GOLDEN GATE UNIVERSITY | School of Law

Environmental Law and Justice Clinic

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By E-Mail and U.S. Mail
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Re: Draft PSD Permit for Russell City Energy Center

Dear Mr. Lee:

We are writing on behalf of Citizens Against Pollution (CAP) to provide comments on the draft prevention of significant deterioration (PSD) permit for the proposed Russell City Energy Center. CAP is a grassroots group of Hayward residents, and its members have participated actively in proceedings relating to the Russell City Energy Center to ensure that the proposed power plant complies with the law. The group is pleased to have this opportunity to participate in this permit proceeding and thanks the Bay Area Air Quality Management District for holding the public hearing in Hayward at a time when community members could attend. CAP also appreciates the Spanish interpretation provided at the public hearing and the document repository and information that the District provided through its staff.

Earthjustice is also submitting a letter on behalf of CAP, and we are incorporating the comments in that letter by reference. Sierra Club has already submitted comments, and we adopt them as well. As stated in those comments and here, the District should not issue the permit as proposed because it fails to meet federal PSD and nonattainment new source review (NSR) requirements.

I. THE DISTRICT'S BACT ANALYSIS FOR STARTUP AND SHUTDOWN DOES NOT COMPLY WITH PSD AND NSR REQUIREMENTS.

A. The District Should Provide More Information on the Number of Startup and Shutdown Events to Quantify the Emissions as Accurately as Possible.

Russell City Energy Center (RCEC) is a 600-megawatt natural gas fired combined-cycle power plant proposed to be built in Hayward, California. The operation of the proposed facility "will be dictated by market circumstances and demand." Statement of Basis for Draft Amended Federal "Prevention of Significant Deterioration" Permit (Dec. 8, 2008) at 11 (SOB), *available at* http://www.baaqmd.gov/pmt/public_notices/2008/15487/index.htm. The District expects the facility to operate in base load and load following modes, as well as in partial and full shutdown modes. *Id.* The District explains that "load following" means

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that the facility "would be operated to meet contractual load and spot sale demand, with a total output less than the base load scenario." *Id.*

There is some information in the California Energy Commission (CEC) docket and in the SOB about what the proposed operation would entail for startup and shutdown events. But the information is incomplete and conflicting. We are unable to determine, for example, the maximum number of such events the proposed permit allows. According to CEC staff, "[t]he project owner has asserted that the more typical, normal operating day of the facility could include a hot startup, about 16 hours of normal operation followed by a shutdown." CEC Comments, Air Quality, Testimony of Tuan Ngo, P.E., June 2007 at 4.1-8 (CEC 2007 Staff Comments), *available at* http://yosemite.epa.gov/OA/EAB_WEB_Docket.nsf/Filings%20By%20Appeal%20Number/0CB7FC708E4DB9DC852573EF005A0063/$File/Exhibit%2014...16.60000.pdf.

In this regard, the District states that, "[b]ased upon contractual load and spot sale demand, it may be economically favorable to shut down one or more turbine/HRSG [heat recovery steam generator] power trains; this would occur during periods of low overall demand such as late evening and early morning hours." SOB at 11 (emphasis added). It is therefore entirely possible that the facility would start up and shut down to accommodate two daily periods of low demand, although the maximum mass emissions limit for startup and shutdown (Condition 20, SOB at 73) and daily maximum limit (Condition 22, SOB at 73) may affect that scenario. How the maximum limits affect the scenario, however, is unclear because there does not appear to be any information in the SOB about how many startup and shutdown events are expected to occur on a daily basis.

From the daily limits, it appears that the facility may be allowed to engage in a warm or hot start up and shut down once. This conclusion follows if one assumes that the emissions of 1,093 lbs per day of NOx result from one hot startup followed by 14 hours of normal operation, and that 1,093 lbs are attributable to both trains of turbines and HRSGs. CEC 2007 Staff Comments, at 4.1-8. But it is unclear, at least from reviewing the CEC comments alone, whether those emissions are from a startup of one train or both. Therefore, it is difficult to calculate the maximum startup and shutdown events from the maximum permitted daily emissions.[1]

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[1] According to yet another scenario, the CEC staff analyzed the project assuming 52 cold starts and 260 hot starts per year. CEC Final Staff Assessment, Russell City Energy Project, June 10, 2002 at 4.1-12, *available at* http://www.energy.ca.gov/sitingcases/russellcity/documents/2002-06-10_FSA.PDF. Based on this estimation, the CEC staff compared emissions from baseload (steady state) operation with emissions from maximum startups and shutdowns:

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It appears that the facility would be engaged, at the very least, in frequent startup and shutdown events. Because the operating scenario contemplates frequent – even if unquantified to the public – startup and shutdown events, and because emissions are uncontrolled or incompletely controlled during these events, SOB at 38, the BACT analysis for these events is critical to CAP and other members of the public who will be exposed to RCEC's emissions.

The District should provide more information on the number of maximum predicted startup and shutdown events per day and per year because of the expected health impacts from uncontrolled or partially controlled emissions. Without accurate information on startup and shutdown events, the public is unable to know how much pollutants will be emitted. Without knowing the amount of emissions, neither the District nor the public can assess the true impact of the emissions. The expected operating scenario is also necessary for the BACT analysis and the comparisons that the District made in that analysis.

B. The District's BACT Analysis for Gas Turbine Startup and Shutdown Is Faulty Because the District's BACT Analysis Incorrectly Assumes that the Applicant Should Use the Equipment It Purchased in 2002, Before Receiving a PSD Permit.

1. The proposed permit is the first draft PSD permit, not a "Draft Amended PSD Permit," as there has not been a valid PSD permit before.

The District originally issued its Final Determination of Compliance for the facility in March 2002, based on a Preliminary Determination of Compliance issued in October 2001. *See* U.S. EPA – Bay Area Air Quality Management District Agreement for Limited Delegation of Authority to Issue and Modify Prevention of Significant Deterioration Permits Subject to 40 CFR 52.21, dated Jan. 2006 at 4, ¶ 7 (Exhibit 1). The District, however, did not issue a final PSD permit at that time "because of a delay in the issuance of the Biological Assessment associated with the Endangered Species Act Section 7 process." *Id.* Thus, there was no 2002 permit.

AIR QUALITY Table 9
Project Maximum Annual Emissions
(tons per year [ton/year])

Operational Profile	NOx	SO2	PM10	POC	CO
52 cold starts and 260 hot starts for each CTG, Remainder of year at steady state.	199.0	12.42	83.39	28.67	610.08
Steady state operation, two CTGs, 1 full year	173.79	12.42	83.39	23.09	256.81
Cooling Tower	-	-	3.02	-	-
Emergency Generator (52 hours per year)	0.046	0.0001	<0.0001	0.037	0.0785
Diesel Fire Pump Engine (26 hours per year)	0.101	0.0028	0.0033	0.012	0.0611
Total Maximum Annual Emissions	199.1	12.43	86.42	28.72	610.22
Proposed Emissions Limits	134.6	12.2	86.4	27.8	584.2

Id. at 4.1-15. Note that the emission of NOx and especially CO are considerably higher assuming maximum number of startups and shutdowns.

Nor can the District call the permit it issued in November 2007 a PSD permit. On July 29, 2008, the EPA Environmental Appeals Board (EAB) issued a remand order in response to a petition from a Hayward resident, Rob Simpson, alleging violations of the PSD notice requirements. *See In re Russell City Energy Center* (EPA Environmental Appeals Board), PSD Appeal No. 08-01, *available* at http://yosemite.epa.gov/OA/EAB_WEB_Docket.nsf/Filings%20By%20Appeal%20Number/EA6F1B6AC88CC6F085257495006586FB/$File/Remand...50.pdf . The EAB remanded Russell City's PSD permit, requiring the District to re-notice the draft permit in accordance with the federal PSD notice provisions. *Id.* at 39, 42. The EAB noted that the District's outreach efforts "fell significantly short of [federal PSD] section 124.10's requirements in numerous important respects." *Id.* at 38. To correct the deficiency, which the EAB characterized as a "complacent compliance approach," the EAB stated that, "the District must scrupulously adhere to all relevant requirements in section 124.10 concerning the initial notice of draft PSD permits (including development of mailing lists), as well as the proper content of such notice." *Id.* at 38, 39. The EAB emphasized that the notice deficiencies were not "harmless error" as the District contended, noting "the pivotal importance to Congress of providing adequate initial notice within EPA's public participation regime." *Id.* at 38.

Thus, the proposed permit is the first draft PSD permit for RCEC, there having been no valid permit issued in 2002 or 2007. This clarification is important because of the legal consequences that may flow from the wrong assumption that there exists a valid PSD permit. At least one consequence may be how we judge the integrity of the District's BACT analysis of the proposed energy production processes, given the District's emphasis on the applicant's purchase of the equipment based on a purported permit in 2002.

The District states that the applicant "purchased its equipment" in or about 2002, "based on the initial permits." SOB at 40 n.31. By "initial permits," the District cannot possibly be referring to a PSD permit since the District did not issue a PSD permit at that time. Because of this existing equipment – which the applicant purchased without a PSD permit – the District appears to have performed its PSD analysis to allow the applicant to retain the equipment. Because the District is required to select production processes and other controls that would achieve "an emissions limitation based on the maximum degree of reduction" in PSD review, *see* 42 U.S.C. § 7479(3) (BACT means "an emission limitation based on the maximum degree of reduction"), performing a BACT analysis with assumptions about specific production processes and equipment violates the law.

By calling the proposed permit a "draft amended PSD permit," and not explaining the full permitting history, the District is incorrectly informing the public that this process amends a valid, existing PSD permit. *See* SOB at 6-7; SOB at 9. That is not the case, and this mistake should be corrected so that the public can engage in a meaningful review of the District's draft permit.

As discussed below, the District's BACT analysis appears to start with a conclusion that the equipment the applicant purchased in 2002 should be retained. The District thus rejects both once-through steam boiler and turn-down technology, which are technically feasible. Not only are the two technologies feasible, but once-through steam boiler technology is being proposed for two other facilities within the District, and turn-down technology is achieved in practice at

another facility. The District's analysis is thus insufficient and violates PSD and NSR requirements for selecting the most stringent emissions limit.

2. The District incorrectly rejected once-through steam boiler technology based on assumptions about existing equipment, and the District therefore violated the PSD and NSR requirements.

Once-through steam boiler technology uses external steam separators and surge bottles to reduce start-up durations. SOB at 39. The District rejects this technology, even though the District concludes that the technology is "ranked No. 1 in control effectiveness." SOB at 42, 44. A motivation for the decision appears to be the cost of disposing of the existing equipment:

> Note that the project was originally permitted in 2002 [note that the project did not receive a PSD permit at that time as explained in Section I above], before Fast Start technology was developed, and the applicant purchased its equipment at that time . . . . Retrofitting that equipment now to incorporate Fast Start technology would require a complete redesign of the project and the purchase of new equipment. Furthermore, Siemens stated that emissions performance cannot be guaranteed unless the company supplies a fully integrated power plant with Fast Start technology (*i.e.*, Flex Plant 10). . . . It therefore appears that the facility would have to dispose of the equipment it has already purchased for the project and buy an entirely new integrated system.

SOB at 40 n.31 (emphasis added); *see also* notes of the conversation referred to in n.31 (Exhibit 2) ("existing turbine cannot be retrofitted[;] will kill project because of cost") (emphasis added). The CEC record similarly shows that the primary reason for rejecting available technology was the cost of disposing of the already acquired equipment. Even though the CEC staff was recommending the technology – *see* letter from Paul C. Richins, Jr., Environmental Protection Office Manager, CEC, to Jack P. Broadbent, APCO, dated May 29, 2007, at 2 (Exhibit 3), *available at* http://www.energy.ca.gov/sitingcases/russellcity_amendment/documents/2007-05-31_LTR_BROADBENT.PDF – the applicant cited cost as a reason for not implementing it:

> Staff proposed technological solutions (Siemens-Westinghouse Fast-Start [once-through steam boiler technology] and General Electric OpFlex) which it believes would significantly reduce emissions from start-up events, but they were rejected by the Applicant for economic reasons.

Final Commission Decision, Russell City Energy Center, Amendment No. 1 (01-AFC-7C) (Oct. 2007) at 77, *available at* http://www.energy.ca.gov/2007publications/CEC-800-2007-003/CEC-800-2007-003-CMF.PDF.

This approach gets the PSD analysis backward. Analyzing BACT with specific equipment already in mind violates the mandate for setting the most stringent emissions limit at the time of permit issuance.[2] A centerpiece of PSD is the BACT requirement, which mandates new facilities

[2] The 1990 Draft New Source Review Workshop Manual makes it plain that the review of BACT is as of the time of final permit issuance:

to use state of the art technology to prevent significant deterioration of the National Ambient Air Quality Standards.

This approach also gets the Nonattainment NSR analysis backward. (Such analysis is required for NOx, CO and PM2.5 here.) Under NSR, the applicant must meet the lowest achievable emissions rate or LAER. *See* 42 U.S.C. Section 7501(3); BAAQMD Regulation 2-2-314 (incorporating requirements of 40 C.F.R. § 51.165); 40 C.F.R. § 51.165(A)(1)(xlvi)(2)(explaining that State requirements need to be as stringent as the requirements in this section). LAER is defined as the "most stringent emissions limitation." *See* 40 C.F.R. § 51.165(A)(1)(xiii).

In performing the analysis, the District must apply the PSD requirements of Regulation 2-2 and 40 C.F.R. § 52.21 (as well as NSR requirements). *See* U.S. EPA – Bay Area Air Quality Management District Agreement for Delegation of Authority to Issue and Modify Prevention of Significant Deterioration Permits Subject to 40 CFR 52.21, dated Feb. 4, 2008, at 3, *available at* http://www.epa.gov/region09/air/permit/pdf/baaqmd-delegation-agreement.pdf, (the District to apply Regulation 2-2 and 40 C.F.R. § 52.21, with exceptions not applicable here).

Regulation 2-2-206 plainly indicates that BACT is "the most effective emission control" or "the most stringent emission limitation," by defining BACT as "the more stringent of":

> 206.1 The most effective emission control device or technique which has been successfully utilized for the type of equipment comprising such a source; or
>
> 206.2 The most stringent emission limitation achieved by an emission control device or technique for the type of equipment comprising such a source; or
>
> 206.3 Any emission control device or technique determined to be technologically feasible and cost-effective by the APCO; or
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> 206.4 The most effective emission control limitation for the type of equipment comprising such a source which the EPA states, prior to or during the public

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The BACT emission limit in a new source permit is not set until the final permit is issued. The final permit is not issued until a draft permit has gone through public comment and the permitting agency has had an opportunity to consider any new information that may have come to light during the comment period. Consequently, in setting a proposed or final BACT limit, the permit agency can consider new information it learns, including recent permit decisions, subsequent to the submittal of a complete application. This emphasizes the importance of ensuring that prior to the selection of a proposed BACT, all potential sources of information have been reviewed by the source to ensure that the list of potentially applicable control alternatives is complete (most importantly as it relates to any more effective control options than the one chosen) and that all considerations relating to economic, energy and environmental impacts have been addressed.

1990 New Source Review Workshop Manual, at B54-55, *available at* http://www.epa.gov/region07/programs/artd/air/nsr/nsrmemos/1990wman.pdf.

> comment period, is contained in an approved implementation plan of any state, unless the applicant demonstrates to the satisfaction of the APCO that such limitations are not achievable. Under no circumstances shall the emission control required be less stringent than the emission control required by any applicable provision of federal, state or District laws, rules or regulations.

BAAQMD Regulation 2-2 (SIP-approved), *available at* http://yosemite.epa.gov/R9/r9sips.nsf/AgencyProvision/411642DA93F3D7A4882569900057D386/$file/BA+rg2-2sip.PDF?OpenElement.

In the District's own words, "[c]learly the recurring theme in the above definitions of BACT . . . is 'the most effective emission control' or 'the most stringent emission limitation.'" Bay Area Air Quality Management District Best Available Control Technology (BACT) Guideline ("BACT Guideline"), *available at* http://www.baaqmd.gov/pmt/bactworkbook/default.htm (definition of BACT and TBACT). Consistent with that theme, the definition reflects the policy choice in the Clean Air Act that BACT be technology forcing. The District indeed recognizes this choice in its BACT Guideline:

> For ease in permit application review, the above definition of BACT can be broken down to two general categories: 1) "technologically feasible and cost-effective" and 2) "achieved in practice." The first category is a more stringent level of BACT control and is technology forcing; it generally refers to advanced control devices or techniques.

Id. (Policy and Implementation Procedure, Interpretation of BACT). The choices reflected in the BACT Guideline are consistent with the Top-Down BACT Analysis because it, too, requires the District to select an emissions limitation based on the maximum degree of reduction. SOB at 20.

The District, however, does not use the required approach of selecting an emissions limit for the RCEC based on the maximum degree of reduction. The District identifies Flex Plant 10, a type of once-through steam boiler technology, as "technically feasible" for reducing startup emissions. SOB at 40. But the District rejects this technology apparently because the District improperly – and without adequate information – considers the costs that may result from disposing of existing equipment. *See* SOB at 40 n.31.

The District cannot take into account any loss the applicant may realize from the sale of old equipment in the BACT analysis because the applicant is proposing a new facility, not updating an existing facility. That is, the question is what the most stringent emission limit is, not whether a retrofit of existing equipment is cost effective. In addition, even if the cost information is relevant (which it is not), the District discloses no basis for the conclusion that the sale of existing equipment may result in a loss. There is no analysis of any such claimed loss. Additionally, the applicant purchased equipment when there was no valid PSD permit, and therefore there is no equitable reason to consider the cost of disposing of the equipment, whatever it may be (and, of course, as we stated earlier, BACT does not allow any such consideration).

Indeed, the PSD regulations prevent owners and operators from making irretrievable commitments such as contractual obligations, which cannot be cancelled or modified without substantial loss to the owner or operator, before receiving a PSD permit. *See* 40 C.F.R. § 52.21(b)(9) (definition of commencement of construction). Similarly, the Act bars "commencement of construction" before issuance of PSD and NSR permits. 42 U.S.C. § 7604(a)(3) (providing for citizen suits against those who violate the requirement of a PSD or NSR permit); *Id.* § 7413(b)(3) (federal enforcement for same); and, as earlier noted, commencement of construction is broadly defined to include activities that commit the source to obligations that may result in substantial loss. The purpose of such provisions is to ensure that the relevant agencies do not favor issuance of a permit or permit condition due to the owner or operator's irretrievable commitment of funds, to the detriment of public health and air quality.

Thus, the District erred in considering the costs, which are not even quantified, of the disposal of existing equipment in permitting a new facility. The District should not issue the permit without considering technology the CEC staff recommended for this project.

3. The District's energy efficiency and emissions comparison between Flex Plant 10 (once-through steam boiler technology) and the existing equipment is based on operating at maximum capacity and is therefore faulty for a facility that will frequently start up and shut down.

The District concludes that "once-through boiler technology would not be the most appropriate BACT technology because of the loss of efficiency that it would entail." SOB at 44. To reach this conclusion, the District compares Siemens Fast Start Flex Plant 10 unfavorably with the Siemens-Westinghouse triple-pressure gas turbine equipment that the applicant purchased. SOB at 43-44. The District's analysis is faulty because the calculations in Table 13, which compare estimated emissions from Flex Plant 10 with those from the triple-pressure system, assume that the plant is operating at maximum capacity. *See* SOB at 43. In fact, the facility will be operating with frequent startup and shutdown events. Such startups and shutdowns will undoubtedly have an effect on energy efficiency and emissions that the District's analysis fails to consider in its critique of the Flex Plant 10 design. *Id.*

For the District's rejection of Flex Plant 10 based on "energy efficiency" grounds to be meaningful, the District would have to base its comparison on the efficiency of the triple-pressure system under its true operating scenario, which involves frequent startup and shutdown events. At least one source states that the efficiency of the Westinghouse 501F turbine is between 36.5% and 56%, depending on whether it operates in combined cycle or simple cycle. *See* Alexander's Gas & Oil Connections Contracts Awarded, Vol. 3, Issue #28 (Dec. 24, 1998), *available at* http://www.gasandoil.com/goc/contract/cox85277.htm. Thus, depending on how the turbines are operating, the efficiency number the District uses, 55.8%, can be different. If the Westinghouse 501F's efficiency can be lower, Flex Plant 10, with its 48% efficiency, would compare favorably.

Thus, Flex Plant 10 has not been given a fair hearing. For all we know, energy efficiency and emission reductions from Flex Plant 10 during the frequent startups and shutdowns contemplated by this project more than offset the District's asserted inefficiency of the Flex Plant 10 design

during base load operation. The District therefore should not eliminate Flex Plant 10 from its BACT analysis. *See* SOB at 44.

In fact, the District will soon be evaluating applications proposing Flex Plant 10 for two sites – Willow Pass and Marsh Landing. *See* Willow Pass Generating Station Application for Certification, Executive Summary 1-4 (June 2008), *available at* http://www.energy.ca.gov/sitingcases/willowpass/documents/applicant/afc/Volume_01/2.0%20Project%20Description.pdf (Willow Pass) and http://www.energy.ca.gov/sitingcases/marshlanding/documents/applicant/afc/Volume%20I/2_0%20Project%20Description.pdf (Marsh Landing). It is therefore incumbent on the District to do an adequate review of the technology for its appropriateness at Hayward.

4. The District's elimination of turn-down technology as BACT lacks basis because there is ample information on feasibility.

In addition to Flex Plant 10, the District identifies turn-down technology, such as OpFlex, to control startup and shutdown emissions. SOB at 39-40. According to the manufacturer, "OpFlex™ Turndown technology provides customers with GE's 7FA+e gas turbines greater flexibility in their operations. It's a software solution that optimizes the combustion process, extending low-emissions operation to lower load levels. Customers are able to reduce CO_2 and NOx emissions, while decreasing fuel expenses and avoiding maintenance costs." *See* product description *available at* http://ge.ecomagination.com/site/products/opflex.html.

The District concludes that it has "not found sufficiently strong evidence to conclude that turn-down technologies such as OpFlex are technically feasible at this time for control of start-up emissions." *Id.* at 42. This conclusion appears to be without basis. The technology itself has been in existence since at least December 2005. *See* industry news article, "GE Energy Announces New Startup Improvements For Gas Turbine And Combined Cycle Applications" (Dec. 6, 2005), *available at* http://news.thomasnet.com/companystory/471615. In addition, the technology has been achieved in practice at the Palomar Energy Center in San Diego County. SOB at 41. The Palomar facility appears to have employed this technology since at least some time in 2006. *See* "2007 Pacesetter Plant Award Palomar Energy Center, Central stations return to the city," Combined Cycle Journal (Fourth Quarter 2006) at 51 (Exhibit 4), *available at* http://www.psimedia.info/4Q%202006/406CCJ,%20p%2044-52.pdf; *see also* CEC Environmental Protection Office Manager's letter at 3 (Exhibit 3), (CEC staff's recommendation that the District consider for RCEC OpFlex and early injection of ammonia used at Palomar). Since the technology has been achieved in practice, it deserves serious consideration in the District's BACT analysis. *See* Regulation 2-2-206.1 (BACT includes "the most effective emission control device or technique which has been successfully utilized for the type of equipment comprising such a source").

But the District summarily rejects the technology. The District states that, because Palomar implemented operating procedures (*i.e.*, early ammonia injection in its Selective Catalytic Reduction system), it is unclear how much of the reductions in startup emissions at Palomar is due to OpFlex. *Id.* at 41-42.

The District's conclusion is based on a faulty assumption about BACT. As the District recognizes elsewhere, BACT is not just technology but can include techniques and methods for controlling emissions. *See, e.g.,* 42 U.S.C. § 7479(3). Thus, there is no reason why the use of OpFlex, together with other operational procedures, could not be considered BACT.

The District's conclusion is also based on a faulty assumption about LAER. The District also needs to comply with the nonattainment requirements since startup and shutdown affect emissions of NOx, POCs and PM. The District's focus on the applicant's equipment is inconsistent with LAER's focus on the end emissions rate. *See* 42 U.S.C. § 7501(3).

The District's conclusion is also based on insufficient information. It appears that the Palomar facility has been reporting emissions since at least April 2007. *Id.* at 41 n.40. Given the passage of time, there should be more than sufficient data to make the determination of OpFlex's effectiveness. But it appears that the District did not seek recent data to make a meaningful determination and hastily rejected OpFlex. (The District's engineer confirmed in response to a request from us that the District reviewed only 2006-2007 data from Palomar and does not have any 2008 data.)

Moreover, because the CEC reports that the applicant rejected OpFlex based on costs (*see* Final Commission Decision, Russell City Energy Center, Amendment No. 1 (01-AFC-7C) (Oct. 2007) at 77, *available at* http://www.energy.ca.gov/2007publications/CEC-800-2007-003/CEC-800-2007-003-CMF.PDF), the District must ensure that its analysis is untainted by factors that should not come into play in the BACT analysis, such as the cost of disposing of the existing equipment. Without such analysis, it appears that the District is performing its BACT analysis based on the applicant's equipment rather than on technology now available.

In short, the District has not performed a sufficient analysis to reject OpFlex and other operating procedures as BACT/LAER.

C. The District Should Provide a Factual Basis for the Long Startup Durations.

1. The District should analyze available technology for reducing startup durations.

The District indicates that cold startup time will be up to six hours, and warm and hot startups, up to three hours each. SOB at 13. These periods appear to be excessively lengthy. During these startup times, the emissions from the facility will be higher than during base load operation. SOB at 38-39. Thus, BACT should include methods and/or technology sufficient to minimize these times to protect the public from the harmful air emissions.

A shorter time appears feasible with the use of technology for reducing startup emissions. *See, e.g.,* Combined Cycle Journal, Fourth Quarter article at 51 (Exhibit 4) (with GE's OpFlex, the turbines "are in 6Q mode(full DLN) much sooner than they were initially"); Final PSD Permit issued to Colusa Generating Station on Sept. 29, 2008 at 7, *available at* http://www.regulations.gov/fdmspublic/component/main?main=DocketDetail&d=EPA-R09-OAR-2008-0436 (a 660-MW power plant with a cold startup duration of 270 minutes; warm,

180 minutes, and hot 90 minutes); Kelly e-mail, (Rapid Response technology "generally reduces SU [startup] time from 110 minutes to 65 minutes for CCGT [combined cycle generating turbine] plants . . .; it also allows SCR injection [ammonia injection into SCR] to start at 50 to 60% load) (Exhibit 5); Transcript of Informational Hearing Before the California Energy Resources Conservation and Development Commission; In the Matter of Application for Certification for the Willow Pass Generating Station Project (Dec. 18, 2008) at 28-29, *available at* http://www.energy.ca.gov/sitingcases/willowpass/documents/2008-12-18_TRANSCRIPT_INFORMATIONAL_HEARING.PDF (testimony that Flex Plant 10s can achieve base load generation in about an hour and that these start up times are "extremely fast compared to existing units which can take a minimum of three and possibly six hours of time to reach . . . baseload"). While we have not evaluated these technologies ourselves, the District should at the very least evaluate these and other technologies that are available now to do a proper BACT/LAER analysis to reduce startup times.

2. "Best work practices," reflecting practices used in power plants certified before 2001, may not be the "best."

Startup Duration: The District's reliance on records of startup durations from Delta, Los Medanos, Metcalf and Sutter Energy Centers (see SOB at 44-46) is inadequate. Those plants were licensed long ago, and thus the real startup times may not reflect best work practices for power plants that should use the newest equipment. *See* Commission Decision, Application for Certification for the Delta Energy Center, Calpine Corporation and Bechtel Enterprises, Inc. (Feb. 2000) at 11, *available at* http://www.energy.ca.gov/sitingcases/delta/documents/2000-02-09_DELTA_DECISION.PDF; Los Medanos (originally known as Pittsburg District Energy Facility), Commission Decision, Application for Certification, Pittsburg District Energy Facility (Aug. 1999) at 1, *available at* http://www.energy.ca.gov/sitingcases/pittsburg/documents/1999-08-17_DECISION.PDF California Energy Commission, The Metcalf Energy Center, Commission Decision (Sept. 2001) at 2, *available at* http://www.energy.ca.gov/sitingcases/metcalf/documents/2001-10-05.COMMISSION_DECIS.PDF; Sutter, licensed Apr. 14, 1999, *see* Fact Sheet, *available at* http://www.energy.ca.gov/sitingcases/sutterpower/index.html (licensed Apr. 14, 1999).

In addition, the District chose the longest startup duration from even those pre-2001 plants as the best work practice by explaining that "the BACT limit must be achievable at all times throughout the facility's operational life." SOB at 45-46. The District somehow believes that "[a] reasonable safety margin must be included so that the facility will be able to comply with its limits during every startup, even if emission for specific startups or as an average for startups as a whole may be less." SOB at 46. The District has provided no basis to justify this safety margin.

The permitting authority is allowed to adopt a compliance margin based on safety factors "where there is some degree of uncertainty regarding the maximum degree of emission reductions that is achievable." *See In re Prairie State Generating Co.*, PSD Appeal No. 05-05, 13 E.A.D. __, *slip. op.* at 72 (EAB Aug. 24, 2006), *aff'd, Sierra Club v. EPA*, 499 F.3d 653 (7th Cir. 2007), *reh'g denied and reh'g en banc denied,* 2007 U.S. App. LEXIS 24419 (7th Cir. 2007). But such a margin must be "fact-specific and unique to the particular circumstances of the selected

technology, the context in which it will be applied, and available data regarding achievable emissions." *Prairie,* 13 E.A.D. __, *slip op.* at 73. Safety factors are allowed, for example, to account for "test method variability, location specific technology variability, and other practical difficulties in operating a particular technology." *See id.* (citations omitted). There is no factual analysis applicable to the proposed facility that justifies a margin.

The District did not examine the proposed facility's startup duration in the context of any of the factors mentioned in *Prairie*. Nor did the District review whether the other facilities' failure to achieve a shorter startup duration was due to those factors. The District, for example, provides no discussion of whether the emissions from the four facilities are from the periods when they were in compliance with their permit limits. Because the District failed to examine the specific factors, it appears that the District merely established the duration solely to provide a cushion. That is not the kind of analysis that *Prairie* contemplates because BACT could then easily turn into Reasonably Available Control Technology. The District should therefore eliminate the margin or do a better analysis of why a margin is justified in setting the best work practices.

Startup Emissions Rate: For the same reasons as a safety margin was inappropriate for startup durations, it is inappropriate for startup emissions rates. The District should therefore eliminate the margin or do a better analysis of why a margin is justified in setting the best work practices.

D. The District Must Include the Startup and Shutdown Durations as Permit Conditions.

The startup and shutdown durations do not appear to be included in the permit conditions. (They are included in the definitions, *see* SOB at 122, but they are not characterized as limits.) Without the durations being included as a condition, they may be practicably unenforceable. If indeed we are correct that such durations are not included in the permit conditions, the District should include the durations not merely as a definition but as permit conditions.[3] The District should also review each limit discussed in the SOB to ensure that the permit actually contains the limit. This error may not be an isolated problem.

E. The District Must Perform Its Own Analysis of CO and POC Emissions to Comply with NSR Requirements.

The District has not conducted an analysis of the expected emissions from startup for all of the pollutants. *See* SOB at 12-13. Rather, for CO and POC, the District relied on the emissions numbers "specified by applicant based on operational data," and, for NOx, the District relied solely on the "CEC's conditions of certification." SOB at 13. This fragmented approach is confusing, incomplete and inadequate. The District is tasked with protecting air quality and assuring that the applicant achieves the lowest achievable emissions rate for NOx and CO, for which the District is currently in nonattainment. *See* 42 U.S.C. Section 7501(3) (defining lowest

[3] We also note that the good air pollution practices requirement of 40 C.F.R. § 60.11(d) is also not made a permit condition. This omission may be because the proposed permit is a PSD permit and not a Title V permit, but CAP wants to be assured that all requirements that apply to the facility will be in a permit so that they can be enforced. *Compare* PSD permit from the Colusa Generating Station, which contains section 60.11(d) requirement.

achievable emissions rate). By blindly relying on the applicant's data and the CEC's analysis, the District has failed to determine whether the startup emission rates for these pollutants are the lowest achievable emissions rate.

II. THE DISTRICT DOES NOT APPEAR TO HAVE SET THE MOST STRINGENT EMISSIONS LIMITS FOR NOx, CO AND PM FOR THE TURBINES AND HEAT RECOVERY UNITS DURING PERIODS OF BASE LOAD AND LOAD-FOLLOWING OPERATION.

The District's proposed BACT for NOx, CO, and PM may not reflect the most stringent limitation under the PSD and NSR requirements of Regulation 2-2 and 40 C.F.R. § 52.21 because the District failed to review technology other than that reflected in the applicant's purchased equipment.

As we discussed in Part I above, rather than performing the evaluation of technology-forcing BACT, the District's BACT analysis focuses solely on controls on already purchased equipment. *See, e.g.,* SOB at 22 (NO_2), 29 (CO), 35 (PM). Because the District did not analyze the choice of the turbine itself – and presumably other equipment listed in the SOB at 10 – the District's analysis fails to identify the most stringent emissions limit. Thus, the District should not issue the proposed permit without performing an adequate analysis to set the most stringent emissions limits that comply with PSD and NSR requirements.[4]

III. THE DISTRICT HAS AUTHORITY AND IS REQUIRED TO SET THE "MOST STRINGENT EMISSIONS LIMIT" FOR CO_2.

A. CAP Supports the District's Authority to Perform a GHG Analysis Under the Clean Air Act and the California Health & Safety Code.

Hayward and other Alameda County residents, including CAP members, have long advocated for a greenhouse gases (GHGs) impact analysis and mitigation for the proposed project. Shortly before the issuance of the draft permit, CAP urged the District's Air Pollution Control Officer to consider whether to impose a CO_2 BACT limit and develop an adequate record for its decision. The applicant also requested a BACT analysis for GHGs, according to the District. SOB at 58.

CAP believes that performing a BACT analysis for GHGs is not only legally required but prudent. It is only a matter of time before EPA is compelled to recognize that GHGs are pollutants subject to regulation under the Clean Air Act, despite the memorandum that EPA issued shortly after the issuance of the draft permit (EPA's Interpretation of Regulations that

[4] In addition, it is unclear whether the District fully reevaluated its BACT determination in the June 19, 2007 FDOC or relied on its previous determination in 2002. Although the hourly rate for NOx and CO changed in the 2007 FDOC, the annual rate did not change. *Compare* PDOC at 6 (proposed annual rate for NOx is 134.6 TPY) and PDOC at 11 (proposed hourly rate for NOx is 2.5 ppmvd NOx at 15% O2), *with* FDOC at 5 (annual rate for NOx listed as 134.6 TPY) and FDOC at 14 (hourly rate listed as 2.0 ppmvd NOx at 15% O2). These figures did not change in the current proposal. *See* SOB at 73 (annual rate for NOx listed as 134.6 TPY); SOB at 72 (hourly rate for NOx listed as 2.0 ppmvd NOx at 15% O2). If the hourly rate changed, the maximum annual rate should also have changed. This error gives the impression that some of the determinations date back to 2002.

Determine Pollutants Covered by Federal Prevention of Significant Deterioration (PSD) Program of December 18, 2008). As Sierra Club and others have persuasively argued, BACT requirements should apply to CO_2. *See, e.g.,* Petition for Reconsideration, which Sierra Club filed before the Administrator of the EPA in January 2009 (attached as an exhibit to Sierra Club's comments).

As the first air pollution control district to assess fees on GHG emissions to fund climate protection activities, the District is more than aware of the importance of its role in GHGs regulation and the critical need to reduce GHGs now. Without immediate reductions in GHG emissions, we are "very likely" to see larger changes in the climate system. *See* Summary for Policymakers in Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (S. Solomon et al. eds. 2007), at 10; *see also* brief of amici curiae James Hansen, Mark Z. Jacobson, Michael Kleeman, Benjamin Santer and Stephen H. Schneider, *California v. US EPA*, No. 08-1178 (D.C. Cir.), filed Nov. 24, 2008, *available at* http://www.ggu.edu/school_of_law/academic_law_programs/jd_program/environmental_law/environmental_law_justice_clinic/attachment/Amici+Brief.pdf.

In addition to the critical need to reduce GHG emissions to prevent further – and potentially cataclysmic – disruptions of the climate system, it is important for the District to consider the local impacts of locally-emitted GHGs. According to Dr. Mark Z. Jacobson of Stanford University, emissions of CO_2 accumulate over cities because they do not immediately dissipate, and they intensify local air pollution problems such as ozone pollution. Mark Z. Jacobson, *Testimony for Hearing on Air Pollution Health Impacts of Carbon Dioxide*, U.S. House of Representatives Select Committee on Energy Independence and Global Warming, at 2–3, *available at* http://www.stanford.edu/group/efmh/jacobson/Testimony0408%202.pdf. Because the Bay Area is a nonattainment area for 8-hour ozone, *see* 40 C.F.R. § 81.305, it is particularly important to reduce local GHG emissions. CAP therefore supports the District's undertaking the CO_2 BACT analysis.

The District has authority to perform a CO_2 BACT analysis under the Clean Air Act as earlier discussed. (See Sierra Club petition for reconsideration.) The District also has authority under California law to perform the analysis and require measures to reduce CO_2. *See, e.g.,* Cal. Health & Safety Code § 40000 (air districts have primary authority under state law for "control of air pollution from all sources, other than emissions from motor vehicles"). As the California Air Pollution Control Officers Association stated in its white paper, "[t]he term air contaminant or 'air pollutant' is defined extremely broadly . . . . Greenhouse gases and other global warming pollutants such as black carbon would certainly be included in this definition." CEQA & Climate Change – Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act at 22, *available at* http://www.capcoa.org/CEQA/CAPCOA%20White%20Paper.pdf. While the District asserts that it is performing only a federal PSD review, this California authority is relevant should EPA bar the District from regulating GHGs in the permit for the Russell City project based on the December 18, 2008 EPA Johnson memorandum.

B. The District Is Required to Set the "Most Stringent Emission Limitation" for CO_2.

The District is embarking on a critical task that may set precedents for other PSD permitting actions. The District's BACT limit for CO_2, however, violates the BACT requirement by failing to set the "most stringent emissions limit" and will set an unfavorable precedent on this important issue. The District, therefore, should not issue the permit as proposed.

1. The District does not provide a proper basis for a compliance margin.

Again, as with other conditions, the District attempts to justify a higher CO_2 limit by adopting a compliance margin based solely on looking at facilities with "similar turbines." *See* SOB at 63 ("Based on the available data the Air District has reviewed for similar turbines, and incorporating a reasonable compliance margin, the Air District concludes that if BACT is required for CO_2 emissions, an enforceable limit of 1100 lb/MW-hr would best represent the BACT requirement in the PSD regulation."). The District reviewed two facilities, Delta Energy Center and Metcalf Energy Center, which are 2000 and 2001-certified facilities (see discussion above in Section I.C.2). The District should not limit its review to similar turbines. The District does not explain why it cannot review CO_2 emissions from power plants using more up-to-date technology. (While the District reviewed data compiled by the CEC for the years 2004 and 2005 from an unidentified number of similar facilities, *see* SOB at 62, the District's failure to identify them deprives the public of evaluating the appropriateness of such a review. The public has no information as to the vintage of these facilities.)

Instead of establishing the most stringent controls, the District merely documents "the general level of CO_2 emissions performance" that is currently achieved by turbines. *See* SOB at 62. This "general level" of performance does not constitute BACT. As the District states, "there have historically been no enforceable emissions limitations on CO_2 emissions." BACT, however, is defined as "an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation." Since there have never been emissions limitations imposed for CO_2, the District cannot determine the maximum degree of reductions for the pollutant based on reviewing the performance of other facilities, with no information about whether they are employing the maximum degree of reductions.

The District next attempts to justify the compliance margin by explaining that the District has only a "snapshot of turbine performance and not a continued demonstration of compliance with an enforceable CO_2 emission limitation throughout the turbines' total operational lifetime." *See* SOB at 62-63. But the District has only itself to blame for the "snapshot." The District reviewed only 2006 data from Delta and Metcalf. *See* SOB at 62. The District does not explain why it has not reviewed any 2007 and 2008 data for these facilities, while it obtained emissions data for Metcalf from 2008 and for Delta from 2007 and 2008 for startups and shutdowns, *see* SOB at 45-46. While it is quite possible that 2006 data are representative of those from other years, the District fails to make that determination or seek more data. Using such purported lack of data to justify an undefined compliance margin is inappropriate.

In addition, even if the District concludes that the applicant's existing equipment can achieve BACT limits after a proper PSD review, the District should explore whether the emissions from the other facilities reflect those from periods of compliance or noncompliance with permit limits. If, after all the appropriate review, the District genuinely cannot determine the proper emissions limit for the total lifetime of the facility, the District can set a limit for a select period.

The District's use of an unspecified compliance margin in establishing BACT emission limitations for CO_2 should therefore be revised because the use of a safety factor is inappropriate.

2. The selected emissions limit is not BACT because the most efficient modern combustion turbine combined cycle plant can achieve 800 lbs CO_2/MWhr.

Even assuming that this general level of CO_2 emissions performance constitutes BACT, the District selected a high limit. Even run-of-the-mill combined cycle plants are expected to achieve a much lower emissions limit, and the best combined cycle plant can achieve 800 lbs CO_2 per megawatt hour:

> The CPUC staff proposed 1,100 pounds carbon dioxide per megawatt-hour as an Interim Emissions Performance Standard in its October 2, 2006 Final Workshop Report. The standard was selected from proposals ranging from 800 to 1,400 lbs CO2/MWhr, and the earlier Revised Staff Report's recommendation of 1,000 lbs CO2/MWhr (0.46 metric tons CO2/MWhr). The CPUC staff's proposed EPS's of 1,000 or 1,100 lbs CO2/MWhr (0.50 metric tons CO2/MWhr) appear to be a compromise between the 800 lbs CO2/MWhr that the most efficient modern combustion turbine combined cycle plant could achieve, and the 1,400 lbs CO2/MWhr that might envelope the majority of natural gas burning technologies (e.g., steam cycle boiler, simple cycle combustion turbine, reciprocating engine, and a range of combustion turbine combined cycle units).

"Implementation of SB 1368 Emission Performance Standard," Staff Issue Identification Paper (Nov. 2006) at 13, *available at* http://www.energy.ca.gov/2006publications/CEC-700-2006-011/CEC-700-2006-011.PDF. Thus, the District should set a lower BACT limit for CO_2.

3. The District should analyze GHG emissions from startup and shutdown conditions and select BACT to control such emissions.

Startup and shutdown operations produce more greenhouse gases. As EPA explained in its AP-42 document on Natural Gas Combustion, "[m]ethane emissions are highest during low-temperature combustion or incomplete combustion, such as the start-up or shut-down cycle for boilers." *See* EPA, AP-42 Factors for Natural Gas Combustion, *available at* http://www.epa.gov/ttn/chief/ap42/ch01/final/c01s04.pdf. Methane is a GHG that is 21 times more powerful than CO_2, by weight, in trapping heat. EPA, Methane, *available at* http://www.epa.gov/methane/scientific.html. The District should therefore analyze GHG emissions from startup and shutdown conditions and select BACT to control such emissions.

IV. THE DISTRICT SHOULD REDO ANY NONATTAINMENT NSR REVIEW THAT IS MORE THAN 18 MONTHS OLD.

The Air District states that it is not considering any issues unrelated to PSD requirements and that PM 2.5 will be reviewed under PSD. SOB at 8, 17. By engaging in analysis of only PSD issues, the Air District is violating the Clean Air Act's requirement that nonattainment NSR be performed anew when construction fails to commence within 18 months of a previous NSR approval. The policy reason behind this requirement for new analysis is based on the requirement that the emissions limitation reflect the most stringent controls available at the time the permit is issued. Here, it appears that the NSR review was performed on June 19, 2007 and has not been updated. It has now been more than 18 months since that review. The District thus should have redone its LAER (called BACT in the District) analysis for NOx and POCs.

Specifically, the federal NSR regulations require a demonstration of adequacy of previous BACT determinations where 18 months have elapsed without commencement of construction, as is the case here:

> For phased construction projects, the determination of best available control technology shall be reviewed and modified as appropriate at the least reasonable time which occurs no later than 18 months prior to commencement of construction of each independent phase of the project. At such time, the owner or operator of the applicable stationary source may be required to demonstrate the adequacy of any previous determination of best available control technology for the source.

40 C.F.R. § 51.166j(4). Other NSR/PSD regulatory requirements also demonstrate that BACT determinations over 18 months old are invalid without commencement of construction. *See* 40 C.F.R. § 52.21(b)(9) & (r)(2); *see also Sierra Club v. Franklin County Power of Illinois*, 546 F.3d 918, 931 (7th Cir. 2008) (affirming invalidation of a PSD permit that was over 18 months old); EPA Region IX Policy on PSD Permit Extensions at 1, *available at* http://epa.gov/region07/programs/artd/air/nsr/nsrmemos/extnsion.pdf ("A BACT analysis is required in all permit extension requests, as in an application for a new PSD permit"; "the import of this policy is to ensure that the proposed permit meets the current EPA requirements and that the public is kept apprised of the proposed action (*i.e.,* through the 30-day public comment period").

Therefore, the District should redo the NSR determination for NOx, POCs and PM.

V. THE DISTRICT SHOULD CALCULATE THE FACILITY'S POTENTIAL TO EMIT HAZARDOUS AIR POLLUTANTS.

The Statement of Basis indicates that the District conducted a review of non-PSD air quality-related requirements applicable to the RCEC project. SOB at 65-66. Yet the District's analysis fails to take into consideration the maximum achievable control technology (MACT) standards for hazardous air pollutants (HAPs). MACT standards would apply to the RCEC if the facility is a "major" source of HAP emissions. *See* 42 U.S.C. § 7412(c)(1). A "major source" is "any

stationary source or group of stationary sources that emits or has the potential to emit 10 tons per year or more of any hazardous pollutant or 25 tons per year or more of any combination of hazardous air pollutants." *Id.* § 7412(a)(1) (emphasis added).

The proposed facility will emit acetaldehyde, acrolein, benzene, 1,3-butadiene, ethylbenzene, and formaldehyde. Table 6, SOB at 14. All of these are listed as HAPs. *See* 42 U.S.C. §7412(b)(1). There is nothing, however, in the Statement of Basis indicating that the District calculated RCEC's "potential to emit" HAPs for purposes of determining the applicability of section 112 of the Clean Air Act, 42 U.S.C. § 7412. Without such a calculation, it is impossible to know whether RCEC should be a major source subject to MACT.

The time to do the calculation is now because the BACT analysis must take into account environmental impacts, and the applicant must demonstrate in the PSD process that the proposed emissions will not be in excess of any other applicable emissions standard. *See* 42 U.S.C. § 7475(a)(3) and 7479(3).

VI. THE DISTRICT MUST DISCLOSE WHETHER THE EMISSION REDUCTION CREDITS ARE REQUIRED PURSUANT TO FEDERAL NONATTAINMENT NSR AND, IF SO, OFFSETS MUST COMPLY WITH FEDERAL LAW.

Because the District insists that it need not subject its decision to public review on issues other than PSD, the District has not provided adequate information about the emission reduction credits proposed for the facility. It is unclear whether emissions reductions credits proposed to be used are to satisfy federal or state requirements. Indeed, since nonattainment NSR is required here, any offsets must meet federal requirements for contemporaneousness and on-site generation. *See* Regulation 2-2-605.

VII. THE DISTRICT SHOULD DO A COMPLETE REVIEW OF STATE AND FEDERAL ISSUES BECAUSE OF THE FLAWS IN THE PERMITTING PROCESS, AND WITHDRAW THE DETERMINATION OF COMPLIANCE FROM THE CALIFORNIA ENERGY COMMISSION DOCKET.

CAP renews its request that the Air Pollution Control Officer (APCO) withdraw the Preliminary Determination of Compliance (PDOC) and the Final Determination of Compliance (FDOC) issued for the Russell City project and formally notify the CEC of the withdrawal. CAP made this request originally in a letter to the APCO in December 2008. While the District did not respond to CAP's letter, the District explains that it is addressing in this proceeding only the issues that the District is obligated to under the EAB remand. SOB at 7. The District further explains that, because "[a]ll appeal avenues have...been exhausted" as to other issues, it will not reopen the state law permitting process. *Id.* The District should reconsider this approach.

The approach does not comport with the duties the District has as a public health agency. Regardless of whether a citizen can enforce the law, the District should comply with the laws applicable to it. The District should note the stark contrast between the last permitting proceeding and this one in deciding whether to redo the permitting proceeding. In the last

permitting proceeding, the District received no comments other than from the applicant and a late comment from the CEC. In this proceeding, a large number of people and representatives from various groups attended the public hearing. The District has also already received many written comments. Interest in this proceeding has been high. It is time for the District to consider why it received so few comments in the last proceeding and why this proceeding is receiving so much attention. It cannot be that the public is participating because this is a PSD proceeding. The public is participating because this is an issue of importance to them of which it has now received notice. In light of this difference in the level of participation, the District should reconsider its duty as a public health agency and redo the state analysis, in addition to the PSD analysis.

The first step in an analysis that comports with the District's duty as a public health agency is to withdraw the PDOC and the FDOC. By failing to withdraw them, the District is allowing the CEC to rely on the District's invalid determination of compliance. This result violates not only the District's duty but also the requirements of the Warren-Alquist State Energy Resources Conservation and Development Act (Warren-Alquist Act), which applies to the District.

The Warren-Alquist Act requires the District to perform a compliance review to ensure that a proposed facility will satisfy all applicable federal, regional, and local laws.[5] Because the PDOC and the FDOC do not satisfy the PSD requirements of the Clean Air Act for all of the reasons identified here and in other public comments, as well as the notice deficiencies that resulted in the EAB remand, the District can no longer represent to the CEC that the Russell City project "meets the requirements of the applicable new source review rule and all other applicable district regulations." Nor can the CEC complete the certification process without an FDOC that accurately determines compliance. *See* Cal. Code Regs., tit. 20, § 1744.5(b); *see also* "Public Participation in the Siting Process: Practice and Procedure Guide," CEC 700-2006-002 at 49, *available at* http://www.energy.ca.gov/sitingcases/index.html ("Delays in obtaining the Determination of Compliance can negatively impact the siting process schedule because the air quality compliance information is needed at the [siting] committee's formal hearings") (emphasis added). The District must therefore withdraw the PDOC and FDOC and notify the CEC of that decision.

Public participation is not merely procedural. Public notice is essential for citizens to participate meaningfully in decisions that affect them. Their comments improve government decision making through tough questions that citizens may ask. Their comments may also point to deficiencies that even the experts may have missed.

Thus, until after this process is complete, the District cannot represent to the CEC that the proposed facility complies with federal air quality requirements. For these reasons, CAP

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[5] The Warren-Alquist Act requires the local air pollution control officer to conduct, for the CEC's certification process, "a determination of compliance review of the application in order to determine whether the proposed facility meets the requirements of the applicable new source review rule and other applicable district regulations." Cal. Code Regs., tit. 20, § 1744.5(b). "If the proposed facility complies, the determination shall specify the conditions, including BACT and other mitigation measures, that are necessary for compliance." *Id.*

requests that the District withdraw the 2006 PDOC and 2007 FDOC, notify the CEC accordingly, and perform a complete review of the permitting issues, both federal and state.

VIII. THE PROPOSED POWER PLANT WOULD POSE INCREASED HEALTH RISKS TO COMMUNITIES THAT ARE ALREADY DISPROPORTIONATELY IMPACTED BY POLLUTION.

The District's analysis of environmental justice impacts fails to meet its obligation under Title VI to ensure that "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." 42 U.S.C. § 2000d.

The District in fact fails to engage in any analysis of the environmental justice impacts of the proposed facility. The District merely states that "there is no adverse impact on any community due to air emissions [and] that therefore there is no disparate adverse impact on an Environmental Justice community located near the facility." *See* SOB at 66. Such an approach directly contradicts the environmental justice principles because it ignores that environmental justice communities have distinct characteristics that distinguish them from, and make them more vulnerable than, the general population.

Environmental justice communities are characterized primarily as low-income, minority, with English as a second language, and suffering from greater health vulnerabilities. To engage in an environmental justice analysis, the District must therefore examine the specific impacts of the proposed facility on such communities because numerous studies have shown that these communities bear more of the cumulative burden of pollution in California and around the nation. *See, e.g.*, Clifford Rechtschaffen, *The Evidence of Environmental Injustice,* Environmental Law News, Vol. 12, No. 3 (Fall 2003); "Still Toxic After All These Years," *available at* http://www.baehc.org/resources; Toxic Wastes and Race at Twenty, *available at* http://www.ucc.org/justice/environmental-justice/pdfs/toxic-wastes-and-race-at-twenty-1987-2007.pdf.

Specifically, as Sandra Witt, DrPH, Director of Planning, Policy and Health Equity for the Alameda County Public Health Department testified during the Eastshore Energy Center proceedings, the community of Hayward is home to a significantly larger non-white population than Alameda County as a whole. Testimony of Sandra Witt at 2 (Exhibit 6). Furthermore, the residents around the proposed site suffer from significantly higher rates of illness due to respiratory and circulatory system diseases. *Id.* at 3-4. The District's one-sentence discussion of the impacts of RCEC ignores the reality that environmental justice communities suffer from cumulative impacts of pollution. *Id. at 1-2.* Even an insignificant contribution of air emissions for the general population can thus be significant to an already suffering community.

Furthermore, the District's treatment of environmental justice disregards the authority it has under the Clean Air Act and its own policy. *See* Memorandum, from Gary S. Guzy, General Counsel, Office of General Counsel, re EPA Statutory and Regulatory Authorities Under Which Environmental Justice Issues May Be Addressed in Permitting (Dec. 1, 2000) at 10-12, *available*

at http://www.epa.gov/compliance/resources/policies/ej/ej_permitting_authorities_memo_120100.pdf ("Guzy Memorandum") (Exhibit 7); Board of Directors of BAAQMD's Cumulative Impact Resolution (July 2008) (Exhibit 8) (requiring the District to "continue its commitment to address the cumulative impact of new and existing mobile and stationary sources of air pollution – particularly in disproportionately impacted communities – for sources that on a relative basis contribute most to health risk at a local and regional level"). The District should therefore do an analysis and address the impact of the proposed facility on the affected population.

Since the District has entirely failed to consider the cumulative impacts of increased emissions on what is a particularly vulnerable environmental justice community, it has ignored Title VI and its authority under the Clean Air Act and its Board of Directors' policy. The District should not issue the permit until it completes a more thorough environmental justice analysis.

IX. THE PERMIT SHOULD BE STRENGTHENED, OR THE DISTRICT SHOULD ADEQUATELY EXPLAIN THE BASIS OF THE PROPOSED CONDITIONS.

A. The Commissioning Time Should Be Reduced.

The District's analysis of the commissioning time does not demonstrate why a shorter commissioning time is infeasible. *See* SOB at 47-50. Rather, the data presented demonstrate that a shorter commissioning time is feasible. *Id.* at 49-50 (stating that another similar turbine was commissioned in 96 and 207 hours).

B. The District Should Ensure that, for Each Condition, Monitoring, Recordkeeping and Reporting Requirements Exist to Ensure Compliance.

The District's proposed permit contains monitoring and verification provisions that do not adequately assure that the emissions requirements in the permit will be met at all times.

Sulfur Dioxide: For sulfur dioxide, the District states that it will only require the applicant to monitor the sulfur percentage from the natural gas monthly. *See* SOB at 71. This frequency concerns CAP because the sulfur percentage in natural gas can vary significantly. For example, recent measurements by PG&E show great fluctuation from one quarter to the next. *See* Sulfur Information, *available at* http://www.pge.com/pipeline/operations/sulfur/sulfur_info.shtml (Exhibit 9). Sulfur dioxide is a precursor to PM2.5, for which the District is currently in non-attainment. *See* http://www.epa.gov/pmdesignations/2006standards/documents/2008-12-2/FR_Final_24hr_PM2.5_Designations_010609.pdf (Dec. 22, 2008 federal register notice designating the Bay Area as non-attainment for PM2.5). Thus, the need for increased accuracy is essential. We request that the content of sulfur in the fuel be measured weekly to assure the accuracy of the sulfur dioxide emissions estimates.

In addition, the District has proposed to allow RCEC to use PG&E's monthly measurements if Russell City can show the measurements are "representative." *See* SOB at 71. And yet there is no objective criteria specified in the permit conditions as to what qualifies as "representative."

Nor is it clear whether RCEC should be able to use PG&E's numbers when PG&E adds chemicals to its natural gas and does not assure the accuracy of its published information. *See* Sulfur Information, *available at* http://www.pge.com/pipeline/operations/sulfur/sulfur_info.shtml (Exhibit 10).

PM: The District's monitoring requirements for PM are also inadequate. The only measurement that appears to be required for PM is for the heat input, coupled with an emissions factor generated from one annual source test. *See* SOB at 71, 76. This limited information will not accurately predict the PM emissions resulting from this facility. PM generated from natural gas combustion can increase from "poor air/fuel mixing or maintenance problems." *See* EPA, AP-42 Factors for Natural Gas Combustion, *available at* http://www.epa.gov/ttn/chief/ap42/ch01/final/c01s04.pdf. The District should require more stringent monitoring requirements for particulate matter due to this operational variability and the fact that the District is currently in non-attainment for particulate matter.

C. The District Should Evaluate Control Options for Ammonia Emissions.

The total project ammonia emissions are predicted to be 15.2 lbs/hr, which exceeds the acute trigger level of 7.1 lbs/hr. Table 6, SOB at 14. Inhalation of ammonia can lead to respiratory symptoms such as coughing, wheezing or shortness of breath and decreased lung function. *See* ATSDR, Toxicological Profile for Ammonia, *available at* http://www.atsdr.cdc.gov/toxprofiles/tp126.html. The minimal risk level developed by the ATSDR is 0.1 ppm for chronic exposure. *Id.* The District should translate the high level of ammonia emissions anticipated from this project into projected concentrations to thoroughly analyze potential health impacts from the ammonia emissions. The limited information presented in Table 7 does not assure the community that adverse health effects will not occur from ammonia exposure. *See* SOB at 16. To help reduce these emissions, the District should explore all the potential control options for these emissions, which can include wet scrubbers, condensate systems and recovery systems. The EPA evaluated these types of technology as applied to ammonia emissions in 1995. *See* U.S. EPA Control and Pollution Prevention Options for Ammonia Emissions, *available at* http://www.epa.gov/ttn/catc/dir1/ammonia.pdf.

D. The District Should Evaluate Emission Reduction Levels for POCs and HAPs from Specific Oxidation Catalysts for Reducing CO Emissions.

The District evaluates the option of using an oxidation catalyst to reduce CO emissions. SOB at 30-33. The identification of particular types of oxidation catalysts are, however, missing in this analysis, which could be important for reducing POCs and HAPs emissions. For example, the SCONOx system has been shown to reduce VOCs and HAPs emissions, while reducing CO emissions. *See* Memorandum from Sims Roy, EPA, re Hazardous Air Pollutant (HAP) Emissions Control Technology for New Stationary Combustion Turbines (Apr. 3, 2002), *available at* http://www.epa.gov/ttn/atw/combust/turbine/cttech8.pdf. Due to the high levels of HAPs and VOCs emissions involved (*see* Table 6, SOB at 14), the District should evaluate the effect of using different oxidation catalysts on emissions of VOCs and HAPs when it selects BACT for CO. *See* Guzy Memorandum at 12 (Exhibit 7), (in establishing BACT for criteria

pollutants, alternative technologies could be analyzed based on their ability to control HAPs; permitting authority can take into account effects of HAPs that are VOCs).

E. Diesel Fire Engines Should Only Be Used During True Emergencies.

Under the proposed permit, the Fire Diesel Engine's harmful emissions will be uncontrolled. *See* SOB at 78-79. Therefore, the District should reduce the allowable operating time of this engine as much as possible and limit its use to only emergencies. While the District states that it would allow the diesel fire engine to be operated to prevent fires, *see* SOB at 9, there are no permit conditions to ensure that it would in fact be operated in that manner.

The current permit condition allows the Fire Diesel Engine to be used for reliability, which means that the engine could operate during the "maintenance of a primary motor." *See* BAAQMD Regulation 9-8-232. There are at least four primary motors for the proposed facility. *See* SOB at 10-11. Rather than having the diesel engine be a back up for any one of these primary motors, these motors themselves should be back ups to each other. That is because the primary motors can generate more power than the diesel engines. The four primary motors have MMBtu/hr ratings of 2038.6 MMBtu/hr, 200 MMBtu/hr, 2038.6 MMBtu/hr and 200 MMBtu/hr, while the fire pump engine has a rating of 2.02 MMBtu/hr. *See* SOB at 10. Thus, the small amount of power generated by the fire pump diesel engine does not make it a real back up to these primary motors. This way, the fire pump diesel engine will only be used in a real emergency.

We look forward to your responses to our comments. Thank you for considering them.

Very truly yours,

Ethan Wimert

Helen Kang
Deborah Behles
Ashling McAnaney
James Barringer
Ethan Wimert*

* Ethan Wimert is a student waiting for recertification under the State Bar Rules governing the Practical Training of Law Students, working under the supervision of Professor Helen Kang.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

January 24, 2006

Mr. Jack Broadbent
Air Pollution Control Officer
Bay Area AQMD
939 Ellis Street
San Francisco, CA 94109-7799

RE: PSD Re-delegation Agreement

Dear Mr. Broadbent:

EPA appreciates the efforts of your staff to work with us in amending your Prevention of Significant Deterioration (PSD) Delegation agreement between the District and EPA. Under the amended delegation agreement, the District is responsible for the PSD permitting of two new facilities—Ameresco Half Moon Bay LLC and ConocoPhillips - San Francisco Refinery, in addition to the nine power plant projects listed in the previous delegation agreement. I am pleased to enclose a signed copy of the revised PSD delegation agreement. The agreement is effective immediately.

Please contact Laura Yannayon at (415) 972-3534 if you have any other questions related to this matter.

Thanks, Jack!

Sincerely,

Deborah Jordan
Director, Air Division

Enclosure

cc: Brian C. Bunger, Bay Area Air Quality Management District, w/enclosure
Catherine Witherspoon, Executive Officer, California Air Resources Board w/enclosure

EXHIBIT 1

U.S. EPA - Bay Area Air Quality Management District

Agreement for Limited Delegation of Authority to Issue and Modify Prevention of Significant Deterioration Permits Subject to 40 CFR 52.21

The undersigned, on behalf of the Bay Area Air Quality Management District (District) and the United States Environmental Protection Agency (EPA), hereby agree to the limited delegation of authority for the initial issuance or "administrative" or "minor" modification[1] of the Prevention of Significant Deterioration (PSD) permits identified below, subject to the terms and conditions of this agreement. This limited delegation is executed pursuant to 40 CFR 52.21(u), Delegation of Authority.

I. BACKGROUND RECITALS

1. EPA had delegated authority to implement the federal PSD regulations at 40 CFR 52.21 for all sources and modifications to the District on April 23, 1986. On December 31, 2002, EPA finalized revisions to the regulations at 40 CFR 52.21, which became effective on March 3, 2003. 67 FR 80186. The revisions to 40 CFR 52.21 did not significantly alter those portions of 40 CFR 52.21 that concern the issuance of permits for newly constructed "greenfield" sources. See id. at 80187.

2. The District may need to revise its local regulations to fully implement the federal regulations at 40 CFR 52.21, effective March 3, 2003, Accordingly, on March 3, 2003,

---

[1] The terms "administrative" and "minor" modifications are defined the same as in the EPA memorandum entitled "Revised Draft Policy on Permit Modifications and Extensions" July 5, 1985, by Darryl Tyler, Director, Control Programs Development Division of US EPA Office of Air quality Planning and Standards.

EPA withdrew the delegation of PSD authority from the District. See 68 FR 19371 (April, 21, 2003).

3. Because the federal regulations concerning permit issuance for new sources were not significantly altered effective March 3, 2003, existing District regulations continue to allow the District to implement 40 CFR 52.21 pursuant to a delegation agreement to issue the initial PSD permit(s), or an administrative or minor modification of a PSD permit(s). EPA has determined that District Regulation 2, Rule 2 generally meets the requirements of 40 CFR 52.21; therefore, District permits issued in accordance with the provisions of Regulation 2, Rule 2 will be deemed to meet federal PSD permit requirements pursuant to the provisions of this delegation agreement.

II. APPLICABILITY

1. Pursuant to this delegation, the District shall have primary responsibility for initial issuance or administrative or minor modification of the PSD permit(s) identified below:

   Facility:

   a. Delta Energy Center
   b. Los Medanos Energy Center
   c. Metcalf Energy Center
   d. East Altamont Energy Center
   e. Tesla Power Plant
   f. Russell City Energy Center
   g. Delta Power Plant
   h. Potrero Power Plant
   i. Ameresco Half Moon Bay LLC
   j. ConocoPhillips - San Francisco Refinery

2. Permitting History for Delta Energy Center (Delta #12095). The District issued a Preliminary Determination of Compliance (PDOC) on August 12, 1999. Subsequently,

the District issued the Final Determination of Compliance (FDOC) on October 22, 1999. The Prevention of Significant (PSD)/Authority to Construct (ATC) was issued on March 28, 2000. The Title IV/V permit was issued on March 19, 2003 and reissued on November 12, 2003. The Permit to Operate was issued on January 8, 2003, and modified on November 14, 2003.

3. Permitting History for Los Medanos Energy Center (Los Medanos #11866). The District issued a PDOC on March 18, 1999. Subsequently, the District issued the FDOC on June 10, 1999. The PSD/Authority to Construct was issued on September 10, 1999 and the Authority to Construct was superceded on July 2, 2001. The Title IV/V permit was issued on September 1, 2001 and modified on January 13, 2004. The District Permit to Operate was issued on May 19, 2002.

4. Permitting History for Metcalf Energy Center (Metcalf # 12183). The District issued the FDOC on August 24, 2000. The final PSD permit was issued on May 4, 2001. The Authority to Construct was issued on February 13, 2002 and a modification was granted on September 10, 2002.

5. Permitting History for East Altamont Energy Center (East Altamont # 13050). The District issued a PDOC on April 12, 2002. Subsequently, the District issued the FDOC on July 10, 2002. The Western Area Power Administration (WAPA) formally requested that US Fish and Wildlife (US FWS) initiate formal Section 7 consultation on February 11, 2002. The Authority to Construct has not been issued as of May 7, 2004.

6. Permitting History for Tesla Power Plant (Tesla # 13424). The District issued a PDOC on August 6, 2002. Subsequently, the District issued the FDOC on January 22, 2003.

The EPA formally requested that US FWS initiate formal Section 7 consultation on February 21, 2002. The final PSD permit is not issued because of a delay in the issuance of the Biological Opinion associated with Section 7 process. The California Energy Commission conducted an Evidentiary Hearing from September 8 to September 12, 2003. The Commissioners have not made a final determination as of May 7, 2004.

7. Permitting History for Russell City Energy Center (Russell City # 13161). The District issued a PDOC on October 25, 2001. Subsequently, the District issued the FDOC in March 2002 and an Authority to Construct on May 14, 2003. The EPA formally requested that US FWS initiate formal Section 7 consultation on March 11, 2002. The final PSD permit has not been issued because of a delay in the issuance of the Biological Assessment associated with the Endangered Species Act Section 7 process.

8. Permitting History for Delta Power Plant (Delta #18, Unit 8). The District issued a FDOC on February 2, 2001. The final PSD permit and Authority to Construct were issued on July 24, 2001. The Permit to Operate has not yet been issued as of May 7, 2004.

9. Permitting History for Potrero Power Plant (Potrero #26, Unit 7). The FDOC was issued on December 12, 2001. On July 25, 2003, Mirant of California (owner of the Potrero Power Plant) revised their application (#7951) to include a cooling tower system and reduce the annual hours of operation. A draft Biological Opinion and Incidental Take Statement were provide to EPA and the Army Corps of Engineers on April 2, 2003. NOAA Fisheries received comments on the draft Biological Opinion from EPA on May 6, 2003. The comments pertained to a revised description of EPA's federal action regarding the issuance of the air quality permit. EPA comments also stated that the Corps

has agreed to place all terms and conditions contained in the Incidental Take Statement of the April 2, 2003, draft Biological Opinion, in the Corps Section 404 Clean Water Act and in any Rivers and Harbor Act permits. The amended PDOC has not been issued as of May 7, 2004.

10. Proposed permit for Ameresco Half Moon Bay LLC (Plant # 17040). Amerecso is proposing a landfill gas-to-energy facility at the Ox Mountain Landfill located in Half Moon Bay. The applicant proposes to burn landfill gas in spark ignited lean burn reciprocating internal combustion engines. The engine-driven generators will recover energy from landfill gas in the form of electricity.

11. Proposed permit for ConocoPhillips - San Francisco Refinery (Plant # 16). ConocoPhillips is proposing the "Rodeo Clean Fuels Expansion Project," which will increase capacity of hydrocracking, deisobutanizing, reforming, and sulfur recovery units. The project will include construction of a new hydrogen plant, a new flare, a new furnace for hydrocracking and two new tanks.

12. To allow the District to continue to issue initial PSD permits and/or process administrative and minor modifications to the PSD permit(s) for Delta Energy, Los Medanos, Metcalf, East Altamont, Tesla, Russell City, Delta Power, Potrero, Amerecso and ConocoPhillips, EPA and the District have agreed to this delegation of PSD authority to issue initial permits or make administrative or minor modifications. If any of the facilities subject to this agreement requests a permit modification to incorporate conditions for a plantwide applicability limit, as provided in 40 CFR 52.21(aa), EPA shall process and issue any applications for a permit modification. EPA may review the PSD

permit to ensure that the District's implementation of this agreement is consistent with federal regulations (40 CFR 52.21).

13. The District shall send to EPA a copy of all public notices required by 40 CFR 124.

III. GENERAL CONDITIONS:

1. The District shall request and follow EPA guidance on any matter involving the interpretation of Sections 160-169 of the Clean Air Act or 40 CFR 52.21, relating to the PSD permits for Delta Energy, Los Medanos, Metcalf, East Altamont, Tesla, Russell City, Delta Power, Potrero, Amerecso and ConocoPhillips.

2 The District shall issue PSD permits under this Agreement in accordance with the PSD elements of the District's Regulation 2, Rule 2 and 40 CFR 52.21 as amended on December 31, 2002. Elements of Regulation 2, Rule 2 relating to state law requirements inconsistent with the Clean Air Act and 40 CFR 52.21 and 124, including, but not limited to, elements of Regulation 2, Rule 2 relating to the California Environmental Quality Act, shall not apply to PSD permits under this Agreement.

3. This delegation agreement may be amended at any time by the formal written agreement of both the District and the EPA, including amendment to add, change, or remove conditions or terms of this agreement.

4. If the U.S. EPA determines that the District is not administering the PSD permit identified in this agreement in accordance with the terms and conditions of this limited delegation, the requirements of 40 CFR 52.21, 40 CFR 124, or the Clean Air Act, this delegation, after consultation with the District, may be revoked in whole or in part. Any

such revocation shall be effective as of the date specified in a Notice of Revocation to the District.

5. If the District determines that administering the permits identified in this agreement in accordance with the terms and conditions of this agreement, the requirements of 40 CFR 52.21, 40 CFR 124, or the Clean Air Act conflicts with State or local law, or exceeds the District's authority or resources to fully and satisfactorily carry out such responsibilities, the District after consultation with EPA, may remand administration of these permits to EPA. Any such remand shall be effective as of the date specified in a Notice of Remand to EPA.

6. The permit appeal provisions of 40 CFR 124, including subpart C thereof, pertaining to the Environmental Appeals Board (EAB), shall apply to all appeals to the Administrator on permits and modifications to permits issued by the District under this delegation. For purposes of implementing the federal permit appeal provisions under this delegation, if there is a public comment requesting a change in a draft preliminary determination or draft permit conditions, the final permit issued by the District shall contain a statement that for Federal PSD purposes and in accordance with 40 CFR 124.15 and 124.19, (1) the effective date of the permit shall be 30 days after the date of the final decision by the District to issue, modify, or revoke and reissue the permit; and (2) if an appeal is made to the EAB through the Administrator, the effective date of the permit shall be suspended until such time as the appeal is resolved. The District shall inform EPA Region IX in accordance with conditions of this delegation when there is public comment requesting a change in the preliminary determination or in a draft permit condition. Failure by the

District to comply with the terms of this paragraph shall render the subject permit invalid for Federal PSD purposes.

7. Pursuant to the provisions of 40 CFR 52.21(u)(2), the District shall consult with the appropriate State or local agency primarily responsible for managing land use prior to making any determinations under this Agreement.

8. Nothing in this agreement shall prohibit EPA from enforcing the PSD provisions of the Clean Air Act, the PSD regulations or any PSD permit issued by the District pursuant to this agreement. In the event that the District is unwilling or unable to enforce a provision of this delegation with respect to a source subject to the PSD regulations, the District will immediately notify the Air Division Director. Failure to notify the Air Division Director does not preclude EPA from exercising its enforcement authority.

9. This limited delegation of PSD authority becomes effective upon the date of the signatures of both parties to this Agreement.

1/5/06
Date

Jack P. Broadbent
Executive Officer/APCO
Bay Area Air Quality Management District

1/20/06
Date

Deborah Jordan
Director, Air Division
U.S. EPA, Region IX

morning

11/6/08

Candido Veiga
Benjamin Beaver
Bob Nishimura
Madhavi Patil
Wayne Lee

teleconference

No Flex 10 or 30 in operation

10 peaking / intermediate
30 base load

for more recent changes in operation
- more s/u & s/d

10/30
integrating all components in combined cycle
want to have control of all components
all equipment must be designed & specified

Combustion & hardware & software
Flex 10 - 49% 47-48%
Flex 30 - 57%

existing turbine cannot be retrofitted
will kill project because of cost

CTG will be updated prior to ~~the time~~ installation.

EXHIBIT 2

Some attendees
+ Brian Lusher

11/6/00

S/u sequence
Flex (10)
5 minutes - synchronize to grid
10 minutes - 150 MW on line

exhaust to air-cooled condenser
12 min. complying w/ GTG
20 min stack compliance

efficiency 39% first hour (simple cycle)

then 48-49% @ full load

bidding flex 10 on several projects now
~~will do~~ anticipate bidding on flex 30 in future

Weyman Lee

From: Veiga, Candido (E AS31) [candido.veiga@siemens.com]
Sent: Thursday, November 06, 2008 10:42 AM
To: Weyman Lee
Cc: Beaver, Benjamin R (E AS31)
Subject: Flex Plant Cycle.ppt

It was a pleasure speaking with you. Here is the slide I was refering to we will look forward to meeting with you again. In the meantime if you have any question please contact myself or Benjamin Beaver. Benjamin will forward his V-card in separate e-mail.

Best Regards,
Candi

SIEMENS

Siemens Energy, Inc
Siemens Power System Sales
Candido Veiga
Region Vice President
Pacific Northwest
2303 Camino Ramon, Suite 150
San Ramon, Ca. 94583

Phone (407) 929-8812
Fax (925) 328-1156
Cell (925) 328-1084

e-mail: candido.veiga@siemens.com

Weyman Lee

From: Beaver, Benjamin R (E AS31) [benjamin.beaver@siemens.com]
Sent: Thursday, November 06, 2008 3:57 PM
To: Weyman Lee
Cc: Veiga, Candido (E AS31)
Subject: Follow Up to Today's Flex Plant Discussion

My pleasure speaking with you earlier this morning. As discussed, I'm investigating availability of our Flex-Plant product experts for support of a technology update webcast sometime over the few weeks. Once I get a few potential dates from HQ, I'll submit them to you and your team for consideration. If possible, if you are aware of any dates/times that are not good for BAAQMD, please advise. Thank you.

We appreciate your interest in Siemens and our technology offerings. I've attached my contact information below. Please do not hesitate to contact me for any additional information and/or support.

I look forward to meeting with you soon.
Best regards,
Benjamin

SIEMENS Siemens Energy

Benjamin R. Beaver Siemens Power Generation, Inc.
Sales Manager 2303 Camino Ramon Suite 150
Pacific Northwest San Ramon, Ca. 94583

Phone: (925) 242

CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512

May 29, 2007

Mr. Jack P. Broadbent
Executive Officer/Air Pollution Control Officer
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

Dear Mr. Broadbent,

AMENDED PRELIMINARY DETERMINATION OF COMPLIANCE FOR THE RUSSELL CITY ENERGY CENTER, APPLICATION 15487

Thank you for the opportunity to comment on the Amended Preliminary Determination of Compliance (PDOC) for the proposed Russell City Energy Center (RCEC), a 600 MW combined cycle project located in the city of Hayward. In the Amended PDOC the District finds that, subject to specified permit conditions, the proposed project will comply with all applicable federal, state and Bay Area Air Quality Management District (District) rules and regulations.

In considering this project, we believe there may be better and more direct ways to reduce or avoid the cumulative impacts from ozone precursor emissions than those proposed by the project owner. We believe that there is current technology that the District should consider requiring as Best Available Control Technology (BACT) that will significantly limit the ozone precursor emissions that result from start-up and load following transitions. We believe that impact avoidance (i.e., preventing emissions) is generally a better approach than impact mitigation of air emissions through the provision of offsets when complying with the requirements of the California Environmental Quality Act.

OFFSETS

The planned operating profile of the project, frequent start-up and shutdown cycles, is creating a significant disparity between the daily emissions and the average daily offsets. The project owner is requesting that no District or Energy Commission conditions be attached to the project that would restrict the number of start-up and shutdown cycles or the annual hours of operation. They would, instead, accept a condition that would limit the facility's annual emissions to 134 tons per year (TPY) of oxides of nitrogen (NOx) and 28.5 TPY of precursor organic compounds (POC).

The Amended PDOC, per the District New Source Review (NSR) regulations, identified That RCEC will surrender emission reduction credits (ERC) in the amounts of 103 TPY of NOx and 80 TPY of POC to offset new emissions of 134 TPY of NOx and 28.5 TPY of POC. On a daily basis, including days that experience ozone violations, staff estimates that the project could emit up to 2,213 lbs of NOx, while the proposed

EXHIBIT 3

emission reduction credits provided would amount to only 844 lbs per day. This offset amount mitigates approximately 38 percent (844 lbs/2,213 lbs) of the project's potential emissions for NOx on any given day. Thus on those days when violations of the ozone air quality standards occur, the project's emissions would contribute to violations of the standard.

BACT

According to the Amended PDOC, each unit of the RCEC must be equipped with BACT for NOx, carbon monoxide (CO), POC, particulate matter less than 10 microns (PM10), and oxides of sulfur (SOx). The Amended PDOC states that BACT for each unit is the use of selective catalytic reduction (SCR) and CO oxidation catalyst systems to control NOx, POC and CO emissions, and the use of natural gas as BACT for PM10 and SOx.

The SCR system will maintain a normal operation NOx emissions limit of 2.0 parts per million (ppm) averaged over a one-hour period. The District determined that this meets District guidelines for BACT. Missing from this determination is consideration of the facility's potential high daily NOx emissions from multiple start-up and shutdown cycles. Energy Commission staff estimates that the facility can potentially emit 2,213 pounds per day of NOx. The hourly emissions during start-up and shutdown events are much greater than during normal operation since the SCR and ammonia injection system are not at optimal conditions. The resulting daily emissions could have a significant effect on ozone and air quality in the Bay Area air basin because the proposed NOx emission reduction credits are approximately equivalent to 844 pounds per day, well below the potential emissions of 2,213 pounds per day of NOx.

Energy Commission staff recommends that the district consider requiring, as part of their BACT analysis, hardware and software modifications to the project that can shorten start-up and shutdown events and optimize emission control systems. There is evidence that start-up and shutdown emissions from the facility can be reduced significantly with design changes to the heat recovery steam generator (HRSG) units that can include the use of the once-through HRSG (Benson Boiler). The start-up time for each turbine/HRSG unit could be reduced from the proposed 6 hours to approximately one hour, resulting in a significant reduction in start-up emissions. If the project is built with the aforementioned Fast-Start technology, the project start-up NOx emissions are expected to be reduced from the proposed 480 lbs to 22 lbs for each cold start-up event, and from 240 lbs to 28 lbs for hot or warm start-up events. This represents 95 and 88 percent reductions in NOx emissions per cold and hot or warm start-up events, respectively. In addition to reducing the facility's NOx emission liabilities, the use of Fast-Start technology at the RCEC project would result in cost savings from less fossil fuel use to create steam that is vented during start-ups. Staff has not estimated the actual fuel saving because this cost will tie directly to how many start-up and shutdown cycles the facility has during a year. According to one manufacturer (Siemens), the cost for the design changes is not significantly higher than the cost of the standard, off the shelf, HRSG.

Alternatively, the 600 MW combined cycle Palomar Project in Escondido has installed a proprietary control system, OpFlex from General Electric, and injects ammonia earlier to shorten start-up times and reduce start-up emissions at the facility. Preliminary, non-optimized results from their March 7, 2007, Petition for Variance 4703 Extension indicated that they have reduced NOx emissions from 120 lbs to 28 lbs for hot or warm start-up events.

If design or process control changes to reduce the facility's start-up and shutdown emissions are implemented, the RCEC daily emissions can be reduced. These design changes could be found to be cost-effective and included as BACT for the proposed facility.

GENERAL COMMENTS

- Page 2 and page 36 of the Amended PDOC identifies the source S-5, the cooling tower, "with efficiency drift eliminators make and model to be determined" while on page 14 the drift is specified as 0.0005%.
- Page 4, Item 3.c. identifies the POC limit of 1 ppmvd @15% O_2. However, Table 1 on the same page identifies POC limit of 2 ppmv.
- Page 5, Table 2 identifies PM10 emissions from the cooling tower, although drift elimination efficiency was not specified on page 2 and the TDS limits are not provided.
- Page 13 and Condition 20(g) specifies that the project will burn natural gas in the turbine and heat recovery steam generator with an annual average of 0.25 grains sulfur per 100 standard cubic feet. What is the basis for this value and how will it be enforced?

Thank you for the opportunity to provide comments on the District Amended PDOC for the Russell City Energy Center. We believe that design changes to the project could significantly reduce the facility's daily potential to emit, and at the same time address the effectiveness of the applicant's proposed offset mitigation. If you have any questions regarding our comments, please contact Matt Layton at (916) 654-3868.

Sincerely,

PAUL C. RICHINS, JR
Environmental Protection Office Manager

cc: Docket (01-AFC-7)
Proof of Service List
Agency List

2007 Pacesetter Plant Award

Palomar Energy Center

Escondido, Calif
San Diego Gas & Electric Co

Central stations return to the city

A hundred years or so ago, about half of the country's electricity was produced onsite by businesses that used it for competitive advantage. Electric utilities were born to urban areas as demand created by commercial, street, and residential lighting and appliances grew exponentially in the first quarter of the 20th century. They built "central stations" within the load pockets served because electricity couldn't be distributed efficiently very far from the generators that produced it.

Ted Walton

1. Palomar Energy Center, gets "A" grades for architectural design and noise mitigation

But as cities grew, so did the powerplants—fueled mostly by coal—and there were concerns about the pollutants released. The concerns were justified; outbreaks of respiratory illnesses attributed to, or exacerbated by, airborne emissions are fairly well documented. Powerplants got a bad name, as did coal.

One solution was to locate large plants outside cities and build high-voltage transmission lines to deliver electricity to load centers. The strategy worked for several decades—and still does, generally. But not everyone agrees with it.

Some vocal citizens tired of the visual impact associated with transmission towers; others became frightened by the weird science of electromagnetic fields that identified high-voltage lines as a health hazard. Long-distance transmission lost its white hat and licensing of new lines, even on existing towers, became difficult in certain areas—some might say virtually impossible.

The new robber barons. More recently, a few enterprising energy executives who believed regulated utilities could be run more efficiently if the industry were deregulated got their wish. And the federal government did its part during the open season on meddling with electricity supply by deciding to restructure the wires side of the business and create a national grid.

Generation and transmission assets were bought, sold, and traded by people who knew little other than how to increase their personal net worth. Several of the largest utilities were left holding the proverbial bag, retaining their "obligation to serve" but stripped of their generat-

EXHIBIT 4

one engineer.

start.

1

one contractor.

finish.

BIBB AND ASSOCIATES, INC.

John Barnes
913 : 928 : 7360
www.bibb.com

KIEWIT INDUSTRIAL CO.

Mark Langford
913 : 227 : 3640
www.kiewitindustrial.com

Choose a team that has the ability to design and construct an innovative solution to your energy needs. Together, Bibb and Associates, Inc. and Kiewit Industrial Co. use a comprehensive EPC model to produce award-winning power plants. Two top-tier companies, one quality product.

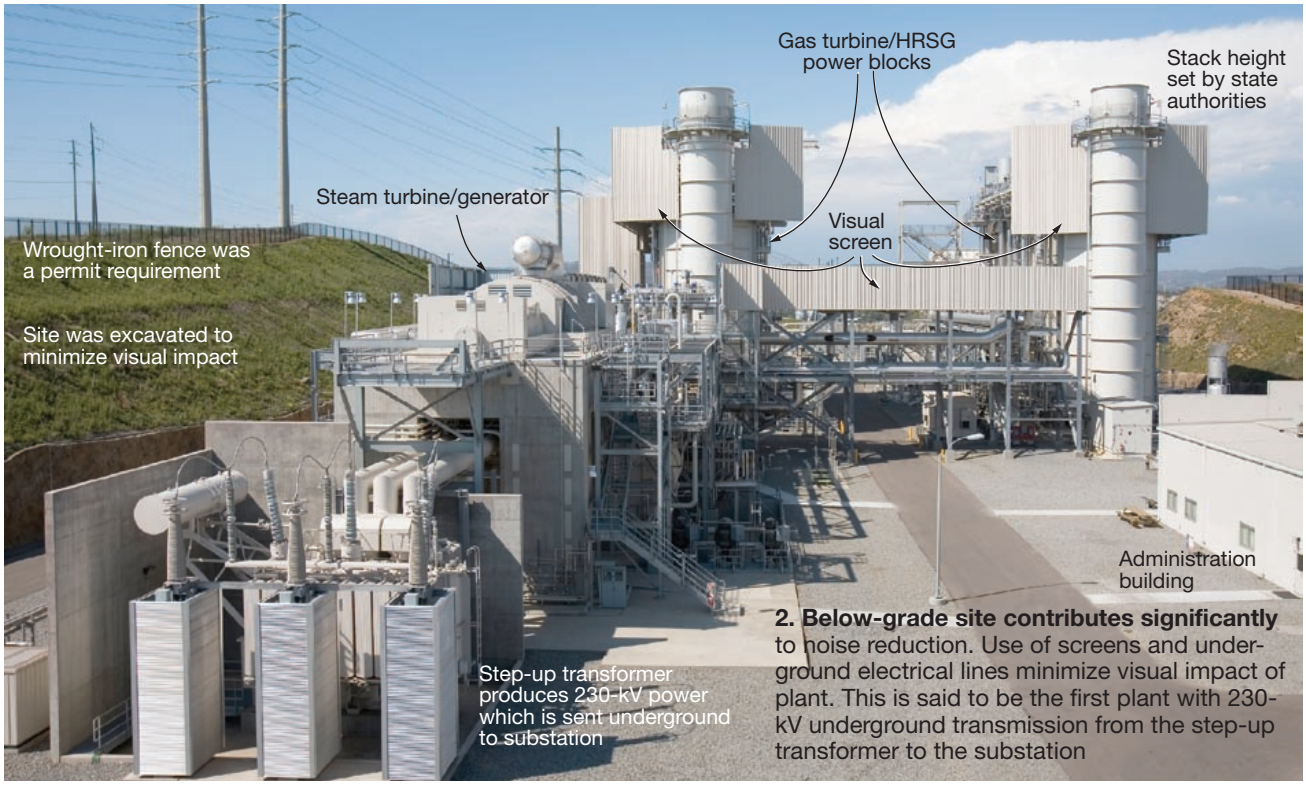
Kiewit

KIEWIT INDUSTRIAL CO.

Bibb and associates

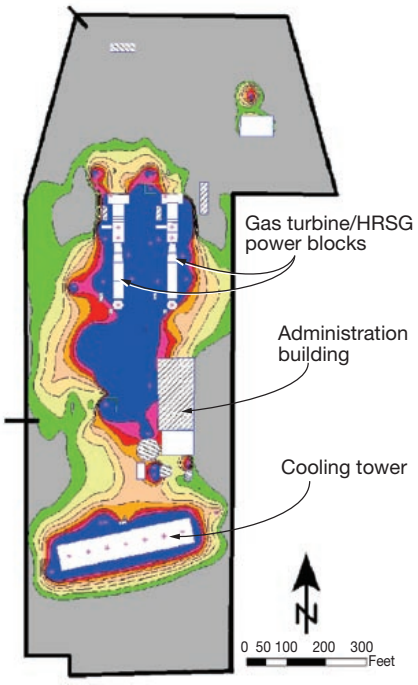
ing plants as well as control over the electrical networks they built.

Most readers probably recall the California electricity crisis shortly after the millennium, when three of the country's most successful investor-owned utilities (IOUs)—Pacific Gas & Electric Co, Southern California Edison Co, and San Diego Gas & Electric Co (SDG&E)—were almost driven out of business by a perfect storm of bad ideas and actions on the part of others. The unprecedented "mess" was a major contributing factor behind the recall of Governor Gray Davis. It was only the second time in the history of the country that a governor had been recalled.



2. Below-grade site contributes significantly to noise reduction. Use of screens and underground electrical lines minimize visual impact of plant. This is said to be the first plant with 230-kV underground transmission from the step-up transformer to the substation

3. Sound-absorbing walls reduce noise generated by the gas turbines (left)



4. Acoustic model produced a noise profile for the Palomar site that looked like this after all attenuation enhancements were incorporated into the design (right)

But nothing lasts forever, and the electric power industry in California has re-emerged from its darkest days with a new vitality. At least that's the feeling the editors came away with after visiting the half-dozen California plants profiled in the Class *of* 2006 report. Rules governing the licensing and operation of generating plants, and the obligations of owners, seem clearly defined, as do the roles and responsibilities of all market participants—private and public power producers, the transmission system operator, and regulatory authorities.

Hopefully, the plant profiles convey this positive outlook. They also offer a birds-eye view of what it takes to license a plant in California. Suggestion: Pay attention to the rules governing water use and the treatment of blowdown and other liquid waste streams, and how owner/operators are meeting them. They offer lessons learned that might prove valuable to you in the future.

Palomar's significance

Two positive impacts of California's "new beginning" in electric power are these:

- A re-emergence of IOUs as owner/operators of regulated generating plants in the state.
- The siting of central stations in urban locations to serve native load.

Palomar Energy Center (Fig 1), owned and operated by SDG&E, exemplifies both. The utility's leadership and achievement, which serve as models for others, earn Palomar the 2007 Pacesetter Plant Award. SDG&E is a unit of Sempra Energy Utilities, the umbrella organization for Sempra's regulated business units.

The 550-MW, natural-gas-fired facility—a 2 × 1 7FA-powered combined cycle—is the first major powerplant built in San Diego County in three decades. It is located on a hillside in the Escondido Research & Technology Center, a stone's throw from private homes.

Residents *might* know they have a powerplant as a neighbor, but why would they care? The facility, generally quieter than the traffic on surrounding freeways, has architectural features that enable it to blend in with its surroundings. Plus, it has an emissions profile that places Palomar among the cleanest generating stations in the world.

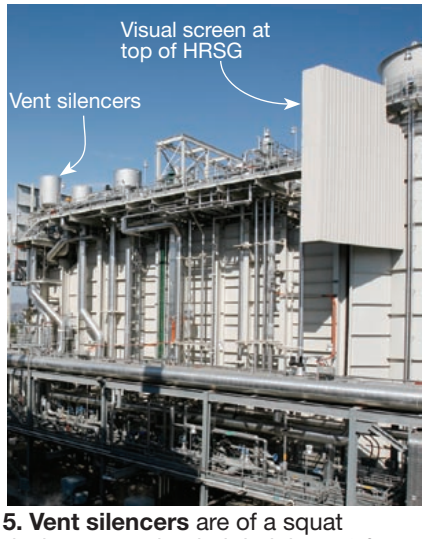
Jim Avery, SDG&E's senior VP electric (generation and T&D), says Palomar was built on a turnkey basis to mitigate construction risk. Its developer was Sempra Generation, an unregulated Sempra affiliate, which could not own and operate the plant and sell its output to the regulated utility because that would have been viewed as a conflict of interest.

SDG&E produced most of the power it sold before being ordered to divest of the generating plants in its electric service territory during the California meltdown described earlier. With the addition of Palomar, it now produces about 20% of the power it sells. The utility also owns an LM6000 peaker at Miramar and a small percentage of a nuclear plant.

Quiet, first-class appearance

Considerations such as stack emissions, water use, and wastewater treatment are table stakes for powerplant development most places. If you can't ante-up you have no chance of obtaining permits for construction and operation. In California, the stakes are higher, particularly if a plant will be built near offices and homes. The facility must operate quietly and appear as if it belongs in the neighborhood.

Joint-venture EPC contractor Kiewit/Bibb was responsible for building a functional facility that also followed noise regulations and didn't resemble a typical powerplant. Kiewit is Kiewit Industrial Co, Lenexa, Kan, the constructor; Bibb is Bibb and Associates Inc, Lenexa, Kan, and like Kiewit Industrial, a subsidiary of Peter Kiewit & Sons, Omaha.



5. Vent silencers are of a squat design to restrict their height to 1 ft above the visual screen

Bibb's Palomar project manager, Kevin Needham, says that the permit approved by the California Energy Commission identified about a half-dozen so-called "sensitive receptors" around the plant and prescribed noise limitations for each. Failure to "nail the numbers" on the inspector's test after startup would put plant operation at risk and undoubtedly require very expensive retrofit work.

To ensure success, Bibb built a noise model with help from Michael Theriault, who heads up the specialized noise consultancy MTAcoustics, South Portland, Maine. This effort began with a plot plan of the long, narrow 20-acre site, which was carved into a hillside. Removal of 1.2 million cubic yards of dirt and rock

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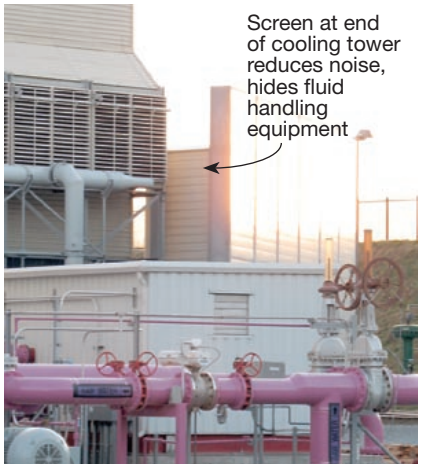
6. Screen at top of cooling tower primarily is for noise reduction. However, it also acts as a visual screen



7. Cooling tower's fluid handling equipment is hidden by end screen provided for noise reduction

allowed for most of the plant to sit below grade in a granite "bathtub," benefiting noise-attenuation efforts.

Using noise-emissions data gathered from manufacturers, and from tests conducted at plants with similar equipment, engineers ran the model to identify areas of concern—including HRSG (heat-recovery steam generator) stack and casing noise.

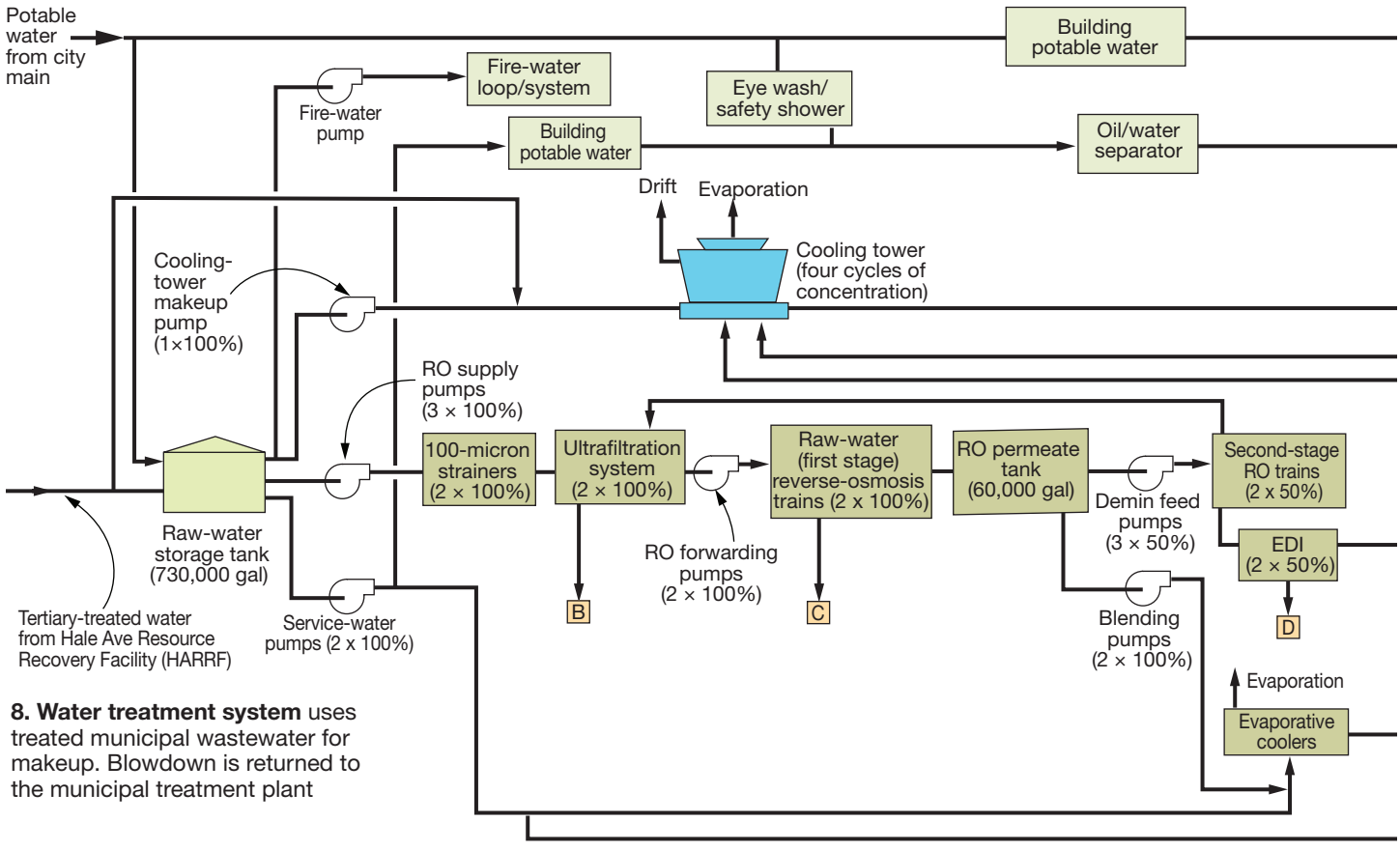
Next step: Modify the standard equipment offerings to reduce noise. To illustrate: For each HRSG, the thickness of the casing in the inlet duct area was increased to 0.875 in. Regarding the stacks, conventional silencers were not an option because of the 110-ft stack height limit to minimize visibility. The solution: Extend the length of the HRSG by 10 ft and add sound-attenuation baffles downstream from the last bank of tubes and upstream from the stack.

For gas turbines (GTs), the solution generally incorporates sound-absorbing walls to reduce the noise level (Fig 3).

The iterative process acoustical engineers use leads to a noise profile for the plant vicinity (Fig 4) that will produce the desired dB(A) readings at all of the receptors.

The editors can attest to the effectiveness of the noise mitigation program at Palomar. It's rare that you can walk between two operating 7FA/HRSG power blocks and carry on a normal conversation, but you can do it there. About the only thing you could hear were the boiler-feed pumps. Director of Electric Generation Dan Baerman says the noise level at the first residence is less than 40 dB(A).

Permits also govern the visual impact of the plant, Needham adds. Fig 2 shows some of the architectural screens on the HRSGs used to make them appear like commercial buildings from the road. Fig 5 illustrates restrictions on vent height at the top of the boilers. Steam vents are not



8. Water treatment system uses treated municipal wastewater for makeup. Blowdown is returned to the municipal treatment plant

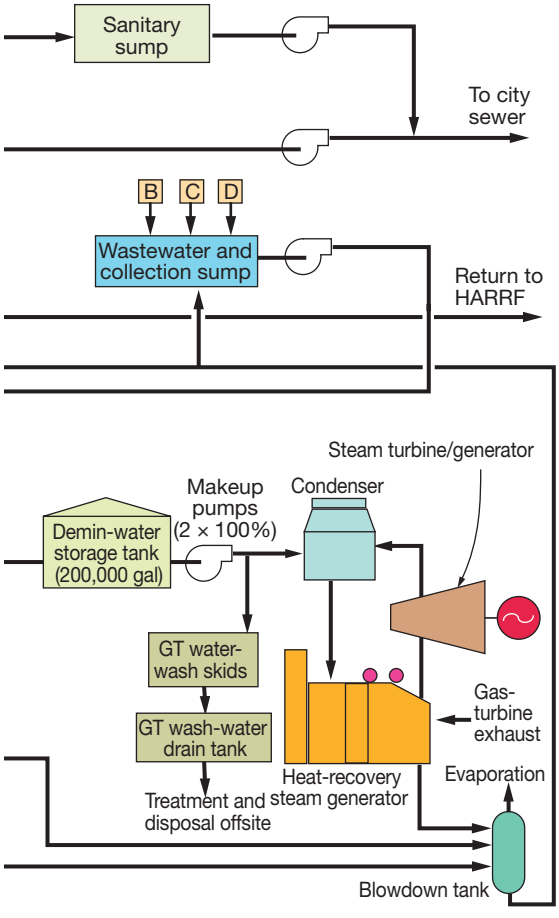
allowed to extend more than 1 ft above the height of the screen. To accommodate both the noise-attenuation and visual-impact requirements, special vent silencers have been installed. Note that they have a squat profile.

Visual impact of the cooling tower also was of concern. A screen around the top of the mechanical-draft tower reduces noise and hides the fan deck (Fig 6); an end screen hides piping and other fluid handling equipment (Fig 7).


Baerman

Plume visibility presents a problem at certain times of the year for a couple of hours in the morning. To address this issue, Marley-SPX Cooling Technologies, Overland Park, Kan, designed a plume abatement system into the tower. It relies upon a system of louvers and heat-transfer coils to eliminate or greatly reduce the formation of fog.

If the plant were located anywhere else in the country, the enhancements noted above to minimize the plant's visual impact probably would have been sufficient—but not in California. For Palomar to meet the requirements of its permit, the entire plant had to be finish-painted. It was a first-class job that specified the color of the paint and the type of wrought-iron fence used for the plant perimeter. Finally, the cooling towers also contained fiberglass sections in the specified color.



Plant operations

Palomar began commercial operation on April 1 and hasn't rested very often. Capacity factor for the last three quarters of 2006 was just about 70%, according to Baerman, which is relatively high for a combined-cycle plant today.

The plant essentially is in continuous operation, adds Operations Manager Pete Smithson. It follows load right through the night. Every now and again, he continues, the plant operates as a 1 × 1 at night, but that's not very often. Year-to-date availability was over 97% when the editors visited in mid December.

Total staff at Palomar, which also is responsible for the Miramar peaker, is 30. Baerman says one of the biggest challenges he had was to make everyone aware of the importance of environmental tracking. It's an integral part of everyone's day, he adds. Necessary inspections and tests—there are scores—are integrated into normal work processes; many PMs are compliance PMs as well, Baerman continues.


Smithson

So important is environmental compliance that Baerman's lieutenants are not just the operations and/or maintenance managers that you find at most combined-cycle plants of this size. Palomar also has a compliance manager, Kelly Hunt, at the same level as Maintenance Manager Carl LaPeter and Smithson.

Cold starts. Palomar is yet another plant in the Class *of* 2006 challenged on cold starts by permit requirements (see profiles for Mankato and Cosumnes). The SDG&E facility couldn't bring its GTs into emissions compliance on cold starts within the four-hour permit allowance because of the long startup time associated with the GE Energy (Atlanta) D11 steam turbine. The utility has filed for a permit change to extend the cold-startup time for emissions compliance to six hours.

Another concern was that high pollutant emissions during startups were rapidly consuming Palomar's annual NO_x allocation on a total weight basis. The DLN2.6 combustion system was meeting the 2-ppm NO_x and 6-ppm CO limits for normal operation, but startup emissions were well above that expected.

Palomar took two actions that ultimately reduced NO_x emissions by 75% on a pounds-per-startup basis. They were:

- The GT OEM tuned the combustion system for all operating modes. One of the benefits is that the engines are now in NO_x compliance when operating at less than 50% of their full-load rating. In powerplant lingo, the GTs are in 6Q mode (full DLN) much sooner than they were initially.


LaPeter


Hunt

- Initially, Palomar was starting its SCR (selective catalytic reduction) ammonia injection (reagent is 19% aqueous ammonia) when the catalyst reached 550F—as recommended by catalyst supplier Cormetech Inc, Durham, NC. Working together, plant staff and Cormetech found ammonia injection could begin at 485F and still be in full compliance on ammonia slip. This means the SCR could be started 90 minutes earlier than it had been, thereby reducing NO_x emissions significantly.

Water supply, wastewater treatment. California is tough on powerplant water use and on wastewater discharges (learn about the state's rules in the Riverside profile). Palomar's approach was simple: (1) Install two 1.1-mi pipelines from the plant to what is known locally as HARRF (the Hale Ave Resource Recovery Facility); (2) transport the tertiary treated municipal wastewater needed for plant cooling, cycle makeup, and fire and service water systems through one pipe; and (3) return all blowdown to HARRF via the second line.

In effect the plant has what amounts to a zero-liquid-discharge arrangement because it returns all of the wastewater to HARRF. Rather than explain system arrangement in words here, consult Fig 8. Note that the provided 780,000-gal raw-water surge tank has sufficient capacity for a system shutdown should HARRF be unable to supply water temporarily. CCJ

Santan Generating Station

Gilbert, Ariz
Salt River Project

Environmental upgrades focal point of plant expansion

Santan's 1 x 1 combined cycle, at right in photo, features a high-efficiency A14 steam turbine. Triangular arrangement of stacks was considered by neighbors to be more visually pleasing than individual stacks

It wasn't that the majority of people living near Salt River Project's Santan Generating Station just outside Phoenix in Gilbert, Ariz, didn't want the plant to expand, they just didn't want to see the facility, or hear it, or be subject to increased pollutant emissions.

The plant dates back to the early 1970s when SRP built four single-shaft (1 × 1) combined-cycle units on the 120-acre Santan site. These so-called STAG units, supplied by GE Energy, Atlanta, were powered by Frame 7B gas turbines (GTs). Originally, the units burned distillate and did not have emissions controls. In the early 1980s, the GTs were converted to dual-fuel firing because of the lower price of gas compared to oil.

Burgeoning power needs in the Southwest demanded that SRP plan to increase its generating capability as the 1990s came to a close. That plan called for adding two combined-cycle units at Santan with a total capacity of 825 MW. Unit 5, which began commercial operation in April 2005, is a 2 × 1 arrangement powered by Frame 7FA+e GTs. Unit 6, a 1 × 1, consisting of a 7FA+e and GE's new, high-efficiency A14 steam turbine, went commercial in 2006 (photo). Although this was only the second A14 steamer to enter service when it started up, the plant reports it has met OEM performance objectives and is operating as expected.

Bill Rihs, SRP's manager of major projects says that the permits for the new units had several significant conditions related to environmental control, including the following:

- The original GTs were upgraded to Frame 7Es and dry low-NO_x combustion systems were installed to reduce emissions. Controls were replaced with the Mark VI systems required for DLN combustion. Upgrades also were required for the cooling towers and heat-recovery steam generators (HRSGs). In addition to the environmental benefits, heat rate improved by about 10% and unit output increased by about 20 MW.
- Natural gas was specified as the only fuel acceptable for power production.
- Visible and noise pollution were high on the public's agenda. One reason: Residential development has expanded outward from Phoenix to the plant location in the last 30 years. To help reduce noise and hide the plant from view, the new generating facilities are located behind a manmade 25-ft-tall berm. Plus, the foundations for the HRSGs are set about 15 ft below grade. To make the stacks less noticeable, they are arranged in an aesthetic triangular pattern as shown in the photo. More than 1000 mature trees were planted on the berm to further mask visibility.

Water, a major concern of every power project in the West, comes from the Colorado River and other sources via the Central Arizona Project. Consumption is carefully monitored and controls are in place to assure optimum use. Makeup water for the reduced-plume cooling towers and other requirements is ordered a day ahead. Underground water storage facilities are provided at the plant.

Santan wastewater is treated to exacting specifications and delivered under contract to the Roosevelt Water Conservation District for irrigation purposes. In effect, the plant is a zero liquid discharge (ZLD) facility because all wastewater is reused. But satisfying the conservation district's specs has been challenging. In fact, the changing nature of plant water has dictated the installation of a new "front-end" treatment for the plant.

When water physical and chemical characteristics were determined prior to plant design, the area had been in a drought condition for a few years and surface water was relatively free of suspended solids. But 2005, when the 2 × 1 combined cycle began operating, was a wet year with lots of runoff from the mountains—and suspended solids. Plant is installing a clarifier to deal with the issue. **CCJ**

Shaheerah Kelly/R9/USEPA/US
07/02/2008 12:24 PM

To bryan.sixberry@ge.com
cc
bcc Shaheerah Kelly/R9/USEPA/US@EPA
Subject Rapid Response and OpFlex

Hi, Bryan.

Thanks for taking the time to discuss the Rapid Response and OpFlex systems with me. I really appreciate it. Below is a summary of my understanding of these systems based on our discussion. Please let me know if any of this is incorrect. Again, thanks.

Rapid Response:
- It is a total power plant system that allows combined-cycle gas turbine (CCGT) plants to get through low efficiency, high emission periods (i.e., SU periods) very quickly.
- The system generally reduces SU time from 110 minutes to 65 minutes for CCGT plants and from 45 minutes to 10 minutes for gas turbines (GTs); it also allows SCR injection to start at 50 to 60% load.
- It uses an auxiliary boiler to assist with heating up the steam turbine (ST) while the ST ramps up.
- It requires a specially designed HRSG and steam turbine for each power block.
- It is more suited for load-following and intermediate power plants which have several/daily startups and shutdowns; it is not beneficial to baseload plants since these plants do not startup/shutdown frequently and would only reduce a very small portion of SU emissions for these plants.
- It can reduce NOx emissions by 30-40% annually.
- It allows GTs to achieve 9 ppm NOx at 50-60 % load w/ SCR (typically 100 ppm between 50 - 60% load for conventional power plants).
- Its cost ranges between $100K and a few million dollars.

OpFlex Turndown:
- It is a software solution in which a controller is added to the CCGT power plant to optimize the combustion process.
- For 7FA GTs, uses Mark 5E or 6K. (Bryan, can you tell me what this means?).
- GTs can go down to 40% load and meet less than 9 ppm NOx and CO.
- It allows plants to reduce fuel use and and results in lower NOx and CO emissions during low load periods.
- It allows a CCGT power plants to cycle at low loads overnight instead of completely shutting down.
- Its costs range between $500 and $500K.
- It is available for new plants and as a retrofit for existing plants.

****
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EXHIBIT 5

ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY
PUBLIC HEALTH DEPARTMENT

David J. Kears, Director
Anthony Iton, Director & Health Officer

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"RACE, CLASS, AND THE PATTERNS OF DISEASE DISTRIBUTION IN HAYWARD: DECISION-MAKING THAT REINFORCES HEALTH INEQUITY"

Testimony of Sandra Witt, DrPH, Director of Planning, Policy and Health Equity for the Alameda County Public Health Department

My name is Dr. Sandra Witt, Deputy Director of Planning, Policy and Health Equity for the Alameda County Public Health Department. For the last 7 years, I have directed the Community Assessment, Planning, Evaluation and Education Unit of the Public Health Department. This Unit includes 8 epidemiologists and is responsible for monitoring the health status of all County residents. Over the past 3 years we have produced over 14 technical reports analyzing data from a variety of sources including mortality, births, hospitalizations, health survey data, communicable disease, and census data to identify broad areas of health concern and to monitor the health of our residents, particularly the most socially and economically vulnerable populations in our County. Several of these reports are cited as scientific evidence in the Eastshore Energy Center staff report.

"A condition of environmental justice exists when environmental risks and hazards and investments and benefits are equally distributed with a lack of discrimination, whether direct or indirect, at any jurisdictional level; and when access to environmental investments, benefits, and natural resources are equally distributed; and when access to information, participation in decision making, and access to justice in environment-related matters are enjoyed by all."[1]

In monitoring and analyzing health outcomes for Alameda County residents, one resounding theme stands out: poor health and premature death are by no means randomly distributed in Alameda County. Low-income communities and communities of color in certain specific geographic neighborhoods suffer from substantially worse health outcomes and die earlier. Studies reveal that these inequitable health outcomes are not adequately explained by genetics, access to health care, or risk behaviors, but instead are to a large extent the result of profoundly adverse social and environmental conditions. These adverse environmental conditions are too often an indelible reflection of the way decision-making power is shared with low-income communities.[2] Historical exclusion from decision-making venues has resulted in communities of

[1] European Workshop on Environmental Justice (Budapest, December 2003)
[2] Marmot MG and Wilkinson R, eds. 2003. *Social Determinants of Health: The Solid Facts, 2nd ed.* World Health Organization Regional Office for Europe, Copenhagen, Denmark.
Sampson, RJ. "The neighborhood context of well-being." *Perspectives in Biology and Medicine*; Summer 2003; 46(3):S53.

EXHIBIT 6

color and low-income communities that are disproportionately burdened by an abundance of environmental hazards, including toxin-emitting power plants and other sources of noxious pollution. It is incumbent upon public health officials to analyze health data to validate pro-equity policies that will lower the disproportionate burden of pollution and improve health outcomes among all populations.

1. **Illness and Death from Air Pollution Associated Conditions is Already Disproportionately Concentrated in the area of Hayward that is in Proximity to the Proposed Power Plant**

An environmental justice framework requires examination of the specific impacts of the project on low-income communities and communities of color. In its cursory three-page Final Staff Assessment, the California Energy Commission (CEC) concludes that Eastshore Power Plant project will not contribute significantly to morbidity or mortality in any race or ethnic group residing in the project area, and therefore would not have a disproportional impact on an environmental justice population. However, this seemingly blythe conclusion neglects consideration of published and publicly-accessible Alameda County Public Health Department evidence of the geographic distribution of disease in the area of Hayward within proximity to the proposed power plant site.

In its environmental justice examination, the CEC staff also fail to reference any analysis of the existing burden of toxic pollution in the area of the proposed power plant site and thus effectively ignore the compounding effects of various sources of toxicity (including non-airborne sources) to which residents in the surrounding Hayward community are already exposed. When these two points are appropriately examined, as they are below, it becomes inescapably clear that by approving the Eastshore Power Plant at 25101 Clawiter Road, nearby predominantly low-income communities of color, disproportionately burdened by exposure to environmental toxicity and suffering from higher rates of premature death and chronic diseases known to be exacerbated by air pollution, the California Energy Commission is running the risk of exacerbating conditions that are fundamentally the legacy of discrimination.

- **Hayward is more ethnically diverse than Alameda County**

The City of Hayward is home to a significantly larger non-white population than Alameda County as a whole. Over one-third (34.2%) of Hayward residents are Latino compared to 19.0% countywide, and the proportion of Latino residents is even higher within a three-mile radius of the proposed plant (37.8%). Additionally, Hayward is comprised of 10.6% African Americans, 18.7% Asians, and 29.2% White. In Alameda County, Whites make up 40.9% of the population.

- **Within three miles of the proposed site are several high poverty, high minority, low life expectancy census block groups**

Overall, 10.0% of Hayward residents live in poverty, a slightly lower percentage than the 11.0% countywide. And within a three-mile radius of the proposed plant, 10.4% of residents live in poverty. However, within this three-mile radius, there are three low-income census block groups where at least 20% of residents live in poverty and 80% are non-white (see map in attachments).

The mortality rate within these three block groups was 50% higher in 1999-2001 than the rate of the remaining block groups in the three-mile radius of the proposed plant site: 1,328 per 100,000

compared to 865 per 100,000. In addition, the life expectancy at birth in these three block groups was 73.3 years, five years less than the 78.3 years observed countywide. These three low-income areas also receive a high level of Public Health Department services (see map in attachments).

- **Death rates from air-pollution associated diseases are substantially higher in the three mile radius around the proposed site**

There are numerous scientific studies that document the relationship between air pollution and human disease.[3] Common acute non-cancer health effects include asthma, chronic obstructive pulmonary disease, and cardiovascular disease, particularly congestive heart failure. The exacerbation of these existing chronic conditions result in unnecessary morbidity, missed work days, preventable hospitalizations, and premature death. A disproportionate burden of the cost of these preventable hospitalizations, particularly among the uninsured, is borne by Alameda County government.

In order to examine mortality from specific causes, death rates within the three-mile radius around the proposed site were compared to Alameda County rates (combining the low-income block groups with the other block groups in the radius). Rates of death from all causes, coronary heart disease, and chronic lower respiratory disease were all significantly higher within the three-mile radius than those rates for Alameda County, representing an ongoing excess burden of mortality (see attached tables).

The rate of death from all causes within the three-mile radius was 888.4 per 100,000 from 1999 to 2001, statistically significantly higher than the county rate of 792.3 per 100,000. Similarly, the rate of death from chronic lower respiratory diseases was 54.8 per 100,000 within the three-mile radius, significantly higher (by 43%) than the county rate of 38.4. And finally, the coronary heart disease death rate was 216.4 per 100,000 within the three-mile radius, also significantly higher than the county rate of 185.7 per 100,000.

- **Hospitalization due to air pollution associated diseases is substantially higher in the zip codes close to the proposed site**

In order to examine measures of illness (morbidity as opposed to mortality) in the area of the proposed plant, rates of hospitalization for specific diseases in the combined zip codes, 94544 and 94545, were compared to Alameda County rates. From 2003 to 2005, the hospitalization rate for coronary heart disease in the two zip codes was 810.4 per 100,000 people, 60% higher than the county rate of 507.5 per 100,000. Similarly, the rate of chronic obstructive pulmonary disease

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[3] Epidemiology of chronic obstructive pulmonary disease: health effects of air pollution. Viegi G, Maio S, Pistelli F, Baldacci S, Carrozzi L, *Respirology*. 2006 Sep;11(5):523-32.
Particulate air pollution and hospital admissions for congestive heart failure in seven United States cities. Wellenius GA, Schwartz J, Mittleman MA. *Am J Cardiol*. 2006 Feb 1;97(3):404-8.
Identifying subgroups of the general population that may be susceptible to short-term increases in particulate air pollution: a time-series study in Montreal, Quebec. Goldberg MS, Bailar JC 3rd, Burnett RT, Brook JR, Tamblyn R, Bonvalot Y, Ernst P, Flegel KM, Singh RK, Valois MF. *Res Rep Health Eff Inst.* 2000 Oct;(97):7-113; discussion 115-20.
Identification of persons with cardiorespiratory conditions who are at risk of dying from the acute effects of ambient air particles. Goldberg MS, Burnett RT, Bailar JC 3rd, Tamblyn R, Ernst P, Flegel K, Brook J, Bonvalot Y, Singh R, Valois MF, Vincent R. *Environ Health Perspect*. 2001 Aug;109 Suppl 4:487-94

(COPD) hospitalization was 316.2 per 100,000 in the two zip codes, 20% higher than the county rate of 264.3. For congestive heart failure the hospitalization rate in the two zip codes was 397.7 per 100,000, 35% higher than the county rate of 295.3. Finally, the asthma hospitalization rate was 179.8 per 100,000, 14% higher than the county rate of 157.3.

All of these differences between the area of the proposed site and Alameda County as a background or reference were found to be statistically significant, which means they did not occur by chance. Based on Census 2000, the population of the two zip codes, as well as Hayward, had an age composition very similar to that for Alameda County—about one-fourth of the population was under age 18 and ten percent was over age 65. Thus the fact that rates of illnesses due to respiratory and circulatory system diseases (most often diseases of the elderly) are significantly higher in the proposed plant area than in the rest of the county suggests a level of vulnerability in this population that is not explained by age.

An environmental justice approach requires an analysis of the relative burden of disease in the population most directly affected by the decision to site this power plant. The presence of a disproportionate concentration of persons with asthma, chronic lung disease, congestive heart failure, and other chronic conditions that are exacerbated by air pollution must factor into the decision of where to site this power plant. These populations are the actual "sensitive receptors" referred to in the *Air Toxics Hot Spots Program Risk Assessment Guidelines*.[2] They are not distributed through the population randomly but instead are concentrated disproportionately in proximity to the proposed Hayward site. Siting the Eastshore Power Plant in Hayward will disproportionately impact a geographic area not only home to a comparatively high non-white population, but also already burdened by existing poor health outcomes.

2. **The CEC environmental justice analysis does not adequately factor in the uneven distribution of exposure to various sources of toxicity in the area in proximity to the proposed power plant site**

In its environmental justice examination, the CEC staff fail to reference any analysis of the existing burden of toxic pollution in the area of the proposed power plant site and effectively ignore the compounding effects of various sources of toxicity (including non-airborne sources) to which residents in the surrounding Hayward community are already exposed. CEC staff rely on established risk assessment models to predict health impacts from the proposed power plant. However, there is substantial uncertainty associated with the process of risk assessment. The uncertainty arises from lack of "real world" data in many areas necessitating a heavy reliance upon experimental animal models and a set of basic assumptions. Among the key assumptions underlying the health risk assessment are[4]:

1. Human toxicity from air pollution is additive rather than synergistic.
2. Animal toxicity data can be readily extrapolated to humans.

- **Human disease due to exposure to multiple toxic pollutants may be synergistic**

[4] Air Toxics Hot Spots Program Risk Assessment Guidelines. *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments.* August 2003. California EPA.

The potential for multiple and varied air pollutants to act synergistically, rather than additively as assumed by the CEC health risk assessment, requires that an analysis of the overall toxic burden associated with this Hayward location be performed. Low-income minority populations have historically been exposed to a much higher burden of environmental toxicity. The brief CEC environmental justice analysis does not quantify or otherwise assess the cumulative burden of toxicity in the vicinity of the proposed site.

- **Animal toxicity data may be a poor proxy for human health effects**

There are very few in vivo studies that are designed to establish a safe threshold for human exposure to air pollution, in fact, a recent study by Harvard cardiovascular researchers looking at seven U.S. cities documents a direct association between particulate air pollution and acute hospitalizations for congestive heart failures.[5] *This effect is seen below the current levels set by US EPA.* Relative exposure limits established in animal models must be interpreted with a great deal of caution when deciding whether new sources of pollution should be sited in low income minority communities.

- **Detailed, publicly available and published data exists with which CEC staff could conduct a more complete and appropriate environmental justice analysis**

Alameda County Public Health Department maintains and publishes detailed age- and race-specific geographic morbidity and mortality data on asthma, chronic obstructive pulmonary disease, cardiovascular disease, and lung cancer for the county, the city of Hayward and for smaller geographic areas including zip code and census tract. CEC staff did not contact Alameda County Public Health Department to obtain critical data on chronic obstructive pulmonary disease, cardiovascular disease, or congestive heart failure. CEC staff did cite Alameda County Public Health Department data on asthma in its public health section, however, the CEC staff report ignores data related to these other serious respiratory and cardiovascular conditions that are known to be associated with ambient air pollution and help more fully characterize the vulnerability of the population residing in the shadow of this proposed site.

"An environmental injustice exists when members of disadvantaged, ethnic, minority or other groups suffer disproportionately at the local, regional (sub-national), or national levels from environmental risks or hazards, and/or suffer disproportionately from violations of fundamental human rights as a result of environmental factors, and/or denied access to environmental investments, benefits, and/or natural resources, and/or are denied access to information; and/or participation in decision making; and/or access to justice in environment-related matters."[6] The CEC staff analysis largely ignores profoundly important questions of environmental justice and in so doing contributes to the unfortunate and widely repudiated legacy of racial and class-based discrimination that continues to shape the pattern and burden of disease that compromise the quality of life of residents in the vicinity of the proposed power plant site. Alameda County Public Health Department strongly opposes decision-making based on such an inadequate analysis of critical environmental justice considerations.

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[5] Particulate air pollution and hospital admissions for congestive heart failure in seven United States cities. Wellenius GA, Schwartz J, Mittleman MA. *Am J Cardiol.* 2006 Feb 1;97(3):404-8.

[6] European Workshop on Environmental Justice (Budapest, December 2003)

Mortality rates, 1999-2001
Within a 3-mile radius of proposed site with Alameda County comparisons

Cause of Death	Area	3-Yr Count	Rate**	
All Causes	3 Mile Radius	2,492	888.4	*
	Alameda County	29,525	792.3	
Chronic Lower Respiratory Disease	3 Mile Radius	155	54.8	*
	Alameda County	1,387	38.4	
Coronary Heart Disease	3 Mile Radius	589	216.4	*
	Alameda County	6,769	185.7	

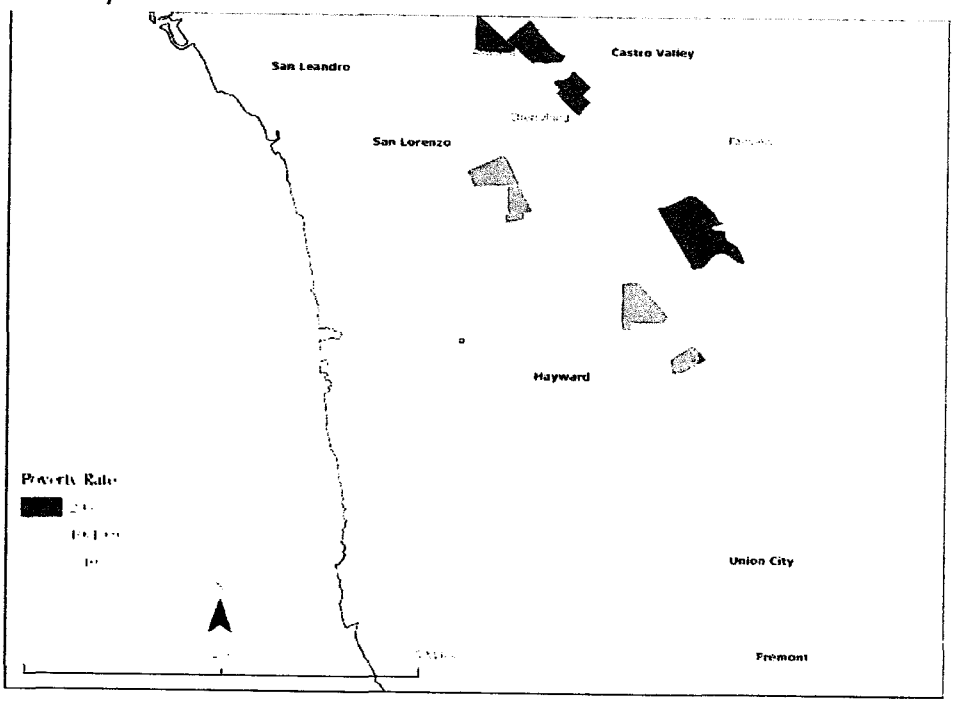
*Statistically significant difference at the p<=.05 level.
**Rates are age adjusted by the direct method to the 2000 US standard population.

Hospitalization Rates, 2003-2005
94544 and 94545 combined with Alameda County comparisons

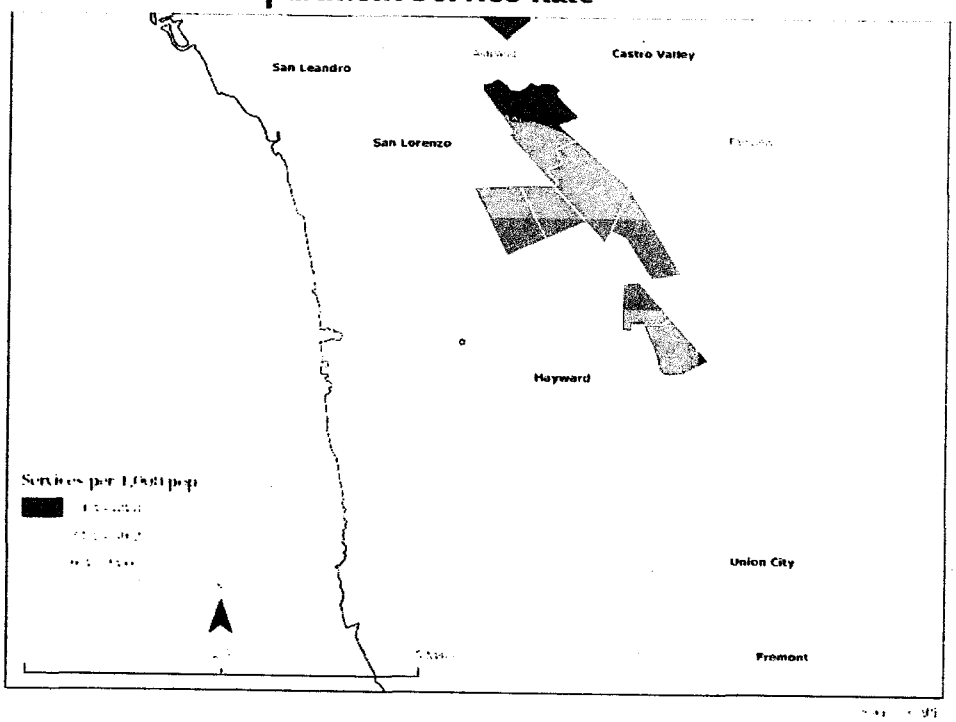
Primary Diagnosis	Area	3-Yr Count	Rate**	
Coronary Heart Disease	94544 & 94545	2,133	810.4	*
	Alameda County	20,780	507.5	
Chronic Obstructive Pulmonary Disease	94544 & 94545	891	316.2	*
	Alameda County	11,116	264.3	
Congestive Heart Failure	94544 & 94545	1,024	397.7	*
	Alameda County	11,914	295.3	
Asthma	94544 & 94545	531	179.8	*
	Alameda County	6,792	157.3	

*Statistically significant difference at the p<=.05 level.
**Rates are age adjusted by the direct method to the 2000 US standard population.

Poverty Rate



Public Health Department Service Rate



Dec. 1, 2000

MEMORANDUM

SUBJECT: EPA Statutory and Regulatory Authorities Under Which Environmental Justice Issues May Be Addressed in Permitting

FROM: Gary S. Guzy *//signed//*
General Counsel
Office of General Counsel (2310A)

TO: Steven A. Herman
Assistant Administrator
Office of Enforcement and Compliance Assistance (2201A)

Robert Perciasepe
Assistant Administrator
Office of Air and Radiation (6101A)

Timothy Fields, Jr.
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Office of Solid Waste and Emergency Response (5101)

J. Charles Fox
Assistant Administrator
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This memorandum analyzes a significant number of statutory and regulatory authorities under the Resource Conservation and Recovery Act, the Clean Water Act, the Safe Drinking Water Act, the Marine Protection, Research, and Sanctuaries Act, and the Clean Air Act that the Office of General Counsel believes are available to address environmental justice issues during permitting. The use of EPA's statutory authorities, as discussed herein, may in some cases involve new legal and policy interpretations that could require further Agency regulatory or interpretive action. Although the memorandum presents interpretations of EPA's statutory authority and regulations that we believe are legally permissible, it does not suggest that such actions would be uniformly practical or feasible given policy or resource considerations or that there are not important considerations of legal risk that would need to be evaluated. Nor do we assess the relative priority among these various avenues for addressing environmental justice concerns. We look forward to working with all your offices to explore these matters in greater detail.

EXHIBIT 7

I. Resource Conservation and Recovery Act (RCRA)

RCRA authorizes EPA to regulate the generation, transportation, treatment, storage, and disposal of hazardous wastes and the management and disposal of solid waste. EPA issues guidelines and recommendations to State solid waste permitting programs under RCRA sections 1008(a), 4002, or 4004 and may employ this vehicle to address environmental justice concerns. The primary area where environmental justice issues have surfaced, however, is in the permitting of hazardous waste treatment, storage, and disposal facilities (e.g., incinerators, fuel blenders, landfills). Pursuant to RCRA section 3005, EPA is authorized to grant permits to such facilities if they demonstrate compliance with EPA regulations.

Upon application by a State, EPA may authorize a State's hazardous waste program to operate in lieu of the Federal program, and to issue and enforce permits. The State's program must be equivalent to the Federal program to obtain and retain authorization. When EPA adopts more stringent RCRA regulations (including permit requirements), authorized States are required to revise their programs within one year after the change in the Federal program or within two years if the change will necessitate a State statutory amendment. 40 CFR § 271.21(e). EPA and most authorized States have so-called "permit shield" regulations, providing that, once a facility obtains a hazardous waste permit, it generally cannot be compelled to comply with additional requirements during the permit's term.

The scope of EPA's authority to address environmental justice issues in RCRA hazardous waste permits was directly addressed by the Environmental Appeals Board (EAB) in Chemical Waste Management, Inc., 6 E.A.D. 66, 1995 WL 395962 (1995) <**http://www.epa.gov/eab/disk11/cwmii.pdf**>The Board found "that when the Region has a basis to believe that operation of the facility may have a disproportionate impact on a minority or low-income segment of the affected community, the Region should, as a matter of policy, exercise its discretion to assure early and ongoing opportunities for public involvement in the permitting process." Id. at 73. It also found that RCRA allows the Agency to "tak[e] a more refined look at its health and environmental impacts assessment in light of allegations that operation of the facility would have a disproportionately adverse effect on the health or environment of low-income or minority populations." Id. at 74. Such a close evaluation could, in turn, justify permit conditions or denials based on disproportionately high and adverse human health or environmental effects, while "a broad analysis might mask the effects of the facility on a disparately affected minority or low-income segment of the community." Id. However, while acknowledging the relevance of disparities in health and environmental impacts, the Board also cautioned that "there is no legal basis for rejecting a RCRA permit application based solely upon alleged social or economic impacts upon the community." Id. at 73.

Consistent with this interpretation, there are several RCRA authorities under which EPA could address environmental justice issues in permitting:

A. **Hazardous Waste Treatment, Storage and Disposal**

1. RCRA section 3005(c)(3) provides that "[e]ach permit issued under this section shall contain such terms and conditions as the Administrator (or the State) determines necessary to protect human health and the environment." EPA has interpreted this provision to authorize denial of a permit to a facility if EPA determines that operation of the facility would pose an unacceptable risk to human health and the environment and that there are no additional permit terms or conditions that would address such risk. This "omnibus" authority may be applicable on a permit-by-permit basis where appropriate to address the following health concerns in connection with hazardous waste management facilities that may affect low-income communities or minority communities:

a. Cumulative risks due to exposure from pollution sources in addition to the applicant facility;

b. Unique exposure pathways and scenarios (e.g., subsistence fishers, farming communities); or

c. Sensitive populations (e.g., children with levels of lead in their blood, individuals with poor diets).

2. RCRA section 3013 provides that if the Administrator determines that "the presence of any hazardous waste at a facility or site at which hazardous waste is, or has been, stored, treated, or disposed of, or the release of any such waste from such facility or site may present a substantial hazard to human health or the environment," she may order a facility owner or operator to conduct reasonable monitoring, testing, analysis, and reporting to ascertain the nature and extent of such hazard. EPA may require a permittee or an applicant to submit information to establish permit conditions necessary to protect human health and the environment. 40 CFR § 270.10(k). In appropriate circumstances, EPA could use the authority under section 3013 or 40 CFR § 270.10(k) to compel a facility owner or operator to carry out necessary studies, so that, pursuant to the "omnibus" authority, EPA can establish permit terms or conditions necessary to protect human health and the environment.

3. RCRA provides EPA with authority to consider environmental justice issues in establishing priorities for facilities under RCRA section 3005(e), and for facilities engaged in cleaning up contaminated areas under the RCRA corrective action program, RCRA sections 3004(u), 3004(v), and 3008(h). For example, EPA could consider factors such as cumulative risk, unique exposure pathways, or sensitive populations in establishing permitting or clean-up priorities.

4. EPA adopted the "RCRA Expanded Public Participation" rule on December 11, 1995. See 60 Fed. Reg. 63417. RCRA authorizes EPA to explore further whether the RCRA

permit public participation process could better address environmental justice concerns by expanding public participation in the permitting process (including at hazardous waste management facilities to be located in or near low-income communities or minority communities).

5. In expanding the public participation procedures applicable to RCRA facilities, EPA also would have authority to expand the application of those procedures to the permitting of: (a) publicly owned treatment works, which are regulated under the Clean Water Act; (b) underground injection wells, which are regulated under the Safe Drinking Water Act; and (c) ocean disposal barges or vessels, which are regulated under the Marine Protection Research and Sanctuaries Act. These facilities are subject to RCRA's permit by rule regulations, 40 CFR § 270.60, and are deemed to have a RCRA permit if they meet certain conditions set out in the regulations. 40 CFR § 270.60.

6. EPA's review of State-issued permits provides additional opportunities for consideration of environmental justice concerns. Where the process for a State-issued permit does not adequately address sensitive population risks or other factors in violation of the authorized State program, under the regulations EPA could provide comments on these factors (in appropriate cases) during the comment period on the State's proposed permit on a facility-by-facility basis. 40 CFR § 271.19(a). Where the State itself is authorized for RCRA "omnibus" authority and does not address factors identified in EPA comments as necessary to protect human health and the environment, EPA may seek to enforce the authorized State program requirement. 40 CFR § 271.19(e) Alternatively, if the State is not authorized for "omnibus" authority, EPA may superimpose any necessary additional conditions under the "omnibus" authority in the federal portion of the permit. These conditions become part of the facility's RCRA permit and are enforceable by the United States under RCRA section 3008 and citizens through RCRA section 7002.

7. RCRA section 3019 provides EPA with authority to increase requirements for applicants for land disposal permits to provide exposure information and to request that the Agency for Toxic Substances and Disease Registry conduct health assessments at such land disposal facilities.

8. RCRA section 3004(o)(7) provides EPA with authority to issue location standards as necessary to protect human health and the environment. Using this authority, EPA could, for example, establish minimum buffer zones between hazardous waste management facilities and sensitive areas (e.g., schools, areas already with several hazardous waste management facilities, residential areas). Facilities seeking permits would need to comply with these requirements to receive a permit.

9. RCRA-permitted facilities are required under RCRA section 3004(a) to maintain "contingency plans for effective action to minimize unanticipated damage from any treatment, storage, or disposal of . . . hazardous waste." Under this authority, EPA could require facilities to prepare and/or modify their contingency plans to reflect the needs of

environmental justice communities that have limited resources to prepare and/or respond to emergency situations.

10. RCRA additionally provides EPA with authority to amend its regulations to incorporate some of the options described in 1 through 6 above so they become part of the more stringent federal program that authorized States must adopt.

II. Clean Water Act (CWA)

The CWA was adopted "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." To achieve this goal, Congress prohibited the discharge from a point source of any pollutant into a water of the United States unless that discharge complies with specific requirements of the Act. Compliance is achieved by obtaining and adhering to the terms of an NPDES permit issued by EPA or an authorized State pursuant to section 402, or a dredge and fill permit issued by the Army Corps of Engineers or an authorized State pursuant to section 404.

NPDES permits must contain: (1) technology-based limitations that reflect the pollution reduction achieved through particular equipment or process changes, without reference to the effect on the receiving water and (2) where necessary, more stringent limitations representing that level of control necessary to ensure that the receiving waters achieve water quality standards. Water quality standards consist of (1) designated uses of the water (e.g., public water supply, propagation of fish, or recreation); (2) criteria to protect those uses including criteria based on protecting human health and aquatic life; and (3) an antidegradation policy. EPA requires that States designate all waters for "fishable/swimmable" uses unless such uses are not attainable. EPA issues water quality criteria guidance to the States pursuant to CWA section 304(a).

Permits issued under CWA section 404 authorize the discharge of "dredged or fill material" to waters of the United States. The types of activities regulated under section 404 include filling of wetlands to create dry land for development, construction of berms or dams to create water impoundments, and discharges of material dredged from waterways to maintain or improve navigation. Section 404 permits issued by the Corps of Engineers must satisfy two sets of standards: the Corps' "public interest review" and the section 404(b)(1) guidelines promulgated by EPA. The public interest review is a balancing test that requires the Corps to consider a number of factors, including economics, fish and wildlife values, safety, food and fiber production and, public needs and welfare in general. 33 CFR § 320.4(a). The section 404(b)(1) guidelines provide that no permit shall issue if: (1) there are practicable, environmentally less damaging alternatives, (2) the discharge would violate water quality standards or jeopardize threatened or endangered species, (3) the discharge would cause significant degradation to the aquatic ecosystem, or (4) if all reasonable steps have not been taken to minimize adverse effects of the discharge. 40 CFR § 230.10.

There are several CWA authorities under which EPA could address environmental justice issues in permitting:

A. State Water Quality Standards

States are required to review their water quality standards every three years and to submit the results of their review to EPA. CWA section 303(c)(1). EPA Regional offices must approve or disapprove all new or revised State water quality standards pursuant to section 303(c)(3). EPA will approve State standards if they are scientifically defensible and protective of designated uses. 40 CFR § 131.11. If a State does not revise a disapproved standard, EPA is required to propose and promulgate a revised standard for the State. Section 303(c)(4)(A). The Administrator is also required to propose and promulgate a new or revised standard for a State whenever she determines that such a standard is necessary to meet the requirements of the Act and the State does not act to adopt an appropriate standard. CWA section 303(c)(4)(B).

1. State water quality standards currently are required to provide for the protection of "existing uses." 40 CFR § 131.12(a)(1). These are defined as uses actually attained in the water body on or after November 28, 1975. 40 CFR § 131.3(e). To the extent that minority or low-income populations are, or at any time since 1975 have been, using the waters for recreational or subsistence fishing, EPA could reinterpret the current regulations to require that such uses, if actually attained, must be maintained and protected. The CWA provides EPA with authority to require, through appropriate means, that high rates of fish consumption by these populations be considered an "existing use" to be protected by State water quality standards. Under the current regulations, existing uses cannot be removed.

2. EPA regulations provide that all waters must be designated for the protection and propagation of fish, shellfish, and wildlife and for recreation in and on the water ("fishable/swimmable") unless the State documents to EPA's satisfaction that such uses are not attainable. 40 CFR §§ 131.6(a), 131.10(j).

   EPA interprets “fishable” uses under section 101(a) of the CWA to include, at a minimum, designated uses providing for the protection of aquatic communities and human health related to consumption of fish and shellfish. In other words, EPA views “fishable” to mean that not only can fish and shellfish thrive in a waterbody, but when caught, can also be safely eaten by humans (stated in 10/24/00 “Dear Colleague” letter from Geoffrey H. Grubbs, Director Office of Science and Technology, and Robert H. Wayland, III, Director Office of Wetlands, Oceans and Watersheds). Therefore, EPA currently recommends that in setting criteria to protect “fishable” uses, that the State/Tribe adjust the fish consumption values used to develop criteria to protect the “fishable” use, including fish consumption by subsistence fishers (USEPA 2000, Methodology

for Deriving Ambient Water Quality Criteria for the Protection of Human Health, EPA-822-B-00-004, Chapter 2.1). For example, in deriving such criteria, states or tribes could select their fish consumption value based on site-specific information or a national default value for subsistence fishing (Chapter 4).

In the future, EPA could reinterpret it regulations to mean that any human health use must have a criterion that would protect consumption by subsistence fishers unless there is a showing that water is not used for subsistence fishing.

3. The CWA provides EPA with authority to recommend that State CWA section 303(c)(1) triennial reviews of water quality standards consider the extent to which State criteria provide for protection of human health where there exists subsistence fishing. EPA Regional offices may disapprove a criterion that does not provide protection to highly-exposed populations. The Administrator further has the discretionary authority to determine that such criteria are necessary to meet the requirements of the CWA and then must promptly propose and promulgate such criteria.

4. Consistent with CWA section 101(e), EPA could encourage States to improve public participation processes in the development of State water quality standards through greater outreach and by translating notices for limited English speaking populations consistent with Executive Order 12898 on environmental justice.

B. Issuance of NPDES Permits

1. Assuming EPA adopts the interpretation described in paragraph A.1., above, NPDES permits issued for discharge to waters where a high level of fish consumption is an "existing use" should contain limitations appropriate to protect that use. The CWA provides EPA authority to take this approach when it issues NPDES permits in States not authorized to run the NPDES program, and to object to or ultimately veto State-issued permits that are not based on these considerations. CWA section 402(d).

2. Consistent with CWA section 101(e), where EPA issues NPDES permits, environmental justice concerns can also be taken into account in setting permitting priorities and improving public participation in the permitting process (greater outreach to minority communities and low-income communities including translating notices for limited English speaking populations consistent with Executive Order 12898 on environmental justice).

3. CWA section 302 authorizes EPA to propose and adopt effluent limitations for one or more point sources if the applicable technology-based or water quality-based requirements will not assure protection of public health and other concerns. This determination requires findings of economic capability and a reasonable relationship between costs and benefits. The Agency has never used this authority, but could evaluate whether this authority could be used with respect to pollutants of concern to minorities or

low-income communities. Prior to adopting such limitations by regulation, EPA could use its authority under CWA section 402(a)(1) to incorporate such limitations in specific NPDES permits issued by EPA. The Clean Water Act does not appear to provide any general authority to impose conditions on or deny permits based on environmental justice considerations that are unconnected to water quality impacts or technology-based limitations.

4. Pursuant to CWA section 104 and other authorities, EPA may provide technical assistance to Indian Tribes, where appropriate, in the development of water quality standards and the issuance of NPDES permits.

C. CWA Section 404

1. The broadest potential authority to consider environmental justice concerns in the CWA section 404 program rests with the Corps of Engineers, which conducts a broad "public interest review" in determining whether to issue a section 404 permit. In evaluating the "probable impacts . . . of the proposed activity and its intended use on the public interest," the Corps is authorized to consider, among other things, aesthetics, general environmental concerns, safety, and the needs and welfare of the people. 33 CFR § 320.4(a). This public interest review could include environmental justice concerns.

2. EPA has discretionary oversight authority over the Corps' administration of the section 404 program (i.e., EPA comments on permit applications, can elevate Corps permit decisions to the Washington, D.C. level, and can "veto" Corps permit decisions under section 404(c) that would have an unacceptable adverse effect on "municipal water supplies, shellfish beds and fishery areas, wildlife, or recreational areas"). The CWA thus authorizes EPA to use these authorities to prevent degradation of these public resources that may have a disproportionately high and adverse health or environmental effect on a minority community or low-income community. Such effects can be addressed when they result directly from a discharge of dredged or fill material (e.g., the filling of a waterbody), or are the indirect result of the permitted activity (e.g., the fill will allow construction of an industrial facility that will cause water pollution due to runoff).

III. Safe Drinking Water Act (SDWA)

The SDWA includes two separate regulatory programs. The Public Water Supply program establishes requirements for the quality of drinking water supplied by public water systems. This program contains no federal permitting. The Underground Injection Control (UIC) program establishes controls on the underground injection of fluids to protect underground sources of drinking water.

Under the UIC program, the Administrator must establish requirements for State UIC programs that will prevent the endangerment of drinking water sources by underground injection.

EPA has promulgated a series of such requirements beginning in 1980. The SDWA also provides that States may apply to EPA for primary responsibility to administer the UIC program. EPA must establish a UIC permitting program in States that do not seek this responsibility or that fail to meet the minimum requirements established by EPA.

There are several SDWA authorities under which EPA could address environmental justice issues in UIC permitting:

A. EPA-issued Permits

Underground injection must be authorized by permit or rule. The SDWA provides that EPA can deny or establish permit limits where such injection may "endanger" public health. "Endangerment" is defined to include any injection that may result in the presence of a contaminant in a drinking water supply that "may...adversely affect the health of persons." 40 CFR § 144.52(b)(1). As a result, in those States where EPA issues permits and an injection activity poses a special health risk to minority or low-income populations, the SDWA provides EPA with authority to establish special permit requirements to address the endangerment or deny the permit if the endangerment cannot otherwise be eliminated. As in its Chemical Waste Management RCRA permit appeal decision discussed in Part I above, the EAB has addressed EPA's authority to expand public participation and to consider disproportionate impacts in the UIC permitting program. Envotech, 6 E.A.D. 260, 281, 1996 WL 66307 (1996) <http://www.epa.gov/eab/disk10/envotech.pdf>.

B. Pending regulatory action

The Office of Water is currently revising the regulations under this program governing "Class V" injection wells (i.e., shallow wells where nonhazardous waste is injected). In determining which wells to regulate and the standards for those where EPA determines regulations are necessary to prevent "endangerment," the SDWA provides EPA with authority to take into account environmental justice issues such as cumulative risk and sensitive populations.

C. Other regulatory actions

Likewise, the SDWA provides EPA with authority to address environmental justice issues related to potential endangerment of drinking water supplies by injection for all types of wells. For example, EPA could revise its regulatory requirements for siting Class 1 (hazardous waste) wells to address cumulative risk and other risk-related environmental justice issues.

IV. Marine Protection, Research, and Sanctuaries Act (MPRSA)

The MPRSA, commonly known as the Ocean Dumping Act, 33 USC § 1401 ff., establishes a permitting program that covers the dumping of material into ocean waters. The ocean disposal of a variety of materials, including sewage sludge, industrial waste, chemical and biological warfare agents, and high level radioactive waste, is expressly prohibited.

EPA issues permits for the dumping of all material other than dredged material. 33 U.S.C. § 1412(a). The Army Corps of Engineers issues permits for the dumping of dredged material, subject to EPA review and concurrence. 33 U.S.C. § 1413(a). (As a practical matter, EPA issues very few ocean dumping permits because the vast majority of material disposed of at sea is dredged material.) EPA also is charged with designating sites at which permitted disposal may take place; these sites are to be located wherever feasible beyond the edge of the Continental Shelf. 33 U.S.C. § 1412(c)(1).

When issuing MPRSA permits and designating ocean dumping sites, EPA is to determine whether the proposed dumping will "unreasonably degrade or endanger human health, welfare, amenities, or the marine environment, ecological systems, or economic potentialities." 33 USC § 1412(a), (c)(1). EPA also is to take into account "the effect of... dumping on human health and welfare, including economic, esthetic, and recreational values." 33 U.S.C. § 1412(a)(B), (c)(1). Thus, in permitting and site designation, EPA has ample authority to consider such factors as impacts on minority or low-income communities and on subsistence consumers of sea food that would result from the proposed dumping. In addition, the MPRSA provides specifically that EPA is to consider land-based alternatives to ocean dumping and the probable impact of requiring use of these alternatives "upon considerations affecting the public interest." 33 U.S.C. § 1412(a)(G). This authorizes EPA to take impacts on minority populations or low-income populations into account in evaluating alternative locations and methods of disposal of the material that is proposed to be dumped at sea.

V. Clean Air Act (CAA)

There are several CAA authorities under which EPA could address environmental justice issues in permitting:

A. New Source Review (NSR)

NSR is a preconstruction permitting program. If new construction or making a major modification will increase emissions by an amount large enough to trigger NSR requirements, then the source must obtain a permit before it can begin construction. The NSR provisions are set forth in sections 110(a)(2)(C), 165(a) (PSD permits), 172(c)(5) and 173 (NSR permits) of the Clean Air Act.

Under the Clean Air Act, states have primary responsibility for issuing permits, and they can customize their NSR programs within the limits of EPA regulations. EPA's role is to

approve State programs, to review, comment on, and take any other necessary actions on draft permits, and to assure consistency with EPA's rules, the state's implementation plan, and the Clean Air Act. Citizens also play a role in the permitting decision, and must be afforded an opportunity to comment on each construction permit before it is issued.

The NSR permit program for major sources has two different components–one for areas where the air is dirty or unhealthy, and the other for areas where the air is cleaner. Under the Clean Air Act, geographic areas (e.g., counties or metropolitan statistical areas) are designated as "attainment" or "nonattainment" with the National Ambient Air Quality Standards (NAAQS)–the air quality standards which are set to protect human health and the environment. Permits for sources located in attainment (or unclassifiable) areas are called Prevention of Significant Deterioration (PSD) permits and those for sources located in nonattainment areas are called NSR permits.

A major difference in the two programs is that the control technology requirement is more stringent in nonattainment areas and is called the Lowest Achievable Emission Rate (LAER). On the other hand, in attainment or PSD areas, a source must apply Best Available Control Technology (BACT) and the statute allows the consideration of cost in weighing BACT options. Also, in keeping with the goal of progress toward attaining the national air quality standards, sources in nonattainment areas must always provide or purchase "offsets"–decreases in emissions which compensate for the increases from the new source or modification. In attainment areas, PSD sources typically do not need to obtain offsets. However, PSD does require an air quality modeling analysis of pollution that exceeds allowable levels; this impact must be mitigated. Sometimes, these mitigation measures can include offsets in PSD areas.

1. Under the Clean Air Act, section 173(a)(5) provides that a nonattainment NSR permit may be issued only if: "an analysis of alternative sites, sizes, production processes, and environmental control techniques for such proposed source demonstrates that benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification." For example, this provision authorizes consideration of siting issues. Section 165(a)(2) provides that a PSD permit may be issued only after an opportunity for a public hearing at which the public can appear and provide comment on the proposed source, including "alternatives thereto" and "other appropriate considerations." This authority could allow EPA to take action to address the proper role of environmental justice considerations in PSD/NSR permitting.

2. In addition to these statutory provisions, EPA directly issues PSD/NSR permits in certain situations (e.g., in Indian country and Outer Continental Shelf areas) and, through the EAB, adjudicates appeals of PSD permits issued by States and local districts with delegated federal programs. In such permit and appeal decisions, it is possible to consider environmental justice issues on a case-by-case basis, without waiting to issue a generally applicable rule or guidance document. EPA already considers environmental

justice issues on a case-by-case basis in issuing PSD permits consistent with its legal authority.

3. The EPA Environmental Appeals Board (EAB) has addressed environmental justice issues in connection with PSD permit appeals on several occasions. The EAB first addressed environmental justice issues under the CAA in the original decision in Genessee Power (September 8, 1993). In that decision the EAB stated that the CAA did not allow for consideration of environmental justice and siting issues in air permitting decisions. In response, the Office of General Counsel filed a motion for clarification on behalf of the Office of Air and Radiation (OAR) and Region V. OGC pointed out, among other things, that the CAA requirement to consider alternatives to the proposed source, and the broad statutory definition of "best available control technology" (BACT), provided ample opportunity for consideration of environmental justice in PSD permitting. In an amended opinion and order issued on October 22, 1993, the EAB deleted the controversial language but did not decide whether it is permissible to address environmental justice concerns under the PSD program. 4 E.A.D. 832, 1993 WL 484880, <http://www.epa.gov/eab/disk4/genesee.pdf>. However, in subsequent decisions, Ecoeléctrica, 7 E.A.D. 56, 1997 WL 160751 (1997) <http://www.epa.gov/eab/disk11/ecoelect.pdf>, and Puerto Rico Electric Power Authority, 6 E.A.D. 253, 1995 WL 794466 (1995) <http://www.epa.gov/eab/disk9/prepa.pdf>, the EAB stated that notwithstanding the lack of formal rules or guidance on environmental justice, EPA could address environmental justice issues. In 1999 in Knauf Fiber Glass, 8 E.A.D. PSD Appeal Nos. 98-3 through 98-20, 1999 WL 64235 (Feb. 4, 1999) <http://www.epa.gov/eab/disk11/knauf.pdf>, the EAB remanded a PSD permit to the delegated permitting authority (the Shasta County Air Quality Management District) for failure to provide an environmental justice analysis in the administrative record in response to comments raising the issue.

4. In the 1990 CAA Amendments, Congress provided that the PSD provisions of the Act do not apply to hazardous air pollutants (HAPs), see CAA section 112(b)(6), so the role of hazardous air pollutant impacts as environmental justice issues in PSD permitting is not straightforward. Thus, BACT limits are not required to be set for HAPs in PSD permits. However, the Administrator ruled prior to the 1990 Amendments that in establishing BACT for criteria pollutants, alternative technologies for criteria pollutants could be analyzed based on their relative ability to control emissions of pollutants not directly regulated under PSD. EPA believes that the 1990 Amendments did not change this limited authority, and EPA believes it could be a basis for addressing environmental justice concerns. In addition, EPA may have authority to take into account – and to require States to do so in their PSD permitting – effects of HAPs that are also criteria pollutants, such as VOCs.

B. Title V

Title V of the CAA requires operating permits for stationary sources of air pollutants and prescribes public participation procedures for the issuance, significant modification, and renewal of Title V operating permits. Unlike PSD/NSR permitting, Title V generally does not impose substantive emission control requirements, but rather requires all applicable requirements to be included in the Title V operating permit. Other permitting programs may co-exist under the authority of the CAA, such as those in State implementation plans (SIPs) approved by EPA.

1. Because Title V does not directly impose substantive emission control requirements, it is not clear whether or how EPA could take environmental justice issues into account in Title V permitting – other than to allow public participation to serve as a motivating factor for applying closer scrutiny to a Title V permit's compliance with applicable CAA requirements. EPA believes, however, that in this indirect way, Title V can, by providing significant public participation opportunities, serve as a vehicle by which citizens can address environmental justice concerns that arise under other provisions of the CAA.

2. Under the 40 CFR Part 70/71 permitting process, EPA has exercised its CAA authority to require extensive opportunities for public participation in permitting actions. State permitting authorities also have the flexibility to provide additional public participation.

3. Other permitting processes under the CAA such as SIP permitting programs can include appropriate public participation measures, and these can be used to promote consideration of environmental justice issues. For example, EPA regulations require that "minor NSR programs" in SIPs provide an opportunity for public comment prior to issuance of a permit (40 CFR § 51.161(b)(2)). (Note, however, that many state programs do not at present meet this requirement.)

C. Solid Waste Incinerator Siting Requirements

The CAA provides specific authority to EPA to establish siting requirements for solid waste incinerators that could include consideration of environmental justice issues. CAA section 129(a)(3) provides that standards for new solid waste incinerators include "siting requirements that minimize, on a site specific basis, to the maximum extent practicable, potential risks to public health or the environment." These would be applicable requirements for Title V purposes. The new source performance standards (NSPS) for large municipal waste combustors (40 CFR part 60, subpart Eb) and hospital/medical/infectious waste incinerators (40 CFR part 60, subpart Ec) both currently contain such requirements. In the large municipal waste combustor NSPS, the specific requirement in section 129(a)(3) was incorporated and requirements for public notice, a public meeting and consideration of and response to public comments were added. However, to reduce the burden on the much smaller entities which typically own and operate hospital/medical/infectious waste incinerators, that NSPS only incorporates the specific section 129(a)(3) requirement. EPA is subject to a court ordered deadline for

taking final action on NSPS for commercial/industrial waste incinerators, and has proposed to follow the approach to the siting analysis adopted in the hospital/medical/infectious waste NSPS in that rule.

D. 40 CFR Part 71 Tribal Air Rule

The Part 71 federal operating permit rule establishes EPA's Title V operating permits program in Indian country. Where sources are operating within Indian country, and Tribes do not seek authorization to implement Title V programs, the Part 71 rule clarifies that EPA will continue to implement federal operating permit programs. These Title V permit programs are limited to Title V and other applicable federal CAA requirements and are not comprehensive air pollution control programs. Thus, the opportunities for addressing environmental justice issues may be similar to those discussed in section B above.

cc: Michael McCabe
Barry Hill
Lisa Friedman
Susan Lepow
Alan Eckert
James Nelson

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BAY AREA AIR QUALITY MANAGEMENT DISTRICT

RESOLUTION No. 2008- 10

A Resolution of the Board of Directors of the Bay Area Air Quality Management District to Continue Reducing Air Contaminants in Impacted Communities

WHEREAS, it is the intent of the Bay Area Air Quality Management District (District) to achieve clean and healthful air for all who live and work in the Bay Area, including segments of the population that bear disproportionately high and adverse health impacts from air pollution;

WHEREAS, the governing Board of Directors (Board) of the District recognizes that while most criteria and toxic air contaminants have been substantially reduced in the Bay Area, these contaminants continue to pose serious health risks;

WHEREAS, the Board further recognizes that these health risks are not equally distributed throughout the region and that some areas, where pollution levels are higher than others and where residents are particularly vulnerable to the adverse effects of air pollution, are more impacted;

WHEREAS, the Board has expressed its strong commitment to reduce toxic air contaminants in the Bay Area through its creation of the Community Air Risk Evaluation (CARE) program;

WHEREAS, the District has demonstrated its commitment to focus efforts to reduce toxic air contaminants in communities with high emissions and large populations of sensitive people through its implementation of the CARE Mitigation Action Plan that calls for

* Identifying impacted communities
* Focusing grant and incentive funding in impacted communities
* Increasing outreach efforts in impacted communities
* Developing land use guidance for local decision makers
* Updating CEQA guidelines
* Increasing collaboration with public health officials;

WHEREAS, the District has begun focusing grants and incentive funds from the Carl Moyer Program, the Transportation Fund for Clean Air, and the Goods Movement Bond on impacted areas as identified by the CARE program;

WHEREAS, the District has created and staffed a Community Outreach Program to increase and improve outreach and collaboration with community groups in impacted areas;

EXHIBIT 8

WHEREAS, the District recognizes that ongoing collaboration with impacted communities, including input to the CARE Mitigation Action Plan, is desirable;

WHEREAS, the Board has adopted a rule (Regulation 2, Rule 5) for new source review for toxic air contaminants, requiring best available control technology of toxic contaminants to reduce risks from new sources and from existing sources when they are modified or replaced;
WHEREAS, the District has developed enhanced complaint response programs, working with community groups to improve the District's reporting and response times;

WHEREAS, the District has collaborated with the California Air Resources Board and the Port of Oakland in the West Oakland Health Risk Assessment to identify health risks from diesel emissions in and around West Oakland and encourage community participation in the study;

WHEREAS, the District has participated in the implementation of the memorandum of understanding between the California Air Resources Board and the Union Pacific and Burlington Northern Santa Fe Railroads to ensure that rail emissions are reduced and their health impacts are clearly identified, and ensure that the public may actively participate in these processes;

WHEREAS, the District considers these activities to be a furtherance of its long-standing commitment to address disproportionate impacts of air pollution;

NOW, THEREFORE, BE IT RESOLVED that the Board commits to continue to address the cumulative impact of new and existing mobile and stationary sources of air pollution—particularly in disproportionately impacted communities—for sources that on a relative basis contribute most to health risk at a local and regional level;

BE IT FURTHER RESOLVED that the Board will continue its commitment to reduce air quality impacts throughout the Bay Area and will continue to implement the CARE Mitigation Action Plan to address health risks related to air quality in impacted communities.

BE IT FURTHER RESOLVED, that the Board will continue to explore and consider additional actions to reduce cumulative impacts throughout the Bay Area and that these actions will include, but not be limited to

* Participation in Statewide processes to address cumulative impacts; and
* In partnership with community groups, industry, health officials, and other agencies, development of new tools and methods, potentially including regulatory approaches, to consider and reduce cumulative impacts for sources that contribute most to health risk at a local and regional level,
* Promotion of interagency collaboration in impacted communities.

The foregoing resolution was duly and regularly introduced, passed and adopted at a regular meeting of the Board of Directors of the Bay Area Air Quality Management District on the Motion of Director ROSS, seconded by Director DUNNIGAN, on the 30th day of JULY, 2008 by the following vote of the Board:

AYES: BROWN, DUNNIGAN, GIOIA, HAGGERTY, KLATT, KNISS, LOCKHART, McGOLDRICK, MILEY, ROSS, SHIMANSKY, SILVA, UILKEMA, WAGENKNECHT, YEAGER, HILL

NOES: NONE.

ABSENT: BATES, DALY, GARNER, KISHIMOTO, SMITH, TORLIATT

Jerry Hill
Chairperson of the Board of Directors

ATTEST:

Brad Wagenknecht
Secretary of the Board of Directors

grains per 100 standard cubic feet (gr/100 scf). PG&E's gas supply typically qualifies as "pipeline quality natural gas" as shown in the Gas System Survey Results table below.

Gas System Sulfur Survey Results

PG&E has a program of periodically surveying representative locations on the system to determine the sulfur containing compound concentrations in the gas stream. PG&E tests for sulfur using ASTM D 5504 "Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence." Our detection limit is approximately 10 PPBv for each compound. PG&E odorizes our gas with a 50/50 blend of Tetrahydothiophene (THT) and Tertiary Butyl Mercaptan (TBM) and they are typically present at approximately 1 PPMv each in the natural gas on our system. The values shown in the table below provide a representative sample of the gas flowing on the PG&E system.

Date	Total Sulfur Average all sites		Total Sulfur Maximum	
	gr/100 scf	PPMv	gr/100 scf	PPMv
Fourth Quarter 2008	0.182	3.06	0.608	10.25
Third Quarter 2008	0.231	3.89	0.442	7.45
Second Quarter 2008	0.224	4.12	0.463	7.80
First Quarter 2008	0.227	3.82	0.475	8.01
Fourth Quarter 2007	0.225	3.79	0.462	7.79
Third Quarter 2007	0.204	3.44	0.421	7.10
Second Quarter 2007	0.197	3.31	0.326	5.50
First Quarter 2007	0.226	3.81	0.664	11.20
Fourth Quarter 2006	0.223	3.86	0.522	8.80
Third Quarter 2006	0.241	4.05	0.466	7.88
Second Quarter 2006	0.160	2.70	0.408	6.90
First Quarter 2006	0.145	2.45	0.318	5.37

EXHIBIT 9

PPMv is expressed as parts per million by volume.

The total readings include 0.400 PPMv of sulfur to account for compounds not measured by the existing equipment. This amount has been determined by supplemental testing at selected locations on the gas system.

Disclaimer

The data points shown above are from representative samples of sulfur content only. The data points are provided solely for informational purposes, and not for billing or odorant level monitoring purposes. PG&E makes no claim or representation that the data points provided are accurate. Data may be subject to adjustments and corrections.

Laboratory Services

PG&E's in-house laboratory, located in San Ramon, can collect a sample and perform sulfur analyses of your gas for a fee. Please contact

EXHIBIT 10

Sulfur Information

Much of the sulfur contained in the gas delivered by PG&E consists of compounds that naturally occur in the gas, but PG&E also adds sulfur compounds to odorize the gas. The gas is odorized as a safety measure so that leaks can be detected by consumers.

Common sulfur compounds that may be found in the gas supply are Tetrahydrothiophene (THT), Tertiary Butyl Mercaptan (TBM), Dimethyl Sulfide (DMS), and Hydrogen Sulfide (H2S). A more comprehensive listing of typical sulfur compounds that may be found in the PG&E gas supply is shown at the end of this page. These compounds are harmless at low levels but can cause customer complaints due to excessive gas odor or in the case of Hydrogen Sulfide become dangerous at very high levels.

PG&E continuously monitors the gas stream for specific sulfur compounds at several points on its system as part of its program to ensure that the gas is properly odorized and that sulfur levels are within established limits. The monitoring equipment works well for the intended purpose but it does not provide comprehensive data on all potential sulfur compounds flowing in the gas supply. To supplement the continuous monitoring equipment PG&E has started a program to collect and analyze samples from representative parts of the system to provide an estimate of the total sulfur contained in the PG&E gas supply expressed as parts per million by volume or grains per 100 Standard Cubic Feet.

PG&E's Gas Rule 21, Section C contains specifications on the quality of the gas received into the system and these specifications include limits for sulfur compounds as well as for other constituents contained in the natural gas. Gas Rule 21 can be found in the PGE.com Web tariff book and the sulfur limits are summarized below.

Rule 21, Section C

Section C of Gas Rule 21 provides quality specifications for gas delivered into the PG&E pipeline system from California gas wells and generally governs the gas quality received from interconnecting pipelines. However, gas quality specifications, contained in the interconnection agreement may supersede the Gas Rule 21 C specifications.

- **Total Sulfur**: The gas shall contain no more than one grain (17 ppm) of total sulfur per one hundred standard cubic feet.
- **Mercaptan Sulfur**: The gas shall contain no more than 0.5 grain (8 ppm) of mercaptan sulfur per one hundred standard cubic feet.
- **Hydrogen Sulfide**: The gas shall contain no more than 0.25 grain (4 ppm) of hydrogen sulfide per one hundred standard cubic feet.

Pipeline Quality Gas

Many air quality compliance reporting requirements can be met by certifying that the fuel used in the process was "pipeline quality natural gas." The EPA criteria for pipeline quality natural gas from [40CFR72.2] is as follows:

"Pipeline natural gas means a naturally occurring fluid mixture of hydrocarbons (e.g., methane, ethane, or propane) produced in geological