAQS or Increment exceedance.

B. Air Quality Monitoring

The De Minimis analysis modeling results indicate that 24-hr PM_{10}, annual NO_2, and 8-hr CO are below their respective monitoring significance levels.

Table 2. Modeling Results for PSD Monitoring Significance Levels

Pollutant	Averaging Time	GLCmax ($\mu g/m^3$)	Significance ($\mu g/m^3$)
PM_{10}	24-hr	1.19	10
NO_2	Annual	1.8	14
CO	8-hr	65.5	575

The GLCmax for all pollutants and averaging times represent the maximum predicted concentrations over five years of meteorological data.

The applicant evaluated ambient $PM_{2.5}$ monitoring data to satisfy the requirements for the pre-application air quality analysis. Background concentrations for $PM_{2.5}$ were obtained from the EPA AIRS monitor 480290059 located at 14620 Laguna Road, San Antonio, Bexar County. The applicant used a three-year average (2010-2012) of the 98th percentile of the annual distribution of the 24-hr concentrations for the 24-hr value (23 $\mu g/m^3$). The applicant used a three-year average (2010-2012) of the annual mean concentrations for the annual value (9.3 $\mu g/m^3$). The ADMT reviewed monitoring data from 2013 and determined that the overall conclusions would not change. The use of this monitor is reasonable based on a comparison of county-wide emissions, population, and a quantitative analysis of source emissions located within 10 kilometers (km) of the project site and monitor location.

C. National Ambient Air Quality Standards (NAAQS) Analysis

The De Minimis analysis modeling results indicate that 1-hr and annual NO_2 exceed the respective de minimis concentrations and require a full impacts analysis. The full NAAQS modeling results indicate the total predicted concentrations will not result in an exceedance of the NAAQS.

Table 3. Total Concentrations for PSD NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax ($\mu g/m^3$)	Background ($\mu g/m^3$)	Total Conc. = [Background + GLCmax] ($\mu g/m^3$)	Standard ($\mu g/m^3$)
NO_2	1-hr	135.6	37.7	173.3	188
NO_2	Annual	6.3	15.2	21.5	100

The 1-hr NO_2 GLCmax is the highest five-year average of the 98th percentile of the annual distribution of the daily maximum 1-hr predicted concentrations. The annual NO_2 GLCmax represents the maximum predicted concentration over five years of meteorological data.

The applicant reported the 1-hr NO_2 predicted concentration incorrectly. The ADMT supplemented this value based on the modeling output files.

Background concentrations for NO_2 were obtained from the EPA AIRS monitor 480391016 located at 109b Brazoria Highway 332 West, Lake Jackson, Brazoria County. The three-year average (2010-2012) of the 98th percentile of the annual distribution of the daily maximum 1-hr concentrations was used for the 1-hr value and the highest annual concentration from three years (2010-2012) was used for the annual value. The ADMT reviewed monitoring data from 2013 and determined that the overall conclusions would not change. The use of this monitor is reasonable based on a comparison of county-wide emissions, population, and a quantitative analysis of source emissions located within 10 km of the project site and monitor location.

Table 4. PSD Ambient Air Quality Analysis for Ozone

Pollutant	Monitor	Averaging Time	Background (ppb)	Standard (ppb)
O_3	480391016	8-hr	72	75

A background concentration for ozone was obtained from the EPA AIRS monitor 480391016 located at 109b Brazoria Highway 332 West, Lake Jackson, Brazoria County. A three-year average (2010-2012) of the annual fourth highest daily maximum 8-hr concentrations was used in the analysis. The ADMT reviewed monitoring data from 2013 and determined that the overall conclusions would not change. The use of this monitor is reasonable based on a comparison of county-wide emissions, population, and a quantitative analysis of source emissions located within 10 km of the project site and monitor location.

EPA Region 6 has previously recommended a conservative analysis based on the NO_2 modeling to estimate the potential impacts on ozone levels. Considering that it takes time for the NO_2 emissions to react to generate ozone, an evaluation of maximum estimated NO_2 concentrations at a distance of 10-to-11 km downwind from the project source could be used to estimate the potential ozone impacts. EPA Region 6 has recommended that emission sources would have an average ozone yield of up to 2-3 ozone molecules per NO_2 molecule. The applicant used AERMOD to calculate a maximum 8-hr NO_x concentration for normal operations and startup operations at a distance of 10 km. The maximum 8-hr NO_x concentration of 0.44 parts per billion (ppb) at a distance of 10 km is based on one hour of startup operations and seven hours of normal operations in an eight hour duration. Assuming 90% conversion of NO_x to NO_2 and an ozone yield of three ozone molecules per molecule of NO_2, the 8-hr maximum predicted increase of ozone would be 1.3 ppb. Adding 1.3 ppb to the 8-hr ozone background of 72 ppb will result in a total 8-hr ozone concentration less than the 8-hr ozone NAAQS of 75 ppb.

D. Increment Analysis

The De Minimis analysis modeling results indicate that annual NO_2 exceeds the de minimis concentration and requires a PSD increment analysis.

Table 5 .Results for PSD Increment Analysis

Pollutant	Averaging Time	GLCmax (μg/m³)	Increment (μg/m³)
NO_2	Annual	6.3	25

The GLCmax represents the maximum predicted concentration over five years of meteorological data.

E. Additional Impacts Analysis

The applicant performed an Additional Impacts Analysis as part of the PSD AQA. The applicant conducted a growth analysis and determined that population will not significantly increase as a result of the proposed project. The applicant conducted a soils and vegetation analysis and determined that all evaluated criteria pollutant concentrations are below their respective secondary NAAQS. The applicant meets the Class II visibility analysis requirement by complying with the opacity requirements of 30 TAC 111. The Additional Impacts Analyses are reasonable and possible adverse impacts from this project are not expected.

The ADMT evaluated predicted concentrations from the proposed site to determine if emissions could adversely affect a Class I area. The nearest Class I area, Big Bend National Park, is located approximately 680 km from the proposed site.

The H_2SO_4 24-hr maximum predicted concentration of 0.05 μg/m³ occurred approximately 185 meters from the fence line towards the southwest. The H_2SO_4 24-hr maximum predicted concentration occurring at the edge of the receptor grid, approximately 54 km from the proposed source, in the direction of the Big Bend National Park Class I area is 0.001 μg/m³. The Big Bend National Park Class I area is an additional 626 km from the edge of the receptor grid. Therefore, emissions of H_2SO_4 from the proposed project are not expected to adversely affect the Big Bend National Park Class I area.

The predicted concentrations of PM_{10}, $PM_{2.5}$, NO_2, and SO_2 for all averaging times, are all less than de minimis levels at a distance of approximately 1.6 km from the proposed source in the direction of Big Bend National Park Class I area. The Big Bend National Park Class I area is an additional 678.4 km from the location where the predicted concentrations of PM_{10}, $PM_{2.5}$,

NO_2, and SO_2 for all averaging times are less than de minimis. Therefore, emissions from the proposed project are not expected to adversely affect the Big Bend National Park Class I area.

F. Minor Source NSR and Air Toxics Review

Table 6. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
SO_2	1-hr	4.8	20.4
H_2SO_4	1-hr	0.36	1
H_2SO_4	24-hr	0.05	0.3

The justification for selecting the EPA's interim 1-hr SO_2 De Minimis level was based on the assumptions underlying EPA's development of the 1-hr SO_2 De Minimis level. As explained in EPA guidance memoranda[3], the EPA believes it is reasonable as an interim approach to use a De Minimis level that represents 4% of the 1-hr SO_2 NAAQS.

Table 7. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m³)	De Minimis (µg/m³)
SO_2	1-hr	1.37	7.8
SO_2	3-hr	2.53	25
SO_2	24-hr	0.6	5
SO_2	Annual	0.05	1

The 1-hr SO_2 GLCmax is based on the highest five-year average of the maximum predicted concentration determined for each receptor. The GLCmax for all other averaging times represent the maximum predicted concentrations over five years of meteorological data.

The applicant reported the 3-hr SO_2 predicted concentration based on a weighted average of the maximum 3-hr predicted concentration under start-up conditions (weighted by 1/3) plus the maximum 3-hr predicted concentration under normal operating conditions (weighted by 2/3).

[3] www.epa.gov/region07/air/nsr/nsrmemos/appwso2.pdf

The applicant reported the 24-hr SO_2 predicted concentration based on a weighted average of the maximum 24-hr predicted concentration under start-up conditions (weighted by 1/24) plus the maximum 24-hr predicted concentration under normal operating conditions (weighted by 23/24).

Table 8. Total Concentrations for Minor NSR NAAQS (Concentrations > De Minimis)

Pollutant	Averaging Time	GLCmax (µg/m³)	Background (µg/m³)	Total Conc. = [Background + GLCmax] (µg/m3)	Standard (µg/m³)
Pb	3-mo	0.0005	0.011	0.0115	0.15

The GLCmax represents the maximum 1-hr predicted concentration over five years of meteorological data. Using the maximum 1-hr predicted concentration is a conservative representation of the 3-month rolling average.

The applicant did not provided an evaluation of ambient background concentrations for lead. The ADMT reviewed lead monitoring data in Harris County and used the monitor with the highest lead concentration as a conservative representation of background concentrations for Wharton County. A background concentration for lead was obtained from the EPA AIRS monitor 482011034 located at 1262 ½ Mae Drive, Houston, Harris County. The highest 24-hr concentration from 2013 was used as a conservative representation of the 3-month rolling average. The use of this monitor is reasonable based on a comparison of county-wide emissions, population, and a quantitative analysis of source emissions located within 10 km of the project site and monitor location.

Table 9. Minor NSR Site-wide Modeling Results for Health Effects

Pollutant & CAS#	Averaging Time	GLCmax (µg/m³)	ESL (µg/m³)
acetaldehyde 75-07-0	1-hr	0.41	15
acetaldehyde 75-07-0	Annual	0.001	45
acrolein 107-02-8	1-hr	0.05	3.2
acrolein 107-02-8	Annual	0.0002	0.15
arsenic & inorganic cpds 7440-38-2	1-hr	3.23×10^{-5}	3

Pollutant & CAS#	Averaging Time	GLCmax (µg/m³)	ESL (µg/m³)
arsenic & inorganic cpds 7440-38-2	Annual	1.3×10^{-7}	0.067
benzene 71-43-2	1-hr	0.63	170
benzene 71-43-2	Annual	0.002	4.5
cadmium & compounds (as Cd) NA	1-hr	3.59×10^{-6}	0.1
chromium metal 7440-47-3	1-hr	0.01	3.6
chromium metal 7440-47-3	Annual	3.5×10^{-5}	0.041
formaldehyde 50-00-0	1-hr	0.64	15
formaldehyde 50-00-0	Annual	0.002	3.3
mercury, alkyls 7439-97-6	1-hr	7.21×10^{-6}	0.1
naphthalene 91-20-3	1-hr	0.07	200
naphthalene 91-20-3	Annual	0.0003	50
nickel, metal & cpds 7440-02-0	1-hr	0.001	0.33
nickel, metal & cpds 7440-02-0	Annual	4.17×10^{-6}	0.059
polycyclic aromatic HC's, particulate, <10% b(a)p, not otherwise classified NA	1-hr	0.13	0.5
propylene oxide 75-56-9	1-hr	2.54	70
selenium oxide 7446-08-4	1-hr	0.0002	2
toluene 108-88-3	1-hr	0.26	640
toluene 108-88-3	Annual	0.001	1200
xylene mixture 1330-20-7	1-hr	0.18	350
xylene mixture 1330-20-7	Annual	0.001	180

The location of the GLCmax is not provided since the GLCmax are based on unit modeling. See section 3 for more details. The applicant did not provide a GLCni.

The annual ESL for acrolein reported in Table 9 was the ESL in effect at the time that the modeling analysis was conducted. The current ESLs are available from the Toxicology Division's website.

VIII. Conclusion

Indeck Wharton, L.L.C. has demonstrated that this project meets all applicable rules, regulations and requirements of the Texas and Federal Clean Air Acts. The proposed facilities and controls represent BACT. The modeling analysis indicates that the proposed project will not violate the NAAQS, cause an exceedance of the increment, or have any adverse impacts on soils, vegetation, or Class I Areas. In addition, the modeling predicted no exceedance of ESLs at all receptors for non-criteria contaminants evaluated.

The Executive Director of the TCEQ proposes a preliminary determination of issuance of this permit for Indeck Wharton, L.L.C. to construct the Indeck Wharton Energy Center as proposed.

EXHIBIT 3-B

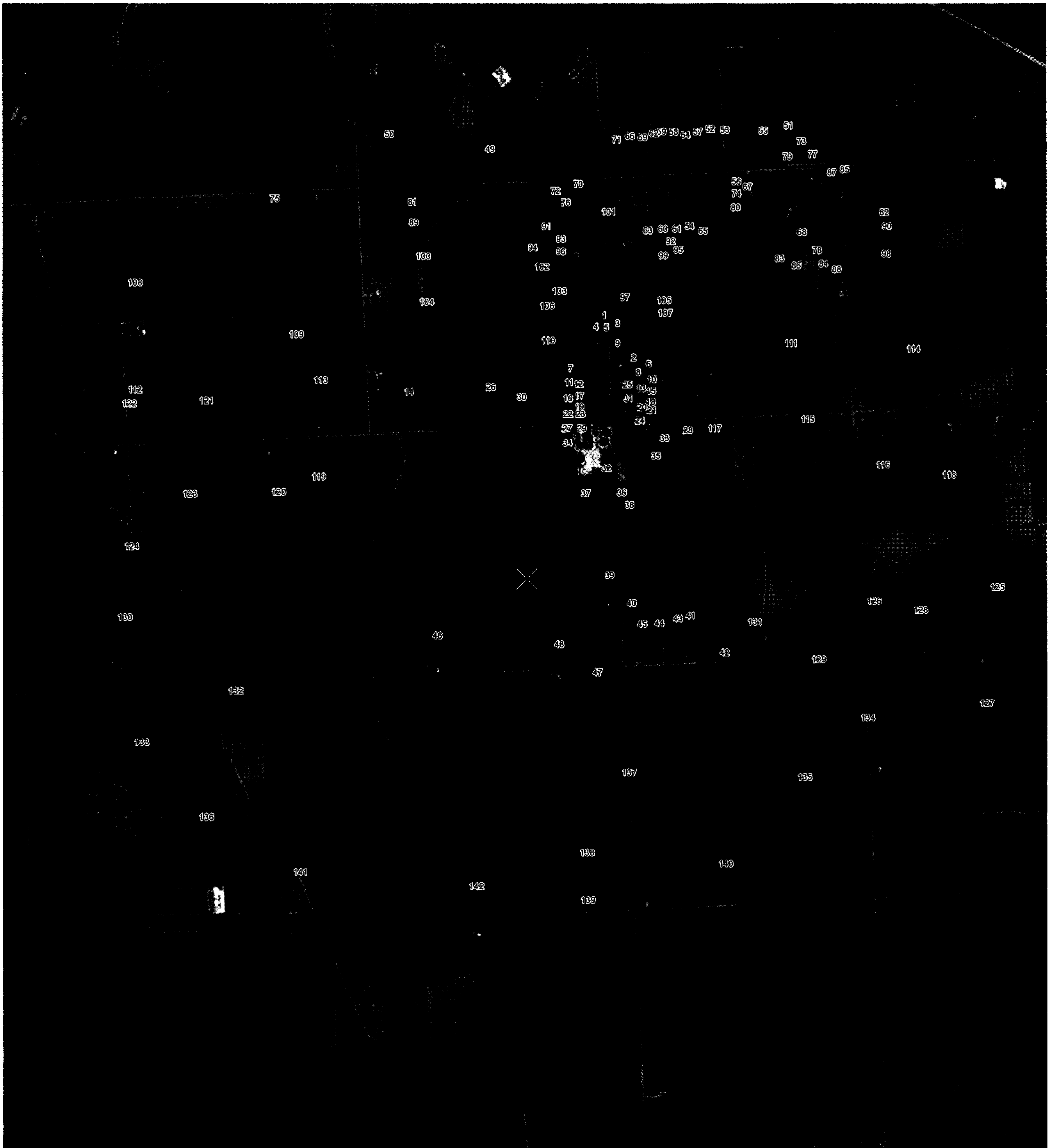
EXHIBIT 3-B

Indeck Wharton – Supplemental Air Quality Impact Assessment

This Exhibit addresses general concerns raised in several comments about the potential effects of air pollutants on citizens located in the Danevang community. To demonstrate that the proposed project will not endanger the health of citizens located in Danevang, Tetra Tech has conducted a supplemental air quality dispersion modeling impact analysis.

The supplemental air quality impact dispersion modeling analysis was conducted to assess potential air quality impacts at 142 sensitive receptor locations within a two-mile radius of the proposed project. These sensitive receptor locations include homes, businesses, churches, and other important sites within the community. See the attached Figure 1, which identifies the locations of the 142 sensitive receptors that were modeled. A subset of these 142 receptors represent the homes of several Hearing Requestors and the Danevang Lutheran Church (see Figure 2). The calculation of the distance of the project to Hearing Requestor homes and the church is provided in Table 1. Modeling for these 142 receptor locations was performed using AERMOD, which is an EPA-recommended modeling system, and is the same modeling system used for the Air Quality Analysis Report submitted to TCEQ as part of the Prevention of Significant Deterioration (PSD) permit application.

This air quality impact assessment included potential emissions of NAAQS pollutants (NOX, SO2, PM10/PM2.5, CO, and lead), TCEQ regulated pollutants (SO2, H2SO4), and hazardous air pollutants (HAPs). For each pollutant and averaging period, maximum project impact predicted at all 142 receptors, as well as, the maximum predicted at the subset of receptors representative of the Hearing Requestor homes and the Danevang Lutheran Church. Predicted impacts for the NAAQS pollutants are compared to the existing ambient background concentration for that pollutant (as determined by nearby ambient monitoring stations), and compared to the corresponding NAAQS. Predicted impact concentrations for the TCEQ and HAP pollutants are compared directly to the standards and thresholds established for them. As shown in the attached bar charts, potential impacts at all of the 142 receptor locations are well below the standards and thresholds established for protection of human health.



Legend

Receptor

- Within 1 Mile of Project
- Within 2 Miles of Proejct

Project Location (center stack)

1 Mile Radius - Project Location

2 Mile Radius - Project Location

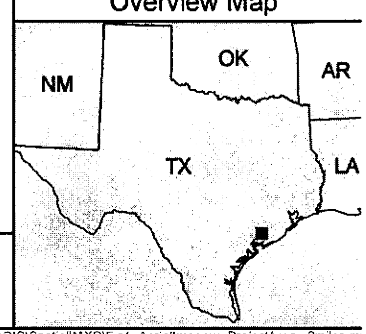
Figure 1
Aerial Imagery of Surrounding Area Within 2 Miles of Project

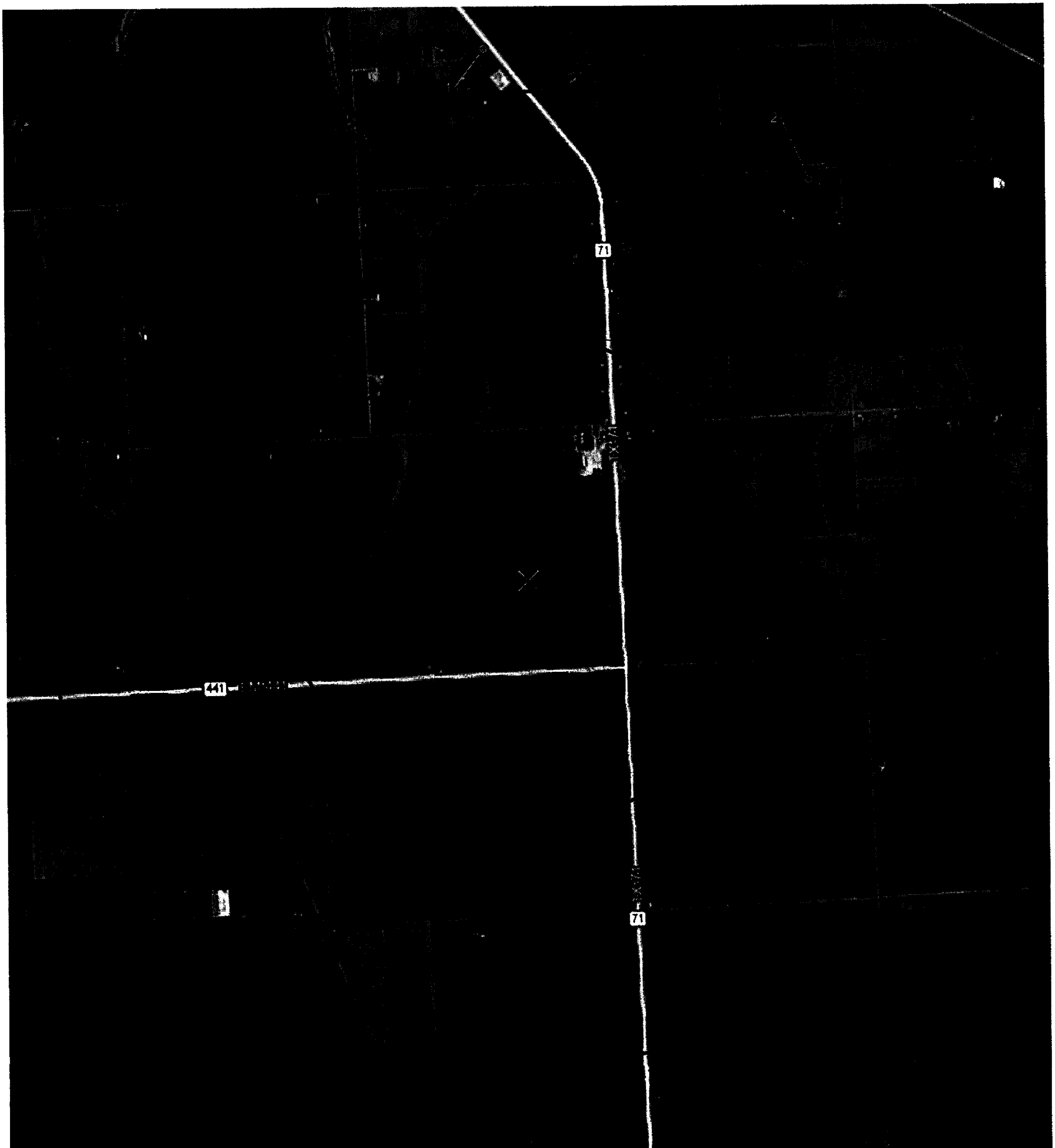
Indeck Wharton Energy Center Project
Wharton County, TX

0 250 500 1,000 Meters

N W E S

Overview Map





Legend

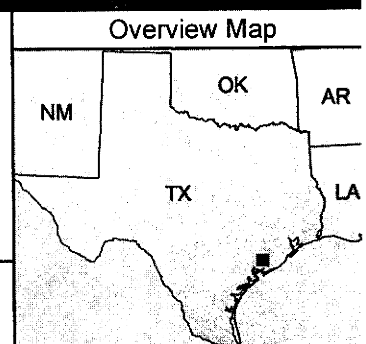
Receptor

- Outside 2 Miles of Project
- Within 2 Miles of Project
- Within1 Mile of Project
- 1 Mile Radius - Project Location
- 2 Mile Radius - Project Location
- Project Location (center stack)

Figure 2
Sensitive Receptor Locations for Hearing Requestor Residences

Indeck Wharton Energy Center Project
Wharton County, TX

0 0.25 0.5 1 Miles



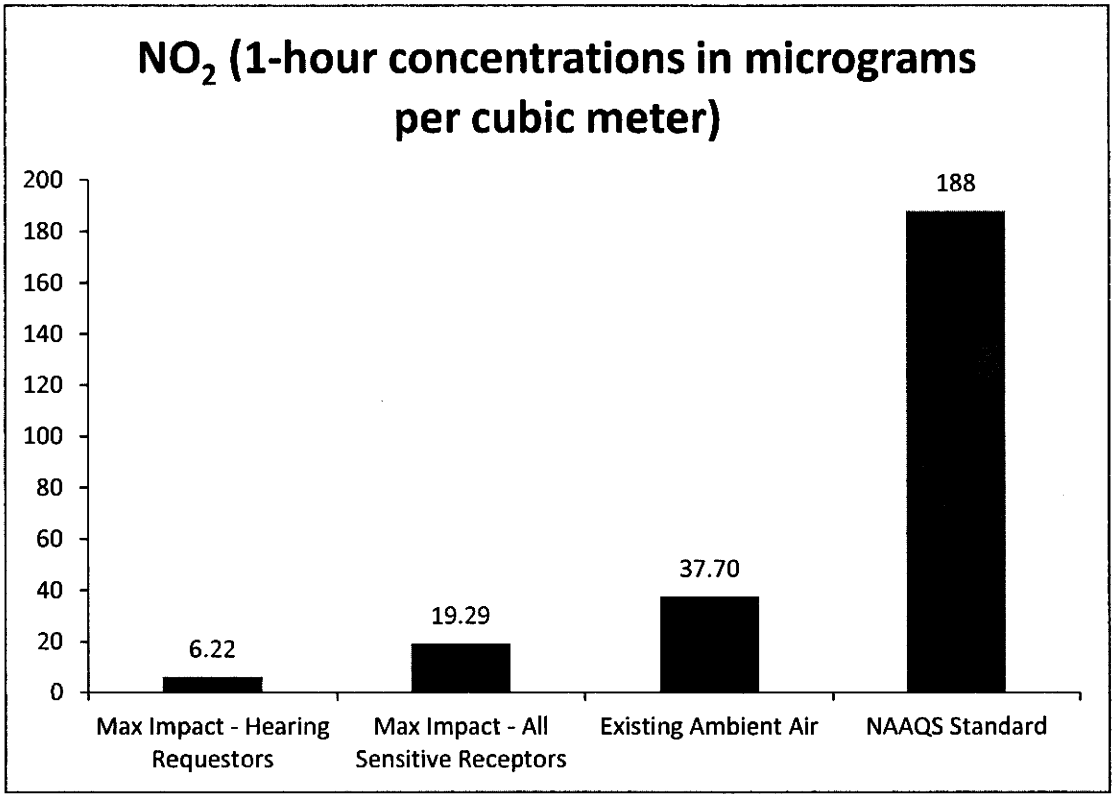
Path: P:\GIS\Indeck_Wharton GIS\Spatial\MXD\Fig2_SensitiveReceptorsLocationsforHearingRequestorResidences_V2.m

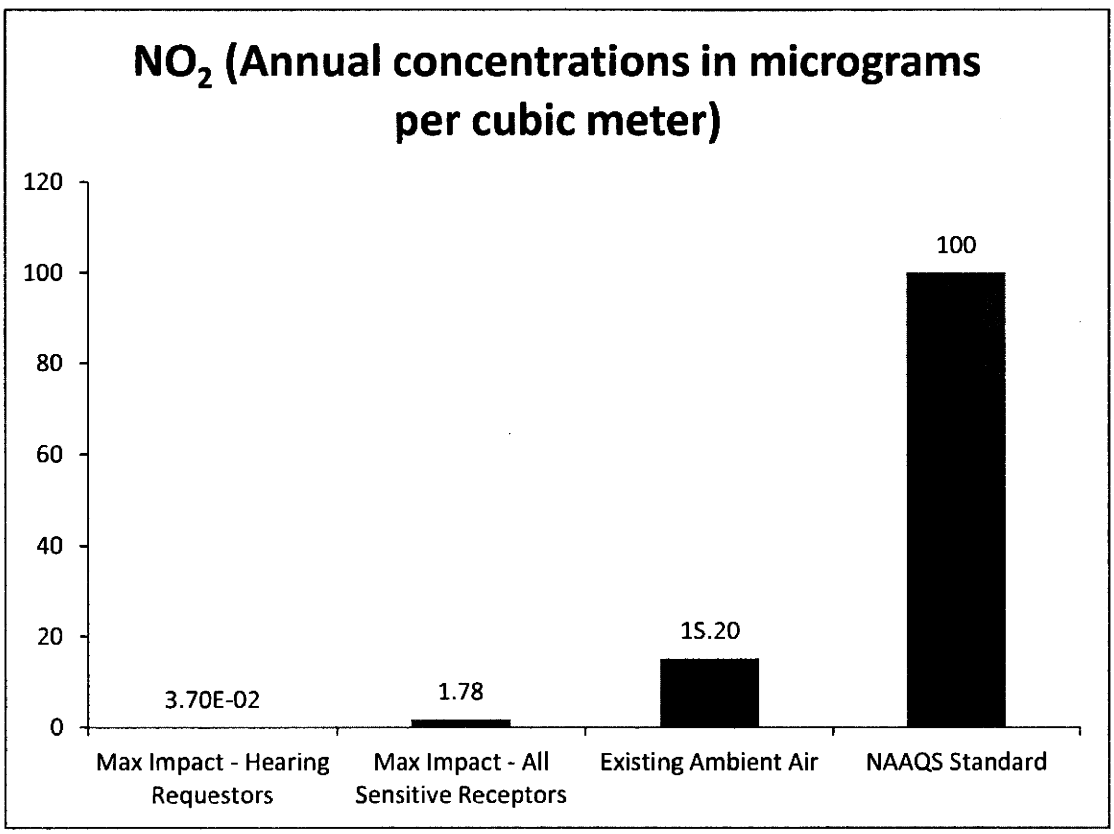
Table 1: Distance Calculations for Indeck Wharton Project Emission Sources to Hearing Requestors

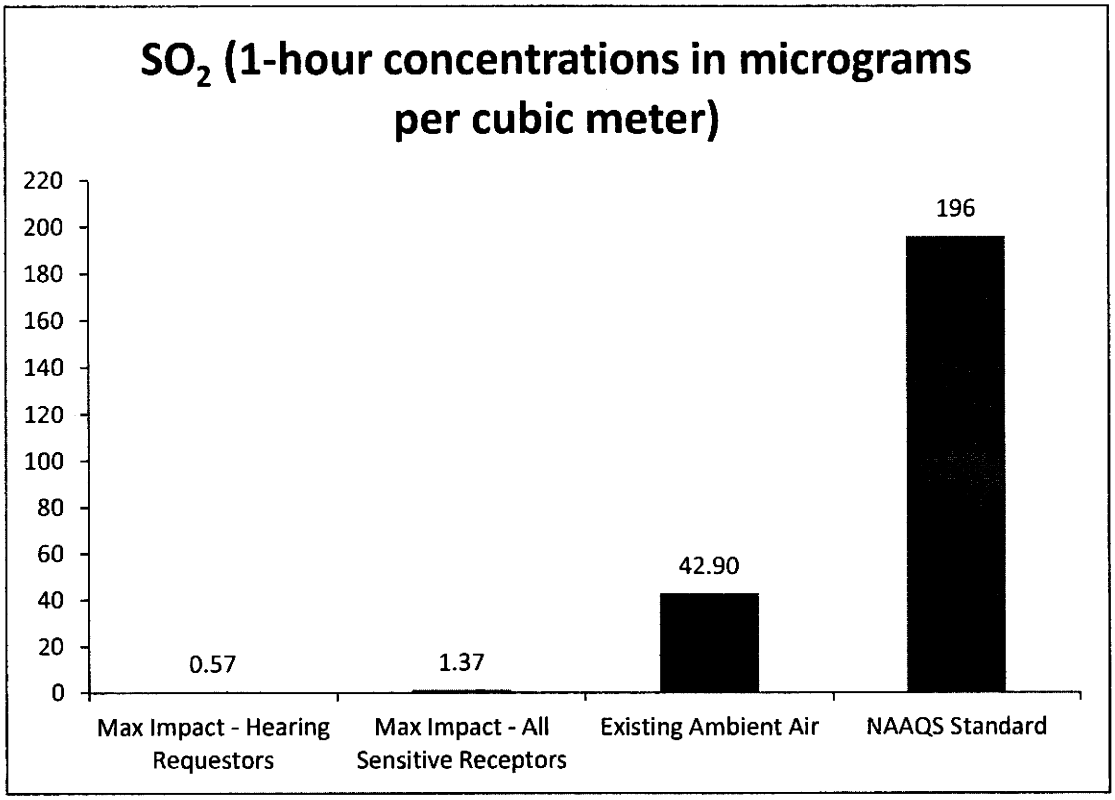
Receptor ID (shown on Figure 2)	Name	Distance from Nearest Project Turbine Stack Location to Receptor	Nearest Distance from Any Project Emission Point Stack Location (Including Ancillary Sources) to Receptor
1	Marilyn Chappell	2.18	2.12
6	Holub, Farryl	1.38	1.33
7	Irene O'Campo	1.03	0.98
8	O V Chistensen	1.17	1.13
9	Doyle & Ann Schaer	1.98	1.98
3	Maria Barnes	1.80	1.76
4	Annabel Gonzales	1.71	1.66
2	Damion Taylor	2.00	1.97
5	Ashley Garza	3.00	2.96
10	Rosenado & Judy Ocanas	1.77	1.73
11	Wesly and Darleen Miksik	1.68	1.68
7	Ben and Esther Riveras	1.03	0.98
12	Danevang Lutheran Church	0.69	0.69

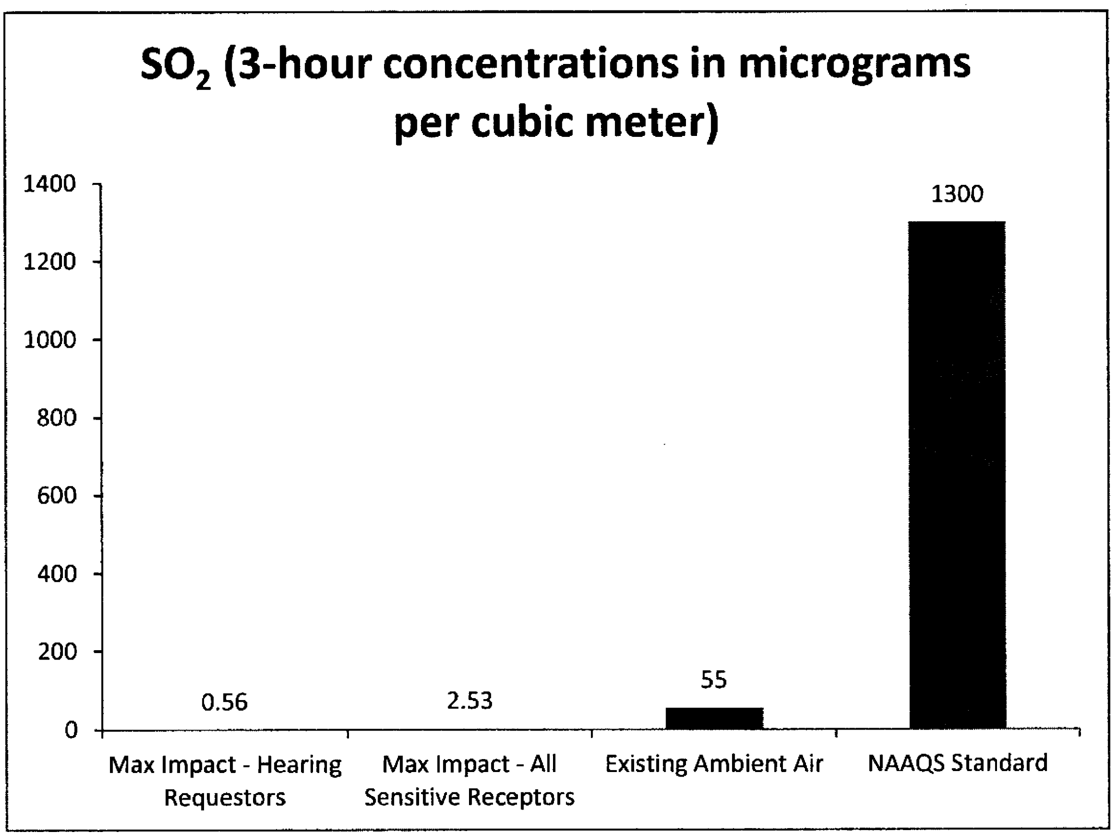
Notes:

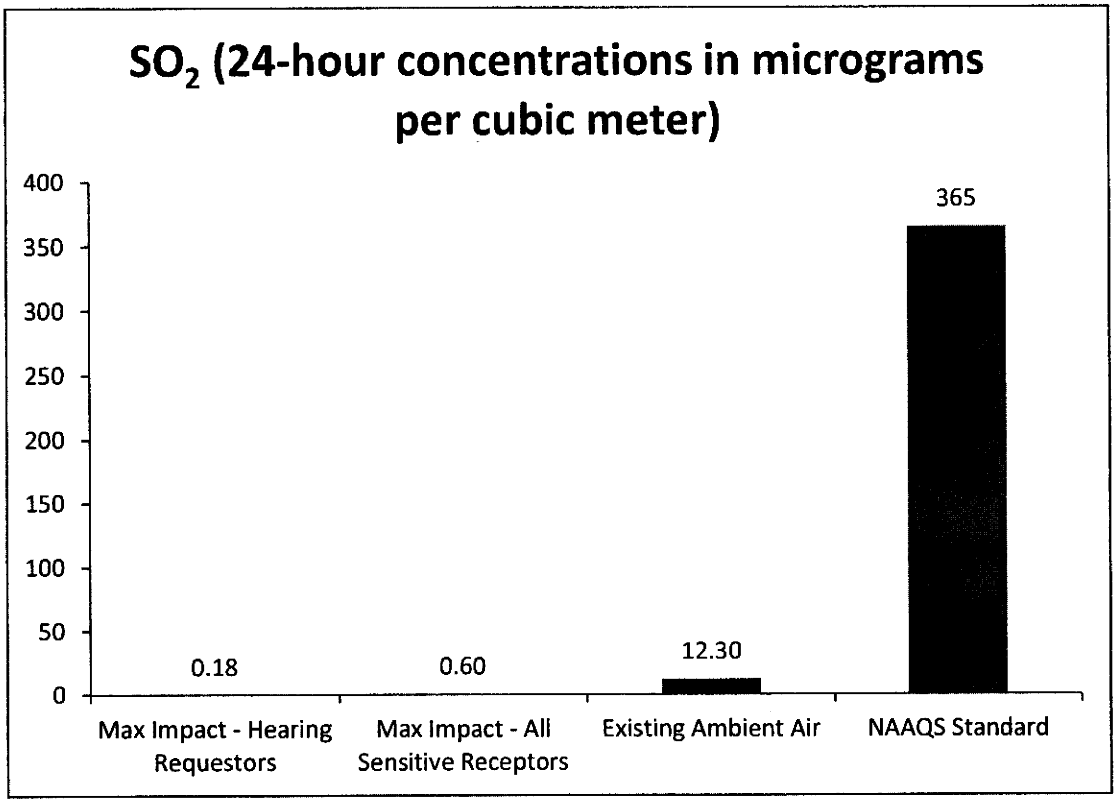
1) Jillian Nicole Holub abd Jessica Ann Holub Rumbaugh are assigned the same address as Farryl per his letter to TCEQ. Address and location were previously submitted
2) Maria Navarro is assumed to be at the same address as Ashley Garza, per the listing in the petition. No alternate address was located.
3) Meagan Rivera and Erin Rivera are listed at the same address as #7 Ben and Esther Rivera at 10962 S Hwy 71, El Campo TX which is listed as the property owned by Irene O'Campo
4) Juhl Miksik is listed at the same address as #11 Wesly and Darleen Miksik at 11663 CR 403, El Campo TX

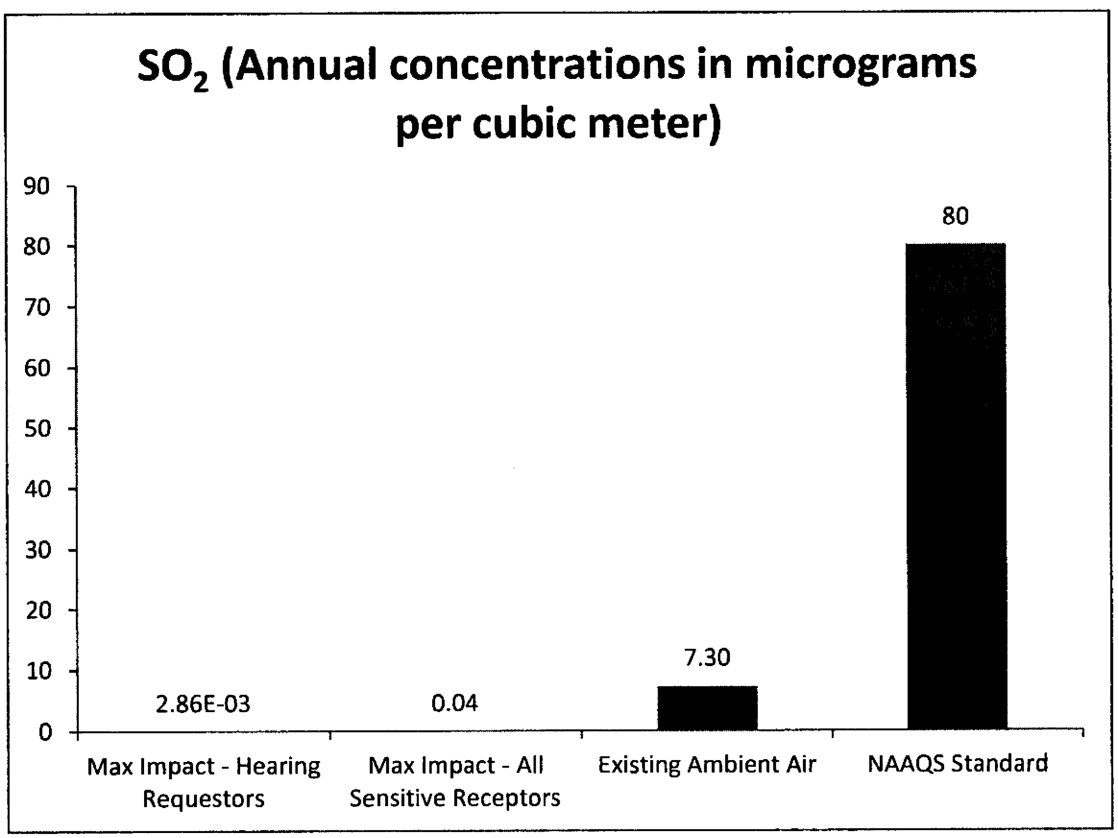

NO_2 (1-hour concentrations in micrograms per cubic meter)
200
180
160
140
120
100
80
60
40
20
0
6.22
19.29
37.70
188
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
Existing Ambient Air
NAAQS Standard

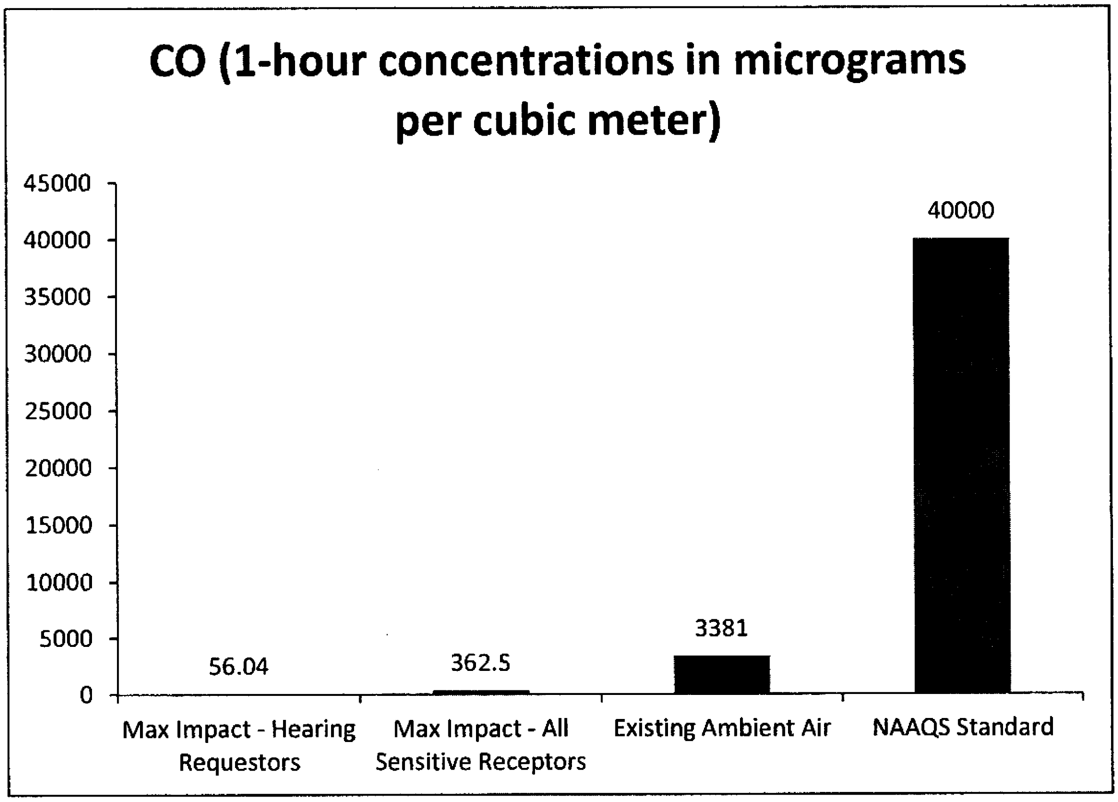

NO_2 (Annual concentrations in micrograms per cubic meter)
120
100
80
60
40
20
0
3.70E-02
1.78
1S.20
100
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
Existing Ambient Air
NAAQS Standard

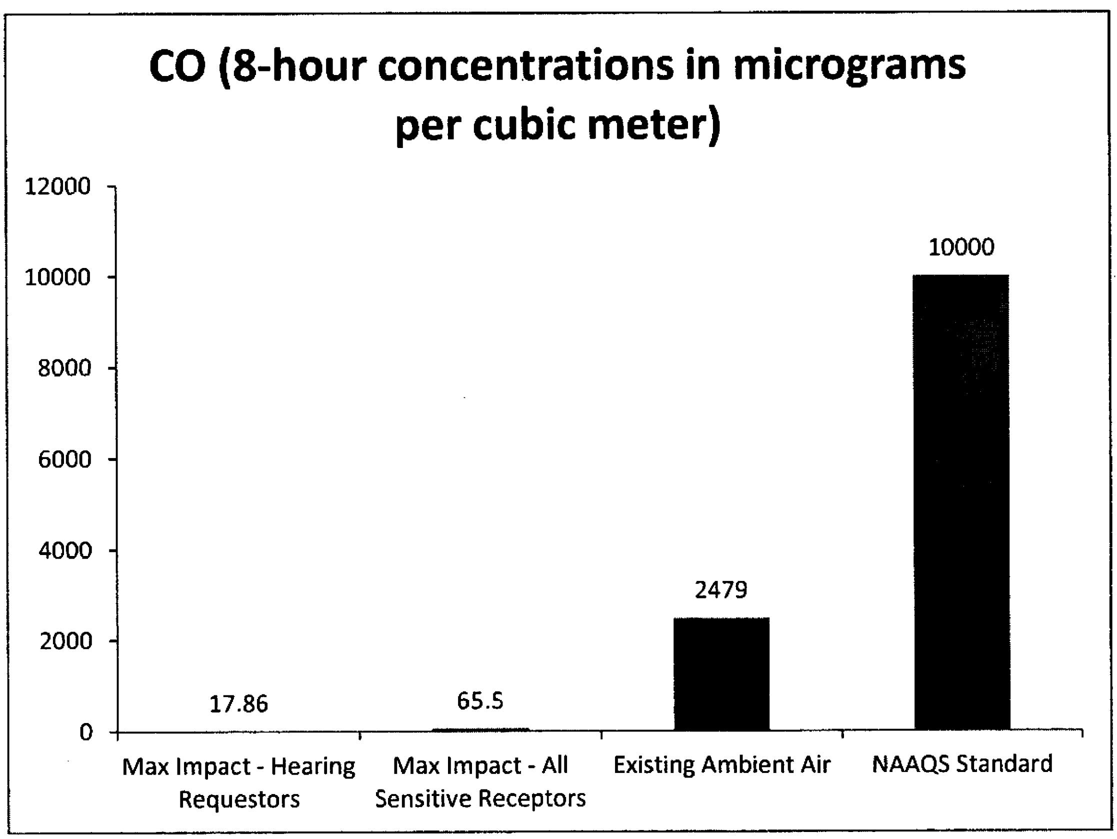

SO2 (1-hour concentrations in micrograms per cubic meter)
220
200
180
160
140
120
100
80
60
40
20
0
196
42.90
0.57
1.37
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
Existing Ambient Air
NAAQS Standard

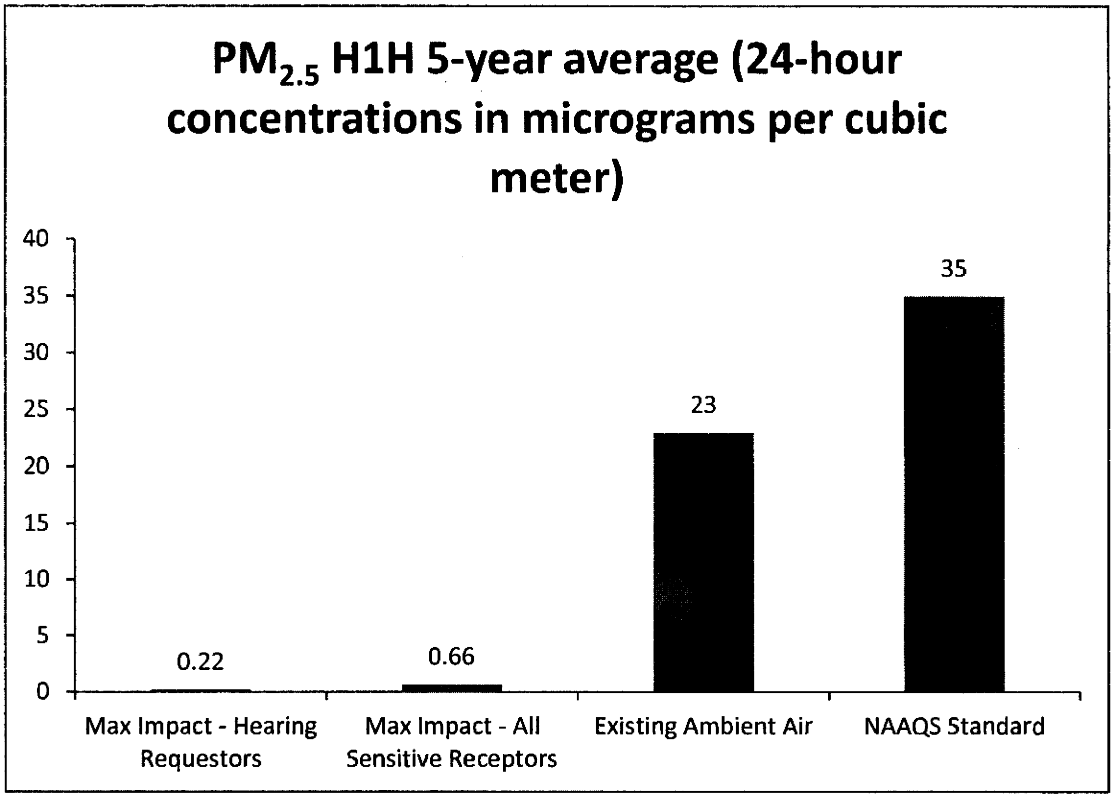

SO2 (3-hour concentrations in micrograms per cubic meter)
1400
1200
1000
800
600
400
200
0
1300
55
0.56
2.53
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
Existing Ambient Air
NAAQS Standard

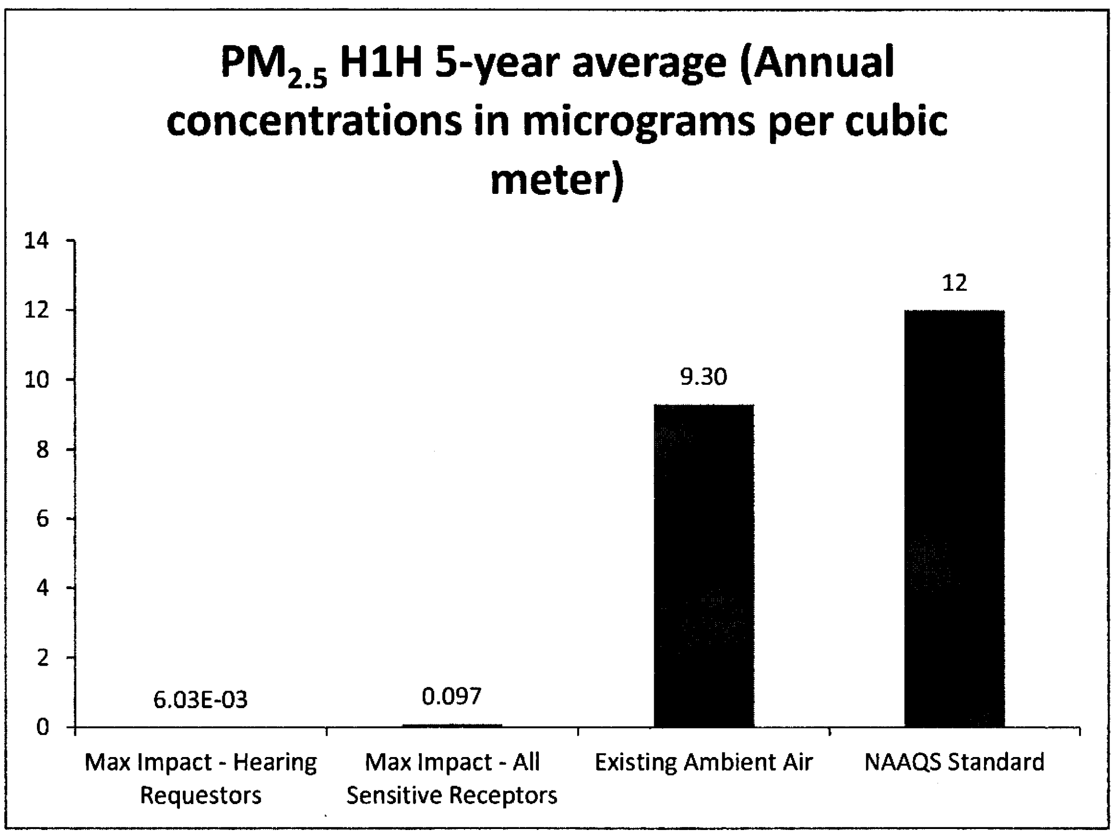

SO_2 (24-hour concentrations in micrograms per cubic meter)
400
350
300
250
200
150
100
50
0
0.18
0.60
12.30
365
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
Existing Ambient Air
NAAQS Standard

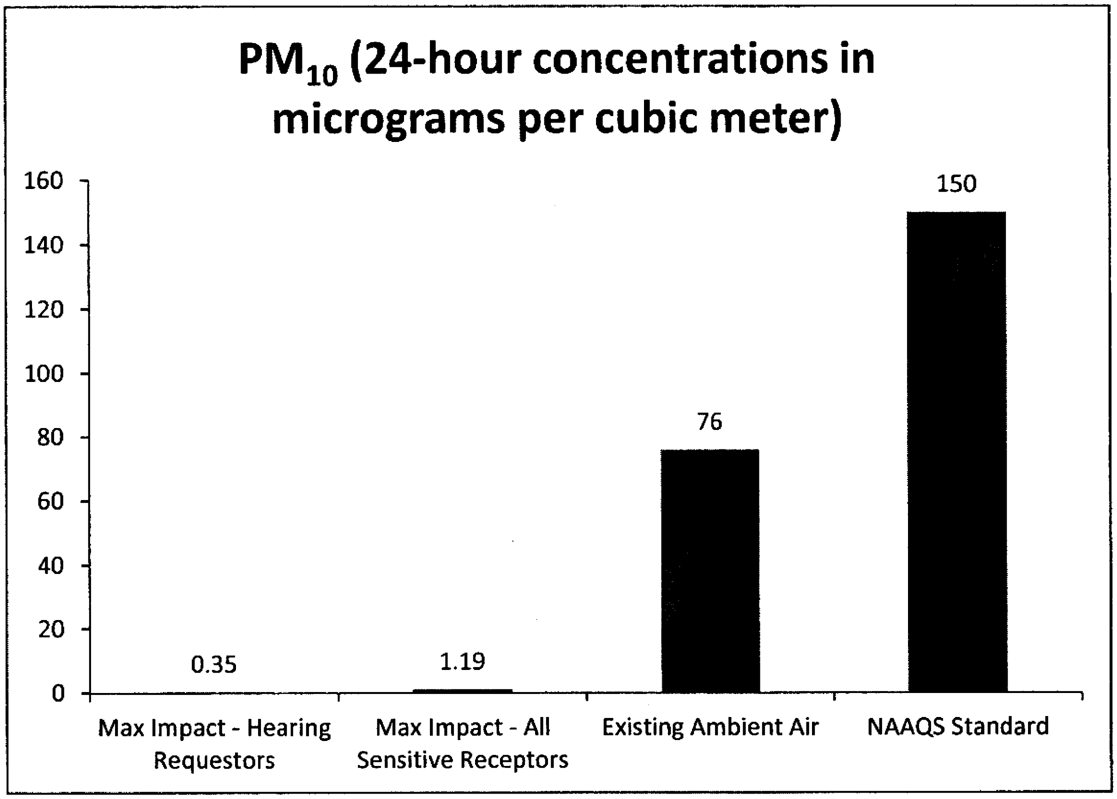

SO_2 (Annual concentrations in micrograms per cubic meter)
90
80
70
60
50
40
30
20
10
0
2.86E-03
0.04
7.30
80
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
Existing Ambient Air
NAAQS Standard

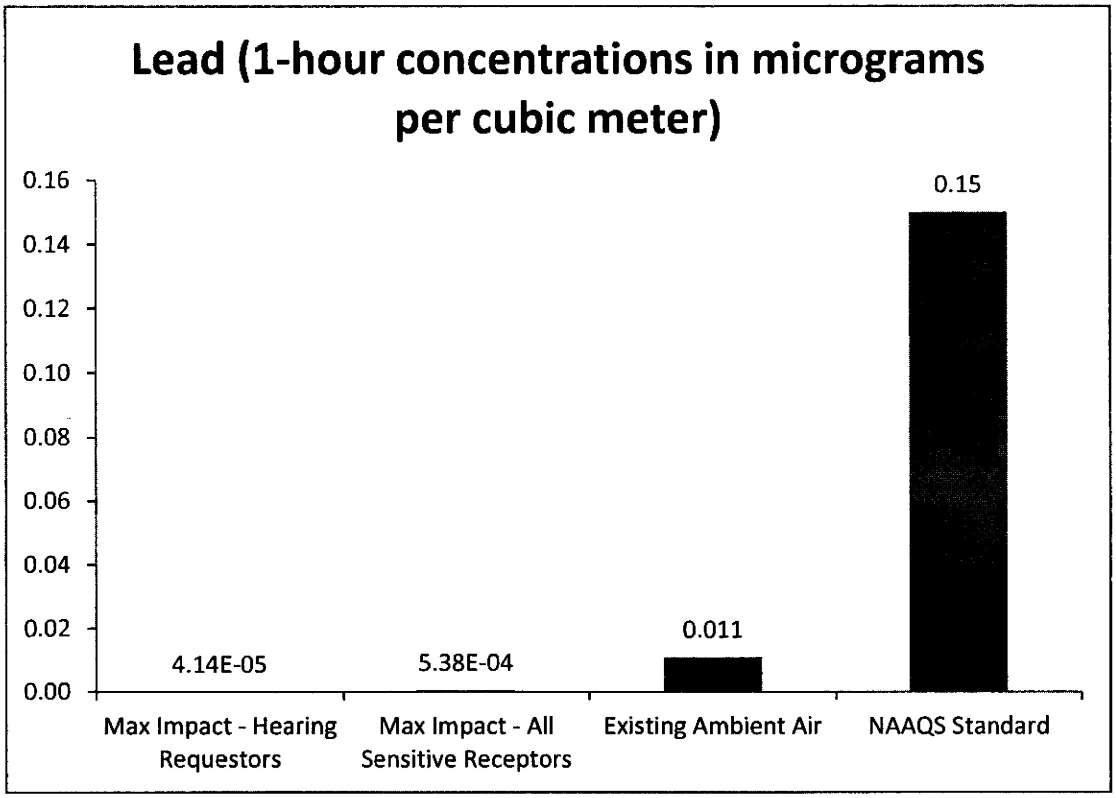

CO (1-hour concentrations in micrograms per cubic meter)
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
56.04
362.5
3381
40000
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
Existing Ambient Air
NAAQS Standard

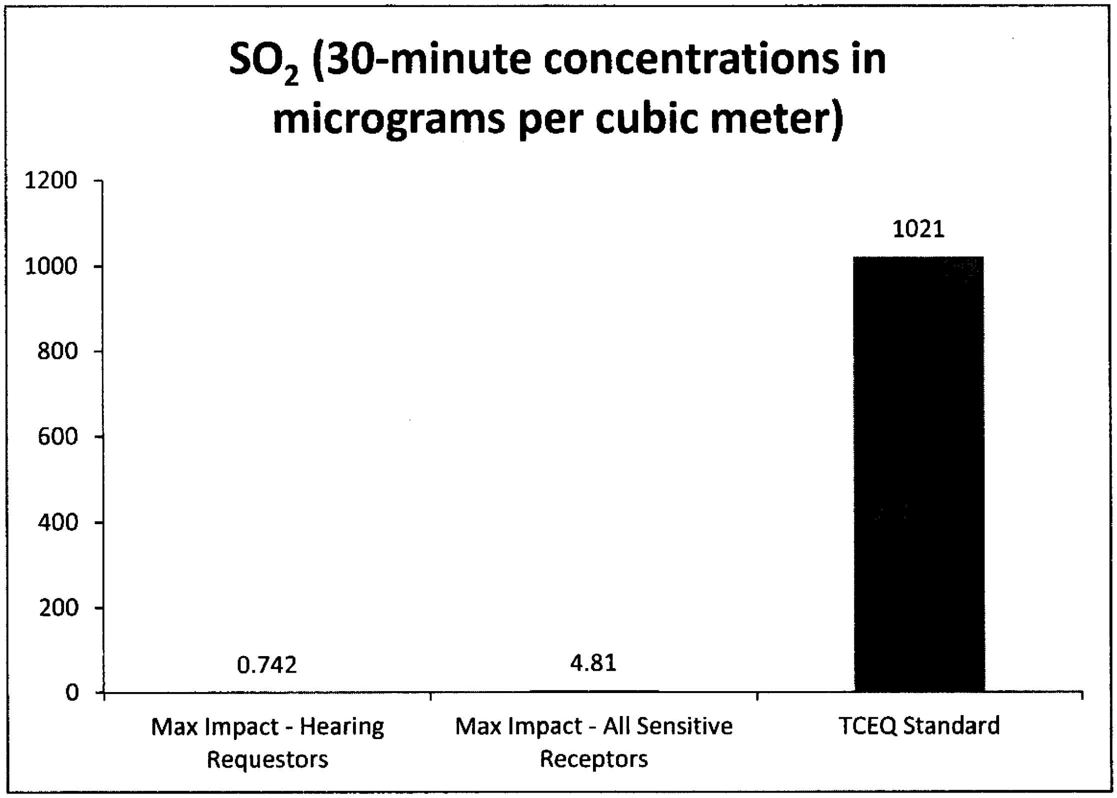

CO (8-hour concentrations in micrograms per cubic meter)
12000
10000
8000
6000
4000
2000
0
17.86
65.5
2479
10000
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
Existing Ambient Air
NAAQS Standard

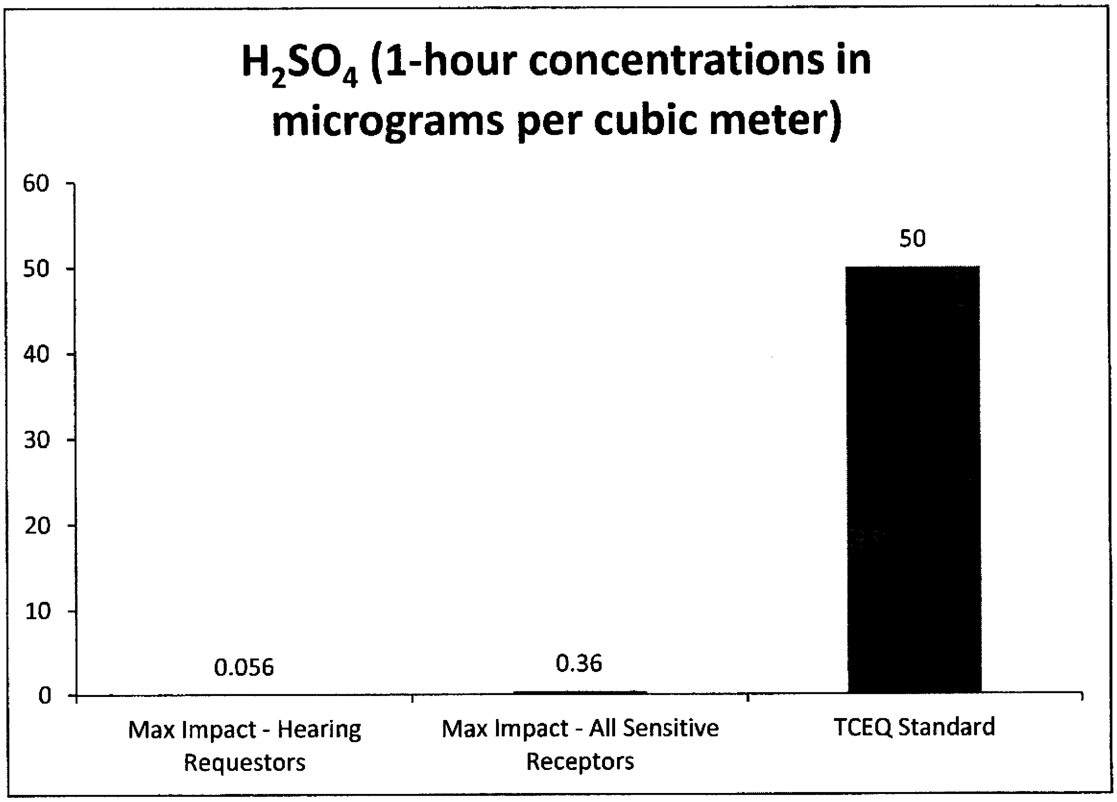

PM2.5 H1H 5-year average (24-hour concentrations in micrograms per cubic meter)
40
35
30
25
20
15
10
5
0
0.22
0.66
23
35
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
Existing Ambient Air
NAAQS Standard

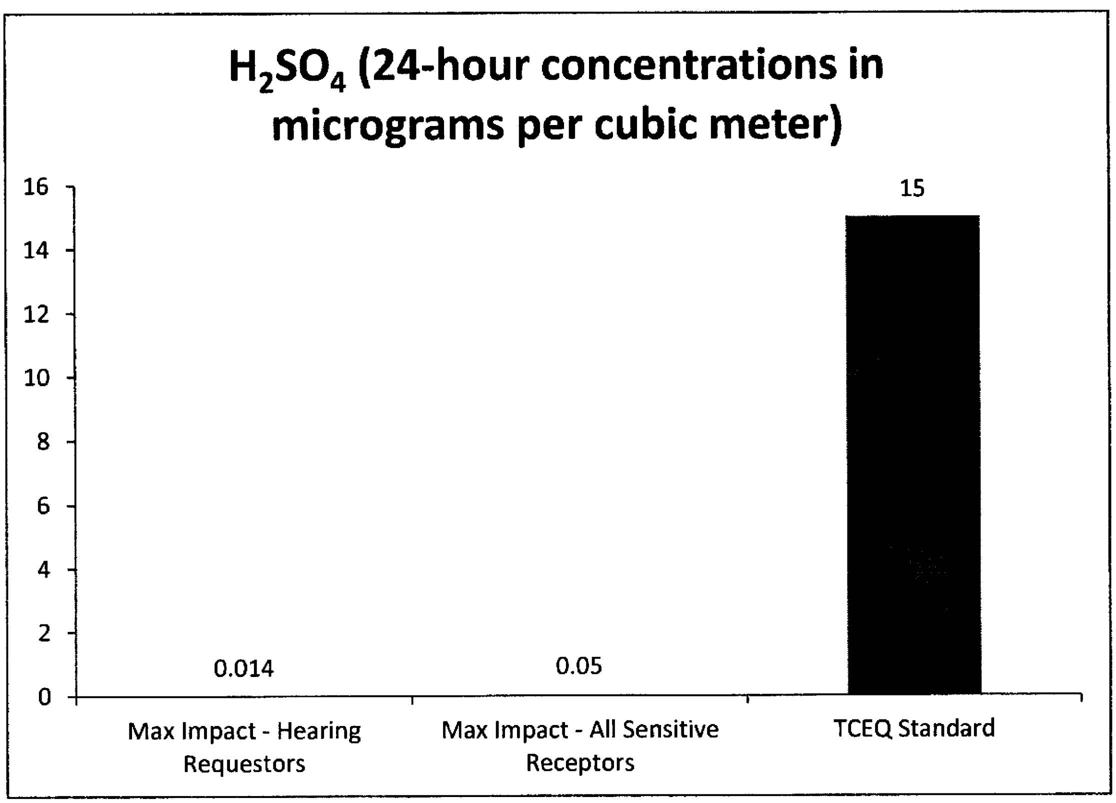

PM2.5 H1H 5-year average (Annual concentrations in micrograms per cubic meter)
14
12
10
8
6
4
2
0
6.03E-03
0.097
9.30
12
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
Existing Ambient Air
NAAQS Standard

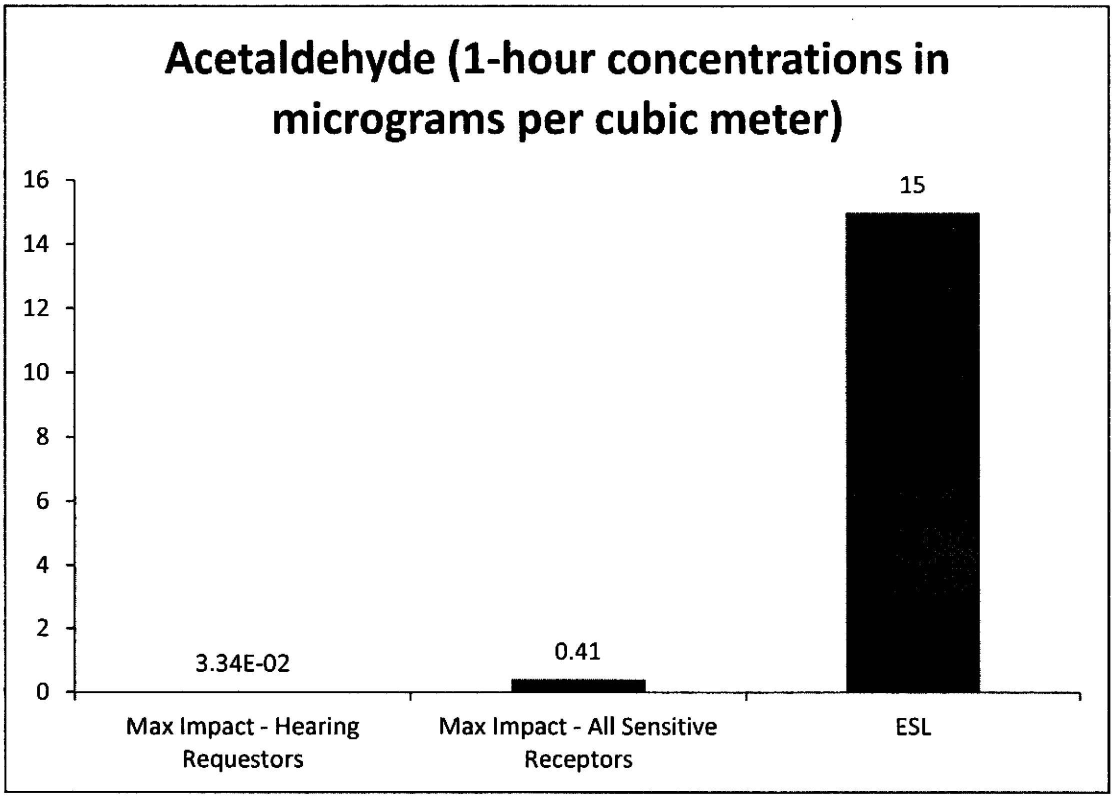

PM_{10} (24-hour concentrations in micrograms per cubic meter)
160
140
120
100
80
60
40
20
0
0.35
1.19
76
150
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
Existing Ambient Air
NAAQS Standard

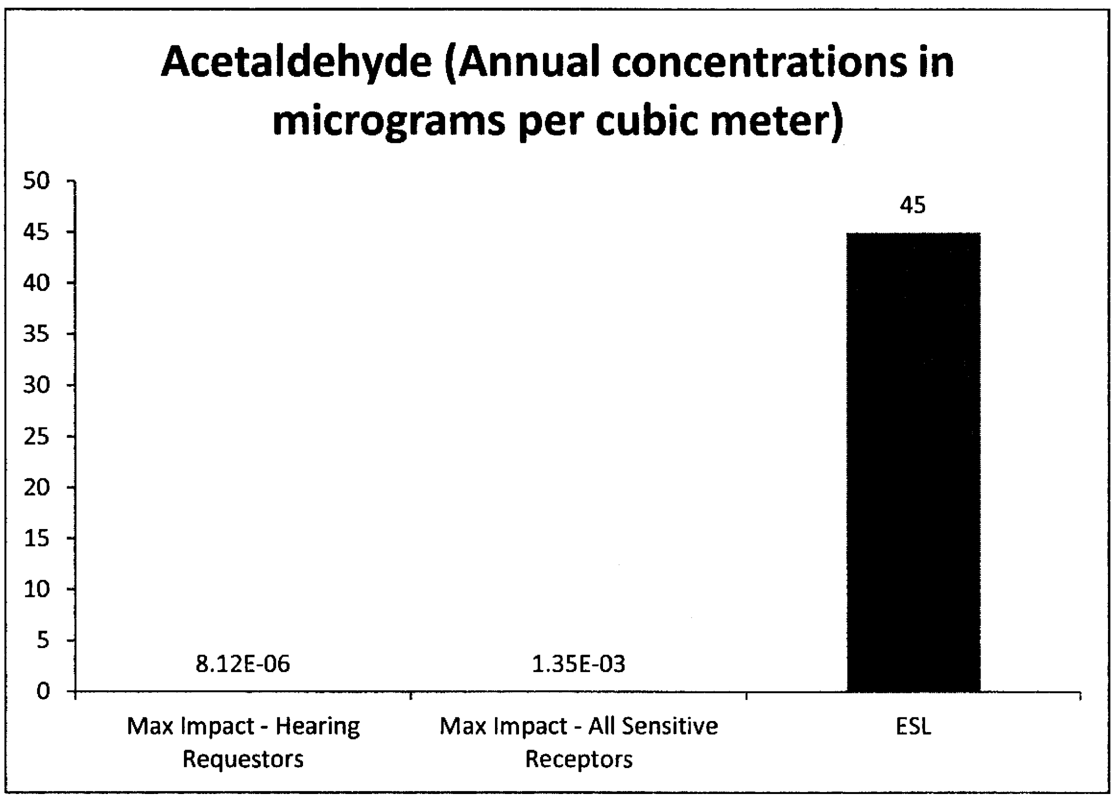

Lead (1-hour concentrations in micrograms per cubic meter)
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
4.14E-05
5.38E-04
0.011
0.15
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
Existing Ambient Air
NAAQS Standard

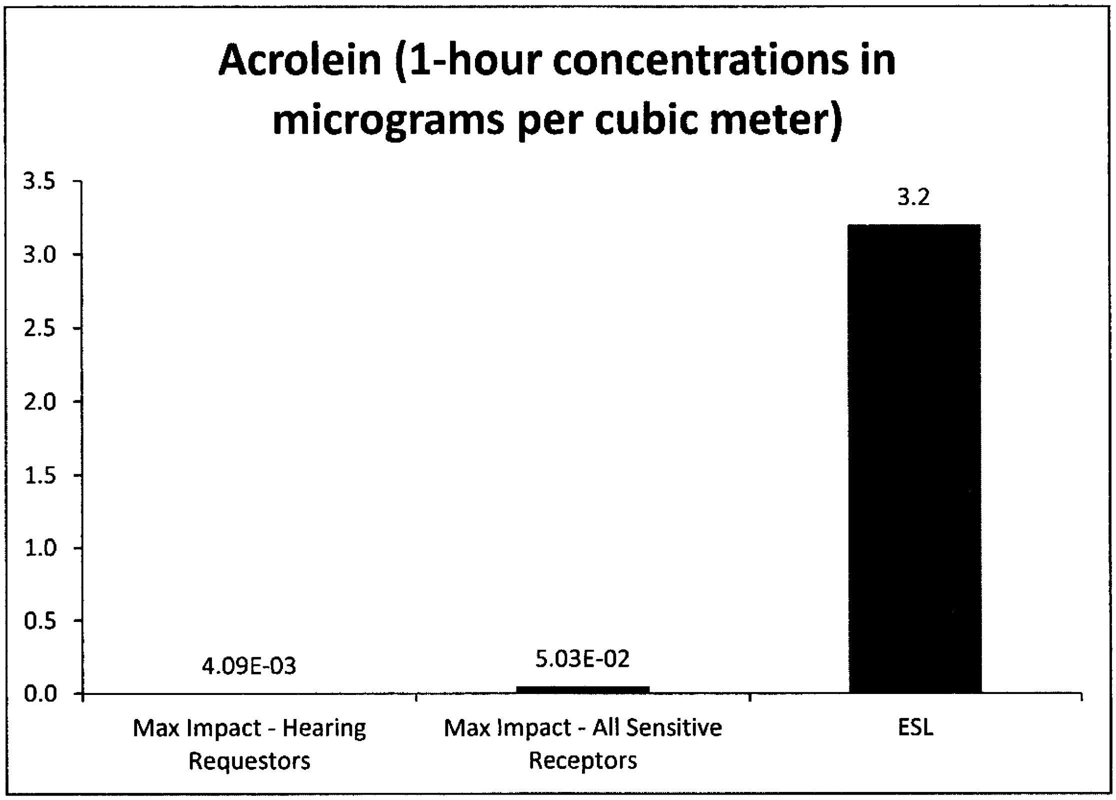

SO_2 (30-minute concentrations in micrograms per cubic meter)
1200
1000
800
600
400
200
0
1021
0.742
4.81
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
TCEQ Standard

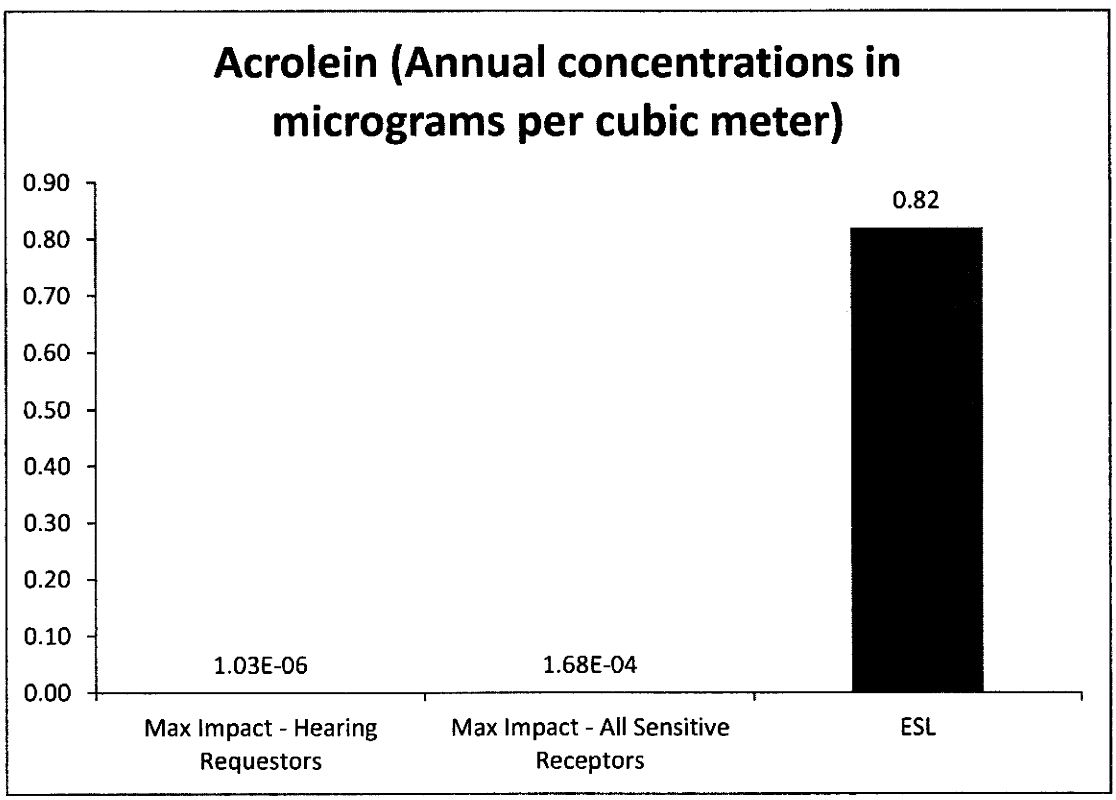

H_2SO_4 (1-hour concentrations in micrograms per cubic meter)
60
50
40
30
20
10
0
0.056
0.36
50
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
TCEQ Standard

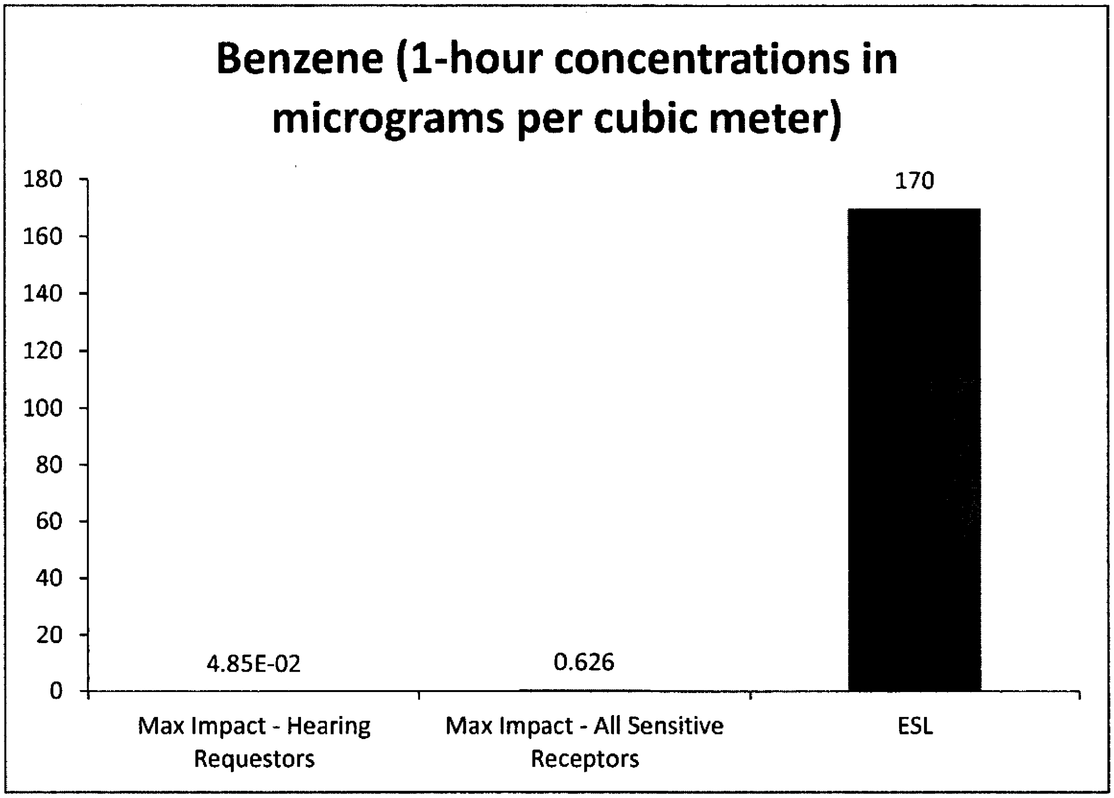

H_2SO_4 (24-hour concentrations in micrograms per cubic meter)
16
14
12
10
8
6
4
2
0
0.014
0.05
15
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
TCEQ Standard

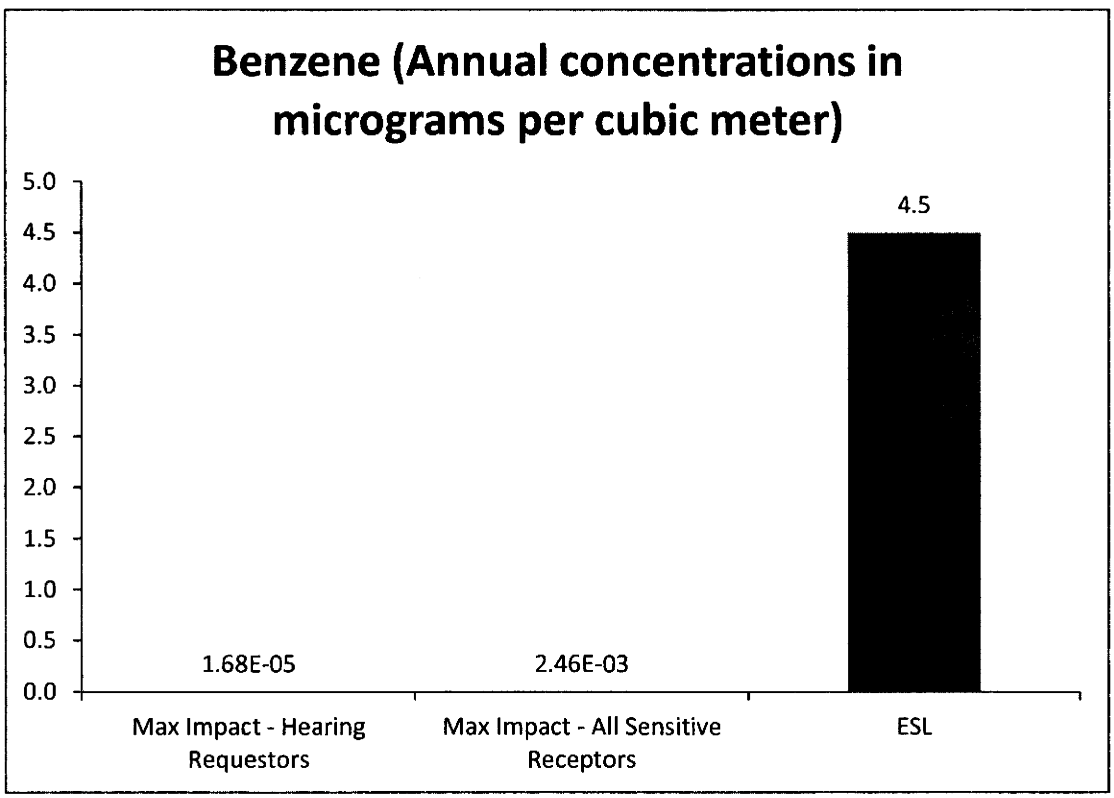

Acetaldehyde (1-hour concentrations in micrograms per cubic meter)
16
14
12
10
8
6
4
2
0
15
3.34E-02
0.41
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

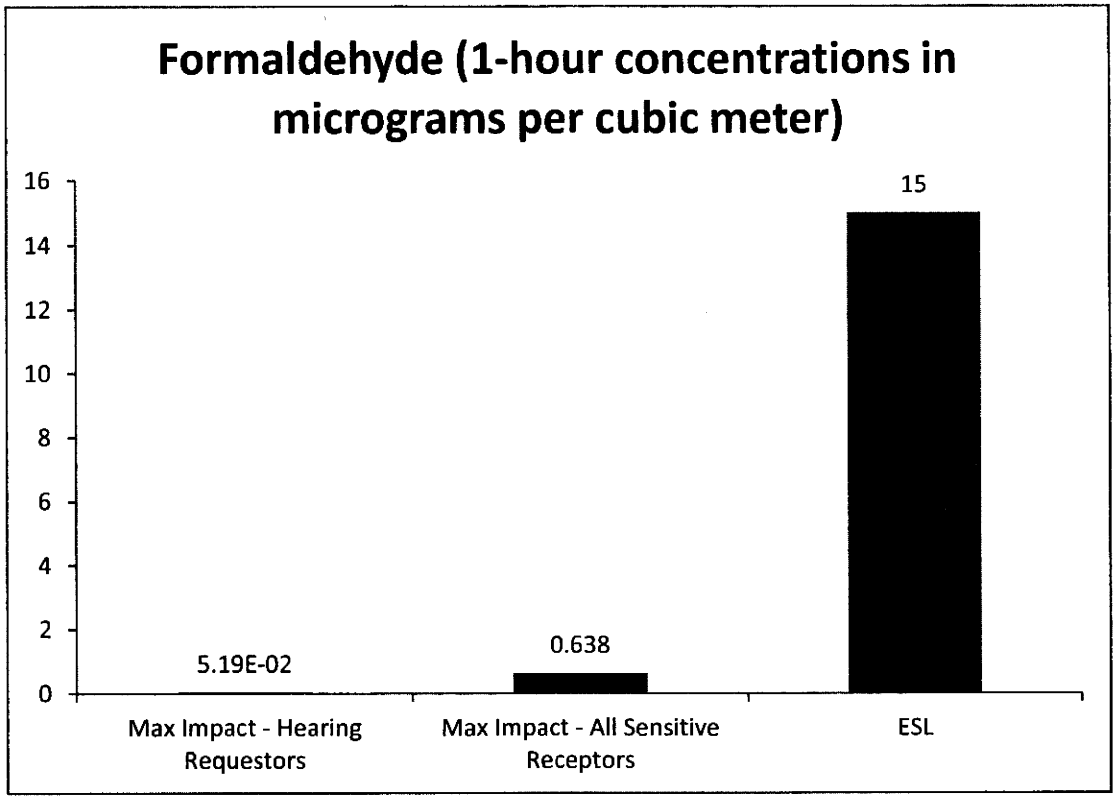

Acetaldehyde (Annual concentrations in micrograms per cubic meter)
50
45
40
35
30
25
20
15
10
5
0
45
8.12E-06
1.35E-03
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

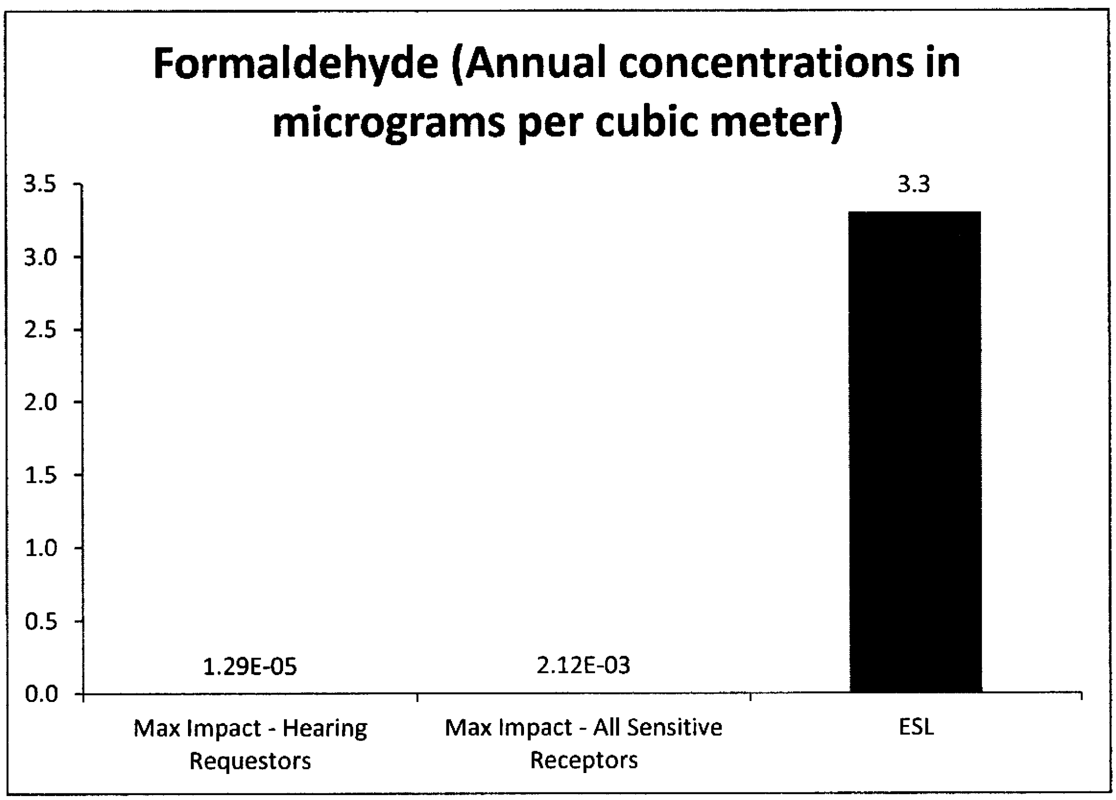

Acrolein (1-hour concentrations in micrograms per cubic meter)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
4.09E-03
5.03E-02
3.2
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

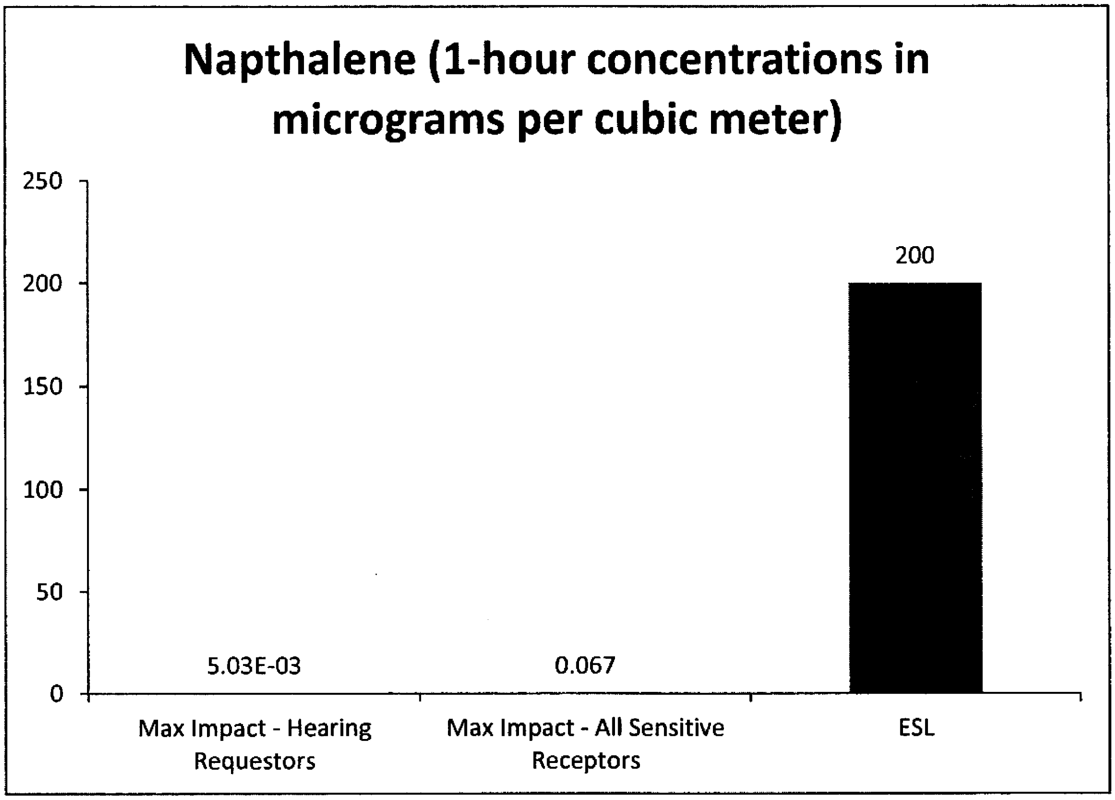

Acrolein (Annual concentrations in micrograms per cubic meter)
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1.03E-06
1.68E-04
0.82
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

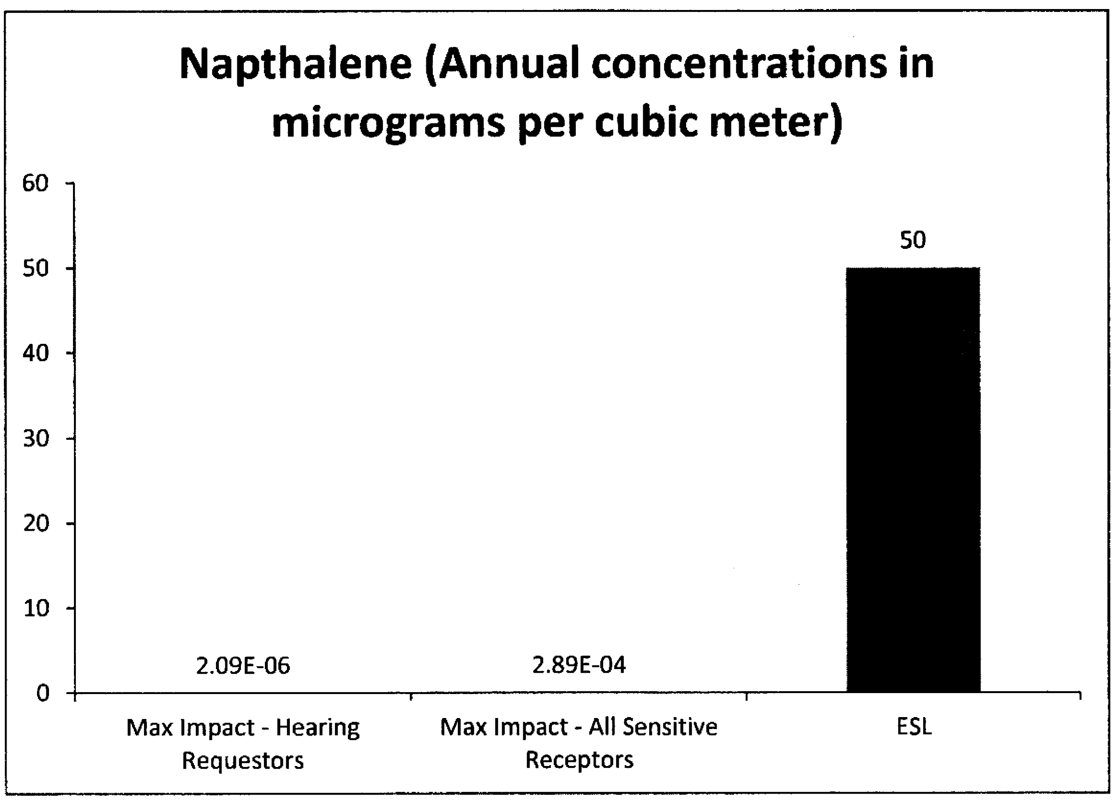

Benzene (1-hour concentrations in micrograms per cubic meter)
180
160
140
120
100
80
60
40
20
0
4.85E-02
0.626
170
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

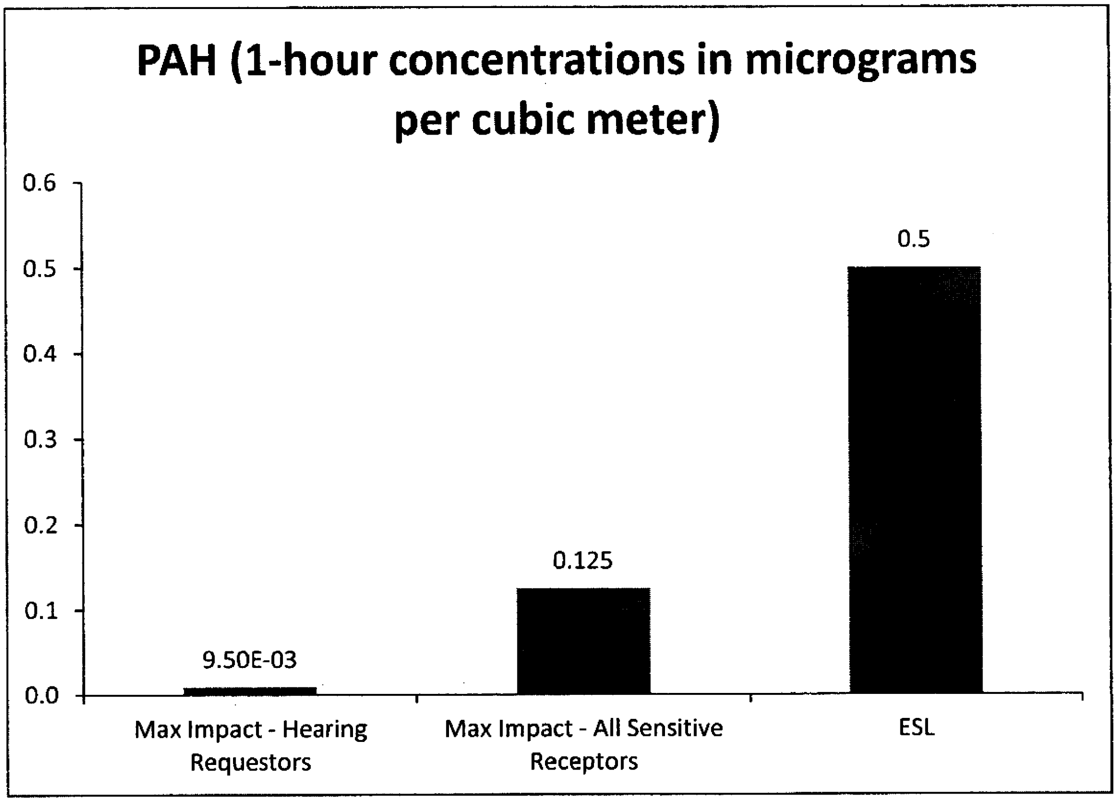

Benzene (Annual concentrations in micrograms per cubic meter)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1.68E-05
2.46E-03
4.5
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

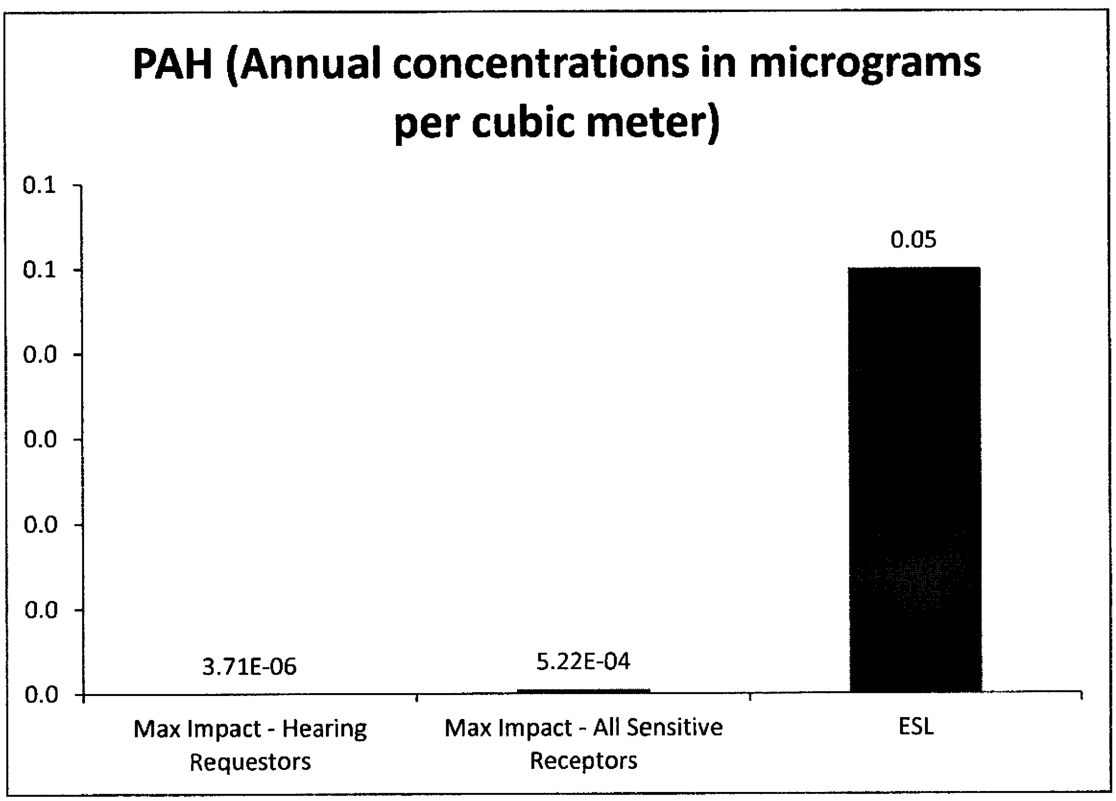

Formaldehyde (1-hour concentrations in micrograms per cubic meter)
16
14
12
10
8
6
4
2
0
5.19E-02
0.638
15
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

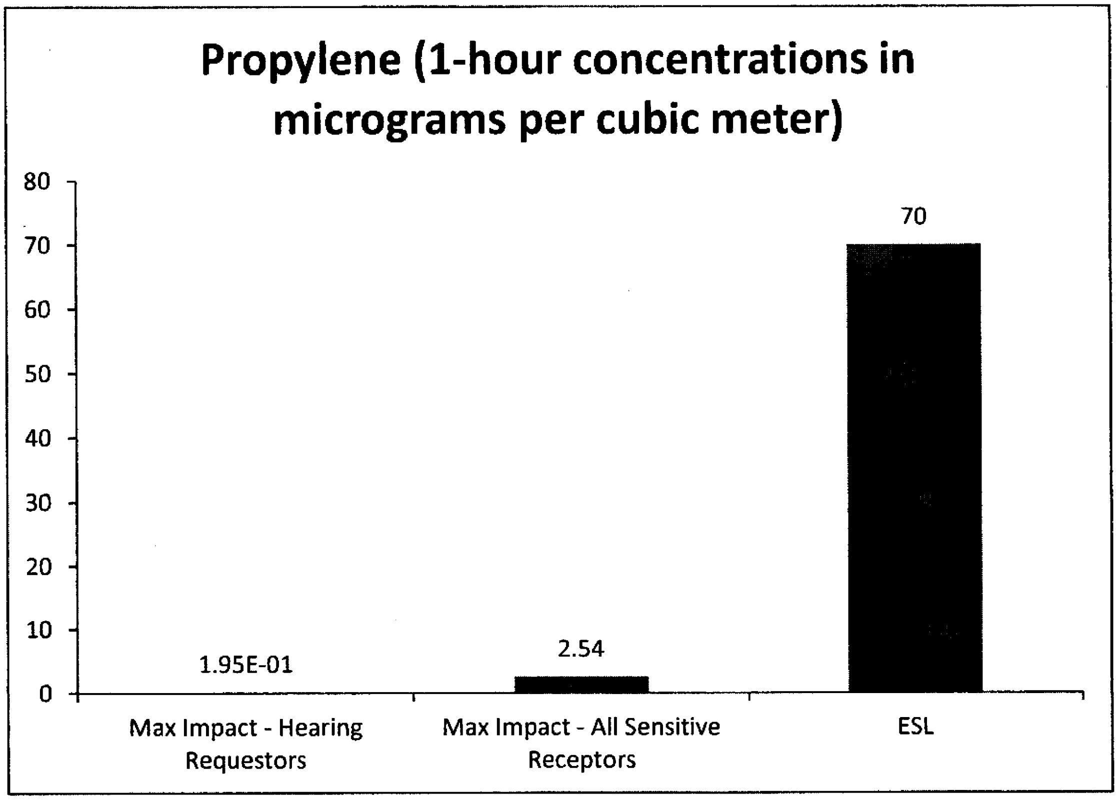

Formaldehyde (Annual concentrations in micrograms per cubic meter)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
1.29E-05
2.12E-03
3.3
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

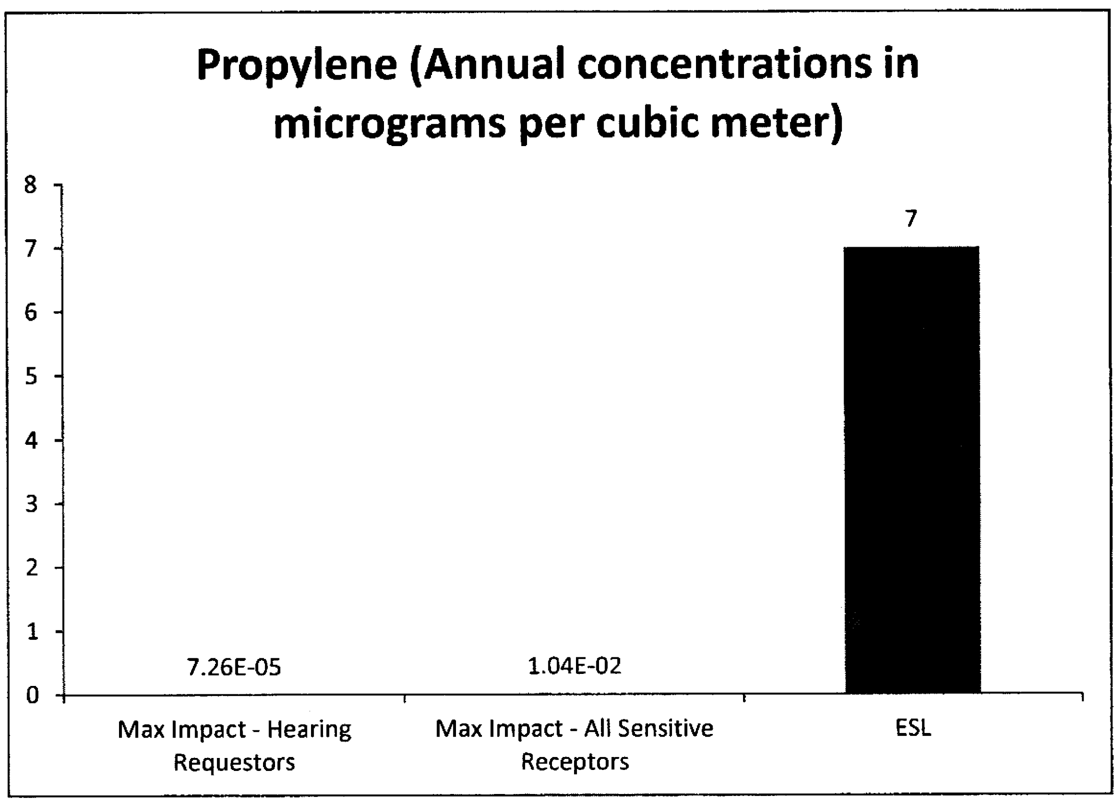

Napthalene (1-hour concentrations in micrograms per cubic meter)
250
200
150
100
50
0
200
5.03E-03
0.067
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

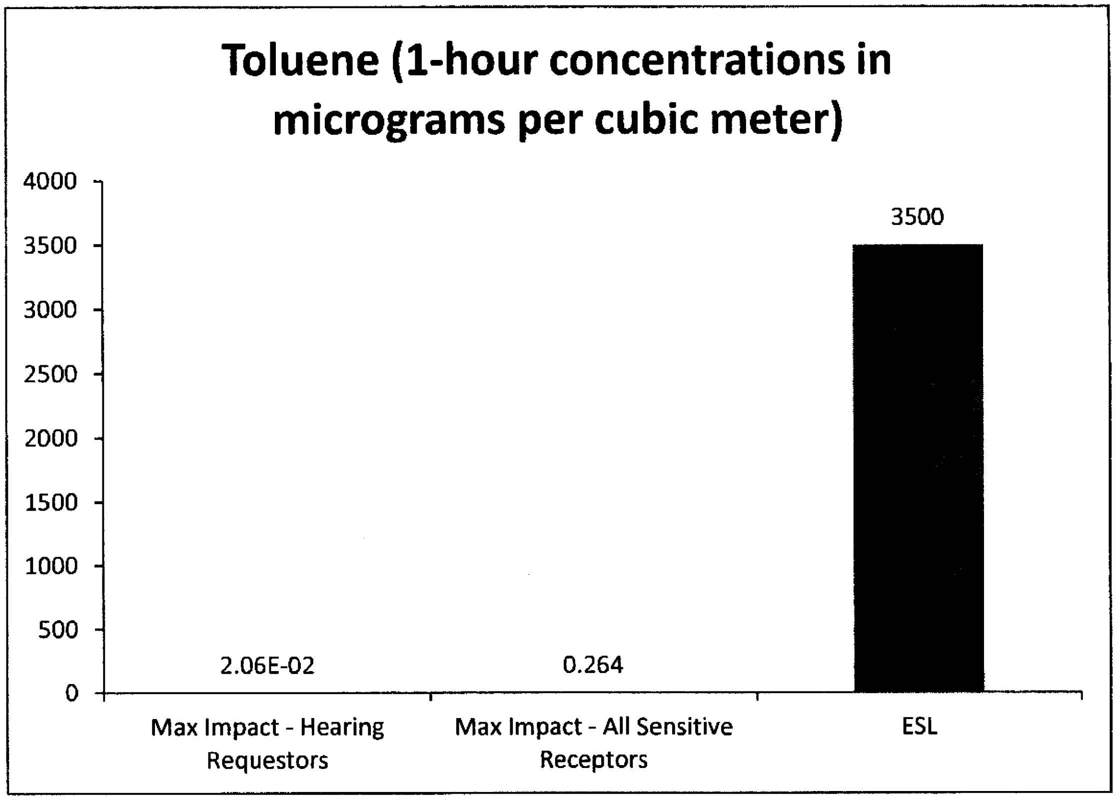

Napthalene (Annual concentrations in micrograms per cubic meter)
60
50
40
30
20
10
0
50
2.09E-06
2.89E-04
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

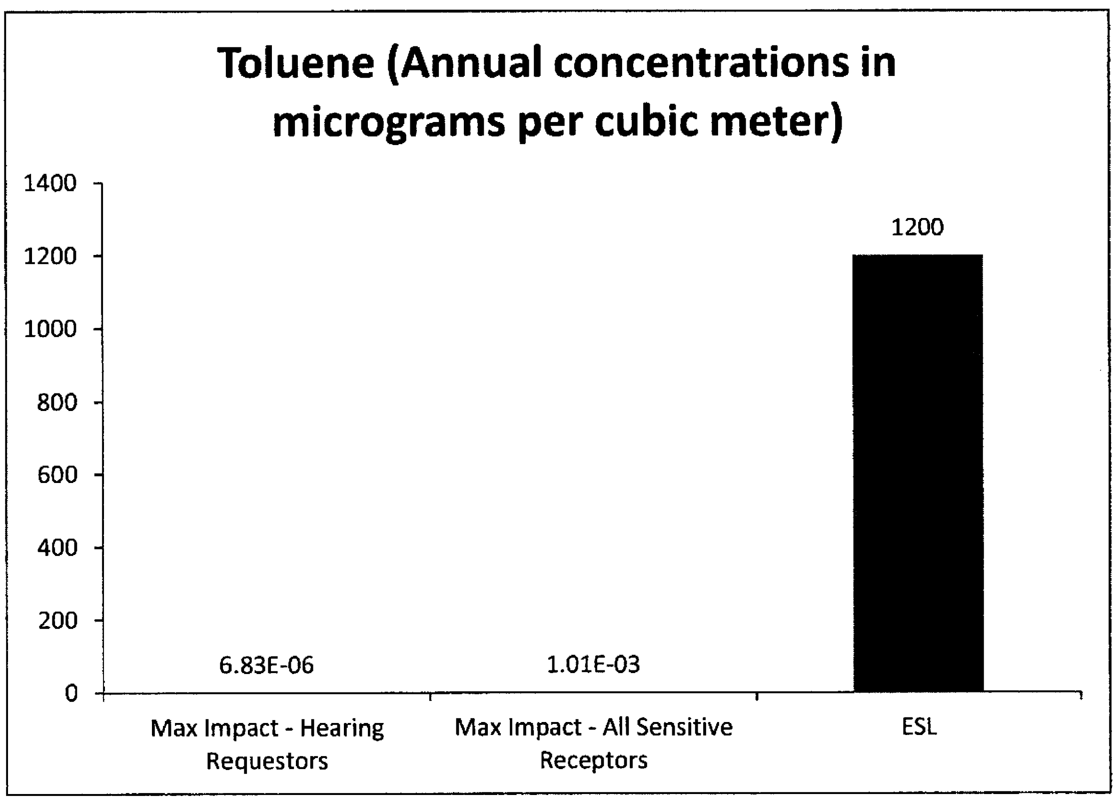

PAH (1-hour concentrations in micrograms per cubic meter)
0.6
0.5
0.4
0.3
0.2
0.1
0.0
9.50E-03
0.125
0.5
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

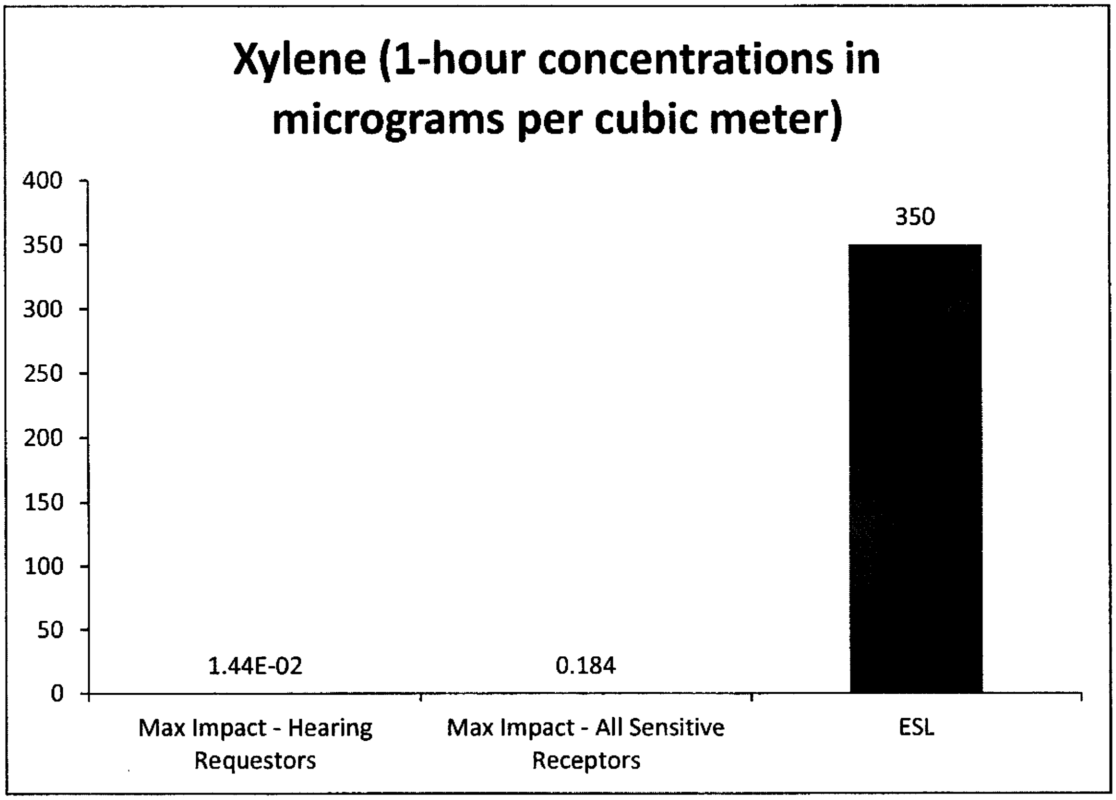

PAH (Annual concentrations in micrograms per cubic meter)
0.1
0.1
0.0
0.0
0.0
0.0
0.0
3.71E-06
5.22E-04
0.05
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

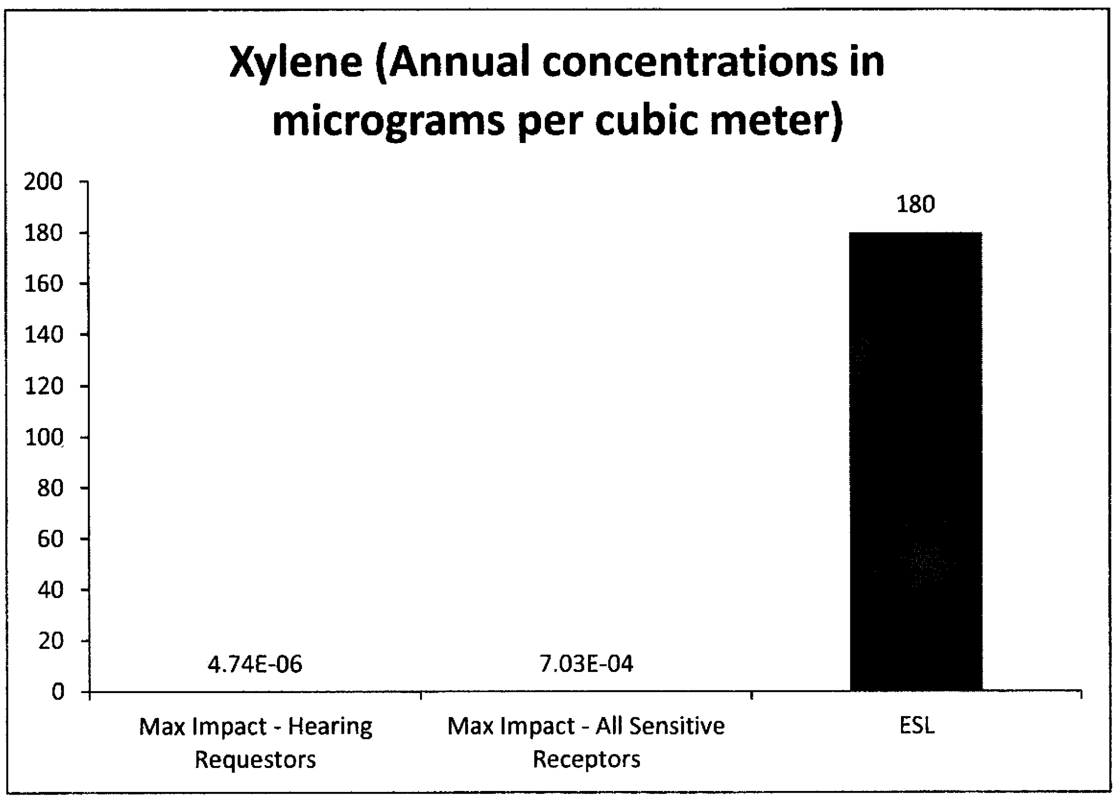

Propylene (1-hour concentrations in micrograms per cubic meter)
80
70
60
50
40
30
20
10
0
1.95E-01
2.54
70
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

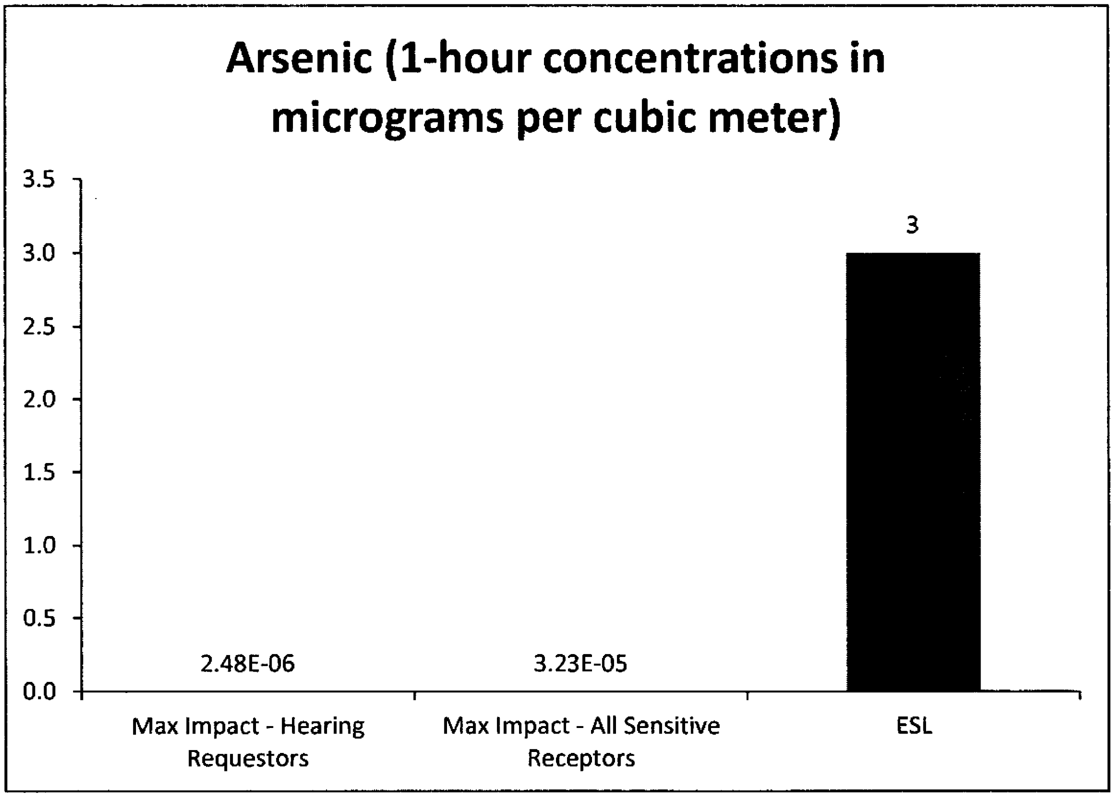

Propylene (Annual concentrations in micrograms per cubic meter)
8
7
6
5
4
3
2
1
0
7.26E-05
1.04E-02
7
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

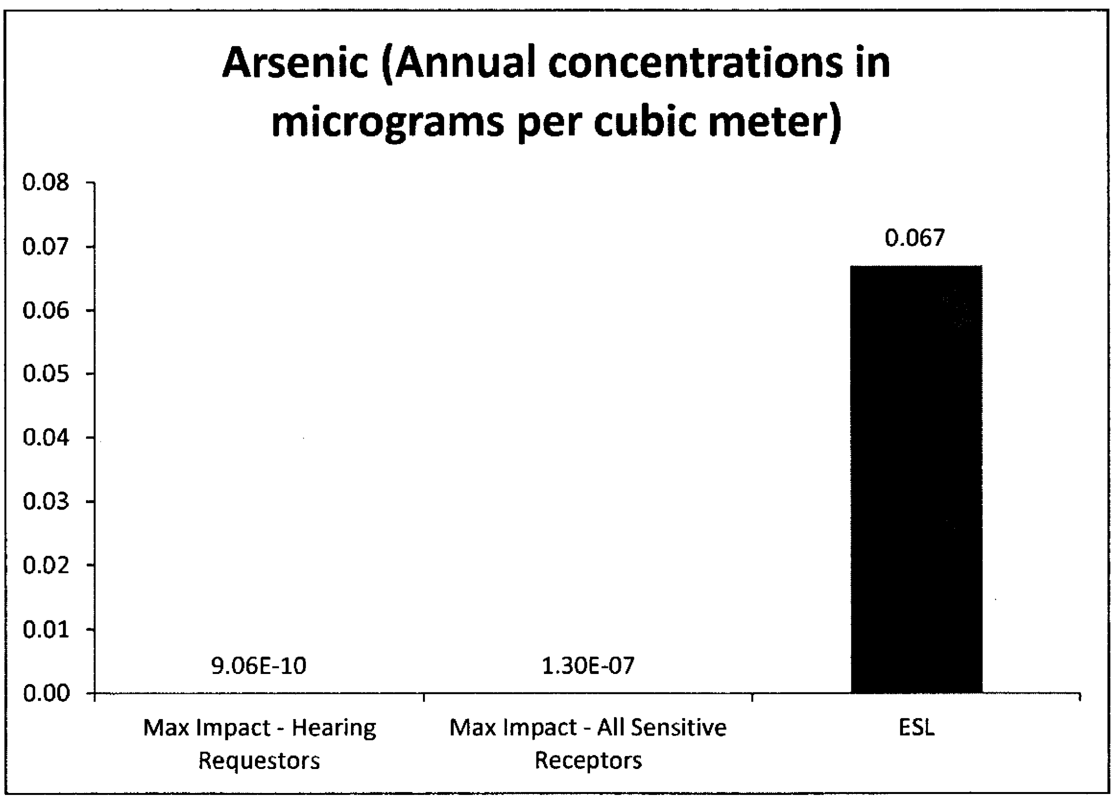

Toluene (1-hour concentrations in micrograms per cubic meter)
4000
3500
3000
2500
2000
1500
1000
500
0
2.06E-02
0.264
3500
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

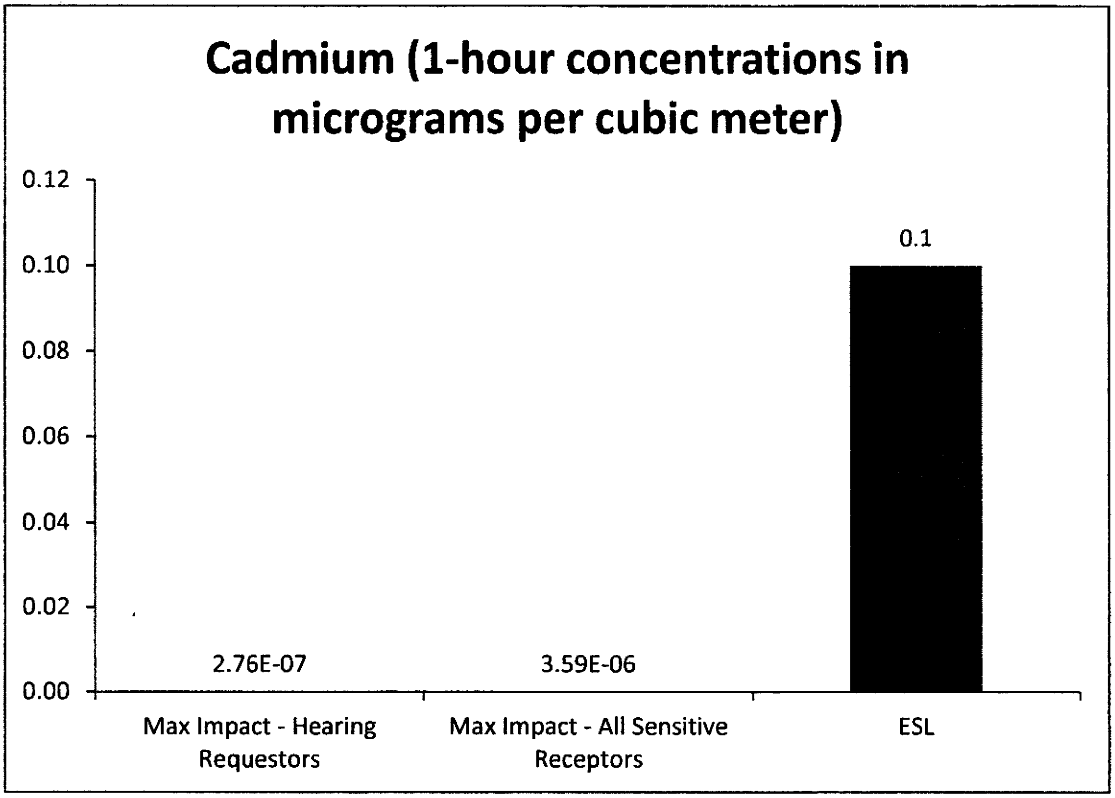

Toluene (Annual concentrations in micrograms per cubic meter)
1400
1200
1000
800
600
400
200
0
6.83E-06
1.01E-03
1200
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

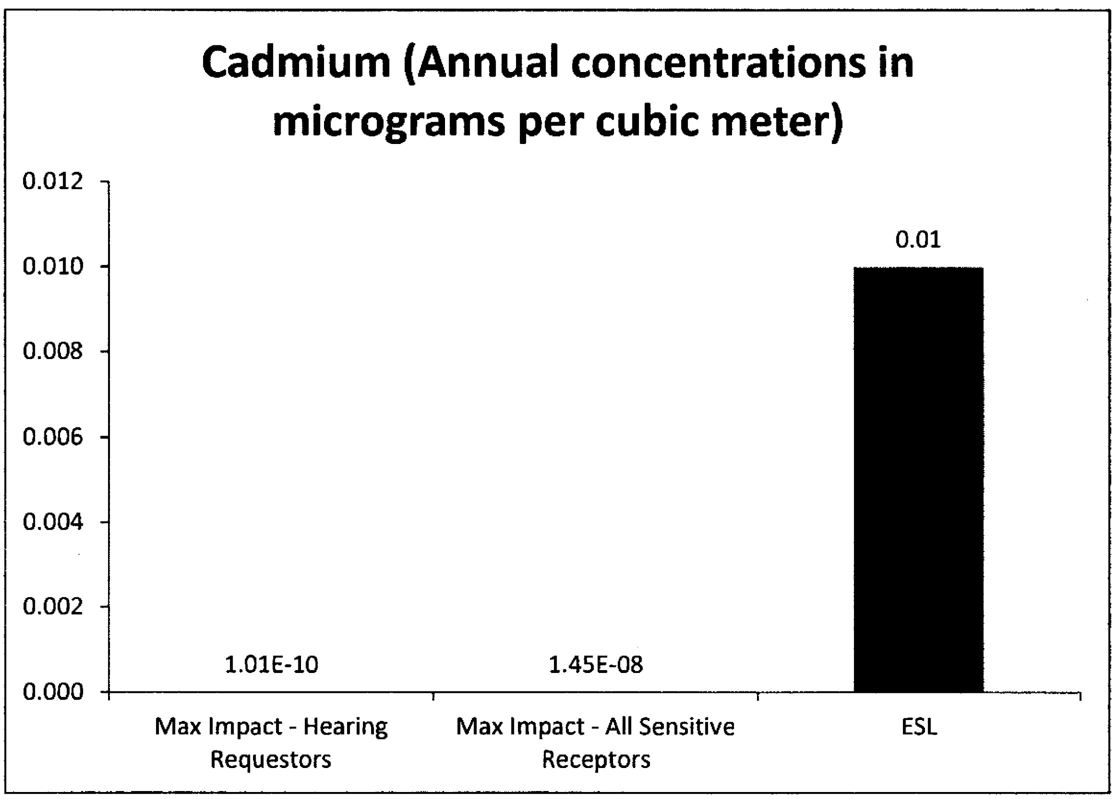

Xylene (1-hour concentrations in micrograms per cubic meter)
400
350
300
250
200
150
100
50
0
350
1.44E-02
0.184
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

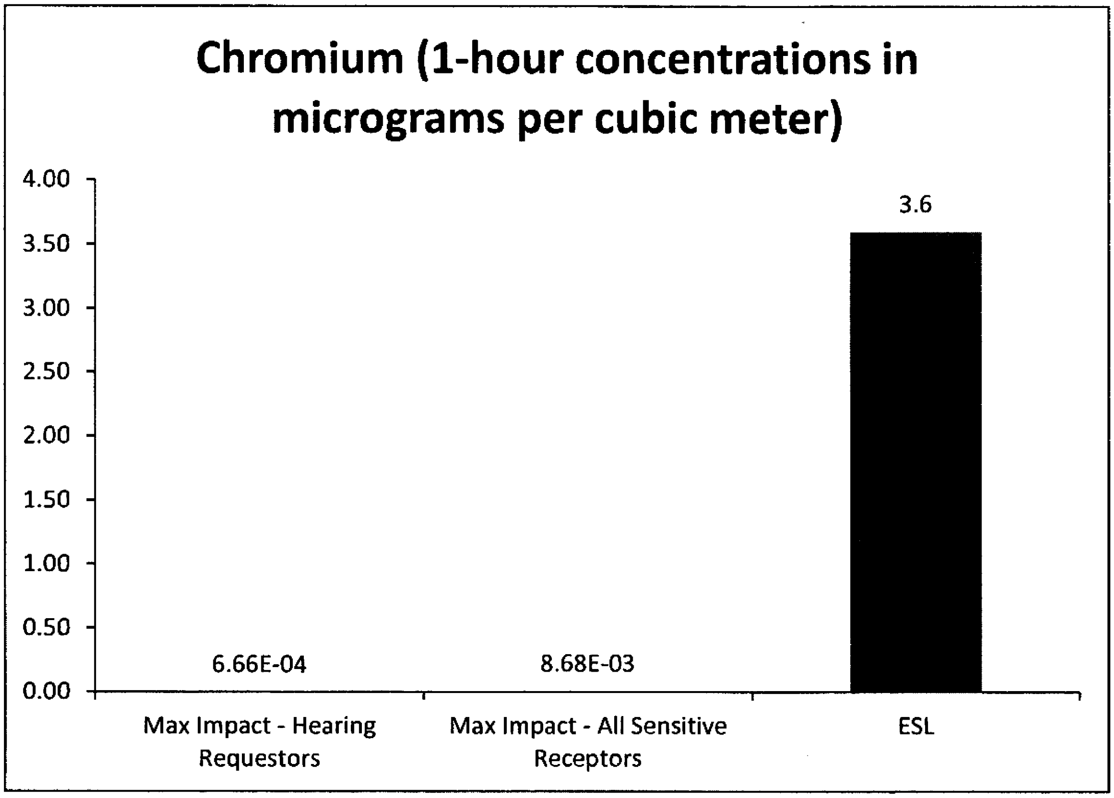

Xylene (Annual concentrations in micrograms per cubic meter)
200
180
160
140
120
100
80
60
40
20
0
180
4.74E-06
7.03E-04
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

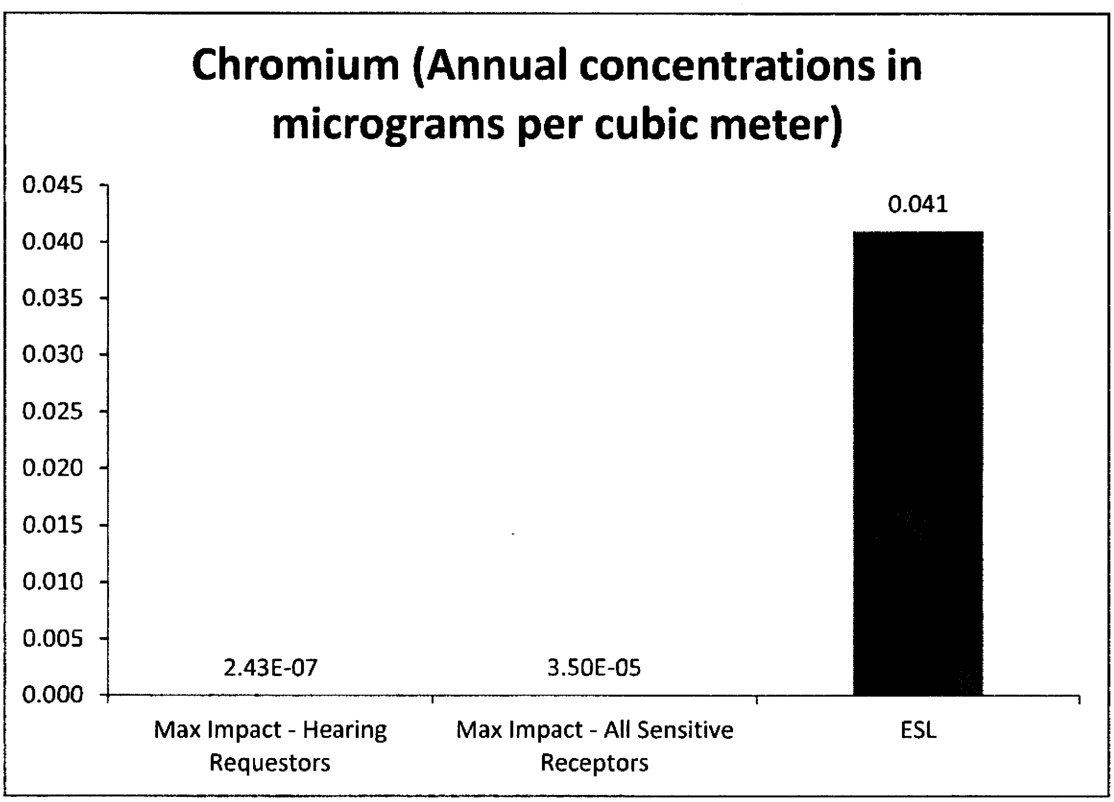

Arsenic (1-hour concentrations in micrograms per cubic meter)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2.48E-06
3.23E-05
3
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

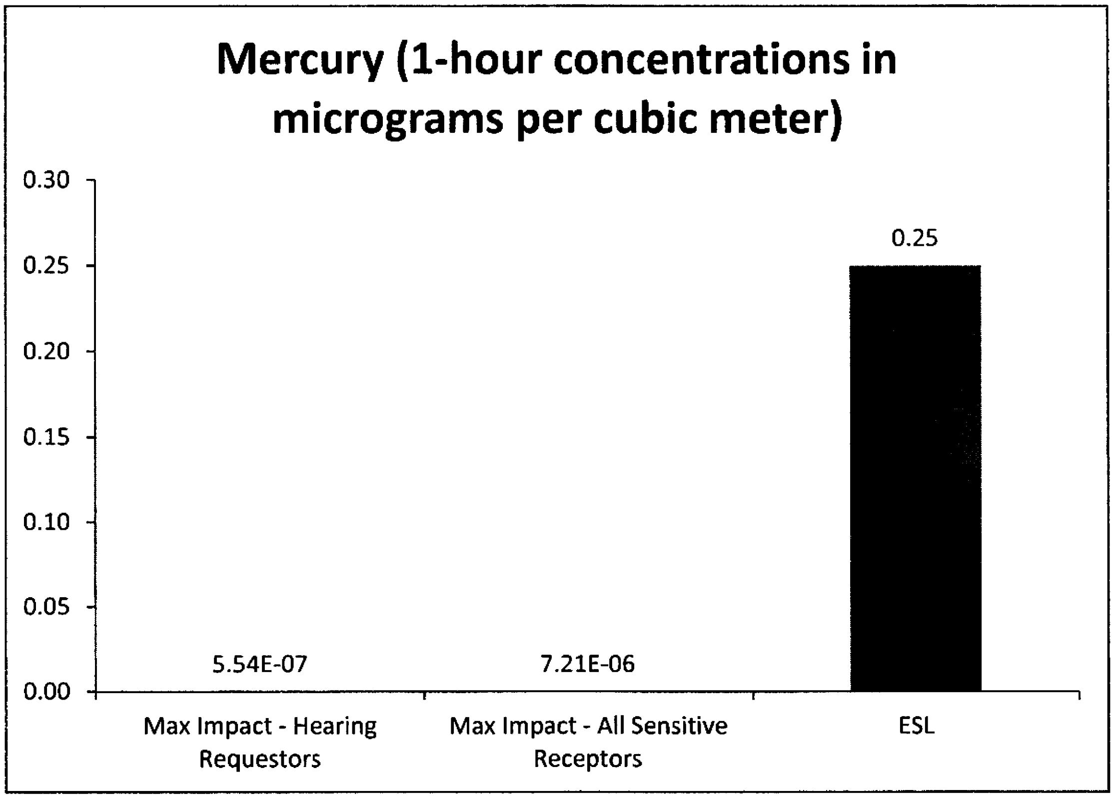

Arsenic (Annual concentrations in micrograms per cubic meter)
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
9.06E-10
1.30E-07
0.067
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

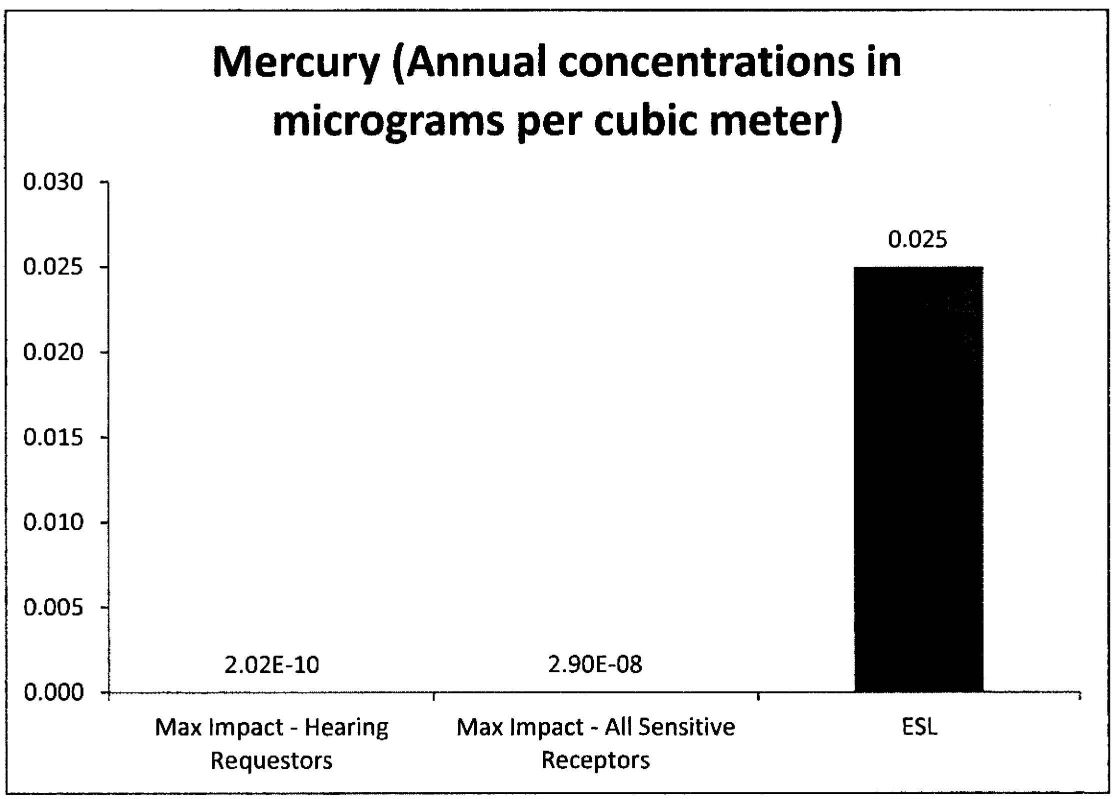

Cadmium (1-hour concentrations in micrograms per cubic meter)
0.12
0.10
0.08
0.06
0.04
0.02
0.00
2.76E-07
3.59E-06
0.1
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

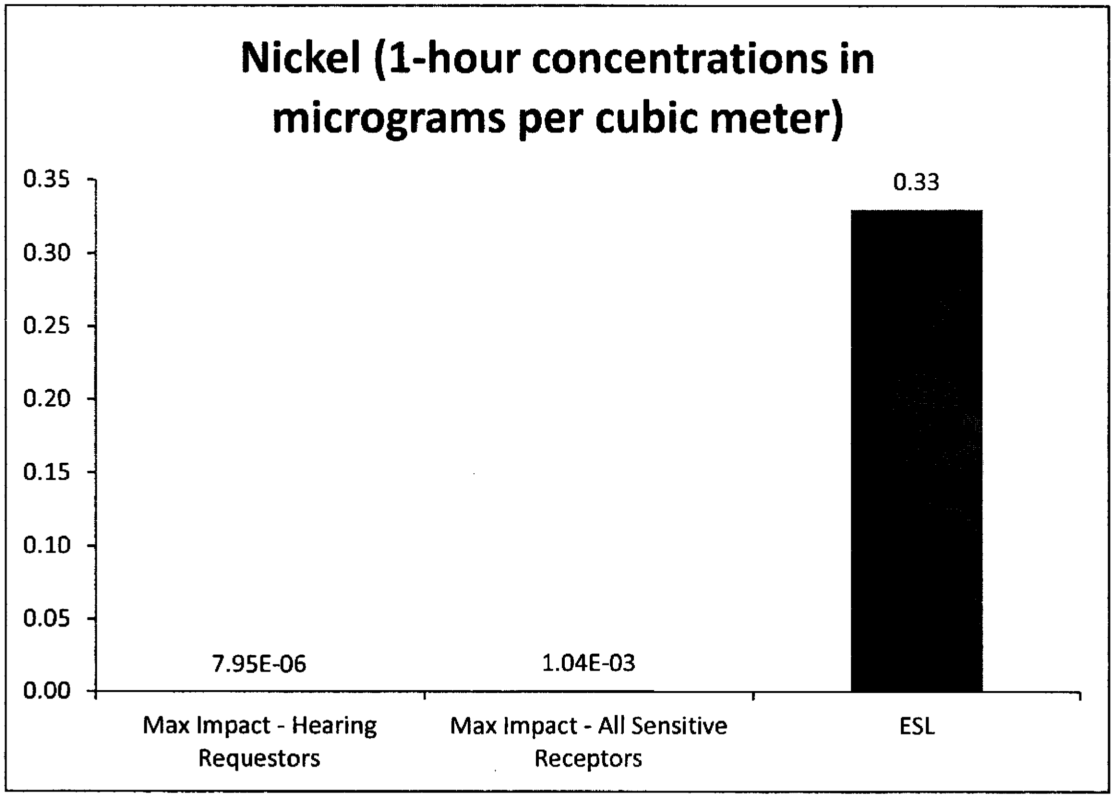

Cadmium (Annual concentrations in micrograms per cubic meter)
0.012
0.010
0.008
0.006
0.004
0.002
0.000
1.01E-10
1.45E-08
0.01
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

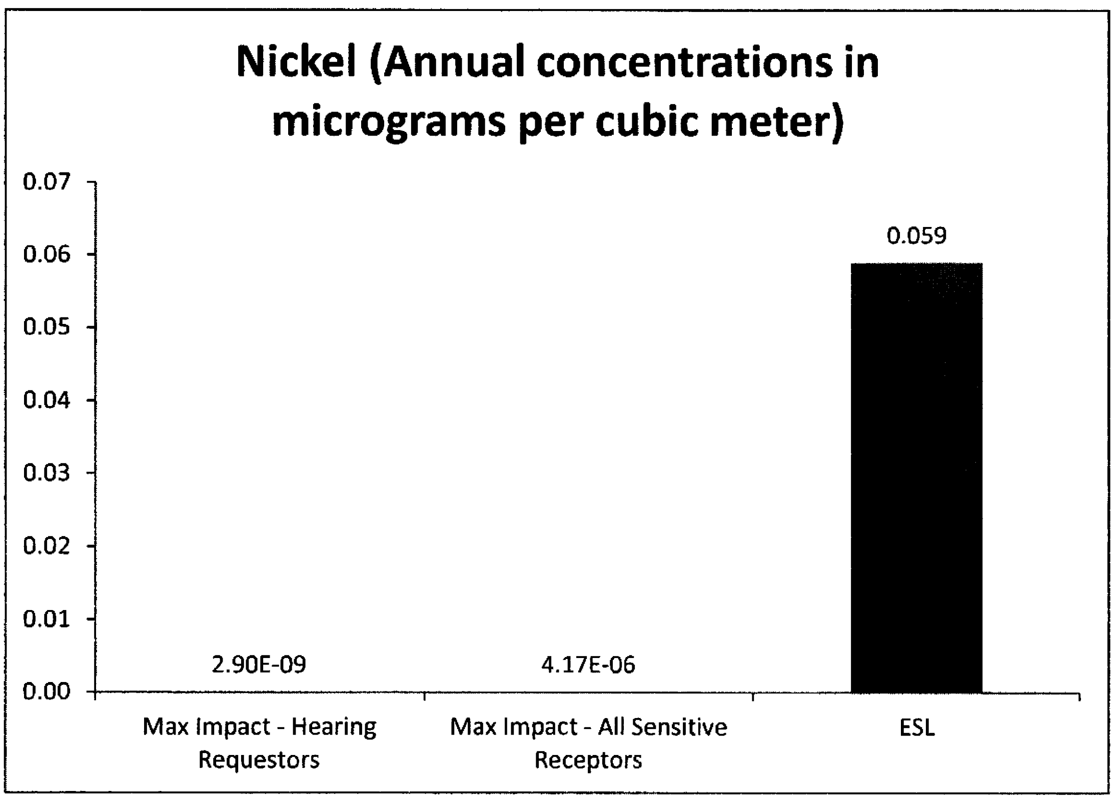

Chromium (1-hour concentrations in micrograms per cubic meter)
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
3.6
6.66E-04
8.68E-03
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

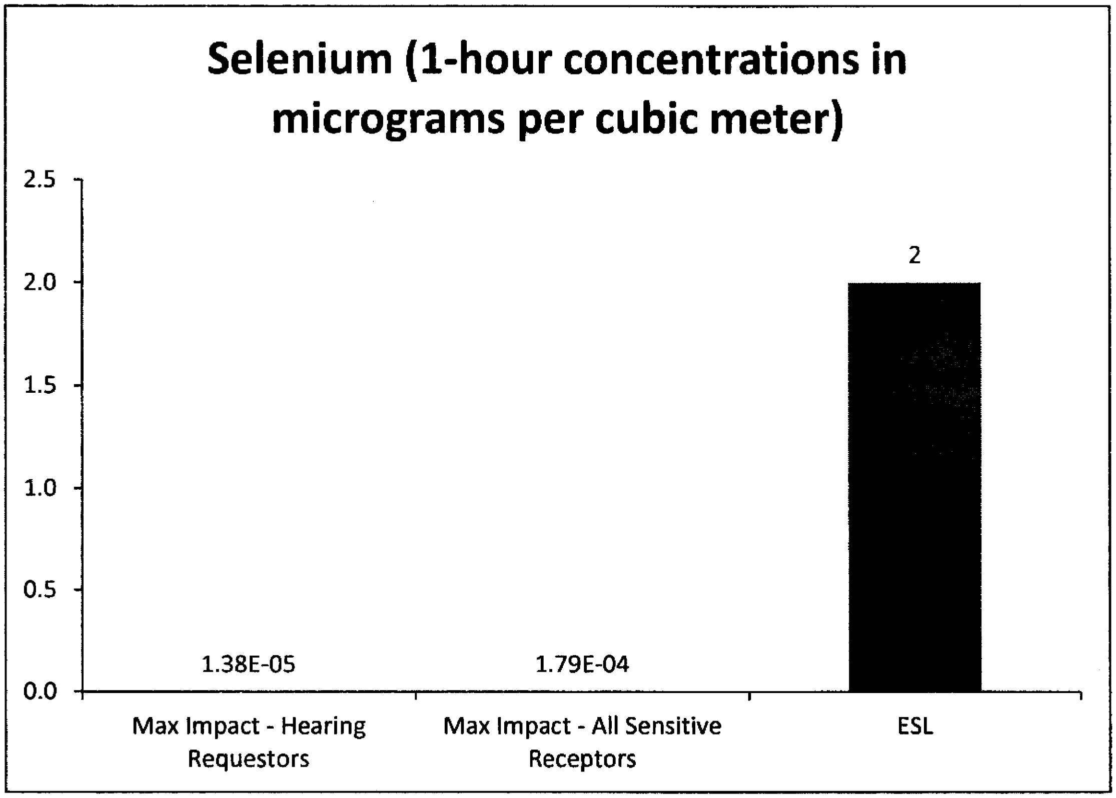

Chromium (Annual concentrations in micrograms per cubic meter)
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
0.041
2.43E-07
3.50E-05
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL


Mercury (1-hour concentrations in micrograms per cubic meter)
0.30
0.25
0.20
0.15
0.10
0.05
0.00
5.54E-07
7.21E-06
0.25
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL


Mercury (Annual concentrations in micrograms per cubic meter)
0.030
0.025
0.020
0.015
0.010
0.005
0.000
2.02E-10
2.90E-08
0.025
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL


Nickel (1-hour concentrations in micrograms per cubic meter)
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
7.95E-06
1.04E-03
0.33
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL


Nickel (Annual concentrations in micrograms per cubic meter)
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0.00
2.90E-09
4.17E-06
0.059
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL


Selenium (1-hour concentrations in micrograms per cubic meter)
2.5
2.0
1.5
1.0
0.5
0.0
2
1.38E-05
1.79E-04
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

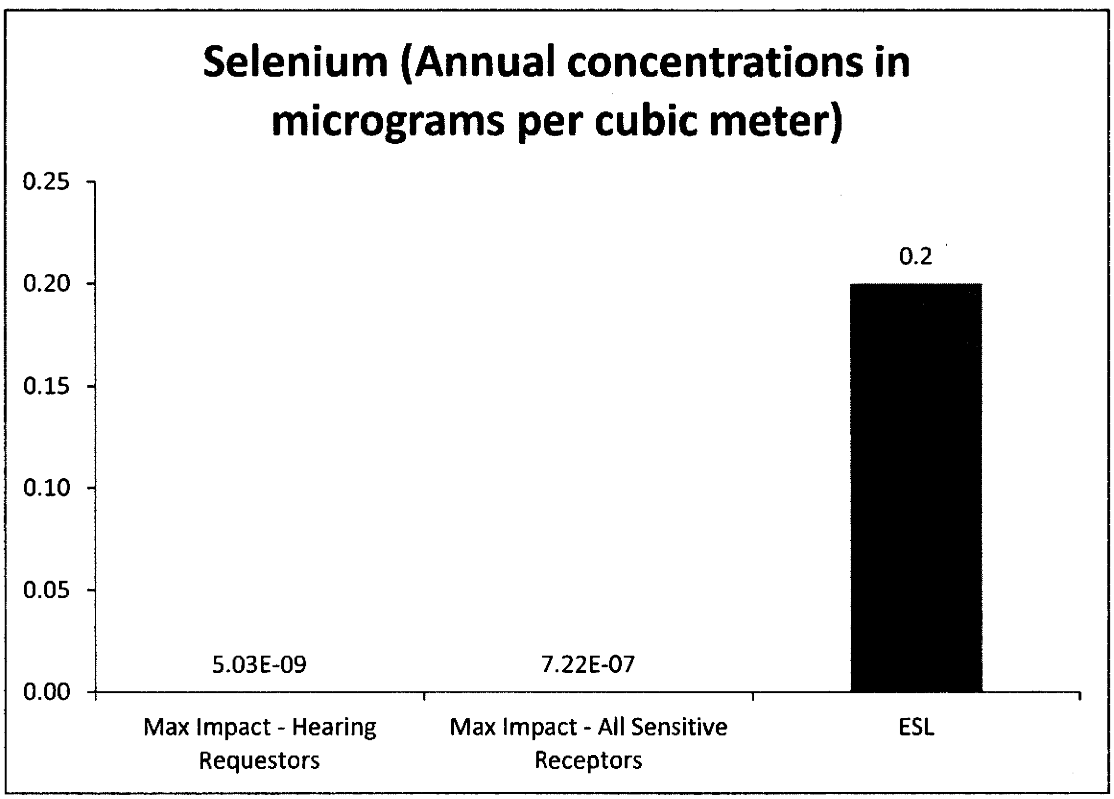

Selenium (Annual concentrations in micrograms per cubic meter)
0.25
0.20
0.15
0.10
0.05
0.00
0.2
5.03E-09
7.22E-07
Max Impact - Hearing Requestors
Max Impact - All Sensitive Receptors
ESL

EXHIBIT 3-C

Supplemental Air Quality Evaluation

Indeck Wharton Energy Center Project
Wharton County, Texas

Prepared for:

Indeck Wharton, LLC
600 North Buffalo Grove Road
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Buffalo Grove, IL 60089

Prepared by:

TETRA TECH

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Boston, MA 02110

August 2014

INTRODUCTION

This response addresses the specific issues raised in Items (4), (5), and (6) of the contested hearing request submitted by Farryl Holub, regarding the operation of the proposed Indeck Wharton Energy Center (hereinafter referred to as the "project.")

The specific issues raised in Items (4), (5), and (6) concern possible chemical reactions between air pollutants emitted by the project, and various chemicals or compounds, both man-made and natural, that could be present in surrounding soils. A 25-page list of "Agricultural Chemicals Known to be Present in Danevang, Texas" is referred to in Item 4 of the contested hearing request, and provides a list of primarily commercial agricultural products.

The following discussion is provided in an effort to address concerns about the possible effects from deposition of air pollutants onto soil near the proposed project. Comments are also included regarding the eight compounds specifically identified by their chemical formulas in Item 4 of the contested hearing request, due to their particular significance for human health.

GENERAL STATEMENT REGARDING AIR QUALITY STANDARDS

EPA and TCEQ have established air quality standards that limit the allowable concentrations of certain pollutants in the ambient air. These standards represent the maximum air pollutant concentrations that, in the determination of EPA and TCEQ, are adequate to maintain protection of public health, including sensitive populations such as children, the elderly, and people suffering from respiratory diseases. EPA and TCEQ have also established air quality standards for protection of other environmental values, such as air visibility in national parks, and prevention of damage to soils and vegetation. Potential adverse impacts associated with air pollutant interaction with soils is within the scope of effects considered by regulatory agencies in establishing ambient air quality standards.

The specific air pollutants proposed to be emitted from the project are already present in the ambient air of Wharton County, due to emissions from existing natural and man-made sources. Current air pollutant concentrations in Wharton County are in compliance with the EPA and TCEQ air quality standards. As shown by computer modeling that has been submitted to TCEQ, potential increases in ambient pollutant concentrations due to emissions from the project will also remain in compliance with the EPA and TCEQ air quality standards. The potential increases in ambient concentrations due to the project will be a small fraction of the existing ambient concentrations in Wharton County. Complete details can be found in the "Air Quality Analysis Report" for the Indeck Wharton Energy Center Project, submitted to TCEQ in February 2014, and revised in April 2014.

AIR POLLUTANTS EMITTED BY THE PROPOSED PROJECT

The principal pollutants that will be emitted by the project include:

- Carbon monoxide (CO)
- Oxides of nitrogen (NO_x)
- Sulfur dioxide (SO_2)

- Particulate matter (PM)
- Volatile organic compounds (VOC)
- Sulfuric acid mist (H_2SO_4)
- Greenhouse gases (as carbon dioxide equivalents)

POTENTIAL IMPACT OF AIR POLLUTANTS ON NEARBY SOILS

The most significant potential reactions between air pollutants and compounds contained in soil would occur with those air pollutants that can be physically deposited onto or into the soil. The following discussion will focus on NO_x, SO_2, PM, and H_2SO_4, which are all capable of being deposited onto or into soil, either by wet deposition when these compounds are captured in raindrops or in liquid aerosols, or by dry deposition as solid particles.

CO and VOC tend to remain in gaseous form, and therefore have more limited interactions with soil, although they can both be absorbed and emitted by microbes and plant roots present in the soil. Greenhouse gases (GHGs) from the project will consist chiefly of carbon dioxide (CO_2), which of course is already present in significant quantities in the atmosphere, along with small amounts of methane (CH_4) and nitrous oxide (N_2O). GHGs tend to remain in the atmosphere in gaseous form for long periods of time. CO_2 is also absorbed by plants as part of photosynthesis, and is both absorbed and emitted by soil microbes. Methane can be generated directly in soil by the activity of anaerobic microbes.

NO_x DEPOSITION ONTO SOILS

NO_x actually consists of several different nitrogen compounds, the main compounds being nitric oxide (NO) and nitrogen dioxide (NO_2), which can each be converted to each other by reactions in the atmosphere. NO_x is generally deposited onto soils in the form of nitrate ions (NO_3^-), which form when NO_2 molecules dissolve in rain droplets or liquid aerosols.

Atmospheric NO_x is commonly deposited onto soils in this manner. According to a 2010 EPA report, annual wet deposition of NO_3^- onto soils in the coastal region of southeast Texas was estimated to be approximately 6 kg per hectare (2.4 kg per acre) in the three-year period from 2006 to 2008.[1]

If deposition of nitrate is assumed to be proportional to the ambient concentration of NO_2, then the proposed project could, in the worst case, contribute an additional 12 percent to the soil deposition of NO_2 that is already occurring in the project vicinity, based on an existing annual average background NO_2 concentration of 15.2 micrograms per cubic meter of air ($\mu g/m^3$) in Wharton County, and a worst-case predicted annual contribution from the project of 1.78 $\mu g/m^3$.

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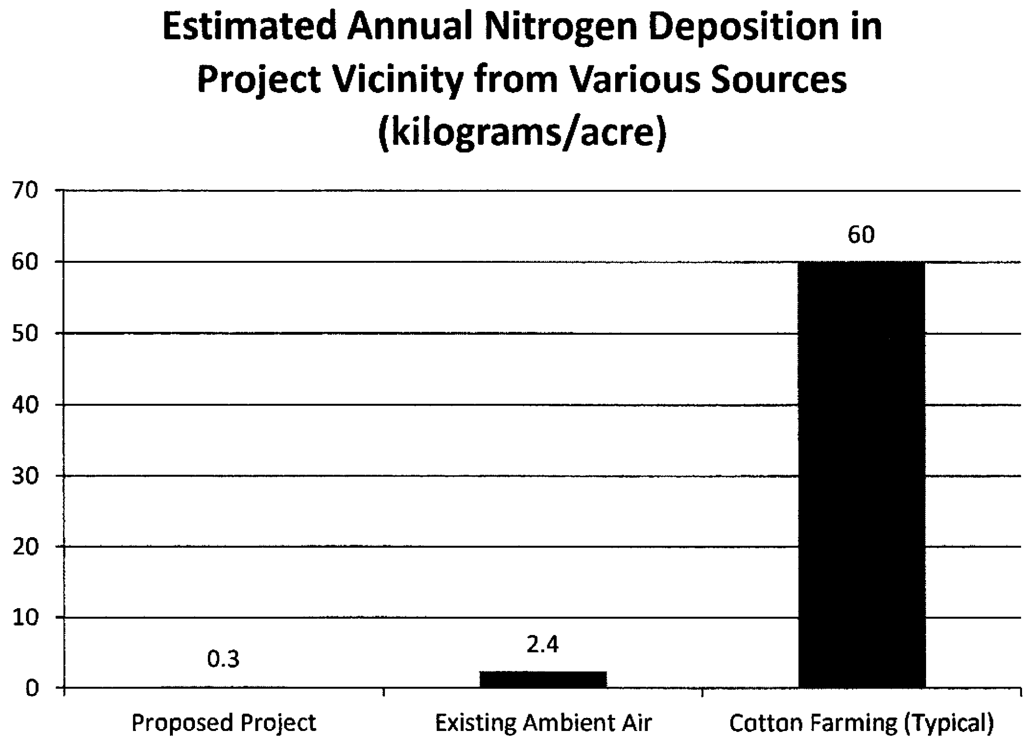
[1] U.S. EPA, "Our Nation's Air – Status and Trends through 2008," EPA-4S4/R-09-002 (Research Triangle Park, NC: EPA Office of Air Quality Planning and Standards, February 2010), http://www.epa.gov/airtrends/2010/, pp. 34-36.



However, as shown in the above chart, the nitrate deposition rate due to atmospheric NO_x is small when compared to the amount of nitrogen fertilizer that is routinely added to soils for agricultural use. Using cotton farming as an example, several sources indicate that cotton crops require large amounts of added nitrogen fertilizer.[2] The Texas Cooperative Extension at Texas A&M University recommends that as much as 125 lb/acre (57 kg/acre) of nitrogen fertilizer be added to cotton fields every year, depending on the desired yield, while a Mississippi State University document suggests that cotton crops need about 120-140 lbs of nitrogen fertilizer per acre (54 to 64 kg per acre), and another Texas A&M document suggests applying as much as 175 lb/acre (79 kg/acre) for the highest possible cotton yield.

The worst-case additional nitrate deposition from the proposed project could therefore be as little as 0.5 percent of the amount of nitrogen fertilizer routinely added to fields in active cotton production each year. If deposition of atmospheric NO_x were to be causing any harmful chemical reactions with agricultural products in the soil, then the adverse impacts associated with the use of nitrogen fertilizer would dwarf any tiny incremental potential effect of project NO_x emissions, due to the large amounts of nitrogen fertilizer that must be added each year to maintain crop production.

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[2] See, for example: "Nitrogen Fertilization in Cotton," Mississippi State University Extension Service, accessed July 25, 2014, http://msucares.com/crops/cotton/nitrogen.html; Frank M. Hons, et al., "Managing Nitrogen Fertilization in Cotton" (Texas Cooperative Extension, Texas A&M University, November 2004), http://www.cottoninc.com/fiber/AgriculturalDisciplines/Agronomy/NitrogenFertilizer/ManagingNitrogenFertilizationInCotton.pdf; Robert Lemon, et al., "Nitrogen Management in Cotton" (AgriLife Extension Service, Texas A&M University, January 2009), http://publications.tamu.edu/COTTON/PUB_cotton_Nitrogen%20Management%20in%20Cotton.pdf.

Finally, it is even possible that the additional deposition of atmospheric NO_x onto agricultural fields could result in a small cost saving for farmers, by reducing the amount of additional fertilizer required. The nitrogen contained in fertilizer additives most commonly takes the form of nitrate ions, ammonium ions (NH_4^+), or urea (CH_4N_2O). Nitrate, which is the form in which NO_x deposition enters the soil, is not only the form of nitrogen most readily absorbed by plant roots, but is also among the most expensive forms of commercial nitrogen fertilizer.

SO_2 AND H_2SO_4 DEPOSITION ONTO SOILS

Emissions of sulfur dioxide (SO_2) and sulfuric acid (H_2SO_4) can also be deposited onto soil by rainfall or aerosol deposition, in the form of sulfate ions (SO_4^{2-}). SO_2 must first react in the atmosphere to form sulfur trioxide (SO_3), which can then combine with moisture to form sulfuric acid (H_2SO_4), which is readily soluble in water. When sulfur compounds are emitted directly from an exhaust stack in the form of H_2SO_4, no further reaction is required before they are able to be captured by rainfall or liquid aerosols.

Sulfate is also commonly deposited onto soils in this manner. According to the 2010 EPA report mentioned above, annual wet deposition of SO_4^{2-} onto soils in the coastal region of southeast Texas was estimated to be approximately 8 kg per hectare (4 kg per acre) in the three-year period from 2006 to 2008.[3]

If deposition of sulfate is assumed to be proportional to the annual average ambient air concentration of SO_2, then the project could contribute an additional 0.5 percent to the soil deposition of sulfate that is already occurring, based on an existing background SO_2 concentration of 7.3 $\mu g/m^3$ in the ambient air of Wharton County, and a worst-case predicted annual contribution of SO_2 from the proposed project of 0.04 $\mu g/m^3$.

As with nitrogen fertilizer, sulfur is also a necessary nutrient that is routinely added to agricultural soils. Sulfur added to agricultural soil most commonly takes the form of sulfate, with minerals such as ammonium sulfate, gypsum (calcium sulfate), and Epsom salt (magnesium sulfate) being frequently used. Again for the example of cotton production, several sources suggest that sulfur fertilizer should be added at a rate of 6 to 12 lb/acre (3 to 5 kg/acre), in order to maximize cotton yields.[4] A Texas A&M document by Randy Boman and Kevin Bronson actually suggests that decreasing SO_2 emissions from coal-fired power plants has increased the need for sulfur fertilizer in west Texas cotton fields.[5]

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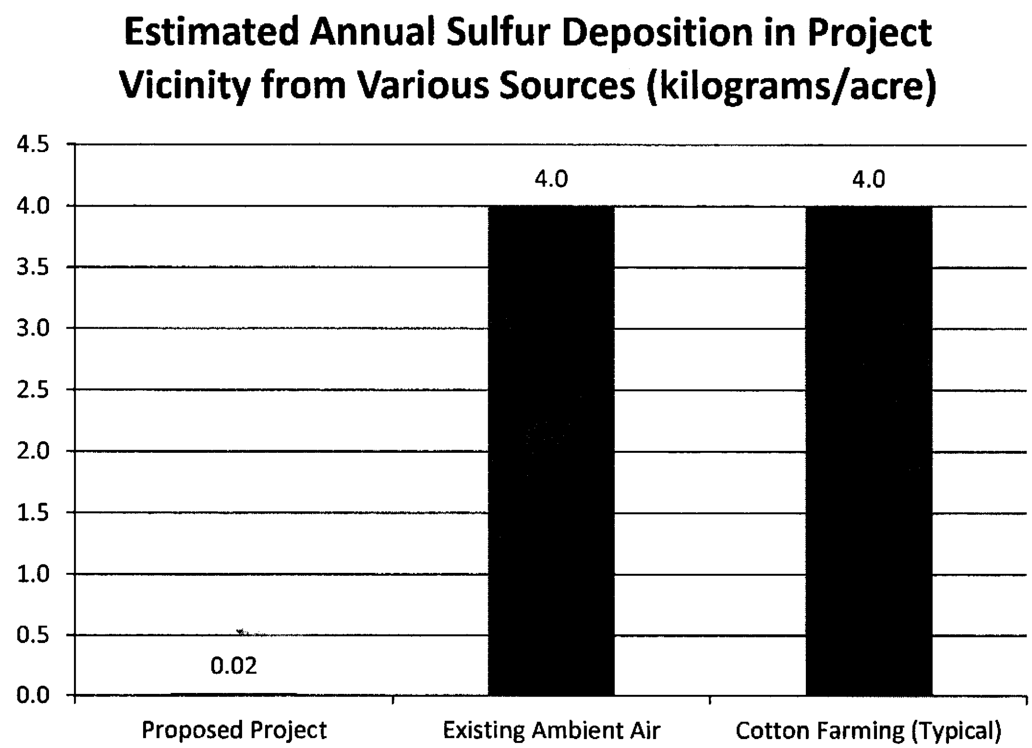
[3] U.S. EPA, "Our Nation's Air – Status and Trends through 2008," EPA-454/R-09-002 (Research Triangle Park, NC: EPA Office of Air Quality Planning and Standards, February 2010), http://www.epa.gov/airtrends/2010/, pp. 34-36.

[4] See, for example: Gene Stevens and David Dunn, "Sulfur Fertilization on Cotton for Sandy Loam and Silt Loam Soils" (Delta Research Center, University of Missouri, 2007), http://plantsci.missouri.edu/deltacrops/pdfs/Cotton%20sulfur.pdf; Randy Boman and Kevin Bronson, "Nutrient Management for Texas High Plains Cotton Production" (AgriLife Extension Service, Texas A&M University, April 2004), http://terry.agrilife.org/files/2011/09/acf20cc.pdf.

[5] Randy Boman and Kevin Bronson, "Nutrient Management for Texas High Plains Cotton Production" (AgriLife Extension Service, Texas A&M University, April 2004), http://terry.agrilife.org/files/2011/09/acf20cc.pdf.



As shown in the chart above, potential deposition of sulfate due to the proposed project is a very small fraction of the amount of sulfur fertilizer routinely added to agricultural soils. As with NO_x deposition, if deposition of atmospheric SO_2 and H_2SO_4, in the form of sulfate ions, were to be causing any harmful chemical reactions with agricultural products in the soil, then any possible adverse impacts associated with existing sulfate deposition levels and the use of sulfate fertilizers would dwarf any tiny incremental potential effect of project SO_2 and H_2SO_4 emissions.

PARTICULATE MATTER DEPOSITION ONTO SOILS

The most significant sources of particulate matter emissions at the proposed facility will be three combustion turbines that burn natural gas. Smaller amounts of particulate matter can also be emitted from operation of two emergency engines that burn diesel oil.

According to EPA's publication *AP-42, Compilation of Air Pollutant Emission Factors*, particulate matter from natural gas combustion consists of "larger weight molecular hydrocarbons that are not fully combusted," as well as small amounts of non-combustible trace elements present in the fuel.[6] Particulate matter from diesel oil combustion consists of soot (unburned hydrocarbons), as well as small amounts of ash, which includes salts and other minerals, and trace amounts of various metals. In general, particulate concentrations in ambient air are regulated primarily because of potential direct

[6] U.S. EPA, *AP-42, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources*, 5th ed. (Research Triangle Park, NC: EPA Office of Air Quality Planning and Standards, Office of Air and Radiation, January 1995), http://www.epa.gov/ttnchie1/ap42/index.html.

inhalation impacts to human health rather than due to concern for interactions with plants, soils or soil chemicals.

The computer modeling of project emissions indicates that the ambient particulate matter concentrations from the project will be small fractions of the existing levels of particulates already in the ambient air of Wharton County. In addition, actual particulate emissions from combustion of natural gas are significantly lower than the particulate emissions from combustion of diesel fuel (such as from highway vehicles) per unit of fuel combusted. As such, any incremental impact on soils from project particulate emissions will be very small compared to any potential impacts that might otherwise potentially occur from the particulates already found in ambient air.

The computer modeling analysis that was prepared for the project and submitted to TCEQ includes an evaluation of potential impacts to soils. Table 4-2 of the "Air Quality Analysis Report" submitted to TCEQ in February 2014 presents maximum potential increases in the soil concentrations of trace metals that could be deposited due to particulate matter emissions from the project. These concentrations are presented in parts per million by weight of soil, and are estimated according to an EPA screening procedure. As shown in Table 4-2 of that report, the potential increases in soil metal concentrations due to project emissions of particulate matter are all a small fraction of the screening concentrations established by EPA for protection of soils and vegetation.

REACTIVITY OF PARIS GREEN AND OTHER COPPER-ARSENIC COMPOUNDS

Item 4 of the contested hearing request specifically mentions several chemicals "that were used in the past and are likely to be present in the soil." The chemicals mentioned are: copper (II) acetate or copper (II) acetoarsenite (also known as Paris Green); chalcophyllite, $Cu_{18}Al_2(AsO_4)_3(SO_4)_3(OH)_{27}\cdot 36(H_2O)$; conichalcite, $CaCu(AsO_4)(OH)$; cornubite, $Cu_5(AsO_4)_2(OH)_4\cdot(H_2O)$; cornwallite, $Cu_5(AsO_4)_2(OH)_4\cdot(H_2O)$; liroconite, $Cu_2Al(AsO_4)(OH)_4\cdot 4(H_2O)$; and octachloro-4,7-methanohydroindane (also known as chlordane).

Paris Green is a synthetic copper-arsenic compound that was sprayed on cotton fields in the early 20th century as an insecticide, chiefly to control the cotton boll weevil. The other copper-arsenic compounds listed are naturally-occurring minerals that were also used as insecticides during this era. All of these compounds contain arsenic, which is a known human carcinogen and toxin. These materials were typically applied to crops as a powder or dust, and remain in solid form under typical conditions.

Paris Green and the other mentioned copper-arsenic compounds are relatively insoluble in water, but are soluble in acids, including nitric acid, which is the acid form of the nitrate ion.[7] As previously discussed, agricultural land use involves the routine addition of large quantities of nitrogen fertilizer, include nitrate compounds, in amounts that greatly exceed the potential contribution from atmospheric deposition. Application of nitrogen fertilizer therefore has a far greater potential to cause in-soil

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[7] See, for example: "PARIS GREEN – National Library of Medicine HSDB Database," U.S. National Library of Medicine, National Institutes of Health, accessed July 25, 2014, http://toxnet.nlm.nih.gov/cgi-bin/sis/search/a?dbs+hsdb:@term+@DOCNO+1824; "Search Minerals by Chemistry," Mineralogy Database, accessed July 25, 2014, http://www.mindat.org/chemsearch.php.

formation of nitric acid, which could possibly dissolve these compounds or cause the leaching or release of arsenic, than the potential contribution of nitrate from atmospheric deposition of NO_x. However, cotton is best grown in mildly acid to neutral soils (pH 5.8 -7.0), which is typically controlled by lime applications, so soil will not typically become strongly acid. The chemistry of copper-arsenic compounds in soils is complex and can be influenced by various factors other than soil pH. However, the potential impact of project emissions on the chemistry of copper-arsenic compounds will be negligible compared to the potential role of other factors, such as the role of other agricultural chemicals.

REACTIVITY OF CHLORDANE

Chlordane (octachloro-4,7-methanohydroindane) is an organochlorine compound that was used as a crop insecticide in the U.S. from 1948 until 1983, when it was banned for agricultural use by EPA. Chlordane was banned for all uses in the U.S. in 1988. This substance is a potent carcinogen that accumulates in biological tissues when ingested. It is a liquid under typical conditions, but is insoluble in water, and can remain in treated agricultural soil for decades.[8] Chlordane binds tightly to organic carbon and clay particles, limiting its movement in soil.[9] Biodegradation of chlordane in the soil occurs very slowly, and the primary mechanism for its removal from contaminated surface sites appears to be the movement of wind-blown dust, which carries adsorbed chlordane molecules and deposits them downwind of their original location.[10] No apparent mechanism exists that would cause a chemical interaction between potential project emissions and any chlordane present in local agricultural soils.

[8] "Chlordane," Technology Transfer Air Toxics Website, U.S. EPA, accessed July 25, 2014, http://www.epa.gov/ttn/atw/hlthef/chlordan.html.

[9] Scott A. Waisner, et al., "Studies of Chlordane Availability and Volatility in Air Force Soils and Facilities" (U.S. Army Engineer Research and Development Center, Vicksburg, MS, March 2011), http://www.dtic.mil/dtic/tr/fulltext/u2/a539363.pdf.

[10] "Technical Factsheet on Chlordane," Office of Ground Water and Drinking Water, U.S. EPA, accessed July 25, 2014, http://www.epa.gov/ogwdw/pdfs/factsheets/soc/tech/chlordan.pdf.

EXHIBIT 4

CDM Smith

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August 19, 2014

Jim Schneider
Indeck Wharton, LLC
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Subject: Response to Mr. Farryl Holub's request for public hearing on TCEQ Proposed Air Quality Permit number 111724 and Prevention of Significant Deterioration (PSD) Air Quality Permit PSDTX1374 for the proposed Indeck Wharton Energy Center in Danevang, Texas

Dear Mr. Schneider:

CDM Smith per your request has reviewed and evaluated the concerns expressed by Mr. Farryl Holub in his June 13, 2014 letter to the Texas Commission on Environmental Quality (TCEQ) in which he requests a public hearing on proposed air quality permits for the Indeck Wharton Energy Center. In addition to Mr. Holub's letter, we have also reviewed a response prepared by Tetra Tech, Inc., various materials and studies related to the Wharton Energy Center, and pertinent technical information and scientific studies.

In summary, based on our evaluation and judgment, we find that the minor environmental impacts projected for the Wharton Energy Center will not adversely affect Mr. Holub's continued ability to raise crops and keep horses on his nearby properties. Detailed reasons for our opinion follow.

Technical Concerns

Mr. Holub expresses a number of concerns. He believes he will be adversely affected by emissions of air contaminants and hazardous chemicals from the Wharton Energy Center, and specifically that these emissions may interact and/or combine with various agricultural chemicals to "create or produce a substance that may be harmful to the people, animals or plants of the Danevang community."

Mr. Holub with his letter included a 25-page list of agricultural products (including many duplicates and different sizes of the same products), including herbicides, pesticides, fungicides, fertilizers, surfactants, and soil additives.

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As a foremost consideration, agricultural herbicides, pesticides and fungicides (collectively, pesticides) are by design toxic chemicals. Properly applied, they are highly toxic to unwanted plants and insects/animals that interfere with the production of commercial crops. Additionally, these chemicals have been tested and approved by the U.S. EPA. If used properly, such agricultural chemicals should present no unacceptable risks to public health and welfare (but rather provide the benefits of targeted, controlled toxicity).

Pesticide Persistence and Toxicity

One of the U.S. EPA's primary concerns in approving pesticides is the potential for environmental persistence and toxicity. Residues of these chemicals in food products and in the environment are evaluated to assure safe levels for consumption and exposure are attained. These chemicals generally degrade into environmentally benign end products.

The U.S. EPA is responsible for the evaluation of pesticides and it assesses potential human health and environmental effects. The degradation process of an individual pesticide is examined under a wide variety of laboratory and field conditions and the potential for the pesticide and/or its degradates to harm humans, wildlife, fish and plants, in addition to contaminate surface or ground water, from leaching runoff and spray drift, is fully elucidated. The results of these studies dictate the approval and labeling of each pesticide to insure safe handling and use. Following label directions is required by law and is necessary to ensure safe handling and use of pesticide products.

Additionally, the chemicals that will be released in Wharton Energy Center emissions are not unique, but rather are commonly found in the environment. As a consequence, any reactions with agricultural chemicals (including in particular fertilizers and soil additives such as lime) are already ongoing. We are not aware of any studies that have found interactions between emissions from natural gas power plants and agricultural chemicals. As a check, we conducted a literature search to identify potentially relevant studies, and the search produced no results. We also contacted researchers at Texas A&M University, and they reported no awareness of relevant concerns or studies.

Tetra Tech Response

The Tetra Tech response to Mr. Holub's concerns identifies the principal pollutants that will be emitted by the project: carbon monoxide, nitrogen oxides (NO_x), sulfur dioxide (SO_2), particulate matter (PM), volatile organic compounds (VOCs), sulfuric acid mist, and greenhouse gases. Tetra Tech states that current air pollutant concentrations in Wharton County are in compliance with the EPA and TCEQ air quality standards, that modeling indicates that these air pollutant concentrations will remain in compliance with air quality standards if the proposed power plant is constructed, and that the potential increases represent small fractions of existing ambient concentrations in the county. Tetra Tech also evaluates the reactivity of Paris Green, other copper-arsenic compounds,

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and chlordane in the presence of emissions from the proposed facility and concludes that project emissions would have a negligible effect on the chemistry of these compounds in soil.

CDM Smith has reviewed the Tetra Tech comments and concurs with their conclusions. The principal pollutants emitted from the project are already present in ambient air. Incremental increases in the concentrations of these pollutants due to emissions from the proposed facility would have a negligible impact on the chemistry of agricultural chemicals present in soil. Furthermore, the potential deposition of nitrate and sulfate to soils due to emissions from the facility represents a very small fraction of the amount of nitrogen and sulfate fertilizers routinely added to agricultural soils.

Air Quality Data and Trends

Tetra Tech, in responding to Mr. Holub's concerns, points out that emissions from the Wharton Energy Center will, at the worst-case point, increase the concentration of NO_x in ambient air by 12% above existing background levels. Thanks to reductions in the overall emissions of all sources, these localized increases, when added to background, will result in ambient air concentrations and depositions substantially smaller than existed one or two decades ago.

To illustrate this point, Figure 1 depicts the average levels of NO_x (reported as NO_2) measured in background air quality measurements. Levels have decreased by about a factor of two, or 50%, over the past decade.

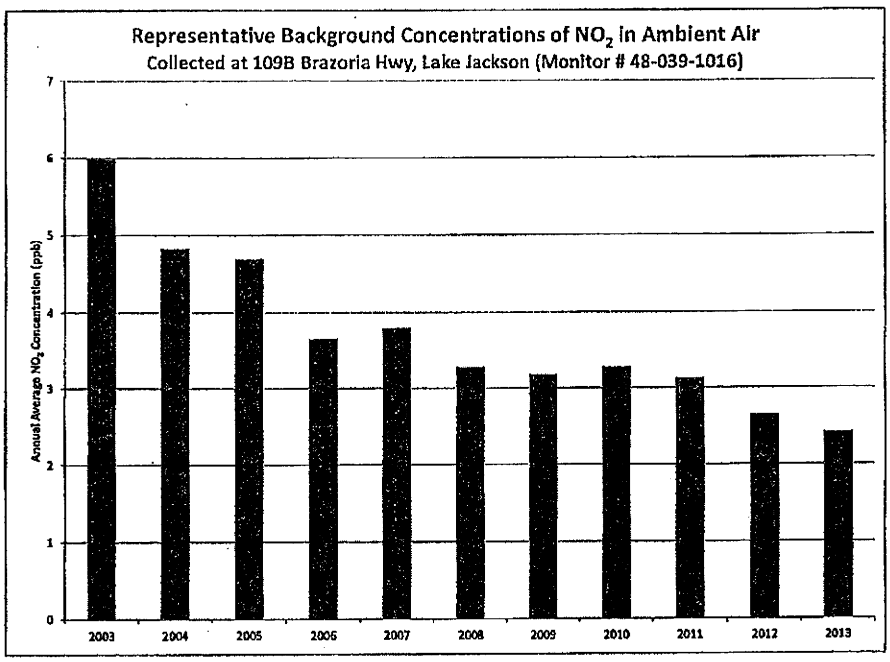

Figure 1 Background concentrations of NO_2 in ambient air (U.S. EPA, 2014)

Similarly, nitrogen deposition rates have decreased over the past two decades. The current rate of nitrate deposition is 5-6 kg/ha,[1] based on measurements taken at the Attwater Prairie Chicken National Wildlife Refuge (Figure 2). In the early 1990s, the nitrate deposition rate was about 10 kg/ha, about a factor of two higher than at present.

[1] A hectare (ha) is a metric unit of area equal to approximately 2.47 acres. A hectare, 100 m by 100 m, is the standard for reporting wet deposition measurements.

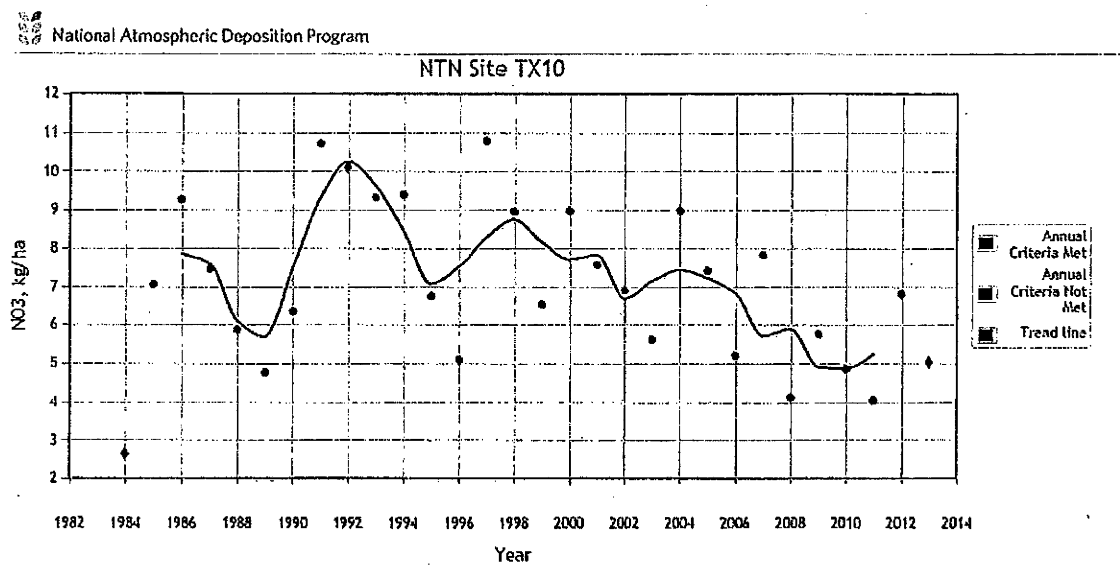

Figure 2 ***Nitrate ion deposition measured in precipitation at the Attwater Prairie Chicken National Wildlife Refuge (NADP, 2014)***

Hence, even at the localized areas that may experience as much as a 12% increase in *current* levels of ambient NO_x and nitrate deposition, the overall levels will still be about half as large as they were in recent past decades. Agricultural activities succeeded in the Danevang area over this entire period, and we expect they will continue to be successful, and will not be adversely affected by emissions from the Wharton Energy Center.

Potential for Local Deposition on Vegetation

Thinking broadly, the most likely way that emissions from the proposed Wharton Energy Center could potentially affect crops would be through localized acidic deposition. However, technical consideration of these effects suggests there will be no such significant or deleterious impacts.

We performed a literature search to identify studies of potential soil acidification associated with acidic deposition from natural gas-fired power plants. We identified one such study, which evaluated the effects of long-term deposition of nitrate ion to soil (Soyupak *et al.*, 1996). Researchers in this study considered very high rates of nitrate ion deposition, with localized deposition values of 100 kg NO_3^-/ha-yr, and soil models indicate at least 100 years before the deposition affects soil acidity (assuming no liming or other amendments). For comparison, baseline NO_3^- deposition is 5-6 kg NO_3^-/ha-yr in the Danevang area, and emissions from the Wharton Energy Center are expected to increase this level by 12% in the worst-case area (Tetra Tech, 2014). Given a general apparent similarity in the buffering capacities of soils between the Soyupak *et al.* (1996) and the Danevang area (http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/texas/whartonTX1974/whartonTX1974.pdf), Wharton Energy Center emissions are not expected to lead to localized soil acidification during the projected lifetime of the facility.

Worst-case Scenario – Acid Fog

The worst-case scenario that we could envision is the potential interaction of stack emissions with a light fog, in which fog-water could be acidified through uptake of nitrogen oxide from stack emissions. If the pH of fog-water is sufficiently lowered, vegetation (crops) could be affected.

A screening-level acid fog model can be constructed with the following conservative assumptions:

- A short-term concentration of 19.29 μg/m³ of NO_2 in air (the worst-case 1-hour average impact estimated in the Tetra Tech April 2014 Air Quality Assessment);
- A low fog-water density (concentration) of 0.1 g/m³ (Seinfeld and Pandis, 2006);
- A fraction of NO_x emissions is converted to HNO_3 (nitric acid) and wholly enters fog droplets;
- NO_x emissions convert to HNO_3 at a rate of 4% per hour (corresponding to an atmospheric lifetime of 1 day, Seinfeld and Pandis, 2014);
- Relevant impacts occur at a distance of 1,000 m from the proposed Wharton Energy Center, and the plume travels at a wind speed of 3.72 m/s (average value from the April 2014 Tetra Tech Air Quality analysis).

The above assumptions and an assumed exponential decay of NO_x emissions result in 0.3% conversion to HNO_3 at a distance of 1,000 m. The resulting H^+ concentration in fog droplets can be estimated as:

$$\frac{\frac{0.0031 \times 19.29\ \mu g\ NO_2/m^3}{10^6\ \mu g/g} \times \frac{1\ mol\ NO_2}{46\ g\ NO_2} \times \frac{1\ mol\ NO_3^-}{1\ mol\ NO_2} \times \frac{1\ mol\ H^+}{1\ mol\ NO_3^-}}{0.1\ g\ H_2O/m^3 \times \frac{1\ l\ H_2O}{1000\ g\ H_2O}} = 1.3 \times 10^{-5}\ mol\ H^+/l$$

The predicted [H+] concentration corresponds to a pH of 4.9. The contribution of Wharton Energy Center could add to existing acidity in precipitation. The lowest pH measured in weekly precipitation samples collected since 2011 at the Attwater Prairie Chicken National Wildlife Refuge (less than 50 miles north of Danevang, Texas) was 4.45 (NADP, 2014). If added, the additional [H+] from Wharton Energy Center emissions would decrease this background pH to 4.3.

Given the necessary coincidental assumptions built into the model, the probability of this pH level occurring is very small.[2] Even so, an episodic pH of 4.3 is not likely to cause harm to crops, vegetables, or any other plants. In reviewing the effects of acid precipitation, the National Acid Precipitation Assessment Program concluded that pH levels of 1.6 to 2.6 – levels 50 to 500 times more acidic – are necessary to cause visible injury to plant leaves or vegetables, and that similar or even more acidic levels are necessary to affect crop yields and plant growth (NAPAP, 1991).

Effects of small changes in pH on agricultural chemicals [3]

Pesticides normally are formulated as weak acids or neutral to weakly-alkaline products. As a general rule, herbicides, insecticides, and fungicides perform best in slightly acidic water with a pH between 4 and 6.5. Pesticides such as the sulfonylurea herbicides perform better in water that is slightly alkaline (above pH 7). If water is more acidic or alkaline than the preferred range, product performance can be compromised. In some cases, the pesticide can precipitate out of solution. Potential effects caused by overly acidic or alkaline water will generally occur more quickly as the temperature of the water increases. Extreme pH can also change the chemical charge of a pesticide molecule, limiting its ability to penetrate the leaf cuticle and reach the site of action, thus reducing its efficacy (Purdue Extension, 2009).

Pesticides formulated as weak acids break down (dissociate) quickly to smaller molecules when mixed in high pH (alkaline) solutions. This process is known as alkaline hydrolysis. Hydrolysis causes dissociated pesticides to be absorbed more slowly across plant cell membranes as compared

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[2] The model assumes that the highest concentration of NO_x predicted for any hour coincides with the lowest observed background pH in precipitation. Moreover, atmospheric reaction mechanisms are assumed to convert a portion of the NO_x emissions to HNO_3. The operative reaction involves NO_2 and the OH• radical species (Seinfeld and Pandis, 2006):

$$NO_2 + OH\bullet \rightarrow HNO_3$$

The majority of emissions from the Wharton Energy Center are likely to be released as NO, not NO_2. Thus, not all of the emissions NO_x will be available for conversion to nitric acid via the above reaction. Additionally, the OH• radical concentration has been observed to be depleted within power plant plumes due in part to the scavenging of atmospheric ozone (O_3) concentrations by the fresh emissions of NO. It is likely that no conversion to nitric acid will occur near the point of emissions. Also, at locations near the proposed facility such as Mr. Holub's properties, decreased concentrations of ozone (a phytotoxic chemical) are likely to benefit the growth and yield of crops.

[3] Many of the products and chemicals (active ingredients) discussed in this section are contained on Mr. Holub's 25-page list.

to intact pesticide molecules, thus lowering pesticide efficacy. The following weak acid pesticide active ingredients break down quickly when pH is greater than 7.0:

- 2,4-D amine;
- Glyphosate (Roundup, Showdown, Cleanfield, etc.);
- Glufosinate ammonium (Liberty, Rely, Ignite, etc.);
- Ammonium salt of imazethapyr (Pursuit, Agri Star Thunder);
- Some pyrethroid insecticides;
- Carbamate insecticides;
- Organophosphate insecticides;
- Chlorothalonil (Bravo, Concert, Echo, Renown, etc.); and
- Captan (Captan, Enhance, etc.).

By comparison, weak alkaline pesticides have been known to break down in a sprayer tank when the pH is too acidic (pH less than 7). Specifically, sulfonylurea herbicides are more susceptible to acid hydrolysis at pH less than 6.0. The sulfonylureas such as Ally, Escort, Amber, Harmony Extra, Express, and Accent may inactivate if left in the sprayer tank mixed in acidic water (Tharp, 2003). For this reason, sulfonylurea pesticides are often applied in a solution containing an adjuvant that increases the spray solution pH to approximately 7, which enhances the efficacy and solubility, and consequently the chemical activity of this class of pesticides. There are two more commonly used sulfonylurea pesticides used in southeastern Texas, Nicosulfuron and Prosulfuron. Nicosulfuron (trade names Accent, Challenger, Dasul, Lama, Milagro, Mistral, Motivel, Nisshin and Sanson) is applied postemergence with a non-ionic surfactant to control weeds such as Johnsongrass, quackgrass, foxtails, shattercane, panicums, pigweed and others in corn. Rain within two hours of application will not decrease the effectiveness (EXTOXNET, 1996a). Prosulfuron (Exceed, Peak, Beacon), is applied postemergence in grain sorghum to control broadleaf weeds (EXTOXNET, 1996b).

Near-field down-wind deposition from the proposed natural gas-fired power plant may result in particulate matter deposition or wet deposition on foliage or soil surfaces. Water droplets from precipitation or fog and particulate matter may create a slightly acidified microenvironment on foliar and soil surfaces. Based on available data, most pesticides commonly used in this area perform best at a pH between 4 and 6.5 and therefore, impacts of slight acidification of foliar and soil surfaces (worst case scenario pH of 4.3) are unlikely to affect efficacy of the majority of pesticides commonly used on corn, cotton and grain sorghum. The two sulfonylurea pesticides are commonly applied in a solution that has been adjusted to pH 6-7 to maximize solubility and efficacy of the pesticides. Therefore, although foliar and soil surface microenvironment may present a slightly acidified environment, the application solution is likely to dilute the slightly acidified microenvironments, mitigating any potential minor impacts.

Commingled Industrial and Agricultural Land Use

We have consulted for a number of industrial facilities located in close proximity to farms. Similar to the proposed Wharton Energy Center, these facilities have employed modern technologies and air pollution control techniques to limit contaminant emissions. In these cases, side-by-side industrial and agricultural operations flourish without detrimentally affecting each other. We performed limited Internet searching to determine whether other natural gas-fired power plants in Texas are located adjacent to or near agricultural lands. The Wikipedia page "List of power stations in Texas" provided geographic coordinates for 11 of 41 plants; of the 11 with available latitude and longitude coordinates, Google Earth aerial images indicate that 4 are located in agricultural areas (Guadalupe, Hays County, Jones Generating Station, and Plant X). Additionally, the Colorado Bend Generating Station, located approximately 20 miles from the proposed Indeck Wharton Energy Center, is similarly located near agricultural lands. Consequently, other natural gas-fired power plants are successfully operating in Texas near agricultural lands.

Potential Impacts to Horses and Other Animals

Regarding potential harmful impacts to plants and animals, Mr. Holub specifically identifies a concern regarding raising horses on his property. Although it may be difficult to address potential toxic effects to horses specifically, EPA has developed ecological soil screening levels (Eco-SSLs) applicable to mammals that may be used for a screening level assessment. Screening levels are available for plants as well. In general, Eco-SSL development follows these steps: (1) conduct literature searches and compile threshold values based on biochemical, behavioral, physiology, pathology, reproduction, growth, and survival endpoints; (2) screen identified literature with exclusion and acceptability criteria; (3) extract evaluate, and score test results for applicability in deriving an Eco-SSL; and (4) derive the value. Eco-SSL values for mammals are derived as the geometric mean of No Observed Adverse Effect Levels (NOAELs) from the screened literature values (EPA, 2005). Eco-SSLs for plants are the geometric mean of the maximum acceptable toxicant concentration (MACT) values. As presented in Table 1, maximum project deposited soil concentrations modeled by Tetra Tech (Tetra Tech, 2014) are compared to mammalian and plant Eco-SSLs. Calculated soil concentrations as a result of the proposed plant operations are well below screening criteria providing another line of evidence indicating that impacts to horses or other wildlife or plants would be insignificant.

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Table 1 Comparison of potential soil impacts to mammalian and plant soil screening criteria

Pollutant	Maximum Project Deposited Soil Concentration (1) (ppmw)	Mammalian Eco-SSL (2) (mg/kg dry weight soil)	Percent of Soil Screening Criteria	Plant Tissue Eco-SSL (2) (mg/kg dry weight soil)	Percent of Soil Screening Criteria
Arsenic	6.85E-03	46	0.01	18	0.04
Cadmium	3.75E-02	0.36	10	32	0.12
Chromium	5.77E-02	34	0.17	NA	--
Lead	6.22E-04	56	0.00	120	0.00
Manganese	1.29E-02	4,000	0.00	220	0.01
Mercury	8.86E-03	NA	--	NA	--
Nickel	7.27E-02	130	0.06	38	0.19
Selenium	1.02E-03	0.63	0.16	0.52	0.20

Notes:

(1): Values from Table 4-2 of Indeck Wharton Energy Center Project, Air Quality Analysis Report (TetraTech, 2014).

(2): Eco-SSLs available online at: http://www.epa.gov/ecotox/ecossl/.

NA - Not available

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Conclusions

CDM Smith finds no reason that potential emissions from the proposed Wharton Energy Center will adversely interact with agricultural chemicals. We also contacted agricultural researchers at Texas A&M University, and they are also not aware of any reasons for concern over interactions between facility emissions and agricultural chemicals.

We also evaluated the possibility that facility emissions might adversely impact agricultural activities. Our analysis of potential fog acidification indicates that worst-case changes (decreases) in pH will not be large enough to damage vegetative surfaces or interfere with the effectiveness of pesticides and herbicides. Additionally, predicted rates of pollutant deposition are not expected to build up to harmful levels in local soils. Given that the regional decreases in air pollutant levels over the past two decades have been considerably greater than the localized increases that may result from Wharton Energy Center emissions, we expect that agriculture in the Danevang community will not be adversely affected.

Sincerely,

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