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September 16, 2009

Via Email weyman@baaqmd.gov and U.S. Mail
Weyman Lee,
Senior Engineer
Bay Area Air Quality Management District
939 Ellis Street,
San Francisco, California 94109

Re: **Russell City Energy Center (RCEC) Application No. 15487: Response to Statements Of Basis for Proposed Draft Federal "Prevention of Significant Deterioration" Permit**

Dear Weyman:

This is on behalf of Chabot-Las Positas College District, which community college campus Chabot is located just 1.25 miles southeast, downwind from this proposed facility referred to as Russell City Energy Center or RCEC.

As mentioned in our February 6, 2009 comments as well as subsequent correspondence on April 28, 2009, in which we requested administrative notice of this fact, the Chabot campus, which consists of over 15,000 students, faculty and staff, has qualified for designation as a Hispanic-Serving Institution, or HSI under federal law with its Latino students making up 32 percent of all new students on campus, and 26 percent of total enrollment. Although we requested that the permitting analysis take into account this as an important environmental justice consideration- an analysis which is absent from your December 2008 Draft Amended SOB- unfortunately this continues to be absent in your additional Statement of Basis ("SOB"). In this regard, we object to the absence of this analysis given its relevance in exercising your discretion on this permit application.

Preliminarily, the PSD program does not "'create an entitlement to degrade air quality in general or visibility in particular, **because nothing in the CAA provides for issuance of a PSD permit as a matter of right.**'" (*American Corn Growers Association v. Environmental Protection Agency* (D.C. Cir. 2002) 291 F.3d 1, 32-33, emphasis added.) As summarized by the July 2008 Implementation of the New Source Review (NSR) Program for Particulate Matter Less Than 2.5 Micrometers (PM2.5), Vol. 73 Fed. Reg. No. 96,

The PSD requirements include but are not limited to:

-Installation of Best Available Control Technology (BACT);

-Air quality monitoring and modeling analyses to ensure that a project's emissions will not cause or contribute to a violation of any NAAQS or maximum allowable pollutant increase (PSD increment);

-violation of any NAAQS or maximum allowable pollutant increase (PSD increment);

-Notification of Federal Land Manager of nearby Class I areas; and

-Public comment on the permit.

Nonattainment NSR requirements include but are not limited to:

-Installation of Lowest Achievable Emission Rate (LAER) control technology;

-Offsetting new emissions with creditable emissions reductions;

-Certification that all major sources owned and operated in the State by the same owner are in compliance with all applicable requirements under the Act;

-An alternative siting analysis demonstrating that the benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification; and

-Public comment on the permit.

Rules: Implementation of the New Source Review (NSR) Program for PM2.5, amending 40 CFR Parts 51 and 52.

Here, the Additional SOB purports to perform a "split" analysis applicable to PM2.5 given the District is not in attainment, although the designation was fully executed, but remains "ineffective" until finally published. (Addi. SOB, p. 52.) However, absent from the Additional SOB is the required analysis for non-attainment as outlined above in the 40 CFR Parts 51 and 52 relied on by the District. For that matter, Chabot-Las Positas takes administrative notice that the District remains in violation of the NAAQS for 8 hour Ozone, under which NOx must be analyzed applying the above nonattainment NSR analysis and requiring LAER. In exercising the District's discretion in deciding this application, these important factors likewise must be considered.

The Additional SOB Still Fails To Satisfy BACT Based On The Records Available From Caithness:

Under the Additional Statement of Basis, '[t]he Air District agree[d] . . . that based on all of the available information, including the examples from these three facilities, the facility should be able to achieve lower BACT startup emissions limits than the Air District initially proposed in several areas." (Addi. SOB, p. 59.) Although we are agree that the Caithness permit is helpful in these determinations, in examining these lower BACT startup emissions for Caithness, "one for when the auxiliary boiler is being used and one for when the auxiliary boiler is not being used," p. 64, we note that there is a substantial discrepancy with the information provided in the Additional Statement of Basis and the Siemen's vendor information provided in the 2004 Caithness application which we obtained from New York. Enclosed by mail is a copy of a portion of the application which we received.

Applying the Siemen's vendor information attached applicable to temperatures of 51 degrees, comparable to the Bay Area, the District must reexamine that "the costs associated with requiring such equipment at Russell City would not be justified." As established below, the startup emissions reductions are not "relatively small" at all.

Below is a comparison we compiled utilizing the proposed limits on RCEC and comparing the emission reductions identified by Siemen's in the Caithness application with and without the auxiliary boiler, the emission reductions gained with an auxiliary boiler in pounds compared to RCEC limits are bracketed:

Comparison of Caithness and Proposed Russell City Startup Emissions Limits ***without AND with*** Auxiliary Boiler

Startup Scenario	**Without Boiler**	**With Boiler**		**Proposed RCEC Limit**
	127 lbs. NOx	96 lbs. NOx	[1]	95 lbs. NO2
Hot Startup	891 1bs. CO	685 lbs. CO	[206]	891 lbs. CO
	488 lbs. NOx	125 lbs. NOx	[0]	125 lbs. NO2
Warm Startup	2813 lbs. CO	826 1bs. CO	[1,688]	2514 lbs. CO
	488 lbs. NOx	147 lbs. NOx	[333]	480 lbs. NO2
Cold Startup	2813 lbs. CC	833 1bs. CO	[1,681]	2514 lbs. CO

Total difference in CO emissions amount to 3,565 lbs and NOx emissions amount to 334 lbs., a dramatic two-thirds reduction in the emissions of CO for warm and cold start-ups and a two-thirds reduction for NO2 for Cold Start-ups. (*Compare* Table 5, p. 65 with attached Siemen's chart for emissions with boiler at 51 degrees.)

Although the assumption in the Additional SOB contradicts the representations and assumptions made before the California Energy Commission in 2007, which assumed

daily startups in response to Calpine's request for unlimited startups,[1] for comparison purposes we also applied the District's assumption of "an annual operating profile containing 6 cold startups and 100 warm startups." (ASOB, p. 69.) Applying the District's limited assumptions in the Additional SOB, we agree that the reduction for NOx for cold startups results in a difference of .9 tons (0 for warm start-ups).

Based on the Siemen's data provided in their application dated December 14, 2004, however, we disagree that "12.4 tons of CO per year" would be reduced. (ASOB, pp. 69-70.) Instead, applying the Additional SOB's limited assumed annual operating profile of 6 cold startups and 100 warm startups, to which we object as it contradicts Calpine's representations before the CEC, we arrive at 84.4 tons of CO reduced for warm-startups and 5 tons of CO reduced for cold start-ups, **resulting in an 89.9 ton reduction of CO, *eight times more* than the amount represented in the ASOB.** Applying the assumptions in the June 2007 CEC FSA, the emission reductions that would be achieved would be even far greater.

As a result, applying the "annualized cost of $1,029,521 for the installation and operation of the auxiliary boiler," as provided by Calpine, ASOB, p. 70, the cost effectiveness for the CO reduction as calculated by Calpine likewise falls from Calpine's "estimate of $83,025 per ton for CO reduction" by eight times to $11,515 per ton for CO reduction. As a result, BACT clearly requires an auxiliary boiler. Given Calpine's refusal to abide by BACT as documented by the record, requires that the application be denied.

The Air Analysis Is Inadequate And Incomplete Requiring That The Application Either Be Denied Or A Complete And Proper Full Impact Study Performed:

There Is No Class I Analysis:

As the Court of Appeal in *American Corn Growers, supra,* recently explained,

> While the PSD program generally allows for a small increment of air quality deterioration in Class I areas, section 165 of the CAA also provides for the additional protection of air quality-related values, "including visibility," in Class I Federal areas beyond that provided by the increments. **That is, where the FLM [Federal Land Manager] demonstrates that emissions from a new or modified source will have an adverse impact** on air quality-related values (AQRVs), notwithstanding the fact that the emissions from the source do not cause or contribute to concentrations in excess of the increment for a Class I area, ***"a permit shall not be issued."*** Section 165(d). **Thus, under PSD there can be *no increase* in emissions from the construction or modification**

[1] Under the June 2007 Final Staff Assessment (Amendment), p. 4.1-5 "maximum **daily emissions were calculated** by using the emissions ***of two start up/shut*** down **cycles** for each turbine." (Emphasis and italics added.) *Also see*, June 2007 FSA p. 4.1-6, Table 2, n. 3: "Daily emissions include *2* start-ups (480 pounds NOx *per* cold start-up . . .)."

> **of a major stationary source where that increase would result in adverse impacts on AQRVs in a Class I Federal area.**

(*American Corn Growers*, *supra*, 291 F.3d at 33-34.)

At pages 88-89 of the Additional SOB, under Class I Areas Analysis, the District identifies Point Reyes National Seashore as located approximately 62 km from the project requiring a Class I area impact analysis for PM 2.5. In doing so, the Additional SOB states that the "District used the previously-conducted AERMOD analysis for PM 10 impacts, and conservatively assumed that all of the PM 10 from the Project is PM2.5. The AERMOD analysis showed that the particulate matter impact would be on 0.06 ug/m3 at Point Reyes National Seashore" and therefore the project would "not have any significant air quality impact on any Class I area."

However, this conclusion is completely unsupported. Technically an AERMOD analysis is strictly applicable to a distance *within **50 km*** of the project. Point Reyes is 62 km. (USEPA Modeling Guideline or Appendix W: Appendix A of Part 51—Summaries of Preferred Air Quality Models, "a. Recommendations for Regulatory Use (1) AERMOD is appropriate for . . . '[t]ransport distances over which steady-state assumptions are appropriate, ***up to*** 50 km." Emphasis and italics added.) Therefore, the USEPA Modeling Guideline or Appendix W recommends the use of the model CALPUFF for applications beyond 50 km.[2] Here, only AERMOD was used which technically cannot analyze impacts the distance of Point Reyes. As a result, there is no Class I Analysis provided.

Using The Public Records' Modeling Files And The Same Criteria And Emission Sources, Our Run Resulted In A Project Only 24-Hour Maximum Concentration Of 6.33ug/m3, Requiring A Reexamination Utilizing The Official Approved EPA AERMOD Program.

As you might be aware, the District provided us the modeling files upon which the Additional SOB relies. According to the Additional SOB, relying on the Summary of Air Quality Impact Analysis for PM2.5 From the Russell City Energy Center prepared by Calpine, attached to Memorandum from Glen Long to Weyman Lee, July 27, 2009 (or "Summary of PM2.5 Air Quality Impact Analysis"),

> The Air District has found that emissions from the project by itself will cause ambient PM2.5 concentrations above both of these SILs. **For 24-hour average concentrations the project will have a maximum impact of 4.9** µg/m3, and for annual average concentrations the project will have

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[2] "**AERMOD is appropriate for** . . . [t]ransport distances over which steady-state assumptions are appropriate, **up to 50km** . . ." (Appendix W, Appendix A1, p. 455-456, emphasis added.) *Compare,* "Recommendations for Regulatory Use: (1) CALPUFF is appropriate for long range transport (source-receptor distances of 50 to several hundred kilometers) of emissions from point, volume, area, and line sources. (Appendix W, Appendix A4, p. 463.)

> a maximum impact of 0.5 µg/m3.[fn.] Because the project's contribution will be above these significance thresholds, a full impact analysis must be conducted utilizing multi-source modeling.

(Addi. SOB, p. 84 & fn. 147, relying on fn. 141 & Table III, emphasis added.)

Given the close proximity of this major stationary source of pollution to the Chabot campus, and the significant health hazards presented by both PM2.5 and CO2, among the other hazardous pollutants generated, we sought to examine the air modeling analysis.[3] Utilizing the air modeling files provided from the District, the rural option (with which we disagree-see p. 7 & footnote 5), and the exact same inputs as the applicant, our modeling run resulted in a **24-hour average concentrations for the project only of a maximum impact of 6.33** µg/m3. The high 2nd high concentration was 5.53 µg/m3 and the high 8th high concentration was 3.75 µg/m3. The only difference between these runs, from what we can tell, is that our modeling run utilized the EPA's AERMOD Program.[4] Calpine utilized a commercial version as reflected on the air run files stating AERMOD software from BEE-Line:

> **BEE-Line Software: BEEST for Windows (Version 9.78a) data input file** Model: AERMOD.EXE Input File Creation Date: 4/30/2009 Time: 11:37:47 AM

The AERMOD program our modeling utilized is the official version obtained from the EPA, which is the appropriate protocol under Appendix W to Part 51. As reflected by Appendix W, Calpine's use of the private proprietary program is prohibited: *See*, Appendix W, "Preferred Modeling Techniques," Section 3.1., b. vi, page 68231: **"model and its [source] code *can not* be proprietary."** (Emphasis and italics added.)

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[3] Chabot-Las Positas's air modeling files applied AERMOD version 07026 model, currently the latest version approved by the US Environmental Protection Agency (US EPA). Additionally, stack parameters such as location, stack height, diameter, temperature and exit velocity for RREC emissions sources were taken from the CD-ROM provided by your office; also, building dimensions necessary for the simulation of building wake effects were taken from the CD-ROM provided.

An emission rate of 1.134 g/s was used for each turbine, which is higher than the rate of 0.945 g/s specified in Table 2 of Calpine's SIA Report. In addition to two turbines, there are ten other point sources representing the cooling towers (9 point sources with an emission rate of 0.03066 g/s for each point source) and a fire pump (with an emission rate of 4.167E-04 g/s). Emissions rates modeled for these ten other sources are the same as those in Table 2 of Calpine's SIA Report.

[4] The results generated by our modeling run are documented and we would be happy to share those files with your office.

Given this significant difference in results and improper use of a proprietary program, absent denying the application, minimally the District must recalculate the air modeling determinations utilizing the appropriate AERMOD program such as provided by the EPA. In doing so, we urge the District to also apply the *multiple urban* option given this is a metropolitan area governed by different jurisdictions, zoned for light industrial, commercial and single and multi-family residential.[5]

A Full Impact Analysis Has Not Been Performed Of The Impact Area.

Under the Additional SOB's Air Quality Impact Analysis for PM 2.5, the District acknowledges the following at pp. 84-85:

> **If the concentrations from the project by itself would be above the Significant Impact Level, a full impact analysis is required based on multi-source modeling**. The full impact analysis considers the project's contribution to ambient air pollution levels in conjunction with the contributions from other nearby sources and background levels to determine what the total ambient air concentrations would be if the project is built. If the total ambient air concentrations would not exceed the NAAQS at any location, or the project's contribution is below the Significance level at every location where the NAAQS would be exceeded, then the project does not "cause or contribute to air pollution in violation [a] national ambient air quality standard" within the meaning of 40 C.F.R. section 52.21(k)(1). **If the total concentrations would exceed the NAAQS, and the project's contribution to that exceedance is above the Significance level at the location of the exceedance, then project is not eligible for a PSD permit.**

(Emphasis added.)

Here, the District proposed to use "the lowest of the proposed SIL:s, which are 1.2 ug/m3 for 24-hour average PM 2.5 concentrations and .3 ug/m3 for annual average PM 2.5 concentrations." Further, the Additional SOB finds "that emissions from the project by itself will cause ambient PM2.5 concentrations above both of these SILs," 4.9 ug/m3 (24 hours)[6] and .5 ug/m3 (annual) respectively. Therefore, the District concludes that "a full impact analysis must be conducted utilizing multi-source modeling." (Additional SOB, p. 85.)

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[5] In addition to intending to perform the modeling run to confirm the calculations provided by Calpine, we also performed a "single urban" run which also increased the concentrations above those reported here. However, given the zoning and use, as Hayward is known as the "Heart of the Bay," we suggest the multiple urban option is the appropriate choice.

[6] As shown by the modeling results run by Chabot-Las Positas, this concentration level is erroneous and must be re-run; by utilizing this erroneous concentration level for argument purposes, Chabot-Las Positas does not waive any arguments.

In making this analysis, the District relies in part on the September 21, 2007 Proposed Rule, "Prevention of Significant Deterioration (PSD) for Particulate Matter Less Than 2.5 Micrometers (PM2.5)—Increments, Significant Impact Levels (SILs) and Significant Monitoring Concentration (SMC)", 72 Fed. Reg. 54112, 54138-39 (Sept. 21, 2007) (otherwise referred to as "Proposed PM2.5 Increment, SIL & SMC Rule"). (Additional SOB, p. 85 & fn. 144.) However, the Proposed PM2.5 Increment, SIL & SMC Rule provides the following:

> Significant Impact Levels or SILs are numeric values derived by EPA that may be used to evaluate the impact a proposed major source or modification may have on the NAAQS or PSD increment. The SILs currently appear in EPA's regulations in 40 CFR 51.165(b), which are the provisions that require States to operate a preconstruction review permit program for major stationary sources that wish to locate in an attainment or unclassifiable area but would cause or contribute to a violation of the NAAQS. **The SILs in that regulation are the level of ambient impact that is considered to represent a "significant contribution" to nonattainment.**
>
> Although 40 CFR 51.165 is the regulation that establishes the minimum requirements for nonattainment NSR programs in SIPs, **the provisions of 40 CFR 51.165(b) are actually applicable to sources located in attainment and unclassifiable areas**. See 40 CFR 51.165(b)(4). **Where a PSD source located in such areas may have an impact on an adjacent non-attainment area, the PSD source must still demonstrate that it will not cause or contribute to a violation of the NAAQS in the adjacent area. This demonstration may be made by showing that the emissions from the PSD source alone are below the significant impact levels set forth in 40 CFR 51.165(b)(2). However, where emissions from a proposed PSD source or modification would have an ambient impact in a non-attainment area that would exceed the SILs, the source is considered to cause or contribute to a violation of the NAAQS and *may not be issued a PSD permit* without obtaining emissions reductions to compensate for its impact.** 40 CFR 51.165(b)(2)-(3).

(72 Fed. Reg. 54112, 541137-38, emphasis and italics added.)

Here, as acknowledged by the Additional SOL, the Bay Area is in nonattainment for PM2.5 and at any time that designation will become officially effective. Applying the Proposed PM2.5 Increment, SIL & SMC Rule, the concentrations from the project by itself are three to five times the Significant Impact Level and clearly fall within the provisions discussed above that "the source is considered to cause or contribute to a violation of the NAAQS and may not be issued a PSD permit without obtaining emissions reductions." (*Op cit.*, 54113738.) As a nonattainment region, this is where the analysis starts and stops.

Assuming the Bay Area was in attainment for PM2.5, which it is not, then under Proposed PM2.5 Increment, SIL & SMC Rule, then the District "must conduct a more extensive air quality analysis to demonstrate that [the major stationary source] **will not cause or contribute to a violation of the NAAQS or PSD increment** in the attainment or unclassifiable area." (*Op cit supra.*) Although the Additional SOB purports to conduct such an analysis, as established below, it does not and this application may not be approved without that necessary "full impact analysis . . . utilizing multi-source modeling." .

The NAAQS Dispersion Modeling Inputs Are Unrepresentative And Incomplete.

According to the July 30, 2009 Summary of Air Quality Impact Analysis for PM2.5 referred to in footnote 140 as the "Applicant's Impact analysis for PM2.5,"[7] the NAAQS dispersion modeling inputs included emissions of PM2.5 from Highway 92, which were added to the source emissions data from RCEC. Additionally,

> **The Air District provided the emissions of PM2.5 from mobile sources** that were based on model year 2007 car/truck vehicle mix and emission factor data, **specific to Alameda County**. Additionally, traffic count data based on average daily east and westbound traffic were provided for the following segments:
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> - **San Ramon Road Interchange**
> - **Palomares/Eden Canyon Road** Interchange
> - Crow Canyon Road/Center Street
> - Redwood Road
> - Strobridge Avenue
> - Junction Route 238

(Emphasis added.) Although we agree with CAP that the relevant impact area which should be examined is 50 km, within which these above interchanges fall, these road segments are located beyond the purported 8.1 km or 6 mile impact area to which the "full impact analysis " is limited. (Addi. SOB, p. 87.)

In fact, **the San Ramon Road interchange is not even in Alameda County**, but Contra Costa County. Depending upon "which" junction of route 238 is included,[8] these

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[7] There is apparently some confusion among SIA Reports – one is dated July 27, 2009, which is posted on the web and available through your Public Records documents. Counsel, however, was provided a revised report dated July 30, 2009, from Calpine's attorney who anticipated this would be posted on the District's website. Although Calpine's attorney identified the modifications between the documents as "minor," we do not agree that changes, which "concern identification of the impact area and nearby sources for the cumulative impacts analysis and NAAQS compliance demonstration", are minor.

remaining interchanges are all located on highway 580 towards Dublin/Pleasanton. (The Palomares Eden Canyon Road interchange is the interchange prior to the Dublin/Pleasanton exit.) **On the other hand, highway 880**, or the Nimitz, which carries far more truck traffic than highway 92, **is completely excluded**. In fact, neither the Additional SOB, the December 2008 Amended SOB or the applicant's July 27 or July 30 Summary even mention highway 880 which clearly falls within the purported 6 mile impact area and must be included as part of emissions of PM2.5 mobile sources within the impact area.[9]

As the NSR Workshop Manuel explains:

> IV.C.1 THE NAAQS INVENTORY
>
> While air quality data may be used to help identify existing background air pollutant concentrations, **EPA requires that, *at a minimum, all nearby sources be explicitly modeled* as part of the NAAQS analysis**. The Modeling Guideline defines a **"nearby"** source **as any point source expected to cause a significant concentration gradient in the vicinity** of the proposed new source or modification. For PSD purposes, **"vicinity" is defined as the impact area. However, the location of such nearby sources could be anywhere within the impact area *or an annular area extending 50 kilometers beyond the impact area*.** (See Figure C-5.)

(C 32.) Here, the Impact Area is defined as a distance of 8.1 km radius from the project or a six mile radius. (Additional SOB, p. 87.) Given these significant interchanges fall within that impact area which presently are excluded, but "at a minimum" are nearby sources required to be explicitly modeled, leaves this "full impact study" materially incomplete.

Based on this error alone, disregarding all the substantial other sources falling within this six mile radius which were not included, applying the analysis under the Additional SOB, the modeling inputs must be corrected and runs performed excluding locations in Contra Costa County and towards Pleasanton/Dublin and including mobile sources for highway 880, among other sources, which fall within the impact area designated by the Additional SOB. Given the volume of traffic for nearby interchanges located within a two mile radius of the project, such as for 880 and 92, 880 and A Street, 880 and Winton, far exceeds the daily volume for those interchanges whose volumes

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[8] 238 has two distinct junctions: one at 880 and 238 at its western end, which and the other at its eastern end, 580 and 238. Unclear is which junction is being used.

[9] We additionally take administrative notice of the testimony of Sandra Witt in the Eastshore proceeding discussed in our earlier correspondence and attach a portion of her testimony that the zip codes of 94541 and 94544, where the project is located and which fall within the 8.1 km impact area, suffer from abnormally high respiratory problems. As reflected by the attached maps, highway 880 cuts straight through this impact area.

were inputted, applying this data will result in a material different result establishing a violation of the Clean Air Act.[10]

The Impact Analysis Is Fundamentally Flawed: The defined impact radius is underestimated.

Under the Additional SOB's 24-Hour NAAQS Analysis, in addition to receptor locations exceeding the signficiant impact level of 1.2 ug/m3 being mostly located within a "distance of up to 1.26 km," there were also "six specific more remote spots in the East Bay hills out to a furthest distance of 8.1 km." Although the Additional SOB states that "[f]or the full modeling analysis, the Air District considered the cumulative impact of the facilities emissions, background ambient air concentrations, and emissions from other nearby sources on receptors located within this impact area," as discussed above, this obviously did not take place given the exclusion of mobile emissions from 880.

Under the NSR Guidelines, "impact area(s) will be used to[] set the boundaries within which ambient air quality monitoring data may need to be collected, [] define the area over which a full impact analysis (one that considers the contribution of *all sources*) must be undertaken, and [] guide the identification of other sources to be included in the modeling analyses." (C31.)

> The proposed project's impact area is the geographical area for which the required air quality analyses for the NAAQS and PSD increments are carried out. This area includes **all locations where the significant increase in the potential emissions of a pollutant from a new source**, or significant net emissions increase from a modification, **will cause a significant ambient impact (i.e., equal or exceed the applicable significant ambient impact level**, as shown in Table C-4). ***The highest modeled pollutant concentration for each averaging time is used to determine whether the source will have a significant ambient impact for that pollutant.***
>
> The impact area is a circular area with a radius extending from the source to (1) the most distant point where approved dispersion modeling predicts a significant ambient impact will occur, or (2) a modeling receptor distance of 50 km, whichever is less. Usually the area of modeled significant impact does not have a continuous, smooth border. (It may actually be comprised of pockets of significant impact separated by pockets of insignificant impact.) Nevertheless, the required air quality analysis is carried out within the circle that circumscribes the significant ambient impacts, as shown in Figure C-4.

(C26)

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[10] We refer you to Alameda County Congestion Management Agency 2006-7 Final Performance Report : http://accma.ca.gov/pages/HomeCongestionMgmt.aspx.

Under Calpine's Source Impact Analysis dated July 30, 2009 provided by Calpine's attorney, "the "impact area" is identified by drawing a circle around the site with a radius equal to the distance to the farthest location where an exceedance of the SIL is modeled to occur." (July 30, 2009 SIA, p. 11.) According to the Additional SOB, p. 87:

> For the 24-hour standard, modeling of the facility's potential ambient air quality impacts showed emissions over the most-conservative 1.2 µg/m3 SIL. The receptor locations where the facility's impacts were over the SIL were mostly within the immediate vicinity of the facility out to a distance of up to 1.26 km, **but also at six specific more remote spots in the East Bay hills out to a furthest distance of 8.1 km. The Air District therefore considers the "impact area" for the full impacts analysis to consist of a circle around the facility with a radius of 8.1 km**. For the full modeling analysis, the Air District considered the cumulative impact of the facility's emissions, background ambient air concentrations, and emissions from other nearby sources on receptors located within this impact area.

In addition to arriving at a different maximum concentration level for 24 hour analysis, Chabot's modeling results also arrived at a larger impact area, utilizing the maximum concentration point, the location of the east turbine as the center,[11] and applying the SIL of 1.2 ug/m3, our calculations result in a radius of 11,430 meters, 11.43 km or 7.1 miles.

Additionally, in making this run, we want to bring to your attention that rather than arriving at 6,019 receptors as contended by Calpine, "where the RCEC "first high" impacts (i.e., the maximum predicted concentration) exceeded 1.2 µg/m3 on a 24-hour basis," we arrived at 8,424 receptors. (See July 30, 2009 Source Impact Analysis, p. 11 ["the modeling receptor grid of 31,000 receptors was reduced to 6,019 receptors"; *compare with*, Glen Long's July 27, 2009 Memo to you on Air Quality Impact Analysis, pp.5-6, stating there were "approximately 18,400 receptors" within 1.26 km for the 24 hour average impact.].)

Based on our research, the procedure provided by the EPA to calculate the maximum 24-hour for comparison against the national ambient air quality standards (NAAQS) for PM2.5, with five years of meteorological data, is to utilize the maximum 24-hour concentration based on the high-eighth-high (H8H) for PM2.5. (Dec. 2006 ADDENDUM to USER'S GUIDE FOR THE AMS/EPA REGULATORY MODEL – AERMOD (EPA-454/B-03-001, September 2004), p. 5.)

Here, Calpine has relied on a background concentration of 29 ug/m3 for the compliance analysis of the Federal 24-hour ambient air quality standard (AAQS) of 35 ug/m3, which is the 3-year average of concentrations monitored at the Fremont station

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[11] These peak concentrations occur at a receptor (UTM East = 576,359.25 m and UTM North = 4,165,627 m) located about 326 m northwest of the RCEC eastern turbine.

during the years 2006-2008. However, this 3-year averaging is only used to assess the attainment/non-attainment status of the area where the monitoring station is located. According to monitoring concentrations from the US EPA Airdate website,[12] in 2007 a 98th percentile concentration of 33.3 ug/m3 was measured as 24-hour concentration for the Fremont station. Given the time of RCEC's proposed operation will extend for 30 years, the more conservative estimate is to apply is this higher value of 33.3 ug/m3 should be used as background concentration. Most significantly, this also is consistent with the District's own Permit Modeling Guidance (2007) Section H, part 2(b), that within the most recent three years of air quality data, "the highest 2nd high concentration should be used as background for comparison with national standards." (Page 7.)

For PM2.5, the highest 98th percentile is used instead of the highest 2nd high. This highest 2nd high is applicable to other pollutants such as SO2 that allow one exceedance per year.

Applying the background of 33.3 ug/m3, the 98th percentile as recommended by the District's Guidelines, the AAQS of 35 ug/m3 will be exceeded by all peak concentrations, even utilizing Calpine's underestimated 24 hour project only maximum impact of 4.9 ug/m3. These violations of 24-hour PM2.5 AAQS are consistent with the (yet to be published) designation of the non-attainment status of the Bay Area.

The Air Modeling Improperly Assumes A Baseload Operation When The Application Seeks An Intermediate Operation Which Will Generate Additional Emissions That Must Be Modeled.

According to Calpine's July 30, 2009 Source Impact Analysis, page 9, "[t]he operation of the turbines and cooling towers were modeled with the assumption of 24-hours per day of emissions." We object to such an assumption. As reflected in Calpine's application to the CEC, Calpine has consistently sought unlimited startups and shutdowns and your December 2008 Amended SOB states this would be operated as a "load following" plant "operated to meet contractual load and spot sale demand" which would have a full shutdown "if market price of electricity falls below cost of generation." (Amended SOB, p. 11.)

In addition to failing to provide a full impact analysis, because this would operate as an intermediate facility, the emissions generated by the anticipated startups and shutdowns likewise must be modeled. (*See generally, American Corn Growers Association v. Environmental Protection Agency* (D.C. Cir. 2002) 291 F.3d 1.)

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http://iaspub.epa.gov/airsdata/adaqs.monvals?geotype=st&geocode=CA&geoinfo=st~CA~California&pol=PM25&year=2007&fld=monid&fld=siteid&fld=address&fld=city&fld=county&fld=stabbr&fld=regn&rpp=25

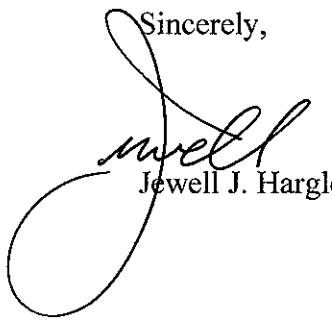
Conclusion

As established above, Calpine has failed to satisfy its burden and the District's amended SOB and additional SOB must be revised to deny this application. Absent denial, the air modeling results submitted by Calpine are fundamentally flawed, incomplete, and inadequate, failing to satisfy minimum EPA Guidelines and statutory requirements, not even applying the proper modeling programs, which based on our review of the air modeling files provided by your office, resulted in a material differences in results. (As mentioned above, we will be happy to share our results with your office.)

Further, we agree with Citizens Against Pollution's correspondence by Earthjustice that the methodologies utilized by Calpine, among other problems, severely underestimates the cumulative impacts since nearby large emission sources, even highway 880 located within the (reduced) significant impact area, as well as power plants and oil refineries with tall stacks and high plumes, located beyond the significant impact area, may contribute significantly. Given the location of this plant in a the middle of a metropolitan urban area, "the Heart of the Bay," and the Bay Area's *de facto* nonattainment of PM2.5 and *de jure* nonattainment for 8 hour ozone, ***all*** emission sources located within a radius of 50 km of the proposed facility should be included in a full impact analysis, which is the limit of applicability of a Gaussian air quality model such as AERMOD. (*See generally*, Appendix W.)

Lastly, we agree with and incorporate those arguments by the other commentators and concerned citizens and Chabot-Las Positas's students, as well as CAP's by Golden Gate University Environmental Law Clinic and Communities for a Better Environment, urging you to revise your SOB and to deny this application.

Sincerely,



Jewell J. Hargleroad

Cc: (Via Email Only)
California Native Plant Society, Laura Baker
Golden Gate Law School Clinic, Helen Kang
Earthjustice, Paul Cort
Communities for a Better Environment, Shana Lazerow
Sierra Club

APPENDIX H: Air Permit Application and Ammonia Impact Assessment

SIEMENS
Westinghouse

Siemens Westinghouse Power Corporation
A Siemens Company

Caithness - Bellport Energy Center - Total Estimated Startup and Shutdown Emissions
W501FD Upgrade in Combined Cycle Operation on Natural Gas - No Aux. Boiler - With Stack Damper - Rev. 03

Mode	Total Emissions (in pounds) @ 0 °F Ignition to Gas Turbine Base Load			
	NO_X	CO	VOC	PM
"Cold" Startup	410	2,354	862	77
"Warm" Startup	384	2,346	857	56
"Hot" Startup	107	739	167	26
Shutdown	64	423	92	12

Mode	Total Emissions (in pounds) @ 51 °F Ignition to Gas Turbine Base Load			
	NO_X	CO	VOC	PM
"Cold" Startup	375	2,164	790	75
"Warm" Startup	351	2,157	785	54
"Hot" Startup	98	685	153	26
Shutdown	59	393	84	12

General Notes

1.) All data is ESTIMATED, NOT guaranteed and is for ONE unit (GT and HRSG).
2.) SCR efficiency is based on the SCR and ammonia vaporization system being in service and properly operating at design temperatures.
3.) VOC consist of total hydrocarbons excluding methane and ethane and is expressed in terms of methane (CH_4).
4.) Particulate (PM) emissions are based on USEPA Methods 5/202 and assume a max. fuel sulfur content of 0.35 gr S/100 scf.
5.) Gas fuel must be in compliance with the SWPC Fuel Specifications.
6.) Emissions are at the HRSG exhaust stack outlet and exclude ambient air contributions.
7.) Please be advised that the information contained in this transmittal has been prepared and is being transmitted per customer request specifically for information purposes only. Such information is not intended to be used for evaluation of plant design and/or performance relative to contractual commitments. Data included in any permit application or Environmental Impact Statement is strictly the customer's responsibility SWPC is available to review permit application data upon request.

Startup / Shutdown Emissions Notes

1.) "Cold" Startup emissions estimates are based on being shutdown ~ 5 days or longer with a Steam HP/IP metal temp. of ~ 122 °F and assumes it takes ~ 400 minutes to reach GT Base load.
2.) "Warm" Startup emissions estimates are based on being shutdown ~ 48 hours with a Steam Turbine HP/IP metal temp. of ~ 320/428 °F and assumes it takes ~ 275 minutes to reach GT Base load.
3.) "Hot" Startup emissions estimates are based on being shutdown ~ 12 hours with a Steam Turbine HP/IP metal temp. of ~ 662 °F and assumes it takes ~ 145 minutes to reach GT Base load.
4.) Shutdown emissions based on the following times: 12 minutes from 100% Base to 70% load; 18-minute hold at 70% load; 28 minutes from 70% to minimum load; and a 5-minute hold at minimum load (FSNL) prior to fuel cut-off.
5.) Startup emissions estimates are based on a maximum of approximately 208 "Hot", 48 "Warm" and 4 "Cold" startups per year (and the subsequent 260 shutdowns per year). Any change in this value could affect the startup ramp rate and hold times and hence the startup emissions.
6.) Startup/Shutdown times are subject to change depending on commercial terms and conditions.
7.) ESTIMATED NO_X emissions assume 92% SCR efficiency from $\geq$ 60% to Base load and 60% SCR efficiency from $\geq$ 50% to 60% load.
8.) ESTIMATED CO emissions assume 90% oxidation catalyst efficiency from > 25% to Base load, 80% efficiency from $\geq$ 20 to 25% load and 60% efficiency from $\geq$ 10 to 20% load.
9.) ESTIMATED VOC emissions assume 50% oxidation catalyst efficiency from $\geq$ 30% to Base load, 40% efficiency from > 25 to 30% load and 10% efficiency from $\geq$ 20 to 25% load.
10.) Emissions mass flow rates are based on ambient temperatures of 0 °F and 51 °F as noted above and will be higher at lower ambient temperatures.
11.) Air Cooled Condenser is ready for operation and condensate receiver tank is filled prior to GT startup.
12.) HRSG is filled and ready for operation prior to GT startup.
13.) Steam chemistry adequate for ST operation (no waiting time included).
14.) Assumes SWPC standard BOP water/steam system design and SWPC steam piping warm up concept.
15.) Major equipment items (GT/HRSG/ST) are operated at their startup ramp limits with no abnormal holds or transients.
16.) BOP/Auxiliary equipment operation does not extend startup or shutdown.
17.) Condenser Hogging: mechanical vacuum pumps; Condenser Holding: Steam Jet Air Ejectors
18.) NO auxiliary boiler.
19.) Stack damper to aid HRSG heat retention during shutdowns.
20.) Operator actions do not extend startup or shutdown.
21.) It is assumed that there is no restriction from the interconnected utility for loading the gas turbine from synchronization to 100% load within the time considered for the startups.

Caithness - Bellport Energy Center - Total Estimated Startup and Shutdown Emissions
W501FD Upgrade in Combined Cycle Operation on No. 2 Fuel Oil - With Aux. Boiler - With Stack Damper - Rev. 01

Mode	Total Emissions (in pounds) @ 0 °F Ignition to Gas Turbine Base Load			
	NO_X	CO	VOC	PM
"Cold" Startup	318	1,370	320	557
"Warm" Startup	276	1,333	298	311
"Hot" Startup	209	1,166	225	246
Shutdown	120	654	125	113

Mode	Total Emissions (in pounds) @ 51 °F Ignition to Gas Turbine Base Load			
	NO_X	CO	VOC	PM
"Cold" Startup	290	1,271	294	509
"Warm" Startup	253	1,237	274	285
"Hot" Startup	192	1,084	207	225
Shutdown	110	608	115	104

General Notes

1.) All data is ESTIMATED, NOT guaranteed and is for ONE unit (GT and HRSG).
2.) SCR efficiency is based on the SCR and ammonia vaporization system being in service and properly operating at design temperatures.
3.) VOC consist of total hydrocarbons excluding methane and ethane and is expressed in terms of methane (CH_4).
4.) Particulate (PM) emissions are based on USEPA Methods 5/202 and assume a max. fuel sulfur content of 0.35 gr S/100 scf.
5.) Gas fuel must be in compliance with the SWPC Fuel Specifications.
6.) Emissions are at the HRSG exhaust stack outlet and exclude ambient air contributions.
7.) Please be advised that the information contained in this transmittal has been prepared and is being transmitted per customer request specifically for information purposes only. Such information is not intended to be used for evaluation of plant design and/or performance relative to contractual commitments. Data included in any permit application or Environmental Impact Statement is strictly the customer's responsibility. SWPC is available to review permit application data upon request.

Startup / Shutdown Emissions Notes

1.) "Cold" Startup emissions estimates are based on being shutdown ~ 7 days or longer with a Steam HP/IP metal temp. of ~ 122 °F and assumes it takes ~ 300 minutes to reach GT Base load.
2.) "Warm" Startup emissions estimates are based on being shutdown ~ 48 hours with a Steam Turbine HP/IP metal temp. of ~ 320/428 °F and assumes it takes ~ 170 minutes to reach GT Base load.
3.) "Hot" Startup emissions estimates are based on being shutdown ~ 12 hours with a Steam Turbine HP/IP metal temp. of ~ 662 °F and assumes it takes ~ 135 minutes to reach GT Base load.
4.) Shutdown emissions based on the following times: 12 minutes from 100% Base to 70% load; 18-minute hold at 70% load; 28 minutes from 70% to minimum load; and a 5-minute hold at minimum load (FSNL) prior to fuel cut-off.
5.) Startup emissions estimates are based on a maximum of approximately 208 "Hot", 48 "Warm" and 4 "Cold" startups per year (and the subsequent 260 shutdowns per year). Any change in this value could affect the startup ramp rate and hold times and hence the startup emissions.
6.) Startup/Shutdown times are subject to change depending on commercial terms and conditions.
7.) ESTIMATED NO_X emissions assume 92% SCR efficiency from ≥ 60% to Base load and 60% SCR efficiency from ≥ 50% to 60% load.
8.) ESTIMATED CO emissions assume 90% oxidation catalyst efficiency from > 25% to Base load, 80% efficiency from ≥ 20 to 25% load and 60% efficiency from ≥ 10 to 20% load.
9.) ESTIMATED VOC emissions assume 50% oxidation catalyst efficiency from ≥ 30% to Base load, 40% efficiency from > 25 to 30% load and 10% efficiency from ≥ 20 to 25% load.
10.) Emissions mass flow rates are based on ambient temperatures of 0 °F and 51 °F as noted above and will be higher at lower ambient temperatures.
11.) Air Cooled Condenser is ready for operation and condensate receiver tank is filled prior to GT startup.
12.) HRSG is filled and ready for operation prior to GT startup.
13.) Steam chemistry adequate for ST operation (no waiting time included).
14.) Assumes SWPC standard BOP water/steam system design and SWPC steam piping warm up concept.
15.) Major equipment items (GT/HRSG/ST) are operated at their startup ramp limits with no abnormal holds or transients.
16.) BOP/Auxiliary equipment operation does not extend startup or shutdown.
17.) Condenser Hogging: mechanical vacuum pumps; Condenser Holding: Steam Jet Air Ejectors
18.) Auxiliary boiler sized to supply pegging steam to HRSG and seal steam to ST.
19.) Stack damper to aid HRSG heat retention during shutdowns.
20.) Operator actions do not extend startup or shutdown.
21.) It is assumed that there is no restriction from the interconnected utility for loading the gas turbine from synchronization to 100% load within the time considered for the startups.