

**Supplemental Statement of Basis
PSD Permit Application for Avenal Energy Project
March 2011**

EPA is supplementing its Statement of Basis for this application for a Clean Air Act Prevention of Significant Deterioration (PSD) permit to address several considerations that have arisen since the close of the comment period on this permit. Due to the fact that Avenal's permit application was complete and a proposed permit issued in advance of EPA's proposal of certain recently-promulgated regulations establishing new and additional requirements and other compelling factors, EPA has tentatively determined that it should grandfather this permit from those requirements, i.e., not require a demonstration of compliance with those requirements for this permit. Furthermore, EPA has determined that it is appropriate to provide a detailed Environmental Justice Analysis regarding its proposed PSD permit action for this facility for public comment. The proposed facility, called the Avenal Energy Project (Project) by the permit applicant, Avenal Power Center, LLP (APC), will be located in Kings County, California, and consists of two GE 7FA combustion turbine generators, two heat recovery steam generators, one steam turbine generator, and associated equipment. The proposed location for the Project constitutes the majority of the northeast quarter of Section 19, Township 21 South, Range 18 East, Mt. Diablo Base and Meridian. The Kings County Assessor's Parcel Number (APN) for this location is 36-170-035. The geographic coordinates for the proposed location are Latitude 36.088394° N and Longitude 120.061141° W. The proposed location is currently in agricultural production, is zoned industrial by the City of Avenal and is owned by the applicant. The City of Avenal has informed the EPA that the unofficial address for this location's APN is 33119 Avenal Cutoff Road, Avenal, California 93204. EPA Region 9 first received the application for this permit in February 2008 and notified the applicant on March 19, 2008 that its permit application was complete,¹ in accordance with the procedure described in EPA regulations. 40 CFR 124.3(c).

On June 16, 2009, EPA Region 9 issued for public comment a proposed permit for the Project, which would grant conditional approval, in accordance with the PSD regulations, to APC to construct and operate a 600 MW (net) electric generating facility, along with a statement of basis and ambient air quality impact report describing the basis for the permit conditions and other related information. The proposed PSD permit requires the use of Best Available Control Technology (BACT) to limit emissions to the greatest extent feasible of carbon monoxide (CO), oxides of nitrogen (NO_x), particulate matter (PM), and particulate matter less than 10 micrometers in diameter (PM₁₀). The area in which this facility will be located is in attainment with the National Ambient Air Quality Standards (NAAQS) for these pollutants, as well as sulfur dioxide (SO₂) and lead. We note that the area where this facility will be located is not meeting the NAAQS for ozone and particulate matter less than 2.5 micrometers in diameter (PM_{2.5}). The emissions from the proposed project of the air pollutants (including precursors to the formation of these pollutants) for which the relevant area is not attaining the NAAQS are regulated under the Nonattainment New Source Review permitting program administered by the San Joaquin Valley Air Pollution Control District (District).

¹ Under 40 CFR 52.21(b)(22), "[c]omplete means, in reference to an application for a permit, that the application contains all of the information necessary for processing the application."

EPA provided public notices requesting public comment on the proposed permit for the Project on June 16, 2009, August 27, 2009 through August 29, 2009, and September 11, 2009. The August and September 2009 notices announced that EPA would extend the public comment period and hold a public information meeting and two public hearings in conjunction with its proposed PSD permit for the Project. The public information meeting and two public hearings were held as scheduled, and the public comment period for the proposed permit closed on October 15, 2009.

In parallel with this process required under the Clean Air Act, EPA has taken the steps necessary to ensure its action on this permit application complies with section 7 of the Endangered Species Act. EPA requested initiation of consultation with the U.S. Fish and Wildlife Service under section 7 of the ESA on July 10, 2008, and provided additional information requested by the Service on October 22, 2008. The U.S. Fish and Wildlife Service completed its biological opinion concluding the formal consultation process in August 2010.

At this point, the APC permit application has been pending well beyond the one-year deadline by which the Clean Air Act requires EPA to take action to grant or deny this application. The permit applicant has filed a suit in federal District Court to compel EPA to reach a final decision on this permit application. EPA has represented to the Court that it would be able to issue a final permit decision in accordance with 40 CFR 124.15 by May 27, 2011 after taking comment on this supplemental statement of basis.

EPA is providing an additional public hearing and opportunity to comment on this supplemental statement of basis, as described in the associated public notice.

I. Grandfathering From Requirements Established by Recently Promulgated Rules

EPA has determined that it is not appropriate or equitable under the circumstances present here to require this permit applicant to meet certain recently promulgated requirements that have taken effect while EPA has been in the process of reviewing this application. For the reasons discussed below, EPA believes it is authorized to issue a PSD permit to this applicant without requiring a demonstration that the source will not cause or contribute to a violation of the nitrogen dioxide (NO₂) or sulfur dioxide (SO₂) NAAQS for the one-hour averaging time or a showing that this source will meet the BACT requirement for greenhouse gases.

In 2010, EPA completed a series of regulations that established additional standards and criteria applicable to the review and issuance of permits to construct or modify major stationary sources of air pollution under the PSD program. The relevant regulations include NAAQS for hourly concentrations of NO₂ and SO₂ and limitations on greenhouse gas emissions from light duty vehicles. EPA first proposed these regulations in July 2009, December 2009, and September 2009 respectively. Under EPA's interpretation of applicable statutes and regulations, these new regulations created additional standards and criteria that became applicable to the review and issuance of PSD permits when the new regulations became effective. This is because the criteria for issuance of PSD permits include requirements that a source demonstrate it will not cause or contribute to a violation of any NAAQS and that the proposed source will meet

emissions limitations achievable through application of BACT for each pollutant subject to regulation under the Clean Air Act (“the Act”). 42 U.S.C. 7475(a)(3)-(4); 40 C.F.R. 52.21(k); 40 C.F.R. 52.21(b)(12); 75 Fed. Reg. 17004 (April 2, 2010). When completing the regulations to establish NAAQS for hourly NO₂ and SO₂ concentrations and the limitations on greenhouse gas emissions from light duty vehicles, EPA did not adopt transitional provisions in the PSD regulations to grandfather any permit applications that were pending at the time the new requirements took effect.

Nevertheless, EPA has determined in this case that it should not apply the criteria and standards described in the preceding paragraph to the APC permit application under the circumstances that are presented here. EPA first proposed the hourly NO₂ standard more than a year after the time that EPA determined APC’s PSD permit application was complete. Indeed, EPA had issued a proposed PSD permit for the project prior to the proposal date of the NAAQS standard. At this point, the APC permit application has been pending for nearly two years beyond the statutory deadline by which EPA was required to make a decision to grant or deny this application. This delay has been exacerbated by the need for APC to conduct an analysis to show that the proposed APC facility will not cause a violation of the hourly NO₂ NAAQS, in accordance with EPA previously announced interpretation of the PSD regulations. In consideration of EPA’s statutory obligation to take action on this permit application in a timely manner, the nature of the source APC seeks to construct, and the factors that have contributed to the extended delay in this case, EPA does not believe it is appropriate or equitable at this point to require that APC demonstrate compliance with the hourly NO₂ NAAQS or additional requirements that have taken effect during the extended delay that has resulted from EPA’s prior interpretation that APC should make such a showing before EPA could grant the permit application.

A. Substantive and Procedural Requirements Applicable to PSD Permitting

Section 165 of the Act (42 U.S.C. § 7475) and EPA’s implementing regulations (40 C.F.R. § 52.21; 40 C.F.R. Part 124) contain both substantive and procedural requirements that must be satisfied before a PSD permit may be issued to authorize construction or modification of a major stationary source of air pollutants. When EPA promulgates a new NAAQS and completes rules that make an additional pollutant subject to regulation under the Act,² the Agency must take care to ensure that PSD permit decisions are made in accordance with both the substantive and procedural requirements of the Act and EPA’s implementing regulations.

NAAQS Compliance

Among the substantive requirements, the Clean Air Act and PSD regulations provide that a permit may not be issued unless the applicant demonstrates that the source will not cause or contribute to a violation of “any NAAQS.” 42 U.S.C. § 7475(a)(3); 40 C.F.R. 52.21(k). This requirement does not apply to any NAAQS for which the area in which the source proposes to locate is designated non-attainment. 40 C.F.R. 52.21(i)(2). EPA has previously explained that, as a general matter, each decision to issue a PSD permit should be supported by a record

² Such pollutants are defined in EPA regulations as a “regulated NSR pollutant.” 40 C.F.R. § 52.21(b)(50).

showing that the applicant will not cause or contribute to a violation of any NAAQS (except one for which the area is designated nonattainment) that is effective on or before the date that the permit is issued. On April 1, 2010, the Director of EPA's Office of Air Quality Planning and Standards issued a memorandum reminding Regional Offices that EPA interprets the phrase "any NAAQS" contained in the PSD provisions of the Act and EPA regulations to cover any NAAQS in effect at the time of a final permit decision. The memorandum cited prior instances where EPA has applied this interpretation, including one where EPA also issued a rule to grandfather some pending applications from the requirement to show the source would not violate the NAAQS for PM10. 52 Fed. Reg. 24672 (July 1, 1987). The April 2010 memorandum said the following:

[P]ermits issued under 40 CFR 52.21 on or after April 12, 2010, must contain a demonstration that the source's allowable emissions will not cause or contribute to a violation of the new 1-hour NO₂ NAAQS. ... There are no exceptions under 40 CFR 52.21 in this case because as noted above, EPA has not adopted a grandfathering provision applicable to the 1-hour NO₂ NAAQS that would enable the required permit to be issued to a prospective source.

One day later, EPA also addressed this subject in the context of a final decision published in the Federal Register on the topic of the pollutants subject to the requirements of the PSD program. 75 Fed. Reg. 17004 (April 2, 2010). This document said the following:

EPA generally interprets a revised NAAQS that establishes either a lower level for the standard or a new averaging time for a pollutant already regulated to apply upon the effective date of the revised NAAQS. Thus, unless EPA promulgates a grandfathering provision that allows pending applications to apply standards in effect when the application is complete, a final permit decision issued after the effective date of a NAAQS must consider such a NAAQS.

Id. at 17008.

Best Available Control Technology

PSD permit applicants must also show that the proposed source will meet an emissions limitation based on application of BACT for each pollutant subject to regulation under the Act. 42 U.S.C. 7475(a)(4). As discussed in EPA's final action entitled "Reconsideration of Interpretation of Regulations that Determine Pollutants Covered by Clean Air Act Permitting Programs," EPA construes the BACT requirement to apply to each pollutant that is subject to regulation under the Act at the time a PSD permit is issued. 75 Fed. Reg. 17004 (April 2, 2010). In this April 2010 action explaining EPA's decision to continue following a legal interpretation established in a December 2008 memorandum from the Administrator ("PSD Interpretive Memo"), EPA identified January 2, 2011 as the date when greenhouse gases would first become subject to regulation under the Act. January 2, 2011 is the date when the first regulatory requirement to control emissions of greenhouse gases under the Clean Air Act takes effect under the Light Duty Vehicle Rule that EPA completed on May 7, 2010. 75 Fed. Reg. 25324. EPA proposed the vehicle rule on September 28, 2009.

EPA also explained in the April 2, 2010 final action described above that the Agency did not “see any grounds to establish a transition period for permit applications that are pending before GHGs become subject to regulation.” *Id.* at 17021. EPA did not see a basis to promulgate a grandfathering provision for greenhouse gases because permit applications pending prior to April 2, 2010 already had a transition period of nine months in which the permit could be issued without addressing the BACT requirement for greenhouse gases. For permits that could not be issued in that nine-month period, EPA believed that it would be feasible to begin incorporating greenhouse gas considerations into permit reviews in parallel with completion of work on other pollutants. EPA also observed that permit applicants had notice that greenhouse gases would become subject to regulation for purposes of the PSD program upon completion of the light duty vehicle standards. Thus, the Agency said in April 2010 that “EPA does not intend to promulgate a transition or grandfathering provision that exempts pending permit applications from the onset of GHG requirements in the PSD program.” EPA also explained that “in the absence of such a provision, PSD permits that are issued on or after January 2, 2011 ... will be required to contain the provisions that fulfill the applicable program requirements for GHGs.” *Id.* at 17022. In June 2010, EPA affirmed that it did not intend to adopt a grandfathering provision for greenhouse gases when the Agency completed the PSD and Title V Greenhouse Gas Tailoring Rule. 75 Fed. Reg. 31514, 31592-93 (June 3, 2010).

Timely Permit Review

The Act also requires that permitting authorities complete review of PSD permit applications in a timely manner. Section 165(c) of the Act specifies that “[a]ny completed permit application under section 7410 of this title for a major emitting facility in any area to which this part applies shall be granted or denied not later than one year after the date of filing of such completed application.” 42 U.S.C. § 7475(c). EPA should be mindful of this obligation when establishing new regulations that affect the requirements applicable to PSD permit applications, especially applications that are in process at the time additional requirements become effective.

Under certain circumstances EPA has previously established transition provisions which relieved persons proposing new major sources and major modifications that have submitted a complete PSD permit application from having to amend applications to demonstrate compliance with the new PSD requirements. For example, EPA adopted such a provision to address the transition from the TSP NAAQS to the PM₁₀ NAAQS. See, 40 CFR 52.21(i)(1)(x). EPA adopted similar provisions pertaining to new or revised PSD increments for NO₂ and particulate matter. 40 CFR 52.21(i)(9)-(10). Permit applicants meeting the eligibility criteria in these provisions were grandfathered from the new PSD requirements that otherwise would have applied to them.

B. Grounds for Grandfathering this Permit Application from New Requirements

In order to balance EPA’s statutory obligations to issue permits in a timely manner and in accordance with the substantive requirements of the Act, EPA is proposing to issue a PSD permit to APC without requiring a showing that this source will not cause or contribute to a violation of

the hourly NO₂ and SO₂ NAAQS or establishing emissions limitations for greenhouse gases in the permit. This determination is based on the following factors that are discussed in more detail below:

(1) The facility that APC proposes to construct will be a well-controlled, natural-gas fired electric generating facility that will apply BACT for NO₂ and not cause or contribute to a violation of the NAAQS that were in place before promulgation of the hourly standards;

(2) APC's permit application was deemed complete by EPA more than a year before, and EPA had issued a proposed permit for the project one month before, the date on which EPA proposed the hourly NO₂ NAAQS.

(3) Unanticipated challenges with the preparation and review of sufficient information to predict the impact of proposed sources on hourly NO₂ concentrations were not apparent when EPA determined there was no need to establish a grandfathering provision for this requirement and others that followed.

(4) The challenges encountered in supplementing the APC permit application to address the hourly NO₂ NAAQS caused additional delay beyond the dates when the hourly SO₂ NAAQS and greenhouse gas requirements became applicable to PSD permit applications.

(5) Court decisions recognize an exception, in cases of significant delay by the administrative agency, to the general rule that an administrative agency should apply the law in effect at the time its issues a permit or license.

Considering these factors and EPA's statutory obligations to complete action on this permit in a timely manner, EPA believes there is cause to grandfather this permit application from the identified requirements in order to reconcile competing obligations under the Clean Air Act and achieve an equitable outcome.

Projected Emissions from the APC Facility

The facility that APC seeks authorization to construct is a state-of-the-art natural-gas fired electric generating facility that will achieve the lowest levels of air pollutant emissions achievable in this instance. The proposed PSD permit requires the use of BACT to limit emissions of carbon monoxide (CO), oxides of nitrogen (NO_x), particulate matter (PM), and particulate matter less than 10 micrometers in diameter (PM₁₀). *See*, Statement of Basis and Ambient Air Quality Impact Report, Section 7, pp. 15-23 (June 2009)

The record for this permit demonstrates that the source will not cause or contribute to a violation of any NAAQS regulated under the permit that was in effect at the time EPA issued a proposed permit for this project. EPA has determined from the modeled results for the facility that the Project impacts are well below (in all cases, less than 6 percent of) the applicable NAAQS for the PSD pollutants addressed in the PSD permit. The maximum modeled impact of NO₂ for the annual averaging period is 0.5 µg/m³, less than 1 percent of the NAAQS of 100

µg/m³. The modeled PM₁₀ impact (24-hour averaging period) is 2.9 µg/m³, approximately 2 percent of the PM₁₀ 24-hour NAAQS of 150 µg/m³. The modeled CO impact for the 8-hour averaging period is 337 µg/m³, less than 4 percent of the NAAQS of 10,000 µg/m³, and the modeled CO impact for the 1-hour averaging period is 2,175 µg/m³, less than 6 percent of the NAAQS of 40,000 µg/m³. See, Statement of Basis and Ambient Air Quality Impact Report, Section 8, pp. 24-27 (June 2009); 40 C.F.R Part 50.

Proposal of Hourly NO₂ NAAQS After Application Completed

At the time its permit application was deemed complete, Avenal did not have notice of the potential for the hourly NO₂ NAAQS requirement to become applicable when its permit application was completed. EPA declared the Avenal PSD permit application complete in March 2008. EPA proposed the hourly NO₂ NAAQS over a year later on July 15, 2009.

Complications with Implementation of Hourly NO₂ NAAQS

EPA issued the hourly NO₂ NAAQS on February 9, 2010 and established that this standard would become effective on April 12, 2010. At that time, EPA did not consider adopting a transitional provision for pending permit applications completed prior to this date. EPA expected that permit applicants would readily be able to determine, based on existing EPA modeling guidelines, how to expeditiously complete the analysis necessary to show that stationary source construction would not cause or contribute to violations of the hourly NO₂ NAAQS. However, some PSD permit applicants have experienced unforeseen challenges with the preparation of sufficient information to predict the impact of the proposed source on hourly NO₂ concentrations in accordance with PSD modeling guidelines.

EPA has approved the air quality dispersion model known as AERMOD for use in several regulatory applications, including use by permit applicants to demonstrate that the sources they propose to build will not cause or contribute to violations of the hourly NO₂ standard. On February 25, 2010, before the hourly NO₂ standard became effective, EPA issued a Notice Regarding Modeling for New Hourly NO₂ NAAQS, which explained that the current AERMOD model should be used in accordance with established guidelines on the application of this and other air quality models contained in 40 C.F.R. Part 51, Appendix W. In addition, after the hourly NO₂ NAAQS became effective, EPA issued two additional guidance memoranda on June 28, 2010. One of those memoranda, entitled “*Applicability of Appendix W Modeling Guidance for the 1-hour NO₂ National Ambient Air Quality Standard*,” provided additional technical guidance on using AERMOD to demonstrate that proposed construction of a stationary source will not cause or contribute to a violation of the hourly NO₂ standard. EPA believed these actions would be sufficient to enable all permit applicants, including those with applications pending on April 12, 2010 when the NO₂ NAAQS became effective, to complete appropriate modeling of hourly NO₂ concentrations.

Despite these actions by EPA, some applicants seeking PSD permits to construct or modify stationary sources of air pollution have experienced unforeseen challenges with the timely preparation of sufficient information to demonstrate that the proposed construction will not cause or contribute to violations of the hourly NO₂ NAAQS. These challenges have

resulted from the fact that to address the hourly NO₂ NAAQS, many permit applicants need to conduct a cumulative air quality impact assessment. This has also necessitated the application of modeling techniques that are more refined than those that have previously been adequate to demonstrate compliance with the annual NO₂ standard. These refined modeling techniques require consideration of the chemical transformation of NO_x emissions through the Ozone Limiting Method or Plume Volume Molar Ratio Method under the third and most-refined Tier of EPA's modeling guidelines applicable to NO₂. Additional refinements in the determination of background concentrations based on modeling of nearby sources and ambient monitoring data may also be necessary in many cases. This level of refinement requires acquisition and analysis of additional data inputs that are available but not as readily accessible to permit applicants as has been the case with other data used in air quality modeling for annual NO₂ concentrations. Permit applicants and permitting authorities have needed more time than EPA expected to develop familiarity with these refined approaches and to obtain and analyze the necessary data.

Due in part to these complications, APC's efforts to complete a sufficient modeling demonstration to show this source will not cause or contribute to violations of the hourly NO₂ standard has produced unanticipated delays in the review of the PSD permit application submitted by APC. This has exacerbated EPA's failure to comply with the statutory deadline for action on this permit application. The potential for such a circumstance to arise was not apparent when EPA completed the hourly NO₂ NAAQS without grandfathering pending PSD permit applications at that time.

Greenhouse Gas Requirements

When EPA completed the reconsideration of the PSD Interpretive Memo in April 2010 and identified the date on which greenhouse gases would become subject to regulation, the Agency's conclusion that it would not be necessary to establish a transitional provision for the PSD requirements applicable to greenhouse gases was informed by the assumption that permits pending as of April 2010 would reasonably be expected to be issued within the next nine months. Thus, when EPA concluded that the approximately nine months remaining until January 2, 2011 was a sufficient transition period for completing action on most pending permit applications without having to address the greenhouse gas requirements, EPA had not considered the potential delays that would result for long-pending complete permit applications such as APC's from completion of modeling to address the hourly NO₂ NAAQS. Since these delays have prevented EPA from issuing a final decision on the APC permit application by January 2, 2011, EPA believes it is appropriate to grandfather this permit from the greenhouse gas requirements. If not for the delays associated with addressing the hourly NO₂ NAAQS requirements, EPA would have completed action on the APC permit application prior to January 2, 2011 and the application would not have been subject to the greenhouse gas requirements. The limited grandfather from the GHG requirements that EPA is applying in this case is justified to provide this permit applicant with the benefit of the 9-month transitional period EPA identified in April 2010 before the complications associated with implementing the hourly NO₂ NAAQS in the PSD permitting program became apparent.

Hourly SO2 NAAQS

On June 22, 2010, EPA published a final rule establishing a primary SO₂ NAAQS based on a 1-hour averaging time. 75 Fed. Reg. 35,520 (Jun. 22, 2010). That rule became effective on August 23, 2010. EPA first proposed this standard on December 8, 2009, more than 20 months after EPA determined Avenal's application was complete. As with the greenhouse gas requirement, the Agency's decision not to establish a transitional provision for the hourly SO₂ NAAQS was informed by the assumption that an hourly NO₂ NAAQS modeling demonstration could be completed more expeditiously than has proven to be the case for the APC permit. EPA did not anticipate that delays in completing modeling for the hourly NO₂ NAAQS would impede EPA's ability to complete action on the long-pending complete permit applications such as APC's before the hourly SO₂ NAAQS became effective on August 23, 2010. Similar to the situation described above with respect to greenhouse gases, EPA would have been able to complete action on this permit application before August 23, 2010 if it had not requested additional information from Avenal to address the hourly NO₂ NAAQS and experienced the complications described.

Although these considerations support grandfathering this permit application from the hourly SO₂ NAAQS, we note that because of the low SO₂ emissions from this facility, EPA regulations do not require additional analysis to demonstrate that this source will not cause a violation of the hourly SO₂ NAAQS. The Project's SO₂ emissions are estimated to be 16.7 tons per year. Since this is well below the 40 tons per year significant emissions rate for SO₂, additional analysis is not required from APC. See 40 C.F.R. §§ 52.21(m)(1) and 52.21(b)(23)(i). Sources with emissions below these levels are considered to have a negligible or "de minimis" impact on air quality that would not cause or contribute to violation of the NAAQS for the pollutant in question. Thus, further analysis is not required under EPA regulations.

Judicial Decisions Support Grandfathering the Permit Application from New Requirements in this Case

EPA's proposed action to grandfather this permit application that has been pending for well beyond the statutory deadline for action is supported by judicial opinions that have addressed analogous circumstances involving a change in legal requirements while action on an application for a government approval was unduly delayed. In the April 2010 interpretive statements described above, EPA relied on judicial opinions supporting the general principle that a decision on an application for a government license, permit, or other type of authorization must be based on the law in effect at the time of the decision of the reviewing authority. See *Ziffrin, Inc. v. United States*, 318 U.S. 73, 78 (1943); *State of Alabama v. EPA*, 557 F.2d 1101, 1108 (5th Cir. 1977). However, some courts have also recognized an exception to this principle in circumstances where there has been a significant and prejudicial delay by the government agency reviewing an application. These courts have extended to actions by government agencies a principle that courts sometimes apply when they themselves are unable for various reasons to issue decisions in a timely manner. The judicial principle has been expressed by the Supreme Court as follows:

where the delay in rendering a judgment or a decree arises from the act of the court, that is, where the delay has been caused either by the convenience, or by the multiplicity or press of business, either the intricacy of the questions involved, or of any other cause not attributable to the laches of the parties, the judgment or decree may be entered retrospectively, as of a time it should or might have been entered up.

Mitchell v. Overman, 103 U.S. 62, 64-65 (1880). This principle is sometimes identified by the Latin maxim *actus curiae neminem gravabit*.

In one such case applying this principle to action by a government agency, an individual had applied for U.S. citizenship under a statute that expired before the government acted on his application. The court held that the individual was entitled to have his petition for naturalization granted under the expired law because of the government's delay in the approval of his application. *Application of Martini*, 184 F.Supp. 395, 401-402 (S.D.N.Y. 1960). That court opinion applies the judicial principle described above "to the delay caused by administrative inaction." 184 F.Supp. at 401-402. The United States Court of Appeals for the Second Circuit later observed that the above case and others had applied this principle to "situations involving prejudicial delays in the administrative proceedings." *Fassilis v. Esperdy*, 301 F.2d 429, 434 (2d Cir. 1962). However, the Second Circuit actually declined to reach the same result in the absence of a similar showing of delay. *Id.* This opinion of the Second Circuit followed the general principle described in *Ziffrin Inc. v. United States*, 318 U.S. 73 (1943) that an administrative agency should apply the law in effect at the time of its final decision on an application. Nevertheless, the Second Circuit case did not question the earlier decisions that applied an exception to this principle where there has been a meaningful delay by an administrative agency. *Id.* at 434. Although the Second Circuit upheld several denials of applications for permanent residency status based in part on a change in law that occurred during administrative appeals of the denials, this result was based on the court's conclusion that there were "no substantial delays on the part of the administrative agency which operated to deprive the applicants of any right to which any of them was entitled." *Id.* Thus, the *Fassilis* opinion appears to confirm the viability of the principle applied in the *Martini* case where there has been a significant delay by an administrative agency.

Together, the above cases support the view that an administrative agency has the power in limited and compelling circumstances to issue a permit decision based on the legal requirements that were applicable at the time the Agency should have taken action.

Conclusion Regarding Grandfathering

Notwithstanding these considerations, EPA must also ensure compliance with the substantive requirements of the Clean Air Act. The Act does not expressly authorize EPA to waive the substantive permitting criteria when a permit application has not been granted or denied within the one-year deadline. Thus, EPA must consider how to reconcile what have now become conflicting statutory obligations because of the delays in processing this permit application. Given the ambiguity in the Act on this point, EPA has the discretion to apply a permissible interpretation of the Act that balances the requirements in the Act to make a decision

on a permit application within one year and to ensure that new and modified sources will only be authorized to construct after showing they can meet the substantive permitting criteria. Given the nature of the facility APC proposes to construct, the fact that EPA proposed the hourly NO₂ NAAQS more than a year after Avenal's application was complete and after EPA had proposed to approve it, the delay in processing this application that resulted from promulgation of this standard, and the judicial precedent described above, EPA believes it is appropriate to reconcile these competing legal obligations by not requiring that APC show it will not cause or contribute to a violation of the one-hour NAAQS for NO₂ and SO₂ or that this facility will be capable of meeting emissions limitations for greenhouse gases based on the BACT requirement.

Although EPA previously issued interpretive statements that suggest grandfathering is not permissible in any circumstance absent an express grandfathering provision in the regulations, this previous interpretation should not apply to the circumstances present here. In making those prior statements, EPA had not sufficiently considered the judicial decisions described above and the present circumstances where several factors have combined to cause a delay of EPA's action on the APC permit nearly two years beyond the statutory deadline. In light of these circumstances and the extended delay of EPA's action on the APC permit application attributable to the challenges experienced in attempting to address the hourly NO₂ NAAQS, EPA reads the law to allow EPA to issue this permit application based on the criteria and standards applicable to PSD permit decisions prior to the effective date of the hourly NO₂ NAAQS.

The previous interpretive statements discussed above were reflected in actions of officials from EPA's headquarters offices. In order to effectuate the refinement of the previous Agency interpretations described above and to facilitate issuance of this permit, EPA's Assistant Administrator for Air and Radiation is issuing this statement of basis and intends to issue the final permit decision for the APC permit application after consideration of any public comment that may be submitted on this action. This action is authorized under a special delegation from the EPA Administrator contained in the administrative record.

II. Environmental Justice Analysis

Introduction

Executive Order 12898 entitled “Federal Actions To Address Environmental Justice in Minority Populations and Low-Income Populations” states in relevant part that “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” Section 1-101 of Exec. Order 12898, 59 Fed. Reg. 7629, (Feb. 16, 1994) “Federal agencies are required to implement this order consistent with, and to the extent permitted by, existing law.” *Id.* at 7632. Based on this Executive Order, the EPA’s Environmental Appeals Board (EAB) has held that environmental justice issues must be considered in connection with the issuance of federal Prevention of Significant Deterioration (PSD) permits issued by EPA Regional Offices and states acting under delegations of Federal authority. *See, e.g., In re Prairie State Generating Company*, 13 E.A.D. 1, 123 (EAB 2006); *In re Knauf Fiber Glass, GmbH*, 8 E.A.D. 121, 174-75 (EAB 1999) (“Knauf I”). EPA Regional Offices or their delegates in the states have for several years incorporated environmental justice considerations into their review of applications for PSD permits. The EAB reinforced the importance of completing an environmental justice analysis in a recent opinion discussed further below. *See, , In re: Shell Gulf of Mexico, Inc. and Shell Offshore, Inc.*, OCS Appeal Nos. 10-1 to 10-4, Slip Op. at 63-4, (EAB December 30, 2010) (“Shell II”).

During the extended public comment period that EPA provided in 2009 regarding the proposed PSD permit for the Avenal Energy Project (Project), EPA received a number of comments concerning potential impacts on the surrounding communities, and we will respond to those in the Response to Comments that will accompany our final permit decision. For reasons we discuss in detail below, we have prepared this separate Environmental Justice Analysis to address the question of potential impacts of emissions of the air pollutants addressed in EPA’s PSD permit action, and in particular short-term NO₂ exposures. Another environmental justice analysis was conducted, as part of the state permitting and certification process for this Project, that addresses certain other air pollutants, namely ozone and fine particles, and we have summarized the results of that analysis in this document. We note that the local air district permit and the California Energy Commission (CEC)’s certification are the subject of a complaint submitted to EPA under Title VI of the Civil Rights Act.

For purposes of the Executive Order on environmental justice, EPA has recognized that compliance with the applicable NAAQS is emblematic of achieving a level of public health protection that demonstrates that EPA’s issuance of a PSD permit for a proposed facility will not have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations. *See e.g., Shell II*. slip op. 74; *In re Shell Offshore Inc.*, 13 E.A.D. 357, 404-5 (EAB 2007) (“Shell I”); *In re Knauf Fiber Glass, GmbH*, 9 E.A.D. 1, 15-17 (EAB 2000) (“Knauf II”); *In re AES Puerto Rico, L.P.*, 8 E.A.D. 324, 351 (EAB 1999). This is because the NAAQS are health-based standards, designed to protect public health with an adequate margin of safety, including sensitive populations such as children, the elderly, and asthmatics. As the EAB recently observed, “[i]n the context of an environmental justice

analysis, compliance with the NAAQS is emblematic of achieving a level of public health protection that, based on the level of protection afforded by the NAAQS, demonstrates that minority or low-income populations will not experience disproportionately high and adverse human health or environmental effects due to exposure to relevant criteria pollutants.” Shell, Slip Op. at 73. This is supported by the fact that “[t]he Agency sets the NAAQS using technical and scientific expertise, ensuring that the primary NAAQS protects the public health with an adequate margin of safety.” *Shell II*, Slip Op. at 73.

The studies assessed by EPA in setting NAAQS and the integration of the scientific evidence presented therein have undergone extensive critical review by EPA, the Clean Air Scientific Advisory Committee (CASAC), and the public. Final Rule, 75 Fed. Reg. 6474, 6478 Feb. 9, 2010. “The rigor of the review makes these studies, and their integrative assessment, the most reliable source of scientific information on which to base decisions on the NAAQS.” *Id.* When setting the NAAQS, “[t]he Administrator’s final decisions draw upon scientific information and analysis related to health effects, population exposures, and risks; judgments about the appropriate response to the range of uncertainties that are inherent in scientific evidence and analyses; and comment received from CASAC and the public.” *Id.* at 6483. In light of these characteristics of the process for setting the standards, the EAB generally “relies on and defers to the Agency’s cumulative expertise when upholding a permit issuer’s environmental justice analysis based on a proposed facility’s compliance with the relevant NAAQS in a PSD appeal.” *Shell II*, Slip. Op. at 74. The NAAQS are also the underpinning for the State Implementation Plan process, which requires states to adopt rules and programs that will reduce emissions causing air pollution.

Pursuant to Clean Air Act section 165(a)(3), construction of a major emitting facility may not commence until the owner or operator of such facility demonstrates, among other things, that the facility will not cause or contribute to air pollution in excess of any NAAQS applicable to the permit decision. 42 U.S.C. § 7475(a)(3); see also 40 C.F.R. §§ 52.21(k), 52.21(i)(2). EPA proposes to regulate emissions affecting the following NAAQS under the PSD permit: NO₂ (annual average), CO (1-hr and 8-hr average), and PM₁₀ (24-hr). The proposed permit does not contain emission limitations for SO₂ because, as noted above, the Project’s SO₂ emissions are estimated to be 16.7 tons per year, which is well below the 40 tons per year significant emissions rate for SO₂. See 40 C.F.R. §§ 52.21(b)(23)(i); 52.21(j)(2); 52.21(m)(1). EPA has determined that the proposed facility’s projected emissions will not cause or contribute to a violation of the applicable NAAQS, and are, in fact, well below the NAAQS. Indeed, EPA estimated that the projected emissions would be very low – i.e., less than 6% of the applicable NAAQS. Using that information for its environmental justice analysis, EPA has determined that compliance with the applicable NAAQS is indeed sufficient to satisfy the Executive Order as to those regulated pollutants.

Furthermore, Section 165(a) (2) of the CAA provides that a PSD permit may be issued only after “a public hearing has been held with opportunity for interested persons including representatives of the Administrator to appear and provide written or oral presentations on the air quality impact of [the proposed] source, alternatives thereto, control technology requirements, and other appropriate considerations.” In light of the Agency’s proposed determination that it should grandfather this permit application from the 1-hour

NO₂ NAAQS, EPA’s environmental justice analysis considers “other appropriate considerations” that extend beyond the impacts of the pollutants and NAAQS for those pollutants that are addressed in the PSD permit.

In this case, EPA’s environmental justice analysis will consider not only the annual NO₂ NAAQS, which was applicable at the time of the permit application and when EPA issued a proposed permit for the project, but also the potential impacts of the facility on short-term NO₂ concentrations. EPA is examining short-term NO₂ concentrations – even though EPA is proposing not to apply the new one-hour NO₂ NAAQS to this permit application – because the Agency recently determined that the annual NO₂ standard alone is not sufficient to protect public health with an adequate margin of safety against adverse respiratory effects associated with short-term exposures to NO₂. Final Rule, 75 Fed. Reg. 6474, (Feb. 9, 2010) Therefore, EPA’s environmental justice analysis considers whether short-term exposures to NO₂ emissions from the Project may result in disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

The Project is also subject to an air permit issued on November 4, 2008 by the San Joaquin Valley Air Pollution Control District (District), which includes conditions necessary to satisfy the requirements of the Non-attainment New Source Review (NSR) Program under sections 172(c)(5) and 173 of the Clean Air Act. This permit addresses ozone, one of the two air pollutants for which the San Joaquin Valley (Valley) has been designated non-attainment.³ The facility’s projected emissions are below the threshold that would trigger non-attainment new source review of the other non-attainment pollutant – PM_{2.5}. The California Energy Commission, in reviewing the permit applicant’s Application for Certification relating to the aforementioned District permit, analyzed environmental justice considerations pertaining to, among other things, the proposed siting and emissions profile of the facility. This analysis is contained in the California Energy Commission’s Final Commission Decision (08-AFC-1) (December 2009).

The District’s action in issuing an NSR permit for this facility and the CEC’s action in certifying the Project are the subject of a pending administrative complaint under Title VI of the Civil Rights Act. This complaint, submitted to EPA on October 15, 2009 by Greenaction for Health and Environmental Justice, alleges that the District discriminated against Avenal and Kettleman City residents of color and Spanish-speakers by failing to notify or involve residents during the decision-making process. In addition, the complaint alleges that operation of the proposed Avenal power plant will result in adverse health impacts on the residents of color of Avenal and Kettleman City, who are already impacted by multiple sources of pollution. EPA’s Office of Civil Rights has accepted both of these allegations for investigation⁴. By letter dated

³ New source review in non-attainment areas is different from PSD review. Because the area already has air quality that does not meet national health standards, and yet to preserve the ability for economic development to occur in those areas without exacerbating air quality and public health concerns, the Clean Air Act requires that sources seeking to build or expand in a non-attainment area must meet the Lowest Achievable Emissions Rate (LAER) and offset their anticipated new emissions by eliminating emissions of an equal, or depending on the severity of the non-attainment, greater amount. LAER requires a level of emissions reduction, through the use of control technology or other approaches, that is as or more stringent than Best Available Control Technology (BACT), which is required in attainment areas.

⁴ EPA also referred to the US Department of Energy the second allegation as it relates to the actions of the CEC.

August 6, 2010, EPA notified the complainant that it is holding its investigation of the second allegation described above in abeyance because it is not ripe for review while EPA is still considering the PSD permit application.

Project Description and Regulatory Framework

As discussed above, the Avenal Power Center, LLC has applied to EPA for a PSD permit for the Project, a new natural gas fired power plant to be located in Kings County, California, within the San Joaquin Valley Air Pollution Control District, which covers 25,000 square miles and is about 250 miles long from the northern tip of San Joaquin County to the southern tip of Kern County.

Under the Clean Air Act, new sources of pollutants for an area that has been designated attainment or unclassifiable are regulated under the PSD program. In the San Joaquin Valley, these pollutants include NO₂, PM₁₀, SO₂, lead, and CO, and therefore EPA's proposed PSD permit for the Project regulates those pollutants that the facility has the potential to emit in significant amounts. In addition, the facility will emit pollutants for which the San Joaquin Valley has been designated non-attainment. Specifically, the Valley is designated as an extreme non-attainment area for ozone and a non-attainment area for PM_{2.5}. Thus, the non-attainment pollutants subject to NSR permitting by the District include NO_x and VOC as ozone precursors, and PM_{2.5}.⁵ In addition, for power plants over 50 MW, the California Energy Commission (CEC) must issue a license to authorize construction of a proposed power plant. The District issued the non-attainment NSR permit for the facility on October 30, 2008 and the CEC completed its licensing process on December 16, 2009.

The Project is expected to produce approximately 600 megawatts (MW, nominal) net electrical output from natural gas-fired combined-cycle generating equipment. The facility will be operated in combined-cycle mode. Two combustion turbine generators (CTGs) will connect to a dedicated heat recovery steam generator (HRSG), where hot combustion exhaust gas will flow through a heat exchanger to generate steam. The facility will be equipped with natural gas-fired duct burners to augment steam production during peaking operation. Electrical power will be generated from the combustion of natural gas in two 180 MW (nominal) CTGs. Exhaust from each gas turbine will flow through the dedicated HRSG to produce steam to power a shared 300 MW (nominal) Steam Turbine Generator (STG).

The Project will be equipped with state-of-the-art control technology and will be one of the lowest emitting power plants of its kind. Each of the Project's CTGs will be equipped with dry low-NO_x (DLN) combustors. The facility will install selective catalytic reduction (SCR) and oxidation catalyst (Ox-Cat) systems. SCR will be used to reduce NO_x emissions from the combustion turbine generators and the Ox-Cat to reduce emissions of carbon monoxide and volatile organic compounds. Additional equipment includes a natural gas-fired auxiliary boiler equipped with an ultra low-NO_x burner, a natural gas-fired emergency generator equipped with a non-selective catalytic reduction (NSCR) system, and a diesel-fired emergency firewater pump

⁵ The projected PM_{2.5} emissions from the Avenal facility fall below the regulatory threshold for new source review and there are no PM_{2.5} requirements in the District's permit.

engine with a turbo-charger and an inter-cooler/after-cooler. These pollution control technologies are required to meet the Best Available Control Technology (BACT) and Lowest Achievable Emissions Rate (LAER) requirements under the PSD and non-attainment NSR permitting programs.

The facility is expected to have emissions as shown in the following table⁶.

Pollutant	Estimated Annual Emissions (tons/year)	Major Source Threshold (tons/year)	Significant Emission Rate (tons/year)	Does PSD apply?
CO	602.7	100	100	Yes
NO2	144.3	100	40	Yes
PM/PM10	80.7	100	25/15	Yes
SO _x	16.7	100	40	No

EPA’s proposed permit includes, among other requirements, 1-hour emissions limits for NO2, CO, and PM/PM10 on a mass basis as well as 1-hour emissions limits for NO2 and CO on a concentration basis that meet PSD Best Available Control Technology requirements. Based on the BACT analysis EPA has conducted, the proposed permit requires the most stringent control technology available to reduce NO2 emissions.

Demographics, Health Data, and Air Quality in the Avenal Area

Description of Local Area

The project would be located on industrial zoned lands administered by the City of Avenal. Currently, the site is in agricultural use. This area is about 6 miles (~9.7 km) from the residential and business centers of the City of Avenal. The topography of the Kettleman Hills divides the populated areas of the City of Avenal from the project site. The City of Huron is located approximately 8 miles (~12.9 km) north of the site and Kettleman City is located approximately 10 miles (~16 km) southeast of the site⁷.

Avenal has a population of 16,236, including 7,000 inmates at Avenal State Prison. Many of the remaining residents either work at the prison or in the agriculture or oil industries. The City of Huron in Fresno County is 9 miles (14.5 km) east of Interstate 5 (I-5) and 3 miles (4.8 km) south of Highway 198. Huron is home to over 7,400 residents and during the harvest season, from April to November, the city's population increases to over 9,000 with an influx of migrant laborers. The local economy is based on agriculture. Kettleman City is a small community with a population of approximately 1,620. The community is located in southern

⁶ The facility is not expected to emit lead.

⁷ Avenal Energy Application to California Energy Commission, Section 6-9, Land Use.

Kings County adjacent to the Interstate 5 freeway and surrounded by agricultural fields, and defunct oil and natural gas extraction operations. A hazardous waste landfill operated by Waste Management, Inc. is located in the Kettleman Hills about 3.5 miles (~5.6 km) southwest of Kettleman City.

Demographic Information

EPA believes an area encompassed by a 25 km radius from the proposed facility is appropriate for this environmental justice analysis as this includes populations of interest in the area that may be impacted by emissions from the Project. Demographic information for areas of 15 and 50 km radii are also provided for comparison. These areas include portions of Kings and Fresno counties. Thus, for health information EPA will present metrics for both Kings and Fresno counties. Relevant areas of comparison include the 8-county area of the San Joaquin Valley and the State of California as a whole.

Demographic information⁸ is captured within three radii surrounding the proposed Avenal Energy Project at 50, 25 and 15km (see Appendix 1).

Radius, km	Population	Percent Minority	Percent Under Age 18	Percent Over Age 64	Percent Linguistically Isolated	Percent w/o High School Diploma	Average Median Household Income, \$
15	25,660	85	24	3	34	51	27,221
25	32,244	82	25	3	30	50	27,771
50	162,723	62	29	7	11	35	36,843
Kings County	129,461	59	29	7	9	31	35,749
Fresno County	799,407	60	32	10	10	32	34,725
San Joaquin Valley	3,182,529	55	33	10	9	33	38,162
State of CA	33,871,648	53	27	11	10	23	47,493

All three radii capture populations above the state average for percent minority and below the state average for median household income. As the area decreases in size relative to the proposed facility, the percent minority increases. The median household income captured in the 15 km radius is more than \$20,000 below the state average.

EPA's Final Report *Integrated Science Assessment for Oxides of Nitrogen – Health Criteria (ISA)*⁹ discussed below specifically identified children¹⁰ (defined here as under 18 years

⁸ US Census Bureau, 2000 Data, Summary File 3

old) and older adults (65+ years) as being particularly vulnerable to NO₂ impacts. The percentages of children under 18 within the three radii are close to the state average. The percentages of older adults living within the three radii are lower than the state average.

Linguistic isolation¹¹ limits a household's capacity for civic engagement in the regulatory process. All three radii capture households that are above the state average for linguistic isolation. The percent of linguistically isolated households in the State of California is 10% and the percent of households in the 25km radius is 30%.

Education level is another factor that may influence susceptibility and vulnerability to air pollution. Limited formal education is a barrier to employment, health care and social resources, and can increase the risk of poverty, stress, and impacts from environmental stressors. The percent of population without a high school diploma increases the smaller the radius around the facility. Compared to the state average of 23%, the percent of population over 25 years of age without a high school diploma in the 25km radius is 50%. See Appendix 1 for block group maps of each demographic variable described above.

Status of Air Quality in the Area

The San Joaquin Valley is an extreme ozone non-attainment area and a non-attainment area for PM_{2.5}. The area is designated as attainment or unclassifiable for PM₁₀, NO₂, CO, SO₂, and lead. The San Joaquin Valley has some of the highest PM_{2.5} levels in the country.

As discussed in more detail below, EPA recently promulgated a 1-hour NO₂ NAAQS of 100 ppb. EPA has not yet made attainment designations for this new standard. There is limited 1-hour NO₂ monitoring data in California from EPA-approved monitoring network sites. The NO₂ data for the monitoring network for California for 2006-2009 are presented in Appendix 2. The data in the table indicate that the 1-hour NO₂ monitored design values for 2007-2009 range from 5.1 ppb to 85.5 ppb. The ambient monitoring sites nearest to the Project are the Hanford monitoring site which is 28 miles from the facility, and the Visalia monitoring site which is 46 miles from the facility¹². The NO₂ design value monitored at the Visalia site is 61.3 ppb and for

⁹ Integrated Science Assessment for Oxides of Nitrogen – Health Criteria (Final Report), Section 4.3, U.S. Environmental Protection Agency, Washington DC, EPA/600/R-08/071, 2008.

¹⁰ Children are particularly vulnerable to adverse health effects from air pollution because:

- Children's lungs are still developing. This period of growth and development of the lungs is a critical time period for health effects from exposure to air pollution. Exposures to air pollutants during this time can have life-long effects on the lungs, including lung capacity, the diameter of the airways, and the number and types of cells that line the airways. It is important to note that airways develop through adolescence.
- Children breathe in more air than adults compared to their body weight, leading to a higher dose of air pollution.
- Children's airways are narrower than adults, making them more susceptible to air pollution.

¹¹ A linguistically isolated household is defined by the US Census Bureau as a household in which no member 14 years old and over (1) speaks only English or (2) speaks a non-English language and speaks English "very well." In other words, all members 14 years old and over have at least some difficulty with English.

¹² The Hanford and Visalia monitors are "neighborhood scale," which means that they represent conditions throughout some reasonably homogeneous urban subregion, with dimensions of a few kilometers. These data are useful to the understanding and definition of processes that take periods of hours to occur and hence involve considerable mixing and transport. The monitors therefore do not represent source-specific or peak concentrations.

the Hanford site, 50.0 ppb (61% and 50% of the 1-hour NO₂ NAAQS, respectively). This indicates that background levels at the monitors closest to the facility are on par with measured levels of NO₂ statewide, and that background levels of 1-hour NO₂ in the general area surrounding the facility are not disproportionately high as compared with communities elsewhere in the State.

1-Hour NO₂ National Ambient Air Quality Standard

EPA periodically conducts comprehensive reviews of the scientific literature on health effects associated with exposure to the criteria air pollutants. The NAAQS are set at a level that protects public health with an adequate margin of safety, including sensitive populations such as children, the elderly, and asthmatics. On January 22, 2010, EPA promulgated a new 1-hour standard for NO₂ to provide increased public health protection from short-term NO₂ exposures that have been linked to respiratory illnesses that lead to emergency room visits and hospital admissions, particularly in at-risk populations such as children, the elderly, and asthmatics. The standard became effective on April 12, 2010.

Sources of NO₂

As noted in the record that accompanied the promulgation of the 1-hour NO₂ standard, NO₂ is emitted by stationary sources such as utilities, industry and other combustion sources. The largest contributor, however, is motor vehicles, and the greatest concern identified in the review of the NAAQS for NO₂ was exposure to short term NO₂ spikes associated with motor vehicle emissions. Nationwide, mobile sources account for 61% of NO_x emissions. In Kings County, the percentage of NO_x emission attributable to mobile sources is 91%.¹³ NO₂ concentrations on or near major roads are appreciably higher than those measured at monitors in the current network. In-vehicle concentrations can be 2-3 times higher than measured at nearby community-wide monitors and near-roadway concentrations have been measured to be approximately 30 to 100% higher than those measured away from major roads. Individuals who spend time on or near major roads can experience short-term NO₂ exposures considerably higher than measured by the current network, which are of particular concern for at-risk populations, including people with asthma, children, and the elderly. As a result, the final NO₂ NAAQS required that new monitors be located near roadways in addition to community scale monitors. Final Rule, 75 Fed. Reg. 6474 (Feb. 9, 2010); 40 CFR Part 58, Appendix D, Section 43.

EPA anticipates NO_x, including NO₂, concentrations, will continue to decrease as a result of state and federal mobile source engine and fuel standards already in effect and being phased in as new vehicles replace older ones. Heavy-duty trucks contributed more than half of the NO_x emissions in Kings County in 2010. The new standards for on-road heavy-duty trucks, which were fully effective with the 2007 and 2010 model years, are anticipated to result in NO_x emissions reductions of almost 60% from these trucks in Kings County by 2020 (see Appendix

Reference: EPA's QA Handbook, Volume II, Appendix E
(<http://www.epa.gov/ttnamti1/files/ambient/pm25/qa/vol2appe.pdf>).

¹³ ARB, CEPAM-2009 Almanac - 2/6/2011), Appendix 1, Table 1: NO_x Emissions Projections - Kings County California.

3). California's in-use truck rule will further reduce emissions from heavy-duty trucks. In addition, new national emissions standards covering many non-road diesel engine categories, including construction and farm equipment, will be fully effective by 2015.

Health Effects Associated with NO₂

EPA's ISA concluded that recent studies provided scientific evidence that NO₂ is associated with a range of respiratory effects. Specifically, these studies provided evidence sufficient to infer a likely causal relationship between short-term NO₂ exposure and adverse effects on the respiratory system.

Evidence from epidemiologic studies shows an association between NO₂ exposure and children's hospital admissions, emergency department visits, and calls to doctors for asthma. NO₂ exposure is associated with aggravation of asthma, including symptoms, medication use, and lung function. Effects of NO₂ on asthma are most evident with a lag of 2-6 days after exposure, rather than same-day levels of NO₂. The relationship in children between hospital admissions or emergency department visits for asthma and NO₂ exposure holds even after adjusting for co-pollutants such as particulate matter and carbon monoxide.

In addition, the ISA concluded that the available evidence on the effects of short-term exposure to NO₂ on cardiovascular health effects is inadequate to infer the presence or absence of a causal relationship at this time. The ISA concluded that the epidemiologic evidence is suggestive but not sufficient to infer a causal relationship of short-term exposure to NO₂ with all cause and cardiopulmonary-related mortality¹⁴.

Impacts of NO₂ on Susceptible and Vulnerable Populations

The NAAQS are intended to provide an adequate margin of safety for both general populations and sensitive subpopulations, for those subgroups potentially at increased risk for ambient air pollution health effects. The term susceptibility generally encompasses innate or acquired factors that make individuals more likely to experience effects with exposure to pollutants.

As stated in the NO₂ ISA at page 4-12:

Persons with preexisting respiratory disease, children, and older adults may be more susceptible to the effects of NO₂ exposure. Individuals in sensitive groups may be

¹⁴ Results from several large U.S. and European multicity studies and a meta-analysis study indicated positive associations between ambient NO₂ concentrations and the risk of all-cause (non-accidental) mortality, with effect estimates ranging from 0.5 to 3.6% excess risk in mortality per standardized increment. In general, the NO₂ effect estimates were robust to adjust for co-pollutants. Both cardiovascular and respiratory mortality were associated with increased NO₂ concentrations in epidemiologic studies; however, similar associations were observed for other pollutants, including PM and SO₂. The range of risk estimates for excess mortality was generally smaller than that for other pollutants such as PM. While NO₂ exposure, alone or in conjunction with other pollutants, may contribute to increased mortality, evaluation of the specificity of this effect was difficult. U.S. EPA. Integrated Science Assessment for Oxides of Nitrogen – Health Criteria (Final Report), Section 4.3. U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-08/071, 2008. Available at: <http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=194645#Download>

affected by lower levels of NO₂ than the general population or experience a greater impact with the same level of exposure. A number of factors may increase susceptibility to the effects of NO₂. Studies generally reported a positive excess risk for asthmatics, and there was emerging evidence that [cardiovascular disease] may cause persons to be more susceptible, though it is difficult to distinguish the effect of NO₂ from other traffic pollutants. Children and older adults (65+ years) may be more susceptible than adults, possibly due to physiological changes occurring among these age groups. In addition to intrinsically susceptible groups, a portion of the population may be at increased vulnerability due to higher exposures, generally people living and working near roadways. A considerable fraction of the population resides, works, or attends school near major roadways and likely include a disproportionate number of individuals in groups with higher prevalence of asthma and higher hospitalization rates for asthma (e.g., ethnic or racial minorities and individuals of low socio-economic status). Of this population, those with physiological susceptibility will have even greater risks of health effects related to NO₂.

Next Steps for New NO₂ Health Standard

The 1-hour NO₂ standard became effective on April 12, 2010. As required by the CAA, states will submit recommendations to EPA on which areas do and do not meet the standard, based on air quality monitoring data, and will also identify areas for which sufficient data are not yet available. EPA will review the states' recommendations and finalize designations by January 2012. Concurrently, EPA and the states will enhance the ambient monitoring network to ensure it provides adequate coverage, including for exposure near roadways. This monitoring network is to be in place by January 2013. For areas designated non-attainment, states will be required to develop plans to reduce emissions that are contributing to the high levels, and more stringent new source review will apply. New sources will be required to control emissions to meet the Lowest Achievable Emission Rate and offset any new emissions so that there will be no net increase in emissions in the non-attainment area.

Health Metrics Related to Asthma

The NO₂ ISA specifically identifies persons with preexisting respiratory disease as being at increased risk from NO₂ related adverse impacts. This section presents data on health metrics in Kings and Fresno Counties in California that may be associated with exposures to NO₂.

Respiratory diseases can greatly impair a child's ability to function, and are an important cause of missed school days and limitations to activities. Important respiratory diseases in children include asthma, bronchitis, and upper respiratory infections. In 1994-96, on a national basis, 24 percent of children with asthma had to limit their activities due to their asthma, and the disease caused children to miss 14 million days of school. Studies have shown that outdoor and indoor air pollution causes some respiratory symptoms and increases the frequency or severity of asthma attacks.¹⁵ As noted above, NO₂ exposure is associated with aggravation of asthma.

¹⁵ http://www.epa.gov/economics/children/child_illness/ci-background.html

Asthma Disparities and Income

In California as a whole, asthma disparities exist on the basis of race and ethnicity, age, and income. According to the California Breathing (California Department of Public Health) Report: The Burden of Asthma: A Surveillance Report (2007)¹⁶, lower income is associated with more frequent asthma symptoms and higher asthma hospitalization rates, but slightly lower rates of lifetime asthma prevalence. The report states:

Prevalence of severe symptoms is almost seven times higher among adults with household incomes below \$20,000 compared to adults with household incomes over \$100,000. The rate of asthma hospitalizations is three times higher among people living in areas where the median income is less than \$20,000 compared to people living in areas where the median income is greater than \$50,000. Additionally, people with more repeat asthma hospitalizations come from areas with a lower median income.

Hospitalizations and Emergency Department Visits

The tables below compare the age-adjusted rates for asthma hospitalizations and asthma related emergency department visits in Kings and Fresno Counties versus the State of California and are tracked by the California Environmental Health Tracking Program¹⁷.

2009 Asthma Hospitalizations by Race and Ethnicity

The rate of asthma hospitalizations for children in Fresno and Kings Counties aged 0 – 4 is significantly higher than the rate for California as a whole. Hospitalizations due to asthma for non-Hispanic white children age 0 – 4 in California number 19 per 10,000, compared to 42 and 28, respectively, for non-Hispanic white children in Fresno and Kings Counties. Hospitalizations due to asthma for African-American children age 0 – 4 in California number 55 per 10,000, compared to 75 for African-American children in the same age group in Fresno County (data not available for Kings County). Hospitalizations due to asthma for Latino children age 0 – 4 in California number 21 per 10,000, compared to and 45 and 29 (similar to non-Hispanic white children) for Latino children in Fresno and Kings Counties, respectively.

¹⁶ <http://www.californiabreathing.org/phocadownload/asthmaburdenreport.pdf>

¹⁷ The California Environmental Health Tracking Program provides data for two asthma indicators: asthma hospitalizations and asthma-related emergency department visits. A careful evaluation of asthma in a particular community requires review of both asthma-related emergency department (ED) visits and asthma-related hospital admissions because when a patient goes to the emergency room with asthma, sometimes they are treated in the emergency department and discharged and sometimes they are admitted to the hospital. An asthma-related hospital admission is identified by looking at hospitalization data and selecting the admissions that had an asthma diagnosis. Hospitalization represents people with severe asthma who end up being hospitalized for their asthma. An asthma-related emergency department (ED) visit is measured by examining hospital records on ED visits and identifying the visits that had an asthma diagnosis. Some ED visits may result in a hospitalization. Emergency department visits represent people with asthma who end up at the emergency department (ED) or utilize urgent care services for treatment of asthma symptoms. This may be because they have been unable to manage their asthma properly or they lack access to a primary health care provider. California Environmental Health Tracking Program, http://www.ehib.org/project.jsp?project_key=ehss01

Age Adj Rate, per 10,000 persons 2009 ^b	Total		Black		Hispanic ^a		White		Asian/ Pacific Islander	
	All Ages	Children ^c	All Ages	Children ^c	All Ages	Children ^c	All Ages	Children ^c	All Ages	Children ^c
U.S.	Comparable national data for emergency department visits are not readily available, however the <i>California Breathing Report</i> notes that California hospitalization rates are consistently around 1.5 times lower than overall U.S. rates.									
CA	9.42	22.71	29.65	55.38	9.31	20.82	7.90	19.15	6.56	17.73
Fresno County	12.5 ^d	49.34 ^d	31.91	75.48	11.44 ^d	45.28 ^d	11.60 ^d	42.47 ^d	8.91 ^d	48.79 ^d
Kings County	10.78 ^d	31.22 ^d	18.54	NA	12.77 ^d	29.56 ^d	8.93 ^d	28.17 ^d	NA	NA

- Includes Puerto Ricans
- 2009 Data, from California Environmental Health Tracking Program, <http://www.ehib.org/>
- Children 0-4 years old
- This rate is statistically significantly higher than the rate for the State of California for the same ethnic/age group

2009 Asthma Emergency Department Visits by Race and Ethnicity

For asthma-related Emergency Department visits, the rates for Fresno and Kings Counties are higher than the rate for the State of California, and the difference is statistically significant when compared across any of the following: the entire population, the Latino population, children under 4, and adults aged 65 and older. Latino children age 0 – 4 in Fresno and Kings Counties, as compared to all Latino children age 0-4 in the State of California have almost double the rate of emergency department visits: 200 and 193, respectively, per 10,000, versus 107. For African–American children in the same age group, the difference is similarly striking: 409 and 536 for Fresno and Kings Counties, respectively, per 10,000 visits, versus 333 for all African American children age 0-4 in the State.

Age Adj Rate, per 10,000 persons 2009 ^b	Total		Black		Hispanic ^a		White		Asian/ Pacific Islander	
	All Ages	Children ^c	All Ages	Children ^c	All Ages	Children ^c	All Ages	Children ^c	All Ages	Children ^c
U.S.	Comparable national data for emergency department visits are not readily available.									
CA	47.99	109.92	163.05	332.95	44.53	107.66	40.36	79.52	18.68	50.93
Fresno County	68.04 ^d	216.14 ^d	180.02 ^d	409.06 ^d	61.62 ^d	200.06 ^d	65.90 ^d	167.17 ^d	25.44 ^d	123.86 ^d
Kings County	71.24 ^d	196.01 ^d	146.99	536.51 ^d	73.28 ^d	193.35 ^d	61.98 ^d	133.80 ^d	NA	NA
Avenal	26.3 ^c	NA	NA	NA	NA	NA	NA	NA	NA	NA

Kettleman City	35.75 ^e	NA								
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- Includes Puerto Ricans
- 2009 Data, from California Environmental Health Tracking Program, <http://www.ehib.org/>
- Children 0-4 years old
- This rate is higher than the rate for the State of California for the same ethnic/age group.
- Data from 2005-2007 California Office of Statewide Health Planning and Development (OSHPD) Patient ED Database. Numerator for rates is ED visits with a principal diagnosis using ICD-9 code 493. Denominator for Kettleman City and Avenal rates is the estimated number of residents from the ESRI Community Sourcebook of Zip Code Demographics.¹⁸

Asthma Prevalence in Kings and Fresno Counties

Data from the California Department of Public Health’s “California Breathing” program are based on 2007 information. These data show a lifetime prevalence of 24% among Kings County children age 0-17, second highest in the State, and a prevalence of 19.2% for Fresno County, as compared to the statewide prevalence for the same age group of 15.4%¹⁹. In addition, according to the Kings County Health Status Report,²⁰ asthma prevalence has been increasing in recent years.

2007 Lifetime Asthma Prevalence by Race and Ethnicity

In Percents	Total		Black		Hispanic ^a		White		Asian/ Pacific Islander		Family Income Below Poverty Level	
	All Ages	Children ^b	All Ages	Children	All Ages	Children	All Ages	Children	All Ages	Children	All Ages	Children
U.S.^c	11.5	13.1	13.2	19.7	10.2	12.6	11.5	11.2	Comparable data not available		14.4	15.7
CA^d	13.6 ^f	15.4 ^f	18.2	25.9 ^e	10.7	13 ^e	14.1	20 ^e	9.9	17 ^e	11.9	NA

¹⁸Of the three population centers within the project area, data for two of the areas, Kettleman City and Avenal, are available as the result of a study conducted by the California Environmental Protection Agency and the California Department of Public Health (DPH). Although the asthma ED visit rate appears lower for Avenal and Kettleman City as compared with the SJV and California rates, because the population in these two areas is relatively small (15,000 and 1620 respectively) there is a high degree of variability in these rates. It is important to note that the study reached the conclusion that for most of the health metrics examined, Kettleman City was not appreciably different than any other community in the Valley. The Department of Public Health did note, however, an excess in the number of children with birth defects born to mothers who had lived in Kettleman City. Investigation of Birth Defects and Community Exposures in Kettleman City, California, California EPA and California Department of Public Health, page 60, December 2010. Available at

<http://www.calepa.ca.gov/envjustice/Documents/2010/KCDOcs/ReportFinal/FinalReport.pdf>

¹⁹ <http://www.californiabreathing.org/asthma-data/county-comparisons/lifetime-asthma-prevalence-children-2007>

²⁰ <http://www.countyofkings.com/health/forms/Community%20Health%20Status%20Report%202008-2009.pdf> (page 34)

In Percents	Total		Black	Hispanic ^a	White	Asian/ Pacific Islander	Family Income Below Poverty Level
Fresno County^f	18.3 ^g	19.2 ^g	Prevalence data are not available at the county level by racial / ethnic population.				
Kings County^f	17.9	24.0 ^g					

- a. Includes Puerto Ricans (National asthma prevalence of 20.3% for all ages, 17.8% for children)
- b. Children <18 years old
- c. 2007 CDC data, available at: <http://www.cdc.gov/asthma/nhis/07/table2-1.htm>
- d. California Breathing (California Department of Public Health) Report: The Burden of Asthma: A Surveillance Report (2007), based on 2003 data, except where noted
- e. Data available only for adolescents. Prevalence among all CA adolescents is 18%.
- f. County Comparisons based on 2007 data from California Department of Public Health, California Breathing program. Available at: <http://www.californiabreathing.org/>
- g. The prevalence is statistically significantly higher than the rate for the State of California for the same ethnic/age group.

Access to Health Care in Kings and Fresno Counties

Medically Underserved Areas or Populations have been designated in portions of all eight San Joaquin Valley counties, including Kings and Fresno Counties²¹. According to California Health Interview Survey (CHIS) data, 16.4% of the Kings County population and 14.2% of the Fresno County population was not insured as of the date of the last survey (2007) compared to 13.2% of the entire California population surveyed.²²

Health Impacts Associated with Air Pollution in the Area

The San Joaquin Valley, which includes Kings County, is an extreme ozone non-attainment area with some of the highest levels of PM2.5 in the country. The poor air quality creates an adverse health impact for all its residents. Children, people older than 65, and minorities living in Kings and nearby Fresno County suffer from higher rates of asthma-related hospitalizations and emergency department visits than similar groups living elsewhere in the State. The residents living within 25 km of the proposed project are disproportionately low income and minority compared with the rest of the State. While we have only county-level statistics, we anticipate that these statistics would also represent local conditions.

²¹ <http://hpsafind.hrsa.gov/>

²² <http://www.askchis.com/>

Impact of Project's Emissions on the NAAQS Applicable to the PSD Permit Application

The first part of EPA's environmental justice analysis concerns the potential effects on minority or low income populations from emissions that may affect the NAAQS EPA proposes to apply to this permit application. Those are emissions affecting the NAAQS for NO₂ (annual average), CO (1-hr and 8-hr average), and PM₁₀ (24-hr average and annual). As noted earlier, since the potential emissions of the Project are below significance levels for SO₂, the project is not expected to have a significant impact on the applicable SO₂ NAAQS.

EPA has determined from the modeled results for the facility that the Project impacts are well below (in all cases, less than 6% of) the applicable NAAQS for the PSD pollutants regulated under the PSD permit, including the annual NO₂ standard. The modeled impact of NO₂ for the annual averaging period is 0.5 µg/m³, less than 1% of the NAAQS of 100 µg/m³. The modeled PM₁₀ impact (24-hour averaging period) is 2.9 µg/m³, approximately 2% of the PM₁₀ 24-hour NAAQS of 150 µg/m³. The modeled CO impact for the 8-hour averaging period is 337 µg/m³, less than 4% of the NAAQS of 10,000 µg/m³, and the modeled CO impact for the 1-hour averaging period is 2,175 µg/m³, less than 6% of the NAAQS of 40,000 µg/m³. As stated elsewhere, the NAAQS are health based standards and are designed to protect public health with an adequate margin of safety, including sensitive populations. Taking into account these modeled results in light of the health-based nature of the applicable NAAQS, EPA has determined that proposed emissions limits for these pollutants will not result in disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

Review of Modeled Short-Term NO₂ Impacts from Avenal Energy Project's Emissions

The second part of EPA's environmental justice analysis for this permit concerns the short-term impacts of NO₂. For the reasons stated in the Revised Statement of Basis, EPA is proposing to grandfather the Project from demonstrating that this source will not cause or contribute to a violation of the recently promulgated 1-hour NO₂ NAAQS. EPA nevertheless is performing an analysis of impacts from short-term NO₂ concentrations because the Agency recently determined that the annual NO₂ standard alone is not sufficient to protect public health with an adequate margin of safety against adverse respiratory effects associated with short-term exposures to NO₂. Final Rule, 75 Fed. Reg. 6474 (Feb. 9, 2010). We note that because emissions of SO₂ from the project are below significance levels and thus have no more than a de minimis impact, we do not anticipate any significant or disproportionate impacts associated with these emissions. Therefore, further analysis of short-term impacts on SO₂ is not necessary.

The Agency currently has limited data as to the impacts of NO₂ emissions from the project or existing sources on the communities of interest. As previously discussed, there is limited hourly NO₂ monitoring data in California from EPA-approved monitoring network sites, and the closest monitoring sites are 28 miles and 46 miles from the proposed Project. The limited data indicate that background levels at the monitors closest to the facility are on par with measured levels of NO₂ statewide, and that background levels of 1-hour NO₂ in the general area

surrounding the facility are not disproportionately high as compared with communities elsewhere in the State.

In addition, the District conducted an assessment of the 1-hour NO₂ emissions from the Project on June 14, 2010.²³ The results of this analysis indicate that the operational emissions from the facility result in a maximum 1-hour NO₂ impact of 82.43 µg/m³ (44 ppb), which represents 44% of the standard (188 µg/m³ or 100 ppb). This value represents the highest modeled impact at any location resulting from the facility's emissions alone; all other locations would have a lower impact from the facility. The modeled impact is based on the average of the five yearly maximum 8th high values, consistent with EPA's *Notice Regarding Modeling for New Hourly NO₂ NAAQS, Updated - 02/25/2010*, which discusses procedures for calculating NO₂ modeled values suitable for comparison to the 1-hour NO₂ NAAQS.²⁴

This is the best information available to EPA at this time regarding the potential impacts of the facility's NO₂ emissions on short-term NO₂ levels. We do not have an acceptable analysis prepared for PSD purposes that provides a detailed comparison of the facility's emissions, as well as background and nearby sources, with the 1-hour NO₂ NAAQS.

In light of the limited data available, EPA cannot reach any definitive conclusion about the specific human health or environmental impacts of short-term exposure to NO₂ emissions from the facility on minority and low-income populations.

Emissions of Pollutants for Which Area Exceeds Air Quality Standards

The California Energy Commission analyzed environmental justice considerations before approval of Avenal's Application for Certification. Final Commission Decision, Application for Certification (08-AFC-1), pp. 328-332 (December 2009). The Commission concluded based on the evidentiary record that the fully mitigated project would not result in any significant adverse environmental or public health impacts to any population, including farm workers in the region. Id. at 331. EPA presents here a summary of the State's environmental justice analysis, as set forth in the Final Commission Decision, in order to provide further information about the

²³ See Memorandum of June 14, 2010 to Derek Fukuda, AQE-Permit Services, from Leland Villalvazo. SAQS-Technical Services, Subject: Revised NO₂ 1-hour NAAQA Assessment for Avenal Power Center. This memorandum was prepared in support of the Revised Preliminary Determination of Compliance Evaluation for the Avenal Power Center Project, which proposed to limit the annual facility wide NO_x and CO emissions for the source, resulting in a minor source permit for PSD purposes. However, as noted in EPA Comments on Project Number C-II00751 for Avenal Power Center LLC (08-AFC-01), September 13, 2010, the equipment emitting NO_x from both the major and minor source project configurations would have the same permitted 1-hour emission rates, and therefore, the modeled short-term 1-hour NO₂ impacts of the major source Project's emissions would be identical to that of the minor source project under consideration in the SJVAPCD's minor source permitting process.

²⁴ EPA's *Notice Regarding Modeling for New Hourly NO₂ NAAQS, Updated - 02/25/2010*, states, in its discussion regarding procedures for calculating the NO₂ design value for comparison to the 1-hour NAAQS: "The highest of the average 8th-highest (98th-percentile) concentrations across all receptors, based on the length of the meteorological data period, represents the modeled 1-hour NO₂ design value based on the form of the standard." The District's analysis was based on five years of meteorological data (2004-2008). Therefore, the modeled 1-hour NO₂ design value based on the form of the standard in this case would be the average 8th- highest (98th-percentile) based on the average of 5 years data.

potential air quality impacts of the Project.²⁵ With respect to air quality impacts, the Commission found that the combination of emissions controls and offsetting emission reductions would mitigate all project air quality impacts to a less than a significant level. *Id.* at 127. The CEC considered modeling that predicted maximum impacts of the facility on PM_{2.5} concentrations of 2.9 µg/m³, which is approximately 8 percent of the 35 µg/m³ National Air Quality Standard for PM_{2.5} concentrations averaged over a 24 hour period. This same modeling predicted maximum impacts on annual PM_{2.5} concentrations of 0.8 µg/m³ which are approximately 6.5 percent of California's 12 µg/m³ air quality standard.²⁶ Pre-existing background concentrations of PM_{2.5} in the non-attainment area are as high as 75 µg/m³ over a 24-hour period and up to 18.4 µg/m³ on an annual basis. *Id.* at 123.²⁷

EPA is working with the California Air Resources Board (ARB) and the District to ensure that there is a comprehensive plan with adequate controls for attaining the annual and 65 µg/m³ 24-hour PM_{2.5} ambient air quality standards by the Clean Air Act's deadline of 2015. See EPA's proposed action on the 2008 San Joaquin Valley PM_{2.5} plan at 75 FR 74518 (November 30, 2010) We will also be working closely with both agencies to develop a plan to meet the 35 µg/m³ 24-hour standard, which is due to EPA in late 2012.

Since NO_x is a precursor to ozone formation, the District required the Project to supply NO_x offsets at a 1.5 to 1 ratio to mitigate NO_x emissions from the facility. Because ozone formation is not localized, ozone and ozone precursors are considered area or basin-wide pollutants. While the NO_x offsets provided by the applicant for this source were generated within the ozone non-attainment area, they were not required to be near the source. (The closest offsets to the facility were generated between 12 and 20 miles away.) The impacts of NO₂, on the other hand, can be localized in nature. NO_x offsets within the broader non-attainment area will have a mitigating effect on ozone formation within the non-attainment area, but they will not serve to mitigate any localized impacts of NO₂ and therefore do not add meaningfully to EPA's analysis of potential NO₂ impacts on the local communities. We should note that there may be some co-benefits for local areas from the NO_x emissions reductions used for the project. However, we do not have data showing what these potential co-benefits might be.

²⁵ As previously mentioned, EPA has not yet commenced its investigation into the Title VI complaint's allegation that operation of the proposed Avenal power plant will result in adverse health impacts on the residents of color of Avenal and Kettleman City.

²⁶ The federal primary National Ambient Air Quality Standard for PM_{2.5} for the annual averaging period is 15.0 µg/m³.

²⁷ The PM-2.5 values in the CEC report reflect data from the Bakersfield monitor, located approximately 80 miles southeast of the Avenal Energy Project. The Corcoran monitor, located within 28 miles east of the Project, reports 49 µg/m³ 24-hour and 17.3 µg/m³ annual design value concentrations. See EPA's Air Quality System, <http://www.epa.gov/ttn/airs/airsaqs/>.

Conclusion

As explained above, with respect to all pollutants, including those not attaining the NAAQS in the affected area, the California Energy Commission found that the combination of emissions controls and offsetting emission reductions would mitigate all project air quality impacts to a less than a significant level. EPA's own analysis indicates that this project will not cause or contribute to air quality levels in excess of health standards for SO₂, CO, PM₁₀ and the annual NO₂ standard and that there will not be disproportionately high and adverse human health or environmental effects with respect to these air pollutants on minority or low-income populations residing near the proposed project or the community as a whole. While EPA has no information indicating that short-term NO₂ emissions from the project will negatively impact minority and low-income populations in the vicinity, it is difficult to speak definitively to this point due to the limitations of the available data.

Accordingly, EPA requests any additional information that might further inform the Agency's environmental justice analysis. EPA also requests public comment on this issue generally, but particularly in relation to the topics addressed below.

In light of the existing conditions in the local communities where this source proposes to construct, EPA intends to place an ambient NO₂ monitor in an appropriate location in the vicinity of the proposed source to gather more information about the local NO₂ concentrations. In EPA's recent NO₂ monitoring rule that was part of the action to complete the 1-hour NO₂ NAAQS, EPA specifically set aside up to 40 monitors to be sited in areas with minority and low income populations at the discretion of EPA Regional Administrators. Thus, the Agency has the discretion to place an air quality monitor in an appropriate location to develop air quality information for the Region and also to help assess air quality before and after operation of the Avenal plant. This monitor, along with other NO₂ monitors that exist or may be sited in the San Joaquin Valley Air District, will be used by the ARB, the District and EPA to determine whether air quality in the region meets or exceeds the NAAQS for NO₂, and will inform governmental plans to address any identified concerns. Any such plans would consider all contributing sources in the airshed, including the Avenal facility, in the effort to address any identified non-attainment challenges. EPA welcomes public comment on its intentions in this regard.

In the event that EPA were to gather air quality monitoring data that identify a concern in the local community from short-term NO₂ emissions, EPA is considering options that EPA, ARB or the District might employ to mitigate such concerns. For example, EPA may have the option to direct federal funds to the local area to address sources of NO₂ and provide for effective emissions reductions. In addition, the data from monitoring might be used to better inform measures that the ARB or the District could take (or might be required to take) to ensure attainment and maintenance of the 1-hour NO₂ NAAQS. Indeed, if monitoring were to identify violations of the 1-hour NO₂ NAAQS, the State would need to address those issues through the

mandated attainment planning process to identify and implement measures to reduce NO₂ sufficiently to assure air quality that meets the applicable standard. EPA requests public comment on the merits of such approaches.

EPA also requests comments on whether there are any conditions that should be included in the permit in response to these concerns. For example, because this area includes complex terrain and characterization of NO₂ issues in that area can be challenging, EPA requests comment on considering establishing a condition in the permit that would require the applicant to monitor air quality conditions after construction of the facility. This monitoring, in coordination with the community-based NO₂ monitor, could help provide better characterization of the NO₂ concentrations in the area. Under section 52.21(m)(2) of EPA's regulations, EPA can require the permit applicant to conduct ambient monitoring "after construction of the stationary source ... as the Administrator determines is necessary to determine the effect emissions from the stationary source ... may have, or are having, on air quality in any area."

Regina McCarthy
Assistant Administrator for Air and Radiation

APPENDIX 1 – Demographic Maps for Avenal Energy Project EJ Analysis Project Impact Area

Figure 1 - Project Site and Population Density

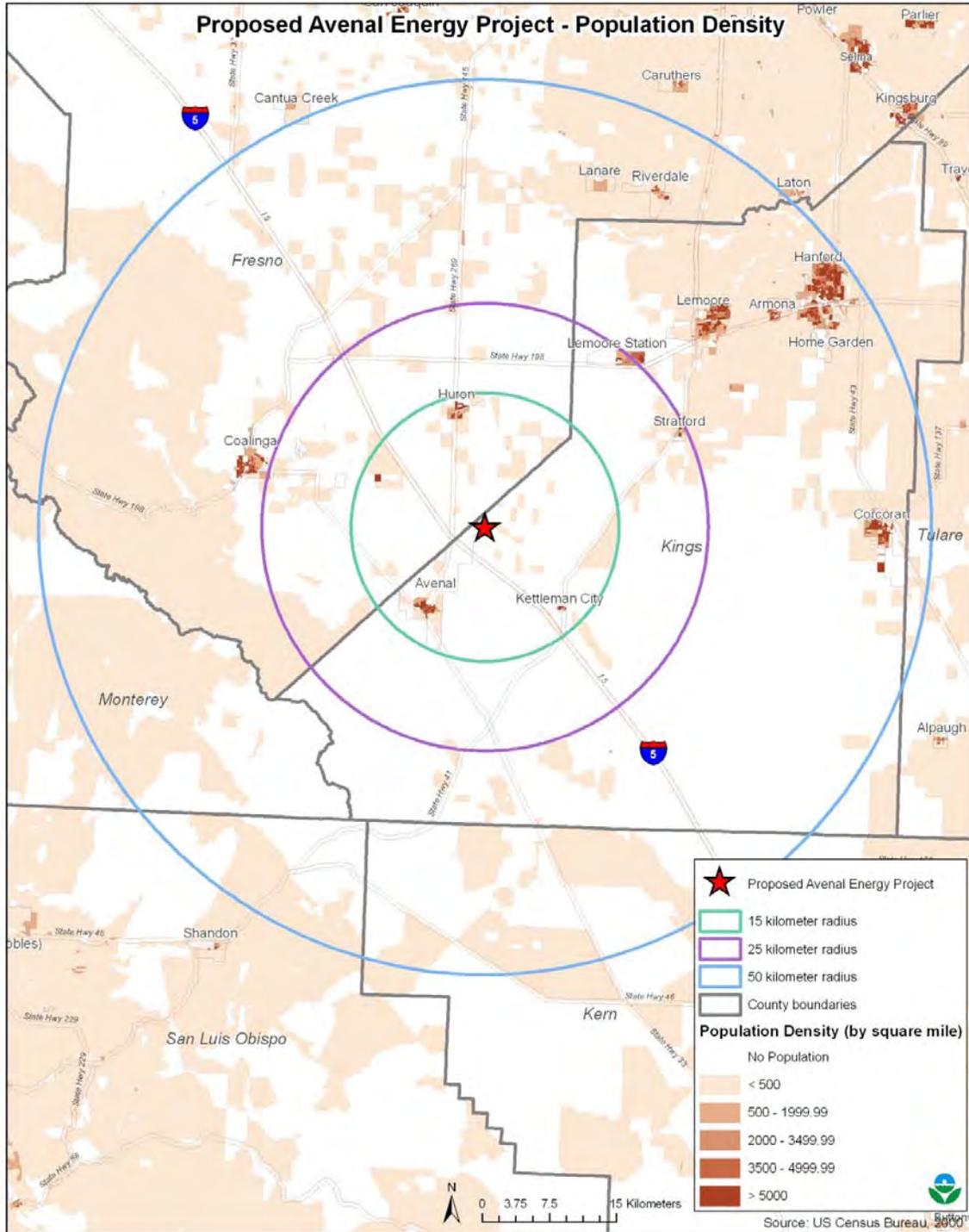
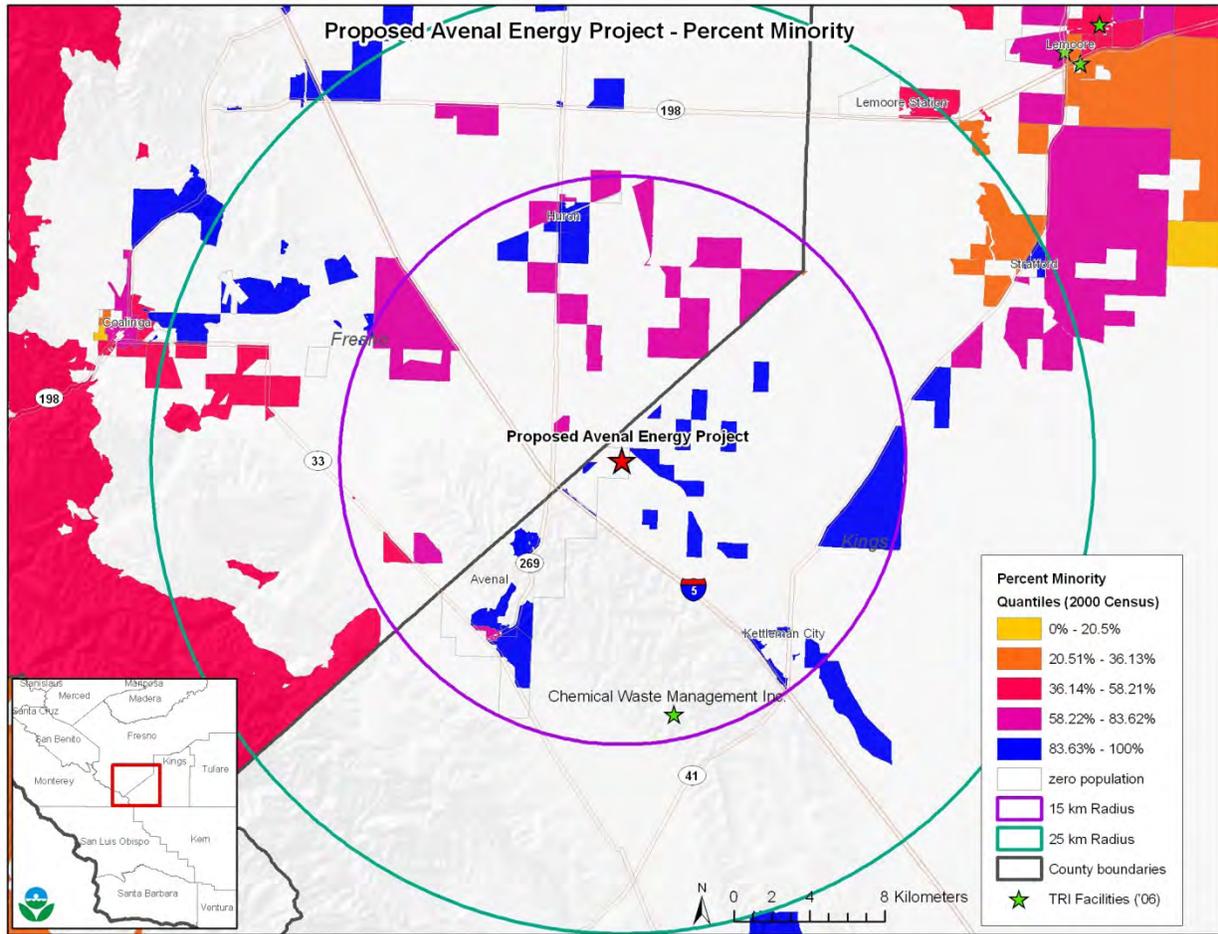


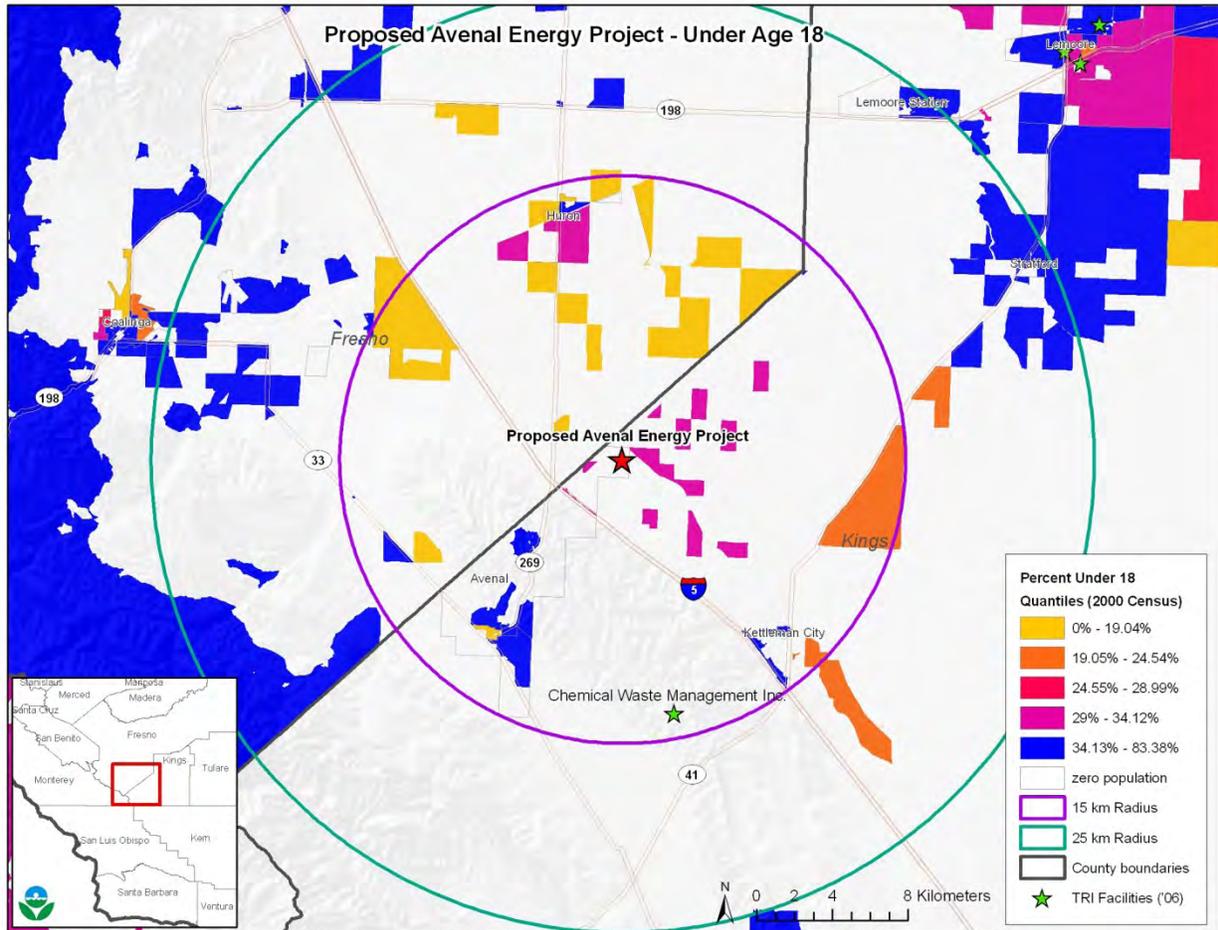
Figure 2 – Percent Minority



Radius, km	Population	Percent Minority	Percent Under Age 18	Percent Over Age 64	Percent Linguistically Isolated	Percent w/o High School Diploma	Average Median Household Income, \$
15	25,660	85	24	3	34	51	27,221
25	32,244	82	25	3	30	50	27,771
50	162,723	62	29	7	11	35	36,843
Kings County	129,461	59	29	7	9	31	35,749
Fresno County	799,407	60	32	10	10	32	34,725
San Joaquin Valley	3,182,529	55	33	10	9	33	38,162
State of CA	33,871,648	53	27	11	10	23	47,493

Source: US Census 2000, Summary Tape File 3

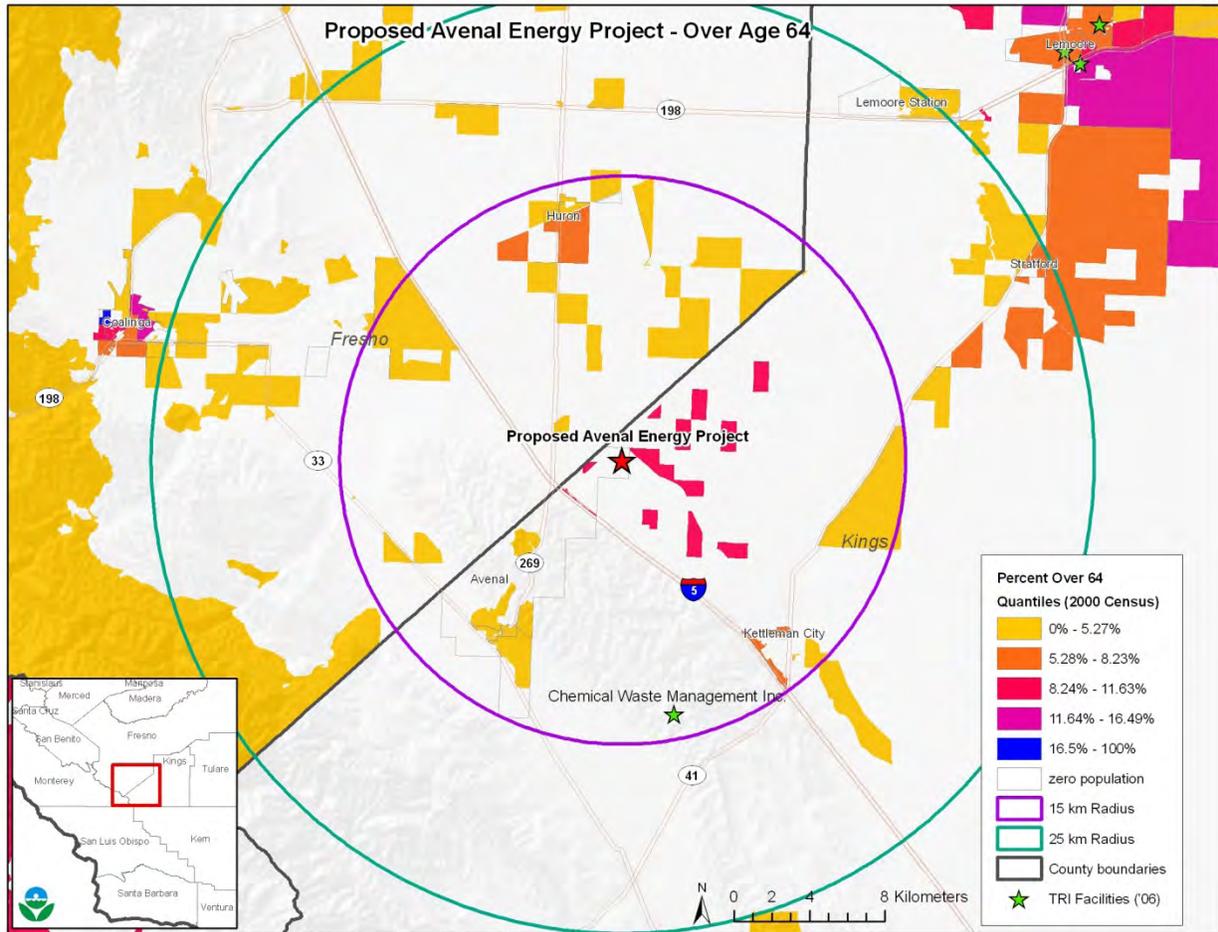
Figure 3 - Percent Under Age 18



Radius, km	Population	Percent Minority	Percent Under Age 18	Percent Over Age 64	Percent Linguistically Isolated	Percent w/o High School Diploma	Average Median Household Income, \$
15	25,660	85	24	3	34	51	27,221
25	32,244	82	25	3	30	50	27,771
50	162,723	62	29	7	11	35	36,843
Kings County	129,461	59	29	7	9	31	35,749
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State of CA	33,871,648	53	27	11	10	23	47,493

Source: US Census 2000, Summary Tape File 3

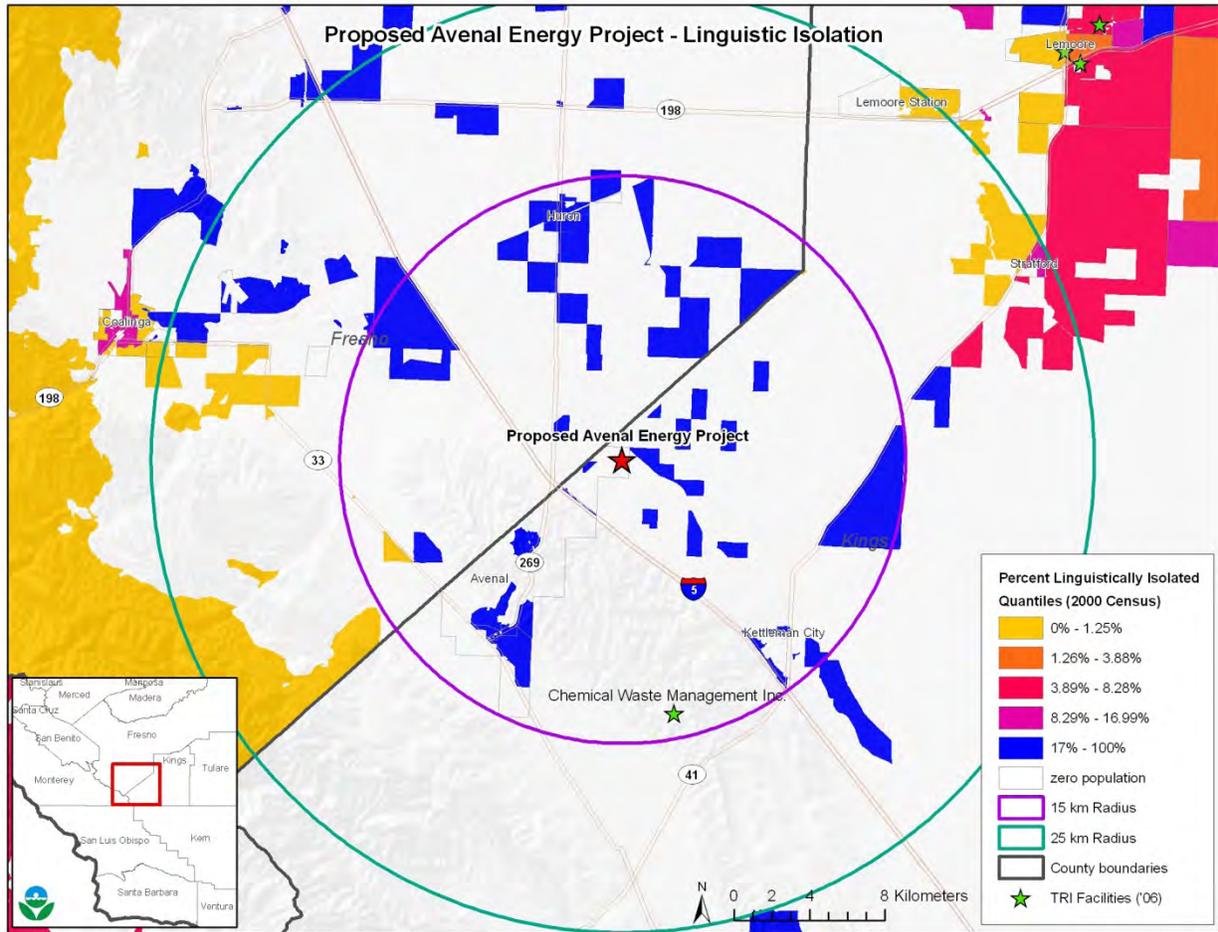
Figure 4 - Percent Over Age 64



Radius, km	Population	Percent Minority	Percent Under Age 18	Percent Over Age 64	Percent Linguistically Isolated	Percent w/o High School Diploma	Average Median Household Income, \$
15	25,660	85	24	3	34	51	27,221
25	32,244	82	25	3	30	50	27,771
50	162,723	62	29	7	11	35	36,843
Kings County	129,461	59	29	7	9	31	35,749
Fresno County	799,407	60	32	10	10	32	34,725
San Joaquin Valley	3,182,529	55	33	10	9	33	38,162
State of CA	33,871,648	53	27	11	10	23	47,493

Source: US Census 2000, Summary Tape File 3

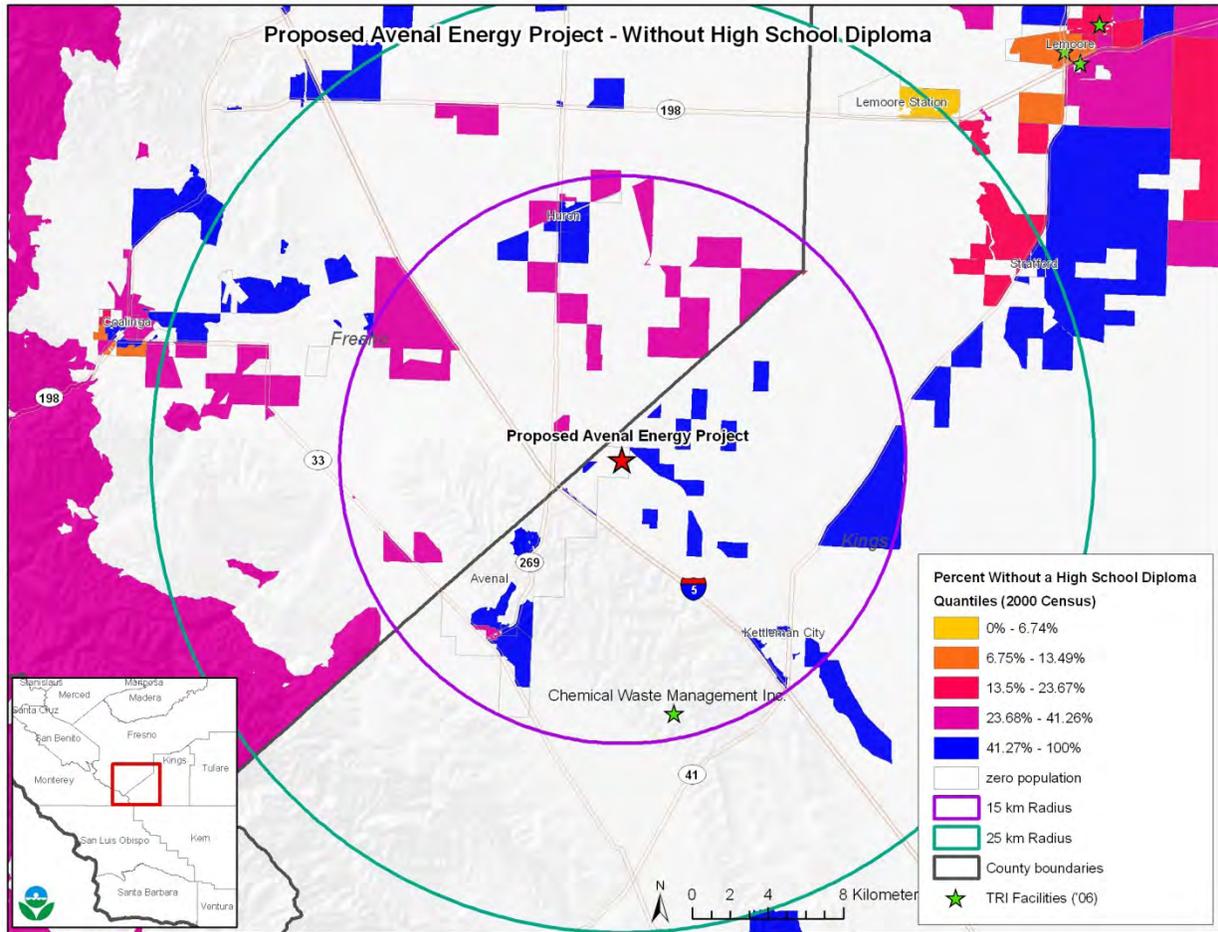
Figure 5 - Percent Linguistically Isolated



Radius, km	Population	Percent Minority	Percent Under Age 18	Percent Over Age 64	Percent Linguistically Isolated	Percent w/o High School Diploma	Average Median Household Income, \$
15	25,660	85	24	3	34	51	27,221
25	32,244	82	25	3	30	50	27,771
50	162,723	62	29	7	11	35	36,843
Kings County	129,461	59	29	7	9	31	35,749
Fresno County	799,407	60	32	10	10	32	34,725
San Joaquin Valley	3,182,529	55	33	10	9	33	38,162
State of CA	33,871,648	53	27	11	10	23	47,493

Source: US Census 2000, Summary Tape File 3

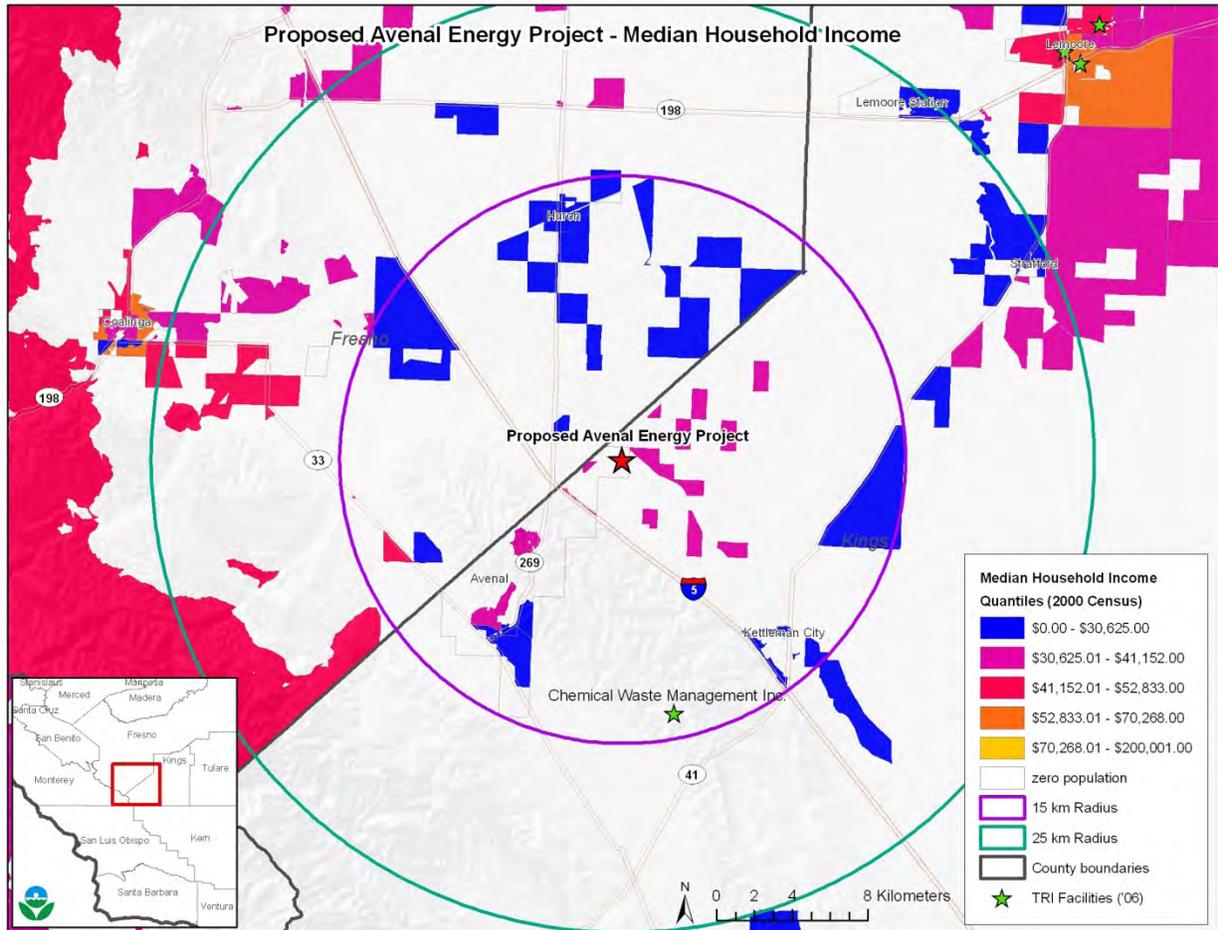
Figure 6 - Percent Age Over 25 without High School Diploma



Radius, km	Population	Percent Minority	Percent Under Age 18	Percent Over Age 64	Percent Linguistically Isolated	Percent w/o High School Diploma	Average Median Household Income, \$
15	25,660	85	24	3	34	51	27,221
25	32,244	82	25	3	30	50	27,771
50	162,723	62	29	7	11	35	36,843
Kings County	129,461	59	29	7	9	31	35,749
Fresno County	799,407	60	32	10	10	32	34,725
San Joaquin Valley	3,182,529	55	33	10	9	33	38,162
State of CA	33,871,648	53	27	11	10	23	47,493

Source: US Census 2000, Summary Tape File 3

Figure 7 - Median Household Income



Radius, km	Population	Percent Minority	Percent Under Age 18	Percent Over Age 64	Percent Linguistically Isolated	Percent w/o High School Diploma	Average Median Household Income, \$
15	25,660	85	24	3	34	51	27,221
25	32,244	82	25	3	30	50	27,771
50	162,723	62	29	7	11	35	36,843
Kings County	129,461	59	29	7	9	31	35,749
Fresno County	799,407	60	32	10	10	32	34,725
San Joaquin Valley	3,182,529	55	33	10	9	33	38,162
State of CA	33,871,648	53	27	11	10	23	47,493

Source: US Census 2000, Summary Tape File 3

Appendix 2

Monitored Hourly NO₂ Values in California (2006-2009)*

Monitor ID	Street Address	City Name	County Name	One Hour NO₂ Design Value (ppb)
06-001-0007-42602-1	793 RINCON AVE.	Livermore	Alameda	47.3
06-001-0009-42602-1	9925 International Blvd.	Oakland	Alameda	51.6
06-001-0011-42602-1	1100 21st Street	Oakland	Alameda	47.0
06-001-1001-42602-1	40733 CHAPEL WAY.	Fremont	Alameda	47.0
06-001-2004-42602-1	1340 Sixth Street	Berkeley	Alameda	45.0
06-007-0002-42602-1	468 MANZANITA AVE.	Chico	Butte	38.0
06-013-0002-42602-1	2956-A TREAT BOULEVARD	Concord	Contra Costa	36.6
06-013-1002-42602-1	5551 BETHEL ISLAND RD.	Bethel Island	Contra Costa	31.0
06-013-1004-42602-1	1865 D RUMRILL BLVD	San Pablo	Contra Costa	41.6
06-013-3001-42602-1	583 W. 10TH ST.	Pittsburg	Contra Costa	44.0
06-019-0007-42602-1	4706 E. DRUMMOND ST.	Fresno	Fresno	61.0
06-019-0008-42602-1	3425 N FIRST ST.	Fresno	Fresno	56.6
06-019-0242-42602-1	SIERRA SKYPARK#2-BLYTHE & CHNNLT	Fresno	Fresno	39.6
06-019-4001-42602-1	9240 S. RIVERBEND.	Parlier	Fresno	39.3
06-019-5001-42602-1	908 N VILLA AVE.	Clovis	Fresno	55.6
06-023-1004-42602-1	717 SOUTH AVENUE	Eureka	Humboldt	22.3
06-025-0005-42602-1	1029 ETHEL ST, CALEXICO HIGH SCHOOL	Calexico	Imperial	72.3
06-025-0006-42602-1	CALEXICO - EAST	Calexico	Imperial	70.6
06-025-1003-42602-1	150 9TH ST.	El Centro	Imperial	50.3
06-029-0007-42602-1	JOHNSON FARM.	Edison	Kern	40.0
06-029-0010-42602-1	1128 GOLDEN STATE HIGHWAY	Bakersfield	Kern	60.0
06-029-0014-42602-1	5558 CALIFORNIA AVE.	Bakersfield	Kern	61.0
06-029-5001-42602-1	20401 BEAR MTN BLVD, ARVIN, CA.	Arvin	Kern	31.6
06-029-6001-42602-1	548 WALKER ST.	Shafter	Kern	53.3
06-031-1004-42602-1	807 SOUTH IRWIN ST.	Hanford	Kings	50.0
06-037-0002-42602-2	803 N. LOREN AVE.	Azusa	Los Angeles	78.3
06-037-0016-42602-1	840 LAUREL	Glendora	Los Angeles	69.6
06-037-0113-42602-1	VA HOSPITAL	West Los Angeles	Los Angeles	63.3
06-037-1002-42602-2	228 W. PALM AVE.	Burbank	Los Angeles	75.3
06-037-1103-42602-1	1630 N MAIN ST.	Los Angeles	Los Angeles	81.3
06-037-1201-42602-2	18330 GAULT ST., RESEDA	Reseda	Los Angeles	59.6

Monitor ID	Street Address	City Name	County Name	One Hour NO₂ Design Value (ppb)
06-037-1301-42602-2	11220 LONG BEACH BLVD.	Lynwood	Los Angeles	76.5
06-037-1302-42602-1	700 North Bullis Road	Compton	Los Angeles	85.5
06-037-1602-42602-1	4144 SAN GABRIEL RIVER PKWY.	Pico Rivera	Los Angeles	83.0
06-037-1701-42602-2	924 N. GAREY AVE.	Pomona	Los Angeles	81.0
06-037-2005-42602-1	752 S. WILSON AVE.	Pasadena	Los Angeles	69.6
06-037-4002-42602-2	3648 N. LONG BEACH BLVD.	Long Beach	Los Angeles	78.3
06-037-5005-42602-1	7201 W. WESTCHESTER PARKWAY	Los Angeles	Los Angeles	71.3
06-037-6012-42602-1	22224 PLACERITA CANYON RD.	Santa Clarita	Los Angeles	57.3
06-037-9033-42602-1	43301 DIVISION ST.	Lancaster	Los Angeles	53.3
06-039-0004-42602-1	RD. 29 1/2 NO. OF AVE 8	Madera	Madera	40.3
06-041-0001-42602-1	534 4TH ST.	San Rafael	Marin	44.6
06-043-0003-42602-1	TURTLEBACK DOME	Yosemite National Park	Mariposa	5.1
06-045-0008-42602-1	306 E. GOBBI STREET	Ukiah	Mendocino	32.3
06-045-0009-42602-1	899 SO MAIN STREET	Willits	Mendocino	26.5
06-047-0003-42602-1	385 S. COFFEE AVENUE	Merced	Merced	43.3
06-053-1003-42602-1	867 E. LAUREL Dr	Salinas	Monterey	34.3
06-055-0003-42602-1	2552 JEFFERSON AVE.	Napa	Napa	39.3
06-057-0005-42602-1	200 LITTON DR.	Grass Valley	Nevada	26.0
06-059-0007-42602-5	1630 W. PAMPAS LANE	Anaheim	Orange	65.3
06-059-1003-42602-1	2850 MESA VERDE DR. EAST	Costa Mesa	Orange	60.3
06-059-5001-42602-2	621 W. LAMBERT	La Habra	Orange	69.0
06-061-0006-42602-1	151 NO SUNRISE BLVD.	Roseville	Placer	53.0
06-065-0004-42602-1	10551 Bellegrave	Mira Loma	Riverside	73.0
06-065-0012-42602-1	200 S. HATHAWAY ST.	Banning	Riverside	58.3
06-065-1003-42602-3	7002 MAGNOLIA AVE.	Riverside	Riverside	63.5
06-065-5001-42602-2	FS-590 RACQUET CLUB AVE.	Palm Springs	Riverside	45.0
06-065-8001-42602-2	5888 MISSION BLVD.	Rubidoux	Riverside	63.0
06-065-8005-42602-1	5130 POINSETTIA PLACE	Mira Loma	Riverside	59.0
06-065-9001-42602-1	506 W FLINT ST.	Lake Elsinore	Riverside	48.0
06-067-0002-42602-1	7823 BLACKFOOT WAY.	North Highlands	Sacramento	77.0
06-067-0006-42602-1	DEL PASO-2701 AVALON DR.	Sacramento	Sacramento	45.6

Monitor ID	Street Address	City Name	County Name	One Hour NO ₂ Design Value (ppb)
06-067-0010-42602-1	1309 T ST.	Sacramento	Sacramento	55.6
06-067-0011-42602-1	12490 BRUCEVILLE RD.	Elk Grove	Sacramento	35.6
06-067-0012-42602-1	50 NATOMA STREET	Folsom	Sacramento	32.6
06-067-0013-42602-1	3801 AIRPORT ROAD	Sacramento	Sacramento	52.0
06-067-0014-42602-1	68 GOLDENLAND COURT	Sacramento	Sacramento	47.5
06-071-0001-42602-1	200 E. BUENA VISTA	Barstow	San Bernardino	63.0
06-071-0306-42602-1	14306 PARK AVE.	Victorville	San Bernardino	62.0
06-071-1004-42602-2	1350 SAN BERNARDINO RD.	Upland	San Bernardino	70.0
06-071-1234-42602-1	CORNER OF ATHOL AND TELESCOPE	Trona	San Bernardino	42.6
06-071-2002-42602-1	14360 ARROW BLVD.	Fontana	San Bernardino	74.0
06-071-9004-42602-1	24302 4TH ST.	San Bernardino	San Bernardino	63.6
06-073-0001-42602-1	80 E. 'J' ST.	Chula Vista	San Diego	58.6
06-073-0003-42602-1	1155 REDWOOD AVE.	El Cajon	San Diego	53.3
06-073-0006-42602-1	5555 OVERLAND AVE.	San Diego	San Diego	56.3
06-073-1002-42602-1	600 E. VALLEY PKWY.	Escondido	San Diego	62.6
06-073-1006-42602-1	2300 VICTORIA DR.	Alpine	San Diego	38.0
06-073-1008-42602-1	21441-W B STREET	Camp Pendleton (Marine Corps Base)	San Diego	58.6
06-073-1010-42602-1	1110 BEARDSLEY STREET	San Diego	San Diego	69.6
06-073-2007-42602-1	1100 PASEO INTERNATIONAL	Otay Mesa	San Diego	84.6
06-075-0005-42602-1	10 ARKANSAS ST.	San Francisco	San Francisco	54.3
06-077-1002-42602-2	HAZELTON-HD.	Stockton	San Joaquin	57.6
06-077-3005-42602-1	5749 S. TRACY BLVD.	Tracy	San Joaquin	38.6
06-079-3001-42602-1	MORRO BAY BLVD & KERN AVE.	Morro Bay	San Luis Obispo	34.6
06-079-4002-42602-1	NIPOMO REGIONAL PARK.	Nipomo	San Luis Obispo	29.3
06-079-8001-42602-1	6005 LEWIS AVENUE	Atascadero	San Luis Obispo	42.0
06-081-1001-42602-1	897 BARRON AVE.	Redwood City	San Mateo	45.6
06-083-0008-42602-1	EL CAPITAN ST PRK, HWY 10	Capitan	Santa Barbara	29.6
06-083-0011-42602-1	700 E. CANON PERDIDO	Santa Barbara	Santa Barbara	46.0
06-083-1008-42602-1	906 S BROADWAY	Santa Maria	Santa Barbara	42.3
06-083-1013-42602-1	HS & P FACILITY-500 M SW.	Lompoc	Santa Barbara	7.0
06-083-1014-42602-1	PARADISE RD.	Los Padres National Forest	Santa Barbara	6.3
06-083-1018-42602-1	GTC B-HWY 101 NEAR NOJOQUI PASS, GAVIOTA	Gaviota	Santa Barbara	23.3

Monitor ID	Street Address	City Name	County Name	One Hour NO₂ Design Value (ppb)
06-083-1021-42602-1	GOBERNADOR RD.	Carpinteria	Santa Barbara	18.3
06-083-1025-42602-1	LFC #1-LAS FLORES CANYON	Capitan	Santa Barbara	14.0
06-083-2004-42602-1	128 S 'H' ST.	Lompoc	Santa Barbara	28.3
06-083-2011-42602-1	380 N FAIRVIEW AVENUE	Goleta	Santa Barbara	35.3
06-083-4003-42602-1	STS POWER PLANT	Vandenberg Air Force Base	Santa Barbara	8.6
06-085-0005-42602-1	158B JACKSON ST.	San Jose	Santa Clara	53.3
06-087-0003-42602-1	Center St	Davenport	Santa Cruz	22.0
06-095-0004-42602-1	304 TUOLUMNE ST.	Vallejo	Solano	42.3
06-095-0006-42602-1	E SECOND ST.	Benicia	Solano	34.5
06-097-0003-42602-1	837 5TH ST.	Santa Rosa	Sonoma	38.0
06-099-0006-42602-1	900 S MINARET STREET	Turlock	Stanislaus	48.6
06-101-0003-42602-1	773 ALMOND ST.	Yuba City	Sutter	49.3
06-107-2002-42602-1	310 N CHURCH ST.	Visalia	Tulare	61.3
06-111-2002-42602-1	5400 COCHRAN STREET	Simi Valley	Ventura	44.6
06-111-3001-42602-1	RIO MESA SCHOOL	El Rio	Ventura	37.6
06-113-0004-42602-1	UC DAVIS-CAMPUS	Davis	Yolo	36.0
TT-586-0009-42602-1	Pechanga Tribal Government Building	Not in a city	Riverside	25.8

*Design values are calculated according to the Primary NO₂ NAAQS Final Rule (40CFR Part 50 Appendix S, Section 3), based on data queried from EPA's Air Quality System (AQS, <http://www.epa.gov/ttn/airs/airsaqs/>).

Appendix 3

NOx Emissions Projections and Controls – Kings County, California

NOx Emissions Projections and Controls - Kings County, California						
annual average daily emissions in tons per day						
Source Category	Example sources	Year			Change 2010-2020	
		2010	2015	2020	Value	Percent
fuel combustion at stationary sources	boilers at utilities and factories, irrigation pumps,	2.2	1.5	2.3	0.1	3.7%
waste disposal	landfills, wastewater treatment plants	0.0	0.0	0.0	0.0	16.7%
residential fuel combustion	woodburning, water heaters, cooking	0.1	0.1	0.1	0.0	-4.0%
fires	structural and wild fires	0.0	0.0	0.0	0.0	14.3%
managed burning and disposal	agricultural waste burning, prescribed burning	0.3	0.3	0.3	0.0	-2.8%
passenger vehicles	cars, light duty trucks, motorcycles, motor homes	1.8	1.2	0.8	-1.0	-54.3%
medium and light heavy duty trucks		1.3	1.0	0.7	-0.7	-49.2%
heavy heavy duty diesel and gas trucks	local, intrastate, and interstate trucks	15.0	9.8	6.6	-8.4	-56.1%
buses	tour, transit, and school buses	0.4	0.4	0.4	0.0	-6.7%
aircraft	commerical and military	3.0	3.4	3.7	0.8	26.6%
trains		0.9	1.0	1.0	0.1	10.6%
recreational equipment	boats, off-road motorcycles	0.0	0.0	0.0	0.0	19.0%
off-road equipment	construction, oil/gas exploration, forklifts	0.6	0.5	0.4	-0.2	-34.4%
farm equipment	tractors, loaders	2.2	1.5	1.0	-1.2	-53.1%
Total annual average day NOx emissions, Kings County		27.837	20.711	17.320	-10.5	-37.8%

Source: ARB, CEPAM-2009 Almanac - 2/6/2011