September 21, 1998

Mr. Bruce Kaneshiro, Project Manager
c/o Environmental Science Associates
225 Bush Street, Suite 1700
San Francisco, CA 94104

Re: Pacific Gas and Electric Company's Application for Authorization to Sell Certain Generating Plants and Related Assets, Application No. No. 98-01-008, Draft Environmental Impact Report ("DEIR")

Dear Mr. Kaneshiro:

The Environmental Law and Justice Clinic submits the following comments on the above-described DEIR on behalf of the Southeast Alliance for Environmental Justice (SAEJ).

Part I. General Comments

[Begin U1]

While the DEIR has presented much useful information, it nevertheless contains several fundamental errors prohibited by CEQA and undisputed case law. The major error is the DEIR's various methods for minimizing the impact from the potential increased air pollution that may result from the sale of the facilities over the next few years. The San Francisco Bay Area ("Bay Area") during the winter months is routinely in violation of the state's particulate (PM10) standard, meaning that thousands already are suffering early deaths or asthma and emphysema exacerbations as a result of PM10 exposure. In the summer months, the Bay Area routinely violates the state ozone standard and occasionally the federal ozone standard, resulting in the area being designated a nonattainment area by state and federal air quality agencies. At the same time, there is no state PM10 attainment plan in place, the state ozone plan makes no pretense of assuring attainment by any date certain, and the US EPA has determined the federal maintenance plan is now inadequate to attain the federal ozone standard. Thus it is crucial that this project not contribute to existing air quality conditions or delay the attainment of these standards.
[End U1]

[Begin U2]

The DEIR discloses that particulate matter and smog precursors (nitrogen oxides and reactive organics) emitted from Bay Area power plants may about double as a result of the sale in 1999. Table 4.5-26 at p. 4.5-57. Yet it dismisses the impacts from these increased pollutants in various spurious ways that amounts to saying the difference is tiny compared to the amount of pollution already in the air. This "ratio" approach, whether thought of a significance threshold or a qualitative evaluation, is illegal when applied to cumulative impacts at the EIR stage and inappropriately discounts the importance of those bearing the burden of the resulting significant

health impacts. See Los Angeles Unified School District v. Los Angeles, 58 Cal. App. 1019, 1025 (4th Dist. 1997); Kings County Farm Bureau v. City of Hanford, 221 Cal. App. 3d. 692 (5th Dist. 1990).
[End U2]

[Begin U3]

Another error in the DEIR is its failure to provide a proper comparison between the baseline and the impact of the sale so that the full extent of any potential adverse impacts are captured and mitigated. The DEIR picks 1999 as the first year for comparison, an appropriate step to take. However, the DEIR then jumps to 2005 for its cumulative analysis because more stringent air quality impacts are then in place and PG&E's operating characteristics are assumed to be quite similar to any other owner. It ignores the years 2000 (with one exception), 2001, 2002, 2003 and 2004. SAEJ believes this approach is wrong because it ignores potentially greater cumulative impacts in years after 1999 and before 2005 due to increased energy demand resulting from deregulation and growth, and fails to acknowledge the continued differences that may occur between PG&E and third party ownership even into the year 2005 due to PG&E's remaining portfolio of facilities. See p. 3-7 and Attachment C.
[End U3]

[Begin U4]

Another error was to use the SERASYM model to produce analytical maximum capacity factors far below 100%. See Table 3.1 at p. 3-10. While the SERASYM model is a good predictor depending upon the inputs, its results are not enforceable. If the circumstances affecting these inputs change, e.g. natural gas prices, transmission system capability, operating procedures, capacity could rise approaching their theoretical capacity. Unless the project approval contains conditions limiting the project to the capacity factors predicted in this SERASYM run, the CEQA analysis has failed to properly analyze the potential extent of adverse impacts.
[End U4]

[Begin U5]

As a result of reviewing the DEIR and SAEJ's own analysis, SAEJ believes it is imperative that mitigation be required for this project. The mitigation could be requiring BACT for all Bay Area power plants, with sufficient offsets to eliminate any contribution to cumulative impacts. Or it could be a condition limiting capacity to that which would have forseeably occurred under SERASYM's analysis if PG&E retained ownership. Only with these conditions could the project then said to be without significant impacts.
[End U5]

Specific Comments

I. SIGNIFICANCE CRITERIA FOR AIR QUALITY

The DEIR lists its air quality criteria at pp. 4.5-50 through 4.5-51. The criteria mainly relied upon are criteria 1,4 and 5. SAEJ believes these criteria are in many respects technically inappropriate and illegal.

A. Criterion 1

[Begin U6]

The first criterion states that violation of an ambient air quality standard or substantial contribution to a projected violation of an ambient air quality standard requires a finding of significance. This is appropriate for a project specific impact. See Appendix G. However, it is inappropriate when evaluating cumulative impacts once an EIR is underway:

> There appears to be a difference between the "cumulative impacts" analysis required in an EIR and the question of whether a project's impacts are "cumulatively considerable" for purposes of determining whether an EIR must be
> prepared at all. For purposes of an EIR, the Guidelines define the 'cumulative impact' from several projects as the change in the environment that results from the incremental impact of a project when added to other past, present, and reasonably foreseeable future projects. 14 Cal Code Regs @ 15355." 1 Kostka & Zischke, Practice Under the Cal. Environmental Quality Act, @ 6.55, pp. 298-299, (quoted in San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus, 42 Cal. App. 4th 608, 623 (5th Dist. 1996)).

The DEIR should make clear that this criterion is inapplicable to cumulative impacts, and the cumulative analysis as discussed below needs to conform to the EIR version of a cumulative impacts analysis.
[End U6]

[Begin U7]

The first criterion goes on to define "substantial" for this project based upon the PSD provisions in the BAAQMD rules in Regulation 2, Rule 2. For example, the PM10 criterion would require a 5 microgram/cubic meter for a 24 hour average increment and a 1 ug/m3 for an annual average.

In fact, PSD refers generally to maintaining a standard already attained and the BAAQMD rules specifically reference federal requirements applicable to maintaining federal standards in attainment area. For this project, the ambient environment is a nonattainment area for federal ozone, state ozone and state particulate matter (PM10). The criterion ignores the

provisions of Regulation 2, Rule 2, that includes the use of BACT and offsets to assure that standards are attained.

CEQA does not allow a part of a standard to be borrowed and used in a manner not used by the agency adopting the standard. A standard includes the quantitative, qualitative or performance requirement found in a statute, ordinance, resolution, rule, regulation, order, or other standard of general application. CEQA Guideline Section 15064 (i)(3)(A) as amended August 24, 1998. Thus BACT and offsets cannot be eliminated. The standard must govern the same environmental effect which the change in the environment is impacting. 15064(i)(3)(D). That would only work here if BACT and offsets are applied. This criterion is just not appropriate without the entire standard as applied by the BAAQMD.
[End U7]

B. Criterion 4

[Begin U8]
Criterion 4 asserts that based upon its review of PM2.5 studies that a significance threshold of 20 ug/m3 is appropriate for short term exposure. On an annual basis, an increase must be 10 ug/m3. The criterion is based upon the DEIR's understanding of an EPA report, a number of health studies, and a private conversation with one of the authors of one of the reports.

This criterion as discussed below under cumulative impacts is not appropriate for evaluating cumulative impacts. As to project specific impacts, the DEIR also seems to have a serious misunderstanding of this literature. The EPA report makes clear it was unable to determine any safe threshold for increases in PM10. In fact, the EPA reviews many of the same studies described in the DEIR and presents graphs and narrative showing near linear increases in PM impacts at all measured levels. The report further asserts that once a certain level in the ambient environment is reached (significantly below the standard), increases in pollution produce clear and consistent increases in risk of health impacts. The EPA found no significant difference in this regard between studies for PM10 and PM2.5.

According to the survey of health studies conducted by the City and County of San Francisco Department of Public Health (DEP), any increase in particulate matter may cause health effects. 11/27/95 DEP letter to CEC, attached hereto as Exhibit A. This is particularly true in this case, where the state PM10 standard is often exceeded during winter months in San Francisco and the rest of the San Francisco Bay Area. A DEP survey report on particulate matter health effects studies indicate that "there is no lower threshold below which...problems do not occur" and that "these effects occur at levels well below the current federal standards for PM10 pollution." Exhibit A at 2.

These studies are epidemiological studies, and for methodological purposes, have used incremental increases of 10 ug/m3 in order to clearly identify differences in health effects that are due to particulate matter and not other confounding factors.. The DEIR seems to confuse these increments as increments of significance, rather than as methodological tools. The key for

development of a significance factor is that when these increments are plotted from various studies they show a near linear increase. There is no scientific evidence, and no expert of any repute, who is claiming that health effects jump from one data point to another, as if there is a step graph of results.[1] The DEIR appears to misinterpret the private communication with N. Schwartz in that he has conducted a study where the data points were interpreted at 10ug/m3, not that an increase of 5ug/m3 would not produce any impacts or that there is no linear increase. The DEIR seems confused about the meaning of the studies.
[End U8]

[Begin U9]

An additional study by G.D.Thurston, summarized in the documents attached hereto as Exhibit B, suggests that PM10 impacts may even be more severe in San Francisco than in other locations in the country, although its ambient level is lower. Thurston, the author of 5 other studies relied upon by the DEIR, see pp. 4.5-83 through 4.5-84, suggested that residents rely less upon air conditioning in San Francisco than in other hotter communities, and therefore are more exposed to the PM10, thereby increasing the impact from the level of exposure. The DEIR should take account of this study and adjust its notion of significance accordingly.[2]
[End U9]

[Begin U10]

This San Francisco vulnerability is even more important for the Bayview-Hunters Point community. Impacts from PM10 (as well as ozone) are especially important since residents of this part of San Francisco have high incidences of chronic lung disease, including asthma, emphysema and bronchitis. Inhalers are more often prescribed at the Southeast Health clinic than at any other. The most common reason for visits to the Clinic is respiratory symptoms. See Exhibit at 4. The DEIR should take into consideration the greater vulnerability of this population to additional pollution or a delay in attaining air quality standards. This vulnerability also includes a lack of access to medical care and the other complications of poverty that aggravate the impact of disease. According to the CEQA Guideline 15064(b), "An ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting. For example, an activity which may not be significant in an urban area may be significant in a rural area." In this case, it is the particular urban area impacted which must change the significance criteria.
[End U10]

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1 As three leading PM researchers put it, when evaluating the major studies that had been conducted, "There is no clear evidence of a safe threshold level. Many studies observe that health effects increase monitonically with pollution levels, often with a near-linear dose-response relationship." C. Arden Pope III, David V. Bates, and Mark E. Raizenne, "Health Effects of Particulate Air Pollution: Time for Reassessment?", Environmental Health Perspectives, Volume 103, Number 5, May, 1995, pp. 472 et seq. at 478-479.

2 It is also likely that smaller changes in concentration of PM2.5 are more profound than with PM10 as PM2.5 particles are smaller and therefore the number of particles are greater per unit change in concentration, suggesting that any increment should be far less than it is for PM10. The number of particles penetrating deeply into the lung may be the crucial mechanism leading to the inflammation causing PM impacts. See Bart Ostro, "The Association of Air Pollution and Mortality: Examining the Case for Inference", Archives of Environmental Health,, September/October 1993 [Vol. 48(No. 5)], pp. 336 et seq. at 341.

[Begin U11]

The problem with the thresholds utilized is best revealed by analyzing the actual health impacts resulting from the increases projected to result from the project. According to Table 4.5-26, the increase in PM10 from the PG&E proposed project to sell the three fossil fuel San Francisco Bay Area power plants is from 297 to 345 tons per year, looking just at the years 1999 and 2005. According to the testimony of the Bay Area Air Quality Management District's chief statistician, Dr. David Fairly, in the prior San Francisco Energy Company application before the California Energy Commission, attached hereto as Exhibit C, an increase from a proposed power plant in Hunters Point of more than 45 tons per year in PM (as with this plant, primarily PM2.5) could have resulted in 2-6 deaths in the region, with a far greater number of incidents of asthma and emphysema exacerbations. Exhibit C at 6. Using these numbers, one could project that the number of deaths would accordingly increase for the entire PG&E power plant sale, as 345 tons would result in 15 to 46 deaths per year, with still greater numbers of incidents of asthma and emphysema exacerbations. Yet the DEIR's threshold implicitly suggests inhumanely that this number of deaths of people is insignificant, as well as the suffering from emphysema and asthma that would affect far more people than those whose deaths are hastened by the PM10 exposures, because the concentration level does not rise to the 10ug/m3 used for methodological purposes in epidemiological studies.

[End U11]

[Begin U12]

The DEIR in addressing a situation where the standards are already exceeded should be consistent with the good science suggested by the City's Public Health Department and the expert scientific opinion of the BAAQMD's statistician. Any increase that may impact a human being and cause a serious health impact such as death, asthma attack or emphysema is significant, and should require the source to utilize BACT offset increased emissions.

[End U12]

C. Criterion 5.

[Begin U13]

Criterion 5 declares that inconsistency with the regional air quality plan is a basis for the finding of significance. While the current plans are insufficient to attain health standards, certainly a conflict with such a plan would suggest a significant impact.

The problem with the criterion is that it goes on to create a threshold whereby inconsistency must cause an increase over one percent of the regional inventory. It is not clear where this criterion comes from.

As discussed below regarding cumulative impacts, this use of a ratio is not appropriate when evaluating cumulative impact. This criterion is also faulty because the Bay Area plan assumed that the federal standard was maintained, and the state standard does not guarantee

attainment by any date certain. In such circumstances, any violation of the plan has serious repercussions.
[End U13]

II. CUMULATIVE IMPACTS

[Begin U14]

The DEIR tries to dismiss cumulative air quality impacts (as well as other air pollutant impacts) by relying on the judicially discredited ratio analysis. The DEIR basically argues that since the percentage of air quality emissions and the accompanying concentrations from the plants are small compared to the Bay Area inventory and accompanying concentrations, then the increase is insignificant. The DEIR also uses the years 2005 and 2015 for its cumulative analysis, and wrongly limits cumulative impacts in many instances to future project or a limited set of existing projects, rather than all past, present and reasonably anticipated future projects impacting the ambient air.

The relevant question to be addressed is not the relative amount pollutant from the project when compared to existing pollution but whether an additional amount should be considered significant in light of the serious nature of the already existing problem. Los Angeles Unified School District v. Los Angeles, 58 Cal. App. 1019, 1025 (4th Dist. 1997). In that case, the court determined that the EIR was inadequate because it deemed insignificant an expected 2.83 dBA increase in noise from the proposed project because it failed to meet a regulatory significance threshold, even though the noise level in the area already exceeded the State's recommended maximum of 70 dBA. A similar reasoning is present in this DEIR.

In determining the cumulative effects of the increase in carbon monoxide, reactive organic gases, nitrogen oxides, and particulate matter, the DEIR reports that the increases are less then significant because the power plants will not contribute more than 1% of these pollutants to the region's air quality in the years 2005 and 2015. See Pg 4.5-59 and Table 4.5-26 at 4.5-57. However, at the same time the amount of regional carbon monoxide will increase by 2,275 tons/yr, ROGs 322 tons/yr, SOx 84 tons/yr, and PM-10 297 tons/yr. NOx will be reduced by controls finally in effect by 2005, but in the 1st year after the sale NOx will increase by 4,389 tons/yr.

A project's impact cannot be considered insignificant because it's contribution to air quality is insignificant when compared to other sources. Kings County Farm Bureau v. City of Hanford 221 Cal. App.3d 692, 720 (5th Dist. 1990). The Court of Appeals held inadequate the cumulative impact analysis prepared for an EIR for a proposed coal-fired cogeneration power plant. The Court called this method of finding an impact insignificant because it was small compared to other sources, the incorrect approach. Id. This "ratio" theory of impact analysis allows a large pollution problem to make a project's contribution appear less significant in a cumulative impact analysis. But the Court strongly disagreed, holding that such a method would "avoid analyzing the severity of the problem and allow approval of projects which, when taken in isolation, appear insignificant, but when viewed together, appear startling." It is invalid and

terribly misleading of the DEIR to conclude that the impacts to air quality are insignificant because it is less then one percent of regional emissions. (Pg 4.5-59). In fact, the more severe existing environmental problems are, the lower the threshold should be for treating a project's cumulative impacts as significant. Id. at 721. See discussion of Los Angeles Unified School District v. Los Angeles (1997) 58 Cal. App. 1019, supra.
[End U14]

[Begin U15]

Utilizing Dr. Fairly's analysis described above makes clear how inhumane this ratio approach is. As discussed above, Dr. Fairly's analysis would estimate approximately 15-46 deaths from the entire proposed project. Dr. Fairly also concluded that approximately 1,260 to 2,940 deaths per year are attributable to PM10 exceedances of the state standard in the Bay Area. Exhibit C at 7. The ratio approach might basically suggest that if 15 deaths is the more accurate number, and 2,940 is more accurate for the region, since 15 deaths are less than 1% of the region, these 15 deaths are insignificant and no effort should be made to avoid these deaths. This kind of analysis is immoral, and illegal under CEQA, whether we are talking about deaths, asthma attacks, exacerbations of emphysema or heart disease, all impacts associated with PM.
[End U15]

[Begin U16]

The appropriate test for cumulative impacts requires first examining whether a standard is exceeded in the ambient atmosphere at any time during the life of the project. In this case, that is true for PM10 and ozone at least in the foreseeable future. The DEIR properly notes that both ozone and PM10 standards are now being violated, and should also note that no plan for attainment of the state PM10 standard is in place, the federal plan for ozone has been found to be inadequate to attain the standard, and the state ozone plan does not provide for attainment of the state ozone standard by any date certain.[3] The next question is whether power plant emissions contribute pollutants regulated by the standard to the ambient atmosphere. As the DEIR correctly points out, that is true for all facilities. E.g., p. 4.5-26 (For Potrero - "The power plant emissions contribute to ambient pollutant concentrations of criteria air pollutants in the plant vicinity"). If so, the cumulative impact must be considered significant. See discussion under criterion 1, above.[4]
[End U16]

III. CAPACITY FACTORS

[Begin U17]

The DEIR attempts to evaluate the potential extent of impacts by using a SERASYM model based upon an estimate of the likely operations of the new facilities, rather than their true

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3 The DEIR should make clear that US EPA's action designating the area as nonattainment also found the existing maintenance plan inadequate and is requiring the District to develop a new plan.

4 It might be useful for Potrero to break the wind rose down by months. If so, as with the Hunters Point assessment performed by the California Energy Commission, it would show that during winter months when PM10 levels are high in the community, the wind is more often blowing into the community bringing power plant emissions with it.

potential maximum capacity. Such an analysis hardly evaluates the potential adverse impacts that could result from the sale. Much of the analysis of impacts assumes that the new owners will operate the Potrero plant, for example, at the Analytical Maximum Capacity of 44% in 1999 and 40% in 2005. (pg 3-10). However, the DEIR states that "the degree to which generation would increase at the plants slated for divestiture is highly uncertain." (pg 3-8). Given this uncertain nature, it is imperative that the DEIR examine how the change in degree of generation will affect pollution output at capacity factors greater than 44% and 40% and determine at what point the degree of generation will result in significant impacts. [End U17] [Begin U18] Since energy output is not constant throughout the year (pg 4.5-22), the DEIR should also provide information on the actual maximum capacity factor on a daily basis and how that would differ from the annual capacity factors. [End U18]

[Begin U19]

Additionally, the DEIR does not contain facts and analysis to show how the various capacity factors were derived other than to describe in general terms the major assumptions that were used in the baseline computer simulation. (pg 3-9). "The EIR must contain facts and analysis, not just the bare conclusions of a public agency. An agency's opinion concerning matters within its expertise is of obvious value, but the public and decision-makers, for whom the EIR is prepared, should also have before them the basis for that opinion so as to enable them to make an independent, reasoned judgement." Santiago Water District v. County of Orange, 118 Cal. App. 3d 818, 831 (4th dist. 1981)**.** "[A]n EIR must include detail sufficient to enable those who did not participate in its preparation to understand and to consider meaningfully the issues raised by the proposed project." Laurel Heights Improvement Association v. Regents of the University of California, 47 Cal. 3d. 376 (1988).
[End U19]

[Begin U20]

If the EIR is assuming the maximum capacity is 44%, it is incumbent that the project description and the Commission's approval include a condition that the plant cannot be operated at a capacity factor at any time (at least over a 24 hour period to reflect the PM10 24 hour standard) over 44%. Otherwise the analysis fails to consider the potential adverse impacts from this sale and an approval for operations at greater capacity would not be supported by the environmental analysis.
[End U20]

IV. THE AIR QUALITY BASELINE AT POTRERO NEEDS FURTHER ANALYSIS.

[Begin U21]

The DEIR fails to provide needed data on the air quality baseline in the vicinity of the Potrero Power Plant. In preparing an EIR, the project's impacts must be evaluated against the backdrop of the "environment." CEQA Guidelines §15063. CEQA Guidelines define the "environment" as the "physical conditions which exist within the area" including "both natural and man-made conditions." CEQA Guidelines §15360. An EIR must describe "the environment in the vicinity of the project as it exists before the commencement of the project, from both a

local and regional perspective." CEQA Guidelines §15125. No air quality data is presented for the local vicinity of the Potrero Plant. In fact, the only baseline air quality data presented is for the Arkansas Street Monitoring Station, which is over 1 mile away and predominately upwind or cross wind from the Potrero Plant. (pg 4.5-22) Conversely, no information is presented that would suggest a correlation or relationship between air quality at the Arkansas Street Monitoring Station and air pollutants released from the Potrero Plant. In fact, the DEIR suggests no correlation or relationship exits between air quality at the Monitoring Station and the Potrero Plant, given that the highest PM10 concentrations measured at the Monitoring Station do not correspond to the time of year of the highest PM10 releases from the Potrero Plant. (pg 4.5-22). Or conversely, it could be interpreted that if PM10 is high in the winter when emission are blowing toward the monitoring station then they may be even higher during times of the year that power generation is higher and therefore PM10 emissions are higher. Monitoring data from Table 4.5-7 (pg 4.5-23) is from the Arkansas Street Station, which, if interpreted with the wind rose presented on page 4.5-27, most likely represents air quality from areas at least 3/4 mile west of the Potrero Power Plant, such as the Mission District and US 101 Freeway.

The DEIR needs to explain the relationship between the monitoring station and modeling results and justify the relevance of comparing modeling results with the ambient air quality data from the Arkansas Street Monitoring Station. In addition, the DEIR needs to demonstrate how the ambient air quality presented in Table 4.5-7, pg 4.5-23 is relevant to stack emissions from the power plant. If a relevance can be established, data should be presented that discloses the ambient air quality during the times that the Arkansas Monitoring Station is downwind of the power plant.
[End U21]

V. SECONDARY PARTICULATE MATTER

[Begin U22]
The DEIR fails to address the generation and impacts of particulate matter formed by the reaction of nitrogen oxides in the atmosphere, known as secondary particulate. It is estimated that up to 1/6 of the nitrogen oxides from power plant emissions are converted to particulate matter (private conversation with David Fairly).
[End U22]

VI. MODELING ANALYSIS

[Begin U23]
The DEIR fails to present sufficient details of the dispersion modeling analysis of PM10 (pg 4.5-31) to allow the public and decision-makers to evaluate the model data imputs, assumptions and findings in order to have some level of confidence in the model's conclusions. [End U23] [Begin U24] For the model to be usable as a way to predict future events it must, at a minimum, be demonstrated that the model can actually predict present effects from present pollution source conditions. In other words, data from actual emissions of the power plant should be used as input data to the model and the model's prediction of pollutant

concentrations at the receptors (where the people are located) should match actual field measurements at those locations. [End U24] [Begin U25] Additionally, it should be demonstrated how changes in model assumptions and changes in input data will effect the output. This is the only way that the results from the model can be considered meaningfully. [End U25]

VII. NOx AND OZONE

[Begin U26]

The DEIR does not adequately address the impact of the project to local and regional ozone concentrations. Table 4.5-26 indicates that ROG and nitrogen oxides will about double in 1999 upon sale of the plants which suggests that ozone concentrations will also increase and that such emissions will be above the baseline (defined as the emissions resulting from PG&E's ownership) until such time as PG&E's operations without a sale would be equivalent to the operations with a sale (this may never be true unless PG&E entirely divested all of its facilities). [End U26]

[Begin U27]

The DEIR appears to dismiss the significance of the project's ozone precursor emissions in two ways. First it notes that the emissions will eventually decrease once more stringent concentration standards are in place. This analysis errs in two respects. First, in years prior to the more stringent limits, emissions will increase. Secondly, even when they decrease, they would decrease even more if PG&E retained ownership. As these are concentration rather than mass limits on emissions, if PG&E operates it less given its likely portfolio of facilities their ownership would mean further reductions. As the region is out of attainment, the failure to grasp additional ozone reduction opportunities may mean a failure to attain the standard, causing a significant impact.
[End U27]

[Begin U28]

The DEIR seems to implicitly rely upon its significance threshold that these emissions will be consistent with the Bay Area SIP. However, the SIP has been determined to be inadequate by the US EPA to attain the standard, thus compliance with Rule 9-11 is no guarantee of avoidance of a significant impact. Until EPA approves a new plan, not expected until at least 2001, any increase in emissions or minimizing of potential reductions due to the sale of the plant may mean significant impacts unnecessarily continue or are exacerbated.
[End U28]

[Begin U29]

As with PM10, the DEIR indulges in a ratio analysis by comparing the increased ozone precursor emissions with the regions ambient ozone concentration. This analysis for the reasons described above is improper. Given that there is no approved plan in effect to attain the federal standard, and the state plan makes no pretense of assuring attainment of the state standard, any

increase in emissions or minimization of reductions resulting from the project will cause cumulative impacts that are significant.
[End U29]

[Begin U30]

During the interim years before the most severe NOx controls begin to be in place (2002), smog exceedances may occur with increasing frequency in the San Francisco Bay Area (1995, 1996 and 1998 smog levels are the highest in a decade). The report should note that US EPA determined that the BAAQMD plan is now insufficient to prevent such exceedances, and that new controls may not be approved by EPA until somewhere between 2000 and 2002. ROG and NOx will about double by the year 2000 as a result of the sales of the power plants. ROG and Nitrogen oxides are precursors to the formation of ozone. Unless emissions from the plants are balanced completely by offsets and the utilization of BACT, the cumulative impact must be considered significant.
[End U30]

VIII. CARBON MONOXIDE AND SULFUR OXIDES

[Begin U31]

Table 4.5-23, pg 4.5-54 indicates that the Potrero emissions of carbon monoxide and sulfur oxides may increase substantially from the 1999 baseline yet Table 4.5-29, pg 4.5-63 indicates no local change in carbon monoxide or sulfur dioxide concentration. That table appears to present conflicting information unless there is a valid reason why stack emissions can increase and have absolutely no affect on the maximum local concentrations of pollutants in the air. [End U31] [Begin U32] Table 4.5-23 also indicates that emissions of nitrogen oxides will double between the 1999 baseline and the 1999 analytical maximum but the local ambient concentration of nitrogen dioxide will remain unchanged (Table 4.5-29). This apparent discrepancy should be explained. [End U32]

IX. TOXICS

[Begin U33]

The DEIR concludes that since project-specific toxic impacts are less then significant cumulative risks are also insignificant. (Pg 4.5-75) This conclusion comes from the conclusion presented in the Mission Bay SEIR, which assumed that cumulative impacts on ambient concentrations of toxic air contaminants are significant since the project-specific impacts are significant. Although it can be conservatively assumed that cumulative risks are significant if the project-specific risks are significant, the reverse is not necessarily true. CEQA Guidelines define a mandatory finding of significance to include where "the project has possible environmental effects which are individually limited but cumulatively considerable." "...cumulative considerable means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects." (CEQA Guideline 15065(c)). Section 15355 says that "cumulative impacts can result from individually minor but collectively

significant projects taking place over a period of time." The DEIR's reasoning for a finding of no cumulative impacts is therefore illogical and directly contrary to CEQA Guidelines and case law. The DEIR needs to therefore consider in a more realistic approach the cumulative effects of toxic air contaminants.
[End U33]

[Begin U34]

The DEIR concludes that cancer risk is insignificant because the incremental increase in cancer risk is 0.06 per million. (pg 4.5-30) However, there is no standard significance threshold for acceptable cancer health risks. (pg 4.5-30) The predicted increase in cancer risk is also proportional to the increase in energy generation by the new owners, so the actual cancer risk may be higher then stated. Even so, it is necessary under CEQA considerations of cumulative impacts to address the incremental increase of cancer risk increase as cumulatively considerable. The DEIR downplays cancer risk to Bayview-Hunters Point residences by citing a California Department of Health Services report[5] which states that breast cancer rates were "very similar to other regions of the Bay Area." DEIR at 4.5-30 through 31. This may or may not be true since differing conclusions can be drawn depending on which time period for observations is chosen. However, it is of little comfort since Bay Area rates are among the highest in the world, and the Glazer study does not question the Bay Area rates. The DEIR should point out that, according to the American Cancer Society[6]:

1. African American men have the highest overall cancer rate of all ethnic groups in the United States.
2. Hispanic women are nearly twice as likely as the general population to develop cervical cancer.
3. Breast cancer rates among African American and Native American women in the San Francisco Bay Area are among the highest in the world.

Consequently, when the incidences of various forms of cancer in the Bayview-Hunters Point neighborhoods are compared to national averages, and considering the ethnic makup of the neighborhoods, the results demonstrate that cancer is already a serious problem around the Potrero Power Plant and any increase in cancer is significant.
[End U34]

[Begin U35]

Table 4.5-10 displays toxic air contaminants that were emitted up to 1995, and with the exception of benzene and formaldehyde, the 1995 concentrations are "zero or less than reportable quantities." It should first be clarified which of the 1995 concentrations are in fact zero or less than a reportable quantities and, if applicable, what is the reportable quantity. Secondly, the DEIR does not make any prediction or estimation of the amount and

5 Glazer, Eva R., Martha M. Davis, Tomas Aragon, Cancer Incidence Among Residents of the Bayview-Hunters Point Neighborhood, San Francisco, California, 1993-1995. Prepared by the Cancer Surveillance Section, Department of Health Services, January 1998.

6 Senators Dianne Feinstein and Connie Mack Report to Senate Cancer Coalition. (http://www.senate.gov/~feinstein/cancer2.html, 11/25/97)

concentrations of toxic air contaminants after the Potroro Plant is sold. At a minimum, Table 4.5-10 suggests that benzene and formaldehyde, both human carcinogens, will continue to be emitted after the power plant is sold and that the amounts will probably increase in proportion to the amount of electricity generated. The DEIR needs to specifically address these chemicals, considering the amounts emitted and dispersion pattern, both temporally and spacially.
[End U35]

X. LOCATION OF NEW GENERATION

[Begin U36]

Table 5.1 (pg 5-12) and Section 5.3 (pg 5-16) do not include the strong possibility of a power generation facility being built next to the Potrero Power Plant and/or the repowering of the Potrero Power Plant. The DEIR reports that power demand in San Francisco will increase by approximately 10 MW per year and that the Hunter's Point Plant will be closed when replacement power generating capacity is available and that it is necessary that new generating capacity be located north of the Martin Substation. (Citation) The Potrero Plant is located in an M-2 (heavy industry) District zone and it is our assumption that any new generating facility will be similarly zoned. Given the increased demand for electricity, coupled with the limited number of M-2 zones north of the Martin Substation it is reasonably foreseeable that a new facility may be located next the existing Potrero Power Plant and/or there will be some economic incentives to repower the Potrero Plant.
[End U36]

[Begin U37]

Further, DEIR states in Attachment C (System Economics and Operational Characterization) that "a new owner may repower as soon as possible to reduce the potential economic benefits to the ISO from approving a transmission upgrade." (Pg C-36) In other words, there is a foreseeable economic advantage to repowering the Potrero Plant. Impact assessments should account for reasonably foreseeable future phases, or other reasonably foreseeable consequences, of proposed projects. Laurel Heights Improvement Association of San Francisco, Inc. v. Regents of the University of California, 47 Cal.3d. 376 393 (1988). The Court in Laurel Heights reasoned that even though a future expansion of a medical facility was not yet formally approved, the expansion was reasonably foreseeable. In a separate case the California Fish and Game Commission had to assess the cumulative impacts of authorizing mountain lion hunting on future hunting seasons, even though separate future regulatory decisions would be required to approve such seasons. Mountain Lion Coalition v. California Fish and Game Commission, 214 Cal. App.3d 1043, 1048 (1st Dist. 1989). The DEIR must therefore anticipate that repowering will take place and/or that additional generating capacity could be built next to the Potrero Plant.
[End U37]

XI. IMPACTS TO WATER QUALITY

[Begin U38]

The DEIR declined to find a significant impact to surface water quality, using future remediation plans and permits as an excuse (see 4.4-14). However, the California courts have firmly established that an environmental analysis must be conducted at the earliest possible time when environmental effects caused by future expansion is a reasonably foreseeable consequence of the initial project. Mount Sutro Defense Committee v. Regents of the University of California, 77 Cal. App. 3d 20, 34, 143 Cal. Rptr. 365 (1st Dist., 1978).

Here, the report admits that this project could advance the cleanup of potentially contaminated soils, effecting surface water quality. However, the report fails to analyze this effect even though the cleanup could be rushed by the sale of the power plants. Moreover, the report admits that no permits have yet been issued. Therefore, no environmental analysis has been made. For the report to decline analysis at this stage is contrary to CEQA protocol.
[End U38]

[Begin U39]

This DEIR similarly declines to address environmental impacts with regard to water flow, thermal limits, and effluent constituent limits. It assumes that since RWQCB issued permits for these effects that the impacts have already been addressed. The report then shirks its duty by claiming that the RWQCB has the job of making sure there are no violations (see 4.4-15 & 16). This conclusion is a distortion of CEQA.

Sections 15253 and 21080.5 of CEQA allows the substitution of a qualified permit for a CEQA analysis as long as the permit addressed identical environmental concerns and that the project for which the permit was issued is the same project the current DEIR is analyzing. The situation here fails to meet both requirements.

First, the permit doubtfully could have conceived of the sale of the power plants when it was issued, as it does not contain mass limits, only concentration limits. Even if it did, the DEIR offers no indication.

Second, this divestiture project is different than PG&E's original project to operate. The current project involves selling the plant to an owner who will then be allowed to operate in an open market. When PG&E was given the initial permit, it could not operate on an open market. Therefore, the reliance on the existing permit for a finding of no significant impact is improper.
[End U39]

[Begin U40]

Additionally, the DEIR fails to consider the effects of a permit violation (i.e.: an adverse environmental impact) shouldering that responsibility onto RWQCB.

The purpose of CEQA is to *prevent* and *mitigate* possible adverse environmental impacts. This report fails to prevent possible impacts by allowing probable damage to occur (through a permit violation) and then relying on another agency to take action after the damage is done. Again, this flies in the face of what CEQA is designed to do.
[End U40]

XII. CONCLUSION

[Begin U41]
If the DEIR is properly revised, it should find that there are significant air quality impacts. This is not a devastating problem for this project. All it means is that air quality mitigations must be put in place, measures that likely will eventually happen for all of these plants anyway as they must meet increasingly more stringent air pollution requirements. It merely requires that they be employed now to avoid the deaths and suffering delay will cause for Bay Area residents.
[End U41]

[Begin U42]
For example, Potrero, is likely to be repowered (see DEIR at C-36), so requiring BACT before operations can be increased provides no additional burden on the new owner, other than accelerating the process. Offsets for any increases in PM should be minimal if BACT is employed. Thus, a tortured analysis trying to minimize emissions in a manner contrary to undisputed case law is unnecessary and a disservice to the project sponsor and the public.
[End U42]

If you have any questions regarding our comments, please feel free to call any of the undersigned. We may be reached by telephone at (415) 442-6647 and by E-mail at aramo@ggu.edu. Thank you for your consideration.

Sincerely,

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_____
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Note: Included with this comment were many pages of Exhibits A, B and C documents. Since these cannot be reasonably duplicated here on this web page they are not available electronically. Should the viewer require a copy of these, please contact Webmaster for a printed copy.

U. SOUTHEAST ALLIANCE FOR ENVIRONMENTAL JUSTICE
(as Represented by Golden Gate University Environmental Law and Justice Clinic)

U1 The DEIR identifies the project's potential inconsistency with the regional air quality plan as a significant effect, which belies the commenter's claim that the DEIR minimizes the impact of the project on regional air quality.

U2 As stated on page 4.5-61, the DEIR indicates that increases in emissions would be significant if they would result in significant increases in local criteria air pollutant concentrations, in significant increases in health risks in the vicinities of the plants, or in significant increases relative to emissions projections used in regional air quality plans. The first two types of impacts (criteria air pollutants and health risks) were evaluated using standard thresholds rather than any percentage-, or ratio-, type threshold. The third type of impact (comparison with plan projections) did use a one-percent test as an indication of emissions estimates that would be notably out-of-sync with those developed for the regional air quality plan. It should be noted that the comparison with power plant projections was the basis for a project-specific impact determination, not a cumulative impact determination. Using the one-percent test, the DEIR concludes that emissions increases would be a significant effect of the project. Ironically, the one-percent test or "ratio" method, to which the commenter objects, is the only significance criterion by which air quality impacts due to the project were found to be significant in the DEIR. It is noted also that, in developing the one-percent criterion, the EIR consultant conferred with staff at BAAQMD (the agency responsible for developing emissions projections used in the regional air quality plan), who agreed that this approach was both reasonable and appropriate in this context (Guy, 1998). Please also see response to Comment U13. For additional information regarding cumulative impacts on regional ozone and PM-10 emissions, see responses to Comments U14 and U16.

Reference:

Guy, Bill, Bay Area Air Quality Management District, telephone communication, July 29, 1998.

U3 The choice of the endpoints does not fail to account for any substantial changes in operations which may occur at these plants. As discussed in Chapter 3 and Attachment C, the difference in incentives and opportunities between PG&E and any new owners will diminish, particularly starting in 2002. At that date, PG&E can enter the direct access market, just as the new owners. In addition, PG&E must add increasingly stringent emission control measures at its plants in the Bay Area. As a result, total NO_x emissions will fall after 1999 in any case assuming a constant behavioral change (the only assumption possible in this type of analysis). Any increase in electricity demand is likely to be relatively small in the three-year period from 1999 to 2001, and, with the expected addition of substantial new generation resources in the next five years (see Section 5.2.2 (page 5-3), most of this increased demand will be met by other facilities.

The EIR does not ignore potential air quality effects in the years between 1999 and 2005. The air quality section includes an comparison of power plant emissions under the Baseline scenario (with continued PG&E ownership), and A-Max scenario (new ownership) with projected power plant emissions contained in the *'97 Clean Air Plan*. The years of analysis are 2000 and 2003, because these are the years for which emission estimates are provided in the *'97 Clean Air Plan*. These analyses are summarized in the DEIR in Table 4.5-35 (on page 4.5-78), in Table 4.5-36 (on page 4.5-79 and in Table 4.5-37 (on page 4.5-80). The DEIR determined that if the plants were operated at the A-Max levels, there would be a significant, unavoidable but temporary effect. The impact would be significant in the year 2000, but with the implementation of Mitigation Measure 4.5-5, it would be less than significant by the year 2003.

Finally, the EIR does not minimize 2005 cumulative impacts associated with new owners of the plants simply because it does not compare the new owners' operations with PG&E's projected 2005 operations if PG&E were to retain the plants. Indeed, the EIR employs a conservative approach by attributing any changes in plant operations between 1999 and 2005 to the project itself. In any event, the DEIR does analyze PG&E's projected operations in 2005 as Alternative 1, the No Project Alternative (beginning on page 6-9). Thus, the EIR does acknowledge continued differences between PG&E and new owners in 2005.

U4 The capacity factors modeled in the DEIR as reported in Table 3.1 represent an annualized capacity factor for each generating unit. Actual operations vary during the course of a year, based on the demand at any time and the operational characteristics of a unit. Therefore, it does not make sense to use the capacity factors as strict operational limits on the power plants because, under a given set of circumstances, a given plant may need to be operated temporarily at higher levels to meet the immediate energy demand. Nor is it true that absent such limits the DEIR has failed to properly analyze the adverse impacts of the project. As discussed in Chapter 3 of the DEIR, the Analytical Maximum scenario represents the highest capacities at which the plants realistically could operate, taking into account a variety of limiting factors. As noted in the DEIR (page 3-12, second complete paragraph), the Analytical Maximum scenario is extremely unlikely to reflect a true operating scenario. A number of unlikely assumptions were made in running the SERASYM™ model so that the Analytical Maximum scenario would represent worst-case operating levels for purposes of environmental analysis. For example, the scenario assumes that all three fossil-fueled power plants would have an unlimited supply of natural gas at a price 25 percent below the least expensive supply of gas assumed to be available to fuel California power plants. Given the very conservative nature of this assumption, if circumstances were to change, as suggested by the commenter, it is much more likely that the natural gas prices paid by the plant owners would be higher, not lower, than the prices modeled, which would tend to suppress rather than boost operating capacities. Regarding other inputs, such as transmission system capability and operating procedures, these factors are more likely to favor new plants, not the plants being divested. For example, if existing transmission constraints were removed, it would make it more likely that

generation would be boosted at more efficient plants, not at the less efficient Bay Area plants. Please also see the responses to Comments F53 and F54.

Please note that, in addition to analyzing the annual capacity factor changes, the DEIR also assesses the adverse effects of maximum 1-hour, 8-hour, and 24-hour operations of the power plants at substantially higher operating levels than the annual capacity factors. The results of this analysis are summarized in the tables addressing air quality concentrations. The concentration estimates for the Potrero, Contra Costa, and Pittsburg Power Plants are presented in Tables 4.5-29 (page 4.5-63), 4.5-31 (page 4.5-66), and 4.5-32 (page 4.5-68), respectively.

U5 BAAQMD developed Regulation 9, Rule 11 as a means of implementing Best Available Retrofit Control Technology (BARCT) for the source category of utility boilers. It should be noted that the power plants proposed for divestiture are existing permitted sources, which are subject to BARCT, rather than Best Available Control Technology (BACT), which applies to new sources. Under BAAQMD Regulation 9, Rule 11, the steam boilers at the three fossil-fueled power plants to be divested are subject to increasingly stringent standards for NO_x. Mitigation Measure 4.5-5 requires either permit modifications or changes to Regulation 9, Rule 11, either of which would assure that these increasingly stringent standards will apply to PG&E or to new owners. (The DEIR lists modification of Regulation 9, Rule 11, or equivalent permit revisions, as Mitigation Measure 4.5-5.) Moreover, to meet these standards, PG&E or the new owners would likely have two main options: (1) install more effective NO_x reduction technology, or (2) decrease the use of one or more steam boilers.

Thus, by 2005 and with implementation of Mitigation Measure 4.5-5, NO_x emissions, even under the A-Max condition, would be substantially less than under existing conditions (see Table 4.5-26 on page 4.5-57 of the DEIR). Therefore, two of the types of mitigation called for by the commenter (more effective emissions control technology and reduced capacity factors) are precisely the types of options that PG&E or new owners have to meet the requirements of Regulation 9, Rule 11, so no further mitigation would be needed.

The commenter also cites offsets as a possible mitigation measure; however, offsets in the form of emissions credits are not generally considered CEQA mitigation since they are not contemporaneous emissions reductions. With regard to offsets, see also response to Comment U17.

U6 Air quality significance criterion #1, "violation of an ambient air quality standard or substantial contribution to a projected violation of an ambient air quality standard," is an appropriate criterion to use in evaluating both project-specific and cumulative impacts and was used to evaluate both types of impacts in the DEIR. DEIR Tables 4.5-29, 4.5-31, and 4.5-32 were formatted specifically to allow for easy comparison with the concentration standards associated with significance criterion #1. The distinction cited by the commenter between how cumulative effects are to be examined for purposes of an Initial Study versus how they are to be examined for an EIR does not reflect the current CEQA

Guidelines. Current CEQA Guidelines Section 15130 (a) extends the concept of "cumulatively considerable," which has been the guidance for Initial Studies, to the discussion of cumulative effects in an EIR. The EIR's analysis of cumulative impacts comports with CEQA requirements. Please see responses to Comments U14 and U16.

U7 The Prevention of Significant Deterioration (PSD) regulation is used by BAAQMD when conducting a new source review. The facilities in this project are not new sources that would be subject to PSD or that would require emissions offsets. Thus, the PSD regulation would not normally apply to these plants. However, in order to conservatively judge whether the project would substantially contribute to violations of air quality standards, the EIR embraced and fully applied the PSD regulation. The 24-hour concentration change of 5 micrograms per cubic meter and the annual average change of 1 microgram per cubic meter, that are stated in criterion #1, are not actually the ultimate PSD standards contained in the PSD regulation. They are concentration increases that are defined in the PSD regulation as threshold levels, below which there would be no substantial contributions to a projected air quality concentration change. Under the PSD regulation, if a new source would exceed these very low threshold levels, then further analysis is required and additional standards apply. However, as indicated in Section 4.5 of the DEIR, the project emissions would fall below even these threshold levels. Therefore, the project's impact is less than significant.

U8 The DEIR does not imply that there would be no health effects for levels below those identified in the referenced studies. Instead, it uses the levels of 20 micrograms per cubic meter and 10 micrograms per cubic meter to determine if the total plants (existing emissions plus emissions from divestiture) are major causes of respiratory problems at the maximum receptor, similar to the methods used by EPA when establishing new PM-2.5 standards (see responses to Comments F62 and F74). When considering the impacts from divestiture alone, the increases in concentrations of the 1999 A-Max and 2005 A-Max concentrations over the Baseline concentrations were compared to the more stringent thresholds of 5 micrograms per cubic meter and 1 microgram per cubic meter.

U9 Although the study cited in the comment suggests a relationship between low levels of PM-10 and health effects, there is considerable uncertainty in the magnitudes of the health effects and relative risks at lower levels, as was stated in the EPA 1996 staff assessment report on PM-10 and PM-2.5 (see response to Comment F74). The data contained in the study that are cited in the comment show a higher relative risk for the San Francisco area than for other cities. However, a plot in the study shows a much higher error bound for the San Francisco data than for the other cities. The error bound for San Francisco extends to levels that are equivalent to or lower than other cities in the study. Thus, it cannot be concluded that the relative risks for San Francisco are actually higher.

All of the relative risks included in the plot were for the same exposure level of 100 micrograms per cubic meter, well above the maximum PM-10 level (57 micrograms per cubic meter) that was measured for the San Francisco area in the past three years. The

maximum 24-hour average concentration reported for San Francisco in the cited study was 139 micrograms per cubic meter, occurring between 1981 and 1990, which again is well above the maximum level of recent years. Because of major changes in the types of fuels used in the PG&E boilers and because of the elimination of lead in gasoline in the mid-1980s, PM-10 concentration levels in the area have decreased significantly. Therefore, some of the conclusions in the cited study may not apply to present and future conditions.

U10 Conclusions cannot be drawn from the Thurston study (summarized in documents attached by the commenter) that there is increased vulnerability in the Bayview-Hunters Point area over other metropolitan areas. The relative risk coefficients described in response to Comment U9 show error bounds for the San Francisco data that are much greater than the other cities. Therefore, there is much greater uncertainty in describing the effects of a 100 microgram per cubic meter change (the normalized exposure level) for San Francisco than for other cities. Also, the study was carried out for the period from 1981-1990 when PM-10 levels were much higher than present-day levels in San Francisco. The highest 24-hour average level in San Francisco that was used in the study was 139 micrograms per cubic meter, which is much higher than the maximum level monitored in the last three years in the vicinity of the Potrero facility (57 micrograms per cubic meter). PM-10 ambient air concentrations in the Bay Area in the last few years have decreased for several reasons, including the elimination of leaded gasoline in automobiles, which were sources of fine particulate matter in the form of lead oxide, and the ceasing of fuel oil burning, which also is a source of particulate matter. Much of the particulate matter that was released into the atmosphere in the region in the 1980s contained toxic substances, such as lead from auto exhaust and polynuclear aromatic hydrocarbons from burning residual fuel oil in steam boilers. The PM-10 monitoring data at the Arkansas station in the Bayview Hunters Point area shows maximum ambient air levels that are lower than levels in other parts of the Bay Area (see Tables 4.5-29, 4.5-31 and 4.5-32).

The studies regarding higher incidences of respiratory related illnesses in the Bayview Hunters Point area that are cited on page 4.5-31 of the DEIR do not identify the causes of the respiratory related illnesses, nor do they relate hospitalizations to elevated exposure levels of particulate matter. On that page, the DEIR states that a detailed study would be necessary to better determine the cause(s) of the health effects. Such a study is beyond the scope of this EIR. In addition, there is no inference in the earlier study that the power plants are a major factor in the respiratory illnesses in the Bayview Hunters Point area, and the contributions of the power plants to existing and future local concentrations of criteria air pollutants in the area are minimal (see DEIR, Table 4.5-29, page 4.5-63).

Volume III of the EPA Air Quality Criteria Document for Particulate Matter (USEPA, 1996a) indicates that a number of factors and confounding parameters besides ambient air PM-10 levels can considerably affect respiratory related health effects, such as particle size and the composition of the particulate matter. With regard to the composition of particulate matter from natural gas combustion at the PG&E plants, there is very little information on the health effects from exposure to these substances. In other words, not

all particulate matter is the same with regard to health effects. It is very important to include both composition and particle size when assessing health effects. Because this information was not available, the DEIR conservatively assumed that all particulate matter was the same with regard to health effects.

There is very little information on the composition of particulate matter emissions from gas-fired boilers, such as those used at the PG&E plants, mainly because the emissions of total particulate matter are so low that the levels of any toxic substances that may be contained in particulate matter are usually below the detection limits. Particulate matter from the combustion of fossil fuel, including natural gas, residual fuel oil and distillate fuel, consists of a carbon core with other substances adsorbed to the surface of the carbon core. The combustion of residual fuel oil and distillate fuel produces other products of incomplete combustion that are absorbed onto the carbon core. These products of incomplete combustion consist mainly of multi-chain carbon organic fragments, such as polycyclic aromatic hydrocarbons (PAHs). PAHs are a group of compounds that have been considered by USEPA and by the California Office of Environmental Health and Hazard Assessment (OEHHA) to be carcinogens. For oil, wood, and coal combustion, PAHs are considered to be one of the major toxic substances of concern. Particulate matter emissions from fossil fuel combustion may also include toxic metals that are both carcinogens and non-carcinogens. Most of these toxic metals are contained in the fuel initially.

With respect to natural gas combustion, there is little opportunity to form long-chain PAHs, because the starting fuel consists mainly of methane, which contains only one carbon atom per molecule. Therefore, the particles emitted from natural gas combustion contain mostly carbon. To verify this assumption, the measurement results for natural gas combustion were compared with measured emissions from the combustion of residual fuel oil. The comparisons are summarized in Table U10-1.

The emissions reported in the table are based on measurements for oil-fired and gas-fired electric utility steam boilers, which are reported in the updated EPA publication AP-42 (Version 5 sections 1.3 & 1.4 USEPA, 1998). Emission factors for the two fuels were converted to the common units (pounds of pollutant per million BTU of fuel combusted). For natural gas combustion, measurements were carried out for a number of PAHs but the levels were below the detection limits of the instrumentation. Although it is unclear whether these substances are actually present in the particulate matter, these substances were included in the analysis at one half the detection limit.

Using the conservative approach of including PAHs at one half the detection limit for natural gas combustion, Table U10-1. shows that total PAHs are about 5.7 percent of the levels measured for residual fuel oil combustion.

A similar comparison was conducted for the emissions of toxic metals from the combustion of the two fuels. The results in Table U10-1 show that total toxic metal emissions from combustion of natural gas were approximately 1.1 percent of the total toxic

metal emissions from the combustion of residual fuel oil. These results show that the toxic component of particulate matter is significantly lower than particulate matter from residual fuel oil combustion. Table U10-1 also shows that total particulate matter emission from gas fired boilers are about 20 percent of the levels reported for oil fired boilers, for the same heat input.

Another important factor in the health effects from inhaling particulate matter relates to the deposition rates in the respiratory tract. A principal factor in affecting deposition rates is the particle size. Studies reported in the EPA Criteria Document for Particulate Matter (USEPA 1996) and in other literature (Raabe, 1984) show that deposition rates in the respiratory tract are higher in the size range between 1.0 micron and 2.5 microns and for particles less than 0.2 microns. Relative deposition rates for the size range between 0.2 microns and 1.0 micron are lower (see also response to Comment F74).

The cumulative particle size distribution for utility boilers firing residual oil indicates that 71 percent of the particles are less than 10 microns, 52 percent are less than 2.5 microns, 39 percent are less than 1 micron, and 20 percent are less than 0.625 microns. Since a considerable portion of the emissions are less than 2.5 microns, they can deposit in the respiratory tract.

Particulate matter emissions for natural gas combustion are usually less than 1 micron in size, with a considerable portion being between 0.1 microns and 1.0 micron (USEPA, 1998). Since a greater fraction of particles emitted from natural gas combustion appear to be in this size range, with lower deposition than emissions from fuel oil combustion, it can be inferred that a greater fraction from gas-fired emissions would be expired upon exhalation and would not be deposited in the respiratory tract. In the fine particle size range less than 0.1 micron, deposition in the respiratory tract particles would again increase.

References:

USEPA, Air Quality Criteria Document for Particulate Matter, Vol.III, EPA/600/P-95/001cF, April 1996.

USEPA, Compilation of Air Pollution Emission Factors, Version V, Sections 1.3 and 1.4, 1998.

Raabe, O., *Deposition and Clearance of Inhaled Particles*, Chapter 1. of *Occupational Lung Disease*, J.B. Gee, W.K. Morgan, and S.M. Brooks, editors, Raven Press, 1984.

U11 The comment attempts to relate annual emissions changes for the three PG&E fossil-fueled plants under the 1999 and 2005 A-Max scenarios directly to expected health effects, without addressing the actual ambient air concentration changes. It is concentration changes in the ambient air that are related to health effects. The DEIR shows on Tables 4.5-29 through 4.5-32 that the estimated maximum 24-hour average increases in

TABLE U10-1
COMPARISON OF MEASURED TOXIC PARTICULATE MATTER FROM THE COMBUSTION OF NATURAL GAS AND RESIDUAL (#6) FUEL OIL

ORGANIC COMPOUNDS	Natural Gas (lb/mmcfb)	Natural Gas (lb/mmbtu)	#6 Fuel Oil (lb/tgb)	#6 Fuel Oil (lb/mmbtu)	Ratio of NG/ Fuel Oil
Acenapthene*	9.00E-07[a]	8.82E-10	2.11E-05	1.40E-07	0.006
Acenaphthylene*	9.00E-07[a]	8.82E-10	2.53E-07	1.68E-09	0.527
Anthracene	1.20E-06[a]	1.18E-09	1.22E-06	8.08E-09	0.146
Benzanthracene	9.00E-07[a]	8.82E-10	4.01E-06	2.66E-08	0.033
Benzo(a)pyrene[b]	6.00E-07[a]	5.88E-10	--------	5.88E-10	1.000
Benzo(b)fluoranthene	9.00E-07[a]	8.82E-10	7.40E-07	4.90E-09	0.180
Benzo(g,h,i)perylene	6.00E-07[a]	5.88E-10	2.26E-06	1.50E-08	0.039
Benzo(k)fluoranthene	9.00E-07[a]	8.82E-10	7.40E-07	4.90E-09	0.180
Chrysene	9.00E-07[a]	8.82E-10	2.38E-06	1.58E-08	0.056
Dibenzo(a,h)anthracene	6.00E-07[a]	5.88E-10	1.67E-06	1.11E-08	0.053
Fluoranthen	1.50E-06[a]	1.47E-09	4.84E-06	3.21E-08	0.046
Indeno(1,2,3-cd)pyrene	9.00E-07[a]	8.82E-10	2.14E-06	1.42E-08	0.062
Phenanathrene	8.50E-06[a]	8.33E-09	1.05E-05	6.95E-08	0.120
Pyrene	2.50E-06[a]	2.45E-09	4.25E-06	2.81E-08	0.087
Total PAHs	--------	**2.14E-08**	--------	**3.72E-07**	**0.057**
METALS					
Antimony	--------	--------	5.25E-03	3.48E-05	--------
Arsenic	2.00E-04	1.96E-07	1.32E-03	8.74E-06	0.022
Barium	4.40E-03	4.31E-06	2.57E-03	1.70E-05	0.253
Beryllium	6.00E-06[a]	5.88E-09	2.78E-05	1.84E-07	0.032
Cadmium	1.10E-03	1.08E-06	3.98E-04	2.64E-06	0.409
Chloride	--------	--------	3.47E-01	2.30E-03	--------
Chromium	1.40E-03	1.37E-06	8.45E-04	5.60E-06	0.245
Chromium VI	--------	--------	2.48E-04	1.64E-06	--------
Cobalt	8.40E-05	8.24E-08	6.02E-03	3.99E-05	0.002
Copper	8.50E-04	8.33E-07	1.76E-03	1.17E-05	0.071
Lead	--------	--------	3.73E-02	2.47E-04	--------
Manganese	--------	--------	1.51E-03	1.00E-05	--------
Manganese	3.80E-04	3.73E-07	3.00E-03	1.99E-05	0.019
Molybdenum	1.10E-03	1.08E-06	7.87E-04	5.21E-06	0.207
Nickel	2.10E-03	2.06E-06	8.45E-02	5.60E-04	0.004
Phosphorous	--------	--------	9.46E-03	6.26E-05	--------
Selenium	1.20E-05[a]	1.18E-08	6.83E-04	4.52E-06	0.003
Vanadium	2.30E-03	2.25E-06	3.18E-02	2.11E-04	0.011
Zinc	2.90E-02	2.84E-05	2.91E-02	1.93E-04	0.148
Total Metals:	--------	**4.21E-05**	--------	**3.73E-03**	**0.011**
PARTICULATE MATTER					
PM (Total)	7.6	7.45E-03	5.67[c]	3.76E-02	0.198

SOURCE: EPA's AP-42, Version 5, Sections 1.3 and 1.4.

a Emission factors for natural gas that were identified as being less than method detection thresholds were assumed as one-half of the detection threshold and are identified above with an asterick.

b AP-42 did not provide a #6 fuel oil emission factor for benzo(a)pyrene. Therefore, it was assumed to be the same as natural gas.

c The particulate matter emission factor for #6 fuel oil is based on a sulfur content of 0.28.

ambient air PM-10 concentrations from divestiture would range from 0.5 to 3.6 micrograms per cubic meter at the maximum receptor. These maximum short-term increases are for localized areas and are not representative of increases for the entire region around the plants. Typical maximum short-term concentration increases in the area for population exposure, based on the modeling, would be considerably lower (less than 1.0 microgram per cubic meter). Most of the studies relating health effects from increases in exposure to particulate matter observed health effects when there were concentration increases of 20 to 25 micrograms per cubic meter for PM-2.5 and increases of 50 micrograms per cubic meter for PM-10. Other, more recent studies have reported observed health effects for increases of 10 micrograms per cubic meter, although with much greater uncertainty. None of the studies reported observed health effects for small increases in PM-10 concentrations (i.e., increases less than about 5 micrograms per cubic meter).

The EPA Criteria Document for Particulate Matter, which is cited in the response to Comment F74, shows a wide range in relative risk coefficients for concentration increases of 10 micrograms per cubic meter, varying by a factor of five. For greater increases, such as 20 to 50 micrograms per cubic meter, the Criteria Document indicates that health effects were observed and that relative risk coefficients were more certain. There is no indication in the document that there would be any health effects for increases less than 1 microgram per cubic meter. In fact, the EPA Criteria Document on Particulate Matter does not rule out a threshold below which no health effects would occur.

The risks at low levels, as identified in Exhibit C of the comment, were derived by extrapolating the relative risk plots for higher concentration increases to no concentration increase (zero concentration increase), even though there is no evidence that there would be any health effects at extremely low levels, especially for moderate background levels of short-term concentrations (30 micrograms per cubic meter). The studies do not report observed health effects at these small increases with moderate background levels.

The analysis that is referenced as Exhibit C in the comment extrapolates the relative risk coefficients that were derived from increases of 10 micrograms per cubic meter, and estimates relative risks for extremely small increases in concentration of about 0.02 micrograms per cubic meter. These very small increases were then used in Exhibit C to estimate increased mortality in the Bay Area. However, there is no indication that increases in particulate matter concentrations of 0.02 micrograms per cubic meter would cause any health effects at all, especially mortality. It is stated in Exhibit C that

> "...the studies do not prove a causal relationship between PM-10 and mortality, only an association..."

In fact, the studies show an association for only moderate increases in concentrations (20 to 50 micrograms per cubic meter), but do not show any association for extremely small increases in concentrations (0.02 to 1.0 micrograms per cubic meter). Therefore, the estimates in mortality identified in Exhibit C have no scientific basis.

The comment then estimates mortality for the proposed project by scaling the annual emissions changes for all three fossil-fueled plants to emissions for the proposed plant in Exhibit C (the San Francisco Energy Facility). The comment does not relate exposure levels to health effects. The comment builds on unfounded risk estimates for extremely low concentration increases identified in Exhibit C to estimate correspondingly unrealistic risk estimates for the divestiture project. Based on the small increases in concentrations from the project, there is no indication that there would be any increase in mortality or morbidity in the region. The DEIR does not suggest that high mortality and morbidity levels identified in the comment are insignificant. Instead, the DEIR states that the small increases of PM-10 concentrations from the project (under the A-Max scenarios) pose less than significant health effects.

U12 The methods that were used to assess the project impacts where background levels have already exceeded the ambient air standards are consistent with the approaches used by BAAQMD, in which the more restrictive thresholds described in Significance Criterion #1 were used. For further explanation on how this significance criterion was used, see response to Comment F74. With regard to particulate matter emissions, BACT is already used at the PG&E plants, which involves using natural gas, the cleanest of all fossil fuels. With regard to ozone, the precursor nitrogen oxides will be controlled by 90 percent over 1997 emission levels by installing selective catalytic reduction (SCR), which is BACT for these units. Offsets would be required only if the residual impacts after using BACT are significant (measurable). Since the impacts from divestiture did not exceed these levels, offsets are not needed.

U13 Significance criterion #5, the one-percent test, attempts to distinguish important differences between emissions forecasts developed for a given project and forecasts used in the regional air quality plan. Criterion #5 was modeled after a significance criterion developed by BAAQMD and recommended in its former CEQA Guidelines document (BAAQMD, 1985). It is acknowledged that the current *BAAQMD CEQA Guidelines* document (April 1996) no longer includes the one-percent test as a significance criterion. However, the nature of this project, which involves the sale of an existing emissions source, is so different from that of a typical development project, such as a new subdivision or office park, that it is not unreasonable to include significance criteria in addition to (i.e., to supplement, but not replace) those recommended in the current *BAAQMD CEQA Guidelines*. Unlike most emissions sources, power plants are a separate line-item on the regional emissions inventories that are used in regional air quality plans, which provide the basis for the type of comparison provided in the DEIR. It is noted also that, in developing this criterion, the EIR preparers conferred with staff at BAAQMD, who agreed that this approach was both reasonable and appropriate in this context (Guy, Bill, Bay Area Air Quality Management District, telephone conversation, July 29, 1998). Please also see response to Comment U16.

U14 The commenter indicates that the cumulative air quality analysis in the DEIR used the judicially discredited “ratio” theory to determine that the project’s emissions would not be

significant because they would comprise less than one percent of the region's emissions. The commenter is incorrect as to the standards and methodology of the DEIR.

While the one-percent test helps to characterize the severity of an impact, it is acknowledged that it alone is not a sufficient basis for concluding that a cumulative effect would be less than significant. In this case, the conclusions drawn in the DEIR are supported on two bases. First, since the emissions sources that are the subject of this project are covered under Air District permits and since the emissions estimates (including both predicted emissions increases and decreases) would be consistent with those permits, the changes in power plant emissions (regardless of year or whether they are project-specific or cumulative) are presumed to be less than significant under CEQA Guidelines 15064(i) and the *BAAQMD CEQA Guidelines*. As explained on page 4.5-61 of the DEIR, while the emissions changes themselves were deemed less than significant on a regulatory basis, other types of impacts that flow from changes in emissions were subject to further evaluation, such as changes in local concentrations and health risks and consistency with regional emissions projections (see Impacts 4.5-2, 4.5-3, and 4-5-5, respectively). Second, the estimated power plant emissions of ozone precursors and PM-10 (and its precursors) would be less under cumulative 2005 and 2015 conditions than under 1999 Baseline conditions and, therefore, they do not contribute to the cumulative regional effect of increased emissions from Bay Area growth and development. The necessary text revisions are provided below.

The following text and table is hereby added after the first paragraph on page 4.5-59 of the DEIR:

Year 2005 Cumulative

Since regional ozone concentrations reflect both precursors, ROG and NO_x, regional cumulative impacts from changes in power plant emissions can be evaluated by determining the net change in emissions of both of these pollutants, added together, relative to the emissions that are expected under the 1999 Baseline case.
Table 4.5-26a shows the net change in ozone precursor emissions (i.e., ROG and NO_x) from Bay Area power plants under various cumulative scenarios relative to the 1999 Baseline case. The estimates assume that BAAQMD modifies its Regulation 9, Rule 11 to apply to new owners. These emissions changes would occur under air quality permits and would be consistent with all emission limitations and standards; therefore, they are not considered to be significant. In addition, however, as shown in Table 4.5-26a, the net change would be negative as the decrease in NO_x emissions would more than offset the increase in ROG emissions. As such, Bay Area power plants would not contribute to the cumulative effect of increased emissions of ozone precursors from new development in the Bay Area on regional ozone concentrations.

TABLE 4.5-26a
CUMULATIVE CHANGES IN EMISSIONS OF OZONE PRECURSORS BY BAY AREA POWER PLANTS, 2005 AND 2015

	Change in Power Plant Emissions (tons per year) Relative to 1999 Baseline [a]			
Pollutant	2005 A-Max	2005 Variant 1	2005 Variant 2	2015 A-Max
Reactive Organic Gases	322	293	286	369
Nitrogen Oxides	-2,552	-2,618	-3,115	-2,440
Total Ozone Precursors:	-2,230	-2,325	-2,829	-2,071

[a] The net change in emissions are based on emissions estimates shown in Table 4.5-26 (1999 Baseline and Cumulative 2005 A-Max), Table G-5 (variant #1), Table G-14 as revised pursuant to comments by Enron on the DEIR (variant #2), and page 4.5-59 (2015 A-Max) and assumes that BAAQMD modifies its Regulation 9, Rule 11 to apply to new owners. Variant 1 and variant 2 are described in Chapter 5, Cumulative Impacts.

SOURCE: Environmental Science Associates

PM-10 concentrations reflect both direct sources of PM-10 and secondary sources of PM-10. For instance, power plants are both direct sources of PM-10 (i.e., PM-10 emitted from the stack) and secondary sources of PM-10 via emissions of ROG, NO_x, and SO_x. ROG, NO_x, and SO_x are precursors to PM-10 through chemical reactions in the atmosphere that change these gases to particulate compounds, such as ammonium nitrate and ammonium sulfate. Secondary PM-10 constitutes a substantial fraction of PM-10 concentrations in California; in some parts of the Bay Area, secondary nitrates, sulfates and organics together account for 25 to 30 percent of the total PM-10 concentration (California Air Resources Board, 1987). A study of wintertime PM-10 concentrations in the Bay Area identified these major contributors: wood smoke (approximately 40 percent); auto exhaust, road dust, and ammonium nitrate (each between 15 and 20 percent); and ammonium sulfate and marine aerosol (each less than 5 percent) (BAAQMD, 1992).

Since, as described above, regional PM-10 concentrations reflect both direct sources of PM-10 as well as secondary sources of PM-10, ROG, NO_x, and SO_x, regional cumulative impacts from changes in power plant emissions can be evaluated by determining the net change in emissions of these four pollutants, added together, relative to the emissions that are expected under the 1999 Baseline case. However, since not all of the precursors convert to PM-10, adjustments must be made to the emissions estimates prior to their summation and evaluation. Table 4.5-26b shows the net change in PM-10 and PM-10 precursor emissions (i.e., ROG, NO_x, and SO_x)

from Bay Area fossil-fueled power plants under various cumulative scenarios relative to the 1999 Baseline case. Appropriate adjustments have been made to the precursors as explained in the table footnote. (The estimates assume that BAAQMD modifies its Regulation 9, Rule 11 to apply to new owners.)

The emissions changes shown in Table 4.5-26b would occur under air quality permits and would be consistent with all emission limitations and standards, therefore, they are not considered to be significant. However, in addition, as shown in Table 4.5-26b, the net change would be negative as the decrease in NO_x emissions would more than offset the increase in PM-10, ROG, and SO_x emissions. As such, Bay Area power plants would not contribute to the cumulative effect of increased emissions of PM-10 and PM-10 precursors from new development in the Bay Area on regional PM-10 concentrations.

TABLE 4.5-26b
CUMULATIVE CHANGES IN EMISSIONS OF PM-10 AND PM-10 PRECURSORS BY BAY AREA POWER PLANTS, 2005 AND 2015

		Change in Power Plant Emissions (tons per year) Relative to 1999 Baseline [a]			
Source	**Pollutant**	**2005 A-Max**	**2005 Variant 1**	**2005 Variant 2**	**2015 A-Max**
Direct	PM-10	297	254	306	340
Secondary	ROG	13	12	12	15
	NO_x	-426	-437	-520	-407
	SO_x	7	7	6	8
Total PM-10:		-109	-164	-196	-44

a The net changes in emissions are based on emissions estimates shown in Table 4.5-26 (1999 Baseline and Cumulative 2005 A-Max), Table G-5 (variant #1), Table G-14 as revised pursuant to comments by Enron on the DEIR (variant #2), and page 4.5-59 (2015 A-Max)) and assumes that BAAQMD modifies its Regulation 9, Rule 11 to apply to new owners. Emissions for ROG, NOx, and SO_x were adjusted by factors of 0.04, 0.17, and 0.08, respectively, to account for differences in the extent to which these pollutants contribute to regional PM-10 concentrations. The NO_x adjustment factor was provided by comments by SAEJ (see comment letter U, Comment 22) on the DEIR. The adjustments for ROG and SO_x are rough approximations taking into account their relative contributions to the regional emissions inventory and their relative contributions to regional PM-10 concentrations. Variant 1 and variant 2 are described in Chapter 5, Cumulative Impacts.

SOURCE: Environmental Science Associates

The first full paragraph on page 4.5-59 of the DEIR is hereby revised as follows:

> The City and County of San Francisco uses 2015 as an analysis year for evaluating the long-term environmental impacts of cumulative development. Power plant emissions estimates have been made for 2015 based on the emissions estimates for 2005, as adjusted to reflect population growth projected for the Bay Area. In 2015, under the Analytical Maximum scenario and assuming that BAAQMD Regulation 9, Rule 11 would be modified, Bay Area power plants would emit approximately 6,803 tons per year of carbon monoxide, 790 tons per year of ROG, 1,870 tons per year of NO_X, and 722 ~~169~~ tons per year of PM-10. If BAAQMD Regulation 9, Rule 11 were inapplicable, NO_X emissions in 2015 would be approximately 7,872 tons. As a percentage of regional emissions in 2015, the change in power plant emissions over 1999 baseline conditions would be less than 1 percent for carbon monoxide, ROG, SO_X, and PM-10. For NO_X, the change would be 1.5 percent assuming applicability of Regulation 9, Rule 11 and +1.6 percent assuming inapplicability of that rule. ~~Therefore, with the modification of BAAQMD Regulation 9, Rule 11 as required by Mitigation Measure 4.5-5, this increase would be less than significant since no pollutant would increase by more than one percent of regional emissions.~~ As shown in Tables 4.5-26a and 4.5-26b, the net change in Bay Area power plant emissions of ozone precursors and PM-10 (and its precursors) in 2015 would be a decrease compared to 1999 baseline conditions. Therefore, Bay Area power plant emissions would not contribute to the cumulative effect of increased emissions from new development in the Bay Area on regional ozone and PM-10 concentrations.

U15 As discussed in response to Comment U14, there would be a net decrease in emissions of PM-10 and PM-10 precursors (ROG, NO_x, and SO_x) from power plants in the Bay Area. Thus, to whatever extent power plant emissions of PM-10 contribute to regional health concerns under 1999 baseline conditions, that effect would be less under future cumulative conditions. With respect to Dr. Fairly's analysis supplied by the commenter, please see response to Comment U11.

U16 The commenter raises numerous issues, which are addressed individually below.

With respect to a regional PM-10 plan, it is acknowledged that no such plan has been developed to address the region's nonattainment designation with respect to the state PM-10 standard since none is required under the California Clean Air Act. The *'97 Clean Air Plan* states that, while the plan does not address PM-10 specifically, several of the control measures in the plan would reduce PM-10 concentrations (BAAQMD, 1997). Specifically, the *'97 Clean Air Plan* cites the control measures reducing vehicle-miles-traveled and NO_x emissions as sources of PM-10 reductions by reducing two substantial components of ambient PM-10 concentrations, i.e., road dust and nitrates, respectively.

With respect to the federally mandated air quality plan, the DEIR indicates on page 4.5-16 that a revised State Implementation Plan (SIP) will be required due to U.S. EPA's decision

to change the designation of the Bay Area back to "nonattainment" for the national ozone standard.

With respect to the regional plan addressing the state ozone standard, it is acknowledged that this plan does not predict attainment of the state ozone standard at all places and at all time in the Bay Area for the foreseeable future. However, it does predict continued improvement in regional ozone concentrations. Emissions of both ozone precursors (ROG and NO_x) are expected to decrease between 1997 and 2003, and a reduction in the precursors would logically result in lower ozone concentrations. With implementation of the measures included in the *'97 Clean Air Plan,* basin-wide ROG emissions are expected to decline from 488 to 373 tons per summer day between 1997 and 2003, and basin-wide NO_x emissions are expected to decline from 632 to 480 tons per summer day over the same period (BAAQMD, 1997). Such emissions estimates as those prepared for the *'97 Clean Air Plan* take into account expected growth and development in the Bay Area.

With respect to the approach to cumulative air quality analysis, the commenter essentially advocates a significance threshold of "one additional molecule" of a nonattainment pollutant in a nonattainment area. Such an approach is not required or supported under the CEQA Guidelines. The CEQA Guidelines refer to a *substantial* contribution to existing or projected air quality violation as a basis for determining significant effect, not just *any* contribution. In addition, there is a distinction to be noted between existing conditions and project effects. The commenter cites a sentence from the setting section; however, the project-specific and cumulative analyses both focus on the net environmental change related to the project. Therefore, the question is not whether power plant emissions contribute "nonattainment" pollutants to the atmosphere, but whether power plant emissions would increase or decrease relative to a baseline value. For cumulative analysis, the 1999 baseline scenario represents the "baseline" value to which cumulative scenarios are compared in the EIR. This is the appropriate approach to cumulative impact analysis in an EIR. The response to comment U14 examines the regional cumulative emissions changes of the two pollutants for which the Bay Area is in "nonattainment," ozone and PM-10, and concludes that the net changes in power plant emissions of ozone precursors and PM-10 (and its precursors) would be negative compared to the 1999 Baseline case and, as such, would not contribute to the cumulative effect. For local cumulative concentration effects, please see the column on the far right-hand side of DEIR Tables 4.5-29, 4.5-31, and 4.4-32.

U17 Though how much the divested plant will operate is uncertain, it is very improbable that the Potrero Power Plant would operate more than the level resulting from the operating assumptions associated with the Analytical Maximum case (see responses to Comments F53 and F54). Although the DEIR forecasts Analytical Maximum annual capacities for the Potrero plant to be 44 percent in 1999 and 40 percent in 2005, for these Analytical Maximum scenarios, Potrero Unit 3 (the steam generating unit) is forecast to operate at a 75.6 percent capacity factor in 1999 (see DEIR Table G-4) and at a 63.5 percent capacity factor in 2005 (see DEIR Table G-6). These are unprecedented levels of

operation since a steam generating unit typically averages no higher than about a 50 percent capacity factor.

In preparing this Responses To Comments Document, the project team analyzed a minor change to the 1999 heat rate for Potrero Unit 3, a steam boiler. The resulting changes in forecasts from the SERASYM model are analyzed below in detail so that the commenter can see how changes in the capacity factors would affect air quality conclusions. In general, it would seem that only Impact 4.5-5 is sensitive to minor (or even moderate) changes in capacity factors. Impact 4.5-5 was identified as a significant, unavoidable, but temporary impact of the project (ending in 2003). With increases greater than those identified below, Impact 4.5-5 would still be significant in 2003. However, no other modifications are known that would cause any such increases, and the Analytical Maximum results are designed to capture maximum possible operations. The other three units at the Potrero plant are all distillate-fired combustion turbine (CT) peaking units that are limited by BAAQMD rules to operating no more than 10 percent of the year. They are used for reliability purposes by the ISO and it is inconceivable that they would be employed much more heavily than projected unless they were both converted to natural gas fuel to reduce variable costs of operations and they were exempted from BAAQMD operating time limits. Assuming either occurrence would be speculative. Thus, since the Analytical Maximum case represents an extremely high (and unlikely) level of operations for the plant, consideration of the emission levels resulting from still higher levels of operations is not warranted.

As described above, new information from PG&E's 1998 Title V submittal, which is part of the on-going air quality permitting process, indicates a change in the heat rate (a direct measure of unit efficiency) for Potrero Unit 3 at this unit's higher levels of generation. The 1999 Baseline and Analytical Maximum Scenarios have been rerun to reflect the updated Potrero heat rates. No other scenarios need updating, because the updated heat rates for Potrero Unit 3 were already included in the 2005 model runs in the DEIR. The modified results forecast that the overall annual capacity factor for the Potrero Power Plant under the 1999 Baseline Scenario (continued PG&E ownership) would be about 1.5 percent higher than reported in the DEIR, increasing from 24.6 to 26.1 percent. The 1999 Analytical Maximum scenario (with the revised heat rate) would increase 4.5 percent above the value reported in the DEIR, from 44.1 to 48.6 percent. These changes would raise the Baseline scenario for expected PG&E operations of the Potrero plant in 1999 and, although the changes would raise the Analytical Maximum capacity factors for the Potrero plant a slightly higher percentage, upon review, the consequences of these changes are minimal and as analyzed below, the changes do not affect the conclusions of the DEIR. Were these changes in operations to affect any topical area, the area of concern would be air quality. A brief summary of the effects of these changes on air quality (for 1999) are provided below. Because the 1999 Baseline would increase at the Potrero Power Plant, the incremental change between the 1999 Baseline and the 2005 Analytical Maximum would be slightly reduced in all cases, because, as stated above, the 2005 Analytical Maximum already includes the more efficient heat rate for Potrero Unit 3.

1) *Increased emissions of criteria pollutants in the air basin.* Impact 4.5-1 noted that potentially increased electricity generation at the divested power plants would result in increased emissions of criteria air pollutants. The DEIR concluded that this impact would not be significant because the "direct" sources associated with the emissions are covered, and would continue to be covered, by existing air permits. Since the emissions increases would be consistent with all emissions limitations and standards imposed by the air district that issues the permit, they would not be considered significant. The modified capacity factors would not affect the results of this analysis. Although the forecast annual emissions under both the 1999 Baseline and the 1999 Analytical Maximum scenarios would increase at the Potrero plant, the Potrero units would still be subject to the standards and operational limitations of the air permits, and these increases would therefore be less than significant. Whereas forecast annual emissions would be increased slightly by this modification (because the plant is more efficient in producing electricity), it should also be noted that the modification described actually means that the Potrero Power Plant would generate less pollutants per kWh than was previously assumed.

2) *Increased local concentrations of criteria air pollutants.* Impact 4.2-2 addressed local concentrations of criteria air pollutants. To assess the effect of the revised heat rates and resultant annual capacity factors on this impact analysis, the project contributions of the Potrero Power Plant to the criteria pollutant concentrations reported in the DEIR (Table 4.5-29, page 4.5-63) were increased by 3 percent (reflecting a 4.5 percent change in the 1999 Analytical Maximum less the 1.5 percent change in the 1999 Baseline). After increasing the effect of the Potrero Power Plant, the resultant concentrations were still well below the applicable state and federal standards, with the exception of 24-hour PM-10 concentrations. The estimated worst-case background concentration for San Francisco already exceeds the state PM-10 24-hour standard of 50 $\mu g/m^3$ by 7 $\mu g/m^3$. The revised difference between the Potrero plant contribution to the 1999 Baseline and the plant's contribution to the 1999 A-Max would be 0.52 $\mu g/m^3$ (rather than 0.5 $\mu g/m^3$, as presented in the DEIR) for the worst-case 24-hours, which would be well below the 5 $\mu g/m^3$ significance threshold. Therefore, there would be no change in the conclusion in the DEIR that this impact would be less than significant.

3) *Increased health risk from toxic air contaminants.* Impact 4.5-3 identified the increased combustion of fossil fuels associated with the project as having a less-than-significant effect on health hazards. The increased health risk from exposure to carcinogenic substances and the chronic and acute hazard indices for exposure to non-carcinogens would all be considerably below the relevant significance thresholds. To assess the effect of the modified annual capacity factor for the Potrero Power Plant, the emissions of toxic substances were increased by the change in capacity factors (1.5 percent for the 1999 Baseline and 4.5 percent for the 1999 Analytical Maximum). The resultant cancer risk from the emissions changes would be 0.18 in a million for the 1999 Baseline and 0.24 in a million for the 1999

Analytical Maximum scenarios, still well below the 10 in a million significance threshold. The chronic health hazard indices would be 0.021 and 0.032 for the 1999 Baseline and 1999 A-Max cases, respectively, and the acute health hazard indices would be 0.21 for both the baseline and A-Max cases. All of these values are well below the index threshold of 1.0. Therefore, even with the revised Potrero plant capacity factors, this impact would remain less than significant.

4) *Loss of FTP cleanup programs and resulting FTP nuisance effects.* Impact 4.5-4 indicated that transfer of ownership of the fossil-fueled power plants could affect FTP deposition and that the new owner of the Delta power plants could discontinue PG&E's existing FTP cleanup program. In the case of the Potrero Power Plant, PG&E does not maintain FTP programs there but addresses claims on an as-needed basis, and the predominant local winds carry most FTP from the plant out over San Francisco Bay. The DEIR therefore concluded that this impact would be less than significant. Given the minor changes in forecasted annual capacities, this impact would continue to be less than significant.

5) *Potential inconsistency with regional air quality plans.* Impact 4.5-5 stated that the project would potentially be inconsistent with the *'97 Clean Air Plan* for the San Francisco Bay Area, which would be a significant impact. The inconsistency was described both qualitatively and quantitatively. From the qualitative standpoint, the project would potentially be inconsistent with a specific control measure contained in the *'97 Clean Air Plan* if the BAAQMD declines to modify Regulation 9, Rule 11. (As noted in response to Comment F1, the District is committed to modifying the rule so that it will continue to apply to the fossil-fueled plants, regardless of ownership.) From a quantitative standpoint, emissions estimates from this EIR were compared to those contained in the *'97 Clean Air Plan*. Emissions estimates shown under Impact 4.5-1 were interpolated to correspond to the emissions projections included in the *'97 Clean Air Plan* for Years 2000 and 2003.

Assuming continued application of Regulation 9, Rule 11, NO_x emissions from the fossil-fueled plants under the Analytical Maximum scenario would exceed *'97 Clean Air Plan* regional projections by about 1.4 percent in Year 2000, which would be greater than the 1-percent significance threshold. By Year 2003, project NO_X emissions would be consistent with the *'97 Clean Air Plan* (i.e., the net difference in regional emissions would be less than 1 percent). Absent BAAQMD Regulation 9, Rule 11, projected NO_X A-Max emissions would exceed *Clean Air Plan* projections by about 2.5 percent in Year 2000 and by 3.4 percent in Year 2003.

Given the assurances of the BAAQMD (see response to Comment E1) and in light of Mitigation Measure 4.5-5, it is assumed for purposes of this discussion that BAAQMD will modify Regulation 9, Rule 11 to apply to the new power plant owners. Therefore, from a qualitative standpoint, the proposed project is expected to be consistent with the *'97 Clean Air Plan* as of 2003. However, as noted above, the

modified heat rates and capacity factors for the Potrero Power Plant would result in slightly increased emissions from the Potrero plant. As shown in Table 4.5-37 of the DEIR (page 4.5-80), only NO_x emissions are close to the 1 percent significance standard. With the revised heat rate factors for Potrero, and assuming the continued application of BAAQMD Regulation 9, Rule 11, regionwide NO_x emissions would still be above the 1 percent significance standard in 2000 (significant) and below the 1 percent significance standard by 2003 (less than significant). Impact 4.5-5 would thus remain significant and unavoidable, though temporary.

U18 The Analytical Maximum Potrero Power Plant annual capacity factor would be 40 percent in 2005 (see Table 3.1 and Table G-6 in the DEIR). A model run from the 2005 Analytical Maximum was reviewed day by day, and the daily plant capacity factors ranged from 0 percent to 67 percent. The majority of the days had capacity factors between 30 and 60 percent. These daily levels were reviewed closely in the DEIR in the analysis of ambient air quality contaminant concentrations near the Potrero Power Plant (see Table 4.5-29 on page 4.5-63) and, as shown in the two right-hand columns of Table 4.5-29, the effect of the emissions from the project are minimal in comparison to all of the ambient air quality 1-hour and 24-hour standards.

U19 The basic modeling assumptions used to derive the capacity factors are set forth in the DEIR at pages 3-8 through 3-13. The commenter is specifically referred to the first paragraph of page 3-9 of the DEIR, which describes briefly the qualifications of SERA in running the model for more than a decade and also notes that an expanded list of modeling assumptions and discussion of the modeling is presented in Attachment G to the DEIR. Attachment G has 16 pages of text and 20 data tables that address model assumptions and results. This level of information is meant to enable the public and decisions-makers to make an independent, reasoned judgement.

For further clarification, an assumption used in deriving the capacity factors that was not fully discussed in Chapter 3 or Attachment G of the DEIR is that a generating unit's maximum net capacity value may vary during the course of a year, particularly for a combustion turbine because its output capability is affected by the surrounding ambient air temperature. In such instances, the DEIR analysis used an average capacity value in the annual capacity factor calculation. Such seasonal capacity variations are present at Hunters Point 1, Potrero 4, Potrero 5, and Potrero 6 combustion turbine units, which have the following monthly varying ratings:

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
MW	56	55	54	53	50	48	49	49	48	49	54	56

The rating of each steam boiler generating unit is invariant during the course of a year and those of the units being offered for divestiture are presented in the tables found in Attachment G to the DEIR.

U20 The cited value of 44 percent relates to the estimated annual capacity factor for the Potrero Power Plant in 1999 under Analytical Maximum operating assumptions. Given the conservative assumptions underlying the Analytical Maximum scenario, it is not foreseeable that the plant would operate at an annual capacity factor higher than that identified under the Analytical Maximum (see responses to Comments F53 and F54), and since DEIR Table 4.5-29 shows that annual-average concentrations in the vicinity of the Potrero power plant would not exceed the corresponding ambient standards (even under Analytical Maximum conditions), there is no basis upon which to impose a plant-specific annual cap on generation. In contrast to the annual-average concentrations, which reflect the 44 percent capacity factor cited above, the DEIR analysis of concentrations for averaging periods of 24-hours and less reflects maximum daily emissions rates from the Potrero units. Thus, the potential adverse impacts on both annual averages and lesser averaging periods have been fully evaluated in the DEIR.

U21 The BAAQMD's Arkansas Street station data is presented since it is the closest monitoring station to the Potrero Power Plant. There is no monitoring station in the immediate vicinity of the plant. The analytical approach for impact assessment assumed that the data from the monitoring station on Arkansas Street was entirely unaffected by the plant, but is representative of background conditions (i.e., not including a power plant increment) in the project vicinity. Use of monitoring data from the closest station as the basis for background concentrations is the conventional approach in developing concentration estimates from a facility (transportation, industrial, etc.) that can be compared with ambient air quality standards. Worst-case incremental concentrations from the power plant (shown in Table 4.5-29 of the DEIR) were added to background concentrations that were derived from data collected at the Arkansas Street station. This is a conservative approach since it is possible that the measurements at that Arkansas Street station include some incremental contribution from the Potrero Power Plant, and if so, then the DEIR double-counts that increment by assuming no such contribution.

U22 It is true that a portion of NO_x emissions will eventually convert to secondary nitrate particulate matter (secondary aerosols), although reaction times can vary considerably. Conversion rates can range from less than 1 percent per hour (Randerson, 1984) to as high as 10 to 30 percent per hour (California Air Resources Board, 1998). However, a recent study indicated that in power plant plumes, nitrate particulate matter does not begin to form until at least 20 to 40 minutes after nitrogen oxides are released to the atmosphere (Seigneur, 1998). For typical wind speeds in the area, conversion to nitrate would not begin until the plume travels three to six miles from the emission source. The study (Seigneur, 1998) indicates that maximum conversion would occur after an early morning release (7:00 a.m.) of nitrogen oxides on a day with relatively high ozone levels in the atmosphere. For emission releases occurring at 5:00 p.m., nitrate aerosols would not begin to form until about five hours of travel time. A key factor in the conversion of nitrogen oxides to nitrate aerosol involves a series of complex reactions in which atmospheric ozone reacts with nitrogen dioxide (NO_2) to form the nitrate (NO_3) radical. However, the high initial concentration of nitric oxide (NO) in the power plat plume tends

to scavenge atmospheric ozone, limiting the availability of atmospheric ozone to be available to react with nitrogen dioxide, an important step in forming nitrate aerosol.

Since the receptors with the maximum contributions of particulate matter are near the power plants (approximately one mile away), there is very little opportunity for nitrate aerosol to form in that short time period and nitrate would not contribute to particulate matter levels at the maximum receptors. With regard to larger distances from the plant, a portion of the nitrogen oxides emissions would eventually convert to nitrate particulate matter. However, there will be less secondary aerosol formed from the plant emissions in the future because of large reductions in NO_x emissions to meet BAAQMD Regulation 9, Rule 11. Thus, there will be reduced nitrate aerosol contributions to regional particulate matter levels. Please refer to response to Comment U14.

References:

California Air Resources Board, telephone communication, November 1998.

Randerson, D., *Power Production and the Atmosphere*, Chapter 1 of Atmospheric Science and Power Production, DOE/TIC – 27601, U.S. Department of Energy, 1984.

Seigneur, C., P. Karamchandani, and A. Koo, *Reduced Gas-Phase Kinetic Mechanism for Atmospheric Plume Chemistry*, ES&T, Vol. 32, No. 11, 1998

U23 Atmospheric dispersion modeling conducted for this DEIR and, subsequently, in response to Comment B6 was limited in scope, and was performed only to refine the air quality impact analysis and supplement the health risk assessment (HRA). As discussed on page 4.5-42 of the DEIR, the HRA for air quality was initially based on work performed by PG&E in 1992. Modeling data and analysis from these PG&E 1992 HRA studies for the Potrero, Contra Costa, and Pittsburg Power Plants were utilized to evaluate impacts of the divestiture project. The DEIR analysis was accomplished by updating air pollutant emission information from the 1992 PG&E studies for the three divestiture project analysis scenarios (1999 baseline, 1999 A-Max, and 2005 A-Max).

The 1992 PG&E HRA studies were of varying detail. The Potrero HRA study provided very detailed information on sources, impacts, and locations of impacts. The PG&E HRA studies for the Pittsburg and Contra Costa Power Plants, while detailed, were based on "screening" level analyses which were imprecise on locations of plant impacts, and were conservative in nature. During the analysis of these data, the conservative nature of the Pittsburg Power Plant's 1992 HRA screening data appeared in need of refinement for this DEIR. Similarly, air quality issues with the Potrero and Hunters Point Power Plants (Hunters Point Power Plant was initially part of the DEIR analysis but was later removed from A.98-01-008 in July 1998) indicated that further refinement of the 1992 PG&E studies were needed. Conversely, analysis of the Contra Costa Power Plant for the DEIR indicated that, although the PG&E 1992 HRA study data provided conservative results,

local impacts were sufficiently less than significant to not require further refinement for the purposes of this DEIR.

PG&E provided model input source parameter data for the Pittsburg and Potrero Power Plants, meteorological data from PG&E-operated monitoring stations at both plants, and grids of receptors networks suitable for use at each plant. (Receptors are points where an atmospheric dispersion model predicts impacts from pollution sources being simulated by the model.) Included in these receptor grids were the locations of sensitive receptors close to both the Pittsburg and Potrero Power Plants, as identified by PG&E. The receptor network for the Pittsburg Power Plant is an area representing the City of Pittsburg. For the Potrero plant, the receptor network covered sensitive receptors in the immediate vicinity west of the Potrero plant and south to a distance of about 3.5 km (2 miles) covering the northern elevated portion of the Hunters Point/Bayview area. Both of these analyses considered the local topography. The Pittsburg plant analysis was performed with meteorological data for 1994, while the Potrero plant analysis utilized data for the period 9/28/91 to 9/28/92.

The dispersion model analysis was conducted using the Industrial Source Complex Short Term 3 Model (ISC3), Version 97363. This model was developed and approved for use by the U.S. Environmental Protection Agency and represents the state of the art in atmospheric dispersion modeling. The model was used assuming standard regulatory default options and BAAQMD modeling guidelines.

Air pollutant emissions used in the analysis presented in the DEIR were derived from data presented in Section 4.5 of the DEIR, as well as data presented in Attachment G. Short-term (24-hour average) PM-10 emissions for the Pittsburg Power Plant analysis were derived from a special simulation model analysis discussed in Section 3.2 of Attachment G.

Related information to this modeling discussion in contained in response to Comment 1-9.

U24 Atmospheric dispersion modeling has been routinely utilized since the 1970s as an analysis tool to evaluate the local fate and transport of air pollutants. A suite of mathematical models have been developed and refined by the U.S. EPA and others for use by analysts and regulators. Lists of these EPA approved models and methods of application of the models are provided at 40 Code of Federal Regulations Part 51, Appendix W. Many carefully conducted model prediction versus ambient monitoring data studies have been conducted over the years. To summarize these studies is well beyond the scope of this EIR, however, in general, it can be said that when the appropriate EPA approved model is properly utilized, the model-predicted impacts can be expected to be at least within a factor of 2 of actual field measurements or better (40CFR51, Appendix W). This factor of 2 is accepted by the EPA as a reasonable measure of model performance. Thus, from the perspective of regulators, the atmospheric dispersions models recommended for use by the EPA do and have been shown to "predict present effects from present pollution source conditions," within an accepted level of accuracy.

The following new reference is hereby added to Section 4.5:

Federal Register, July 1, 1997.

U25 With respect to model assumptions, please see response to Comment U24. Naturally, any changes in input data will affect the results of the model. Since the conservative Analytical Maximum capacity factors were used as input model data for the EIR, there is no need to further demonstrate how changes in such input data would affect the outcome.

U26 Ozone is normally characterized as a regional pollutant and is, therefore, appropriately the subject of a regional air quality planning effort. The DEIR addresses the project impact in the context of this regional air quality planning effort beginning on page 4.5-77 under Impact 4.5-5. The discussion of cumulative power plant emissions of ozone precursors has been revised. Please see the response to Comment U14.

U27 The DEIR does not dismiss the significance of the project's ozone precursor emissions. Page 4.5-18 of the DEIR shows a table in the text of NO_x emissions limits, per million Btu of energy consumption, that are allowed for PG&E's boilers between 1997 and 2005. The table shows that NO_x emissions for the intermediate year of 1999 will decrease by about 39 percent per million Btu of energy consumption compared to 1997 levels. It is these reductions on a per million BTU basis that will reduce precursor effects on ozone formation. Since, on a given day, the maximum operating rates under the 1999 A-Max scenario are not expected to change from the 1999 Baseline, the daily NO_x emissions will not change from the 1999 Baseline emissions, even though total annual emissions can be higher under divestiture for 1999.

In 2005, short-term and annual emissions will be reduced considerably compared to the 1999 Baseline. While it is possible that emissions from the plants would be less in 2005 under PG&E's continued ownership than with divestiture (and they may not, depending on how PG&E chose to operate the plants at that time), the environmental impacts of the project are properly judged in comparison with the baseline, the existing physical setting in 1999. Furthermore, the analysis of Alternative 1, the No Project Alternative (beginning on page 6-9 of the DEIR), indicates how the environmental impacts of the project in 2005 would differ from PG&E's continued ownership of the plants. See also Table G-2 of the DEIR for 2005 emissions data for Alternative 1, which can be compared to Table G-6 concerning 2005 emissions data for the project.

U28 The significance threshold is based on emissions inventories and forecasts developed for the *'97 Clean Air Plan* ('97 CAP), which is the state-mandated air quality plan, not the SIP, which the federally mandated air quality plan. The state standard, nonattainment of which is the trigger for the '97 CAP, is more stringent than the corresponding national standard, nonattainment of which is the trigger for the SIP. Because of this, the '97 CAP invariably includes more control measures than the SIP. For instance, Regulation 9, Rule 11 is a control measure identified in the '97 CAP that has not been incorporated into the

SIP. The DEIR recognizes the seriousness of the potential increase in emissions under the project relative to those assumed for the '97 CAP and identifies that effect as significant.

U29 As discussed in response to Comment U14, by 2005, power plant emissions of ozone precursors and PM-10 (and its precursors) would be less than under 1999 Baseline conditions. Therefore, power plant emissions would not contribute to the cumulative effect of increased emissions from additional growth and development in the Bay Area. However, prior to 2003, the DEIR predicts that Bay Area power plant emissions would be significantly greater than those foreseen in the *'97 Clean Air Plan*. The essence of this project-specific impact is that power plant emissions may well increase relative to 1999 Baseline conditions, at least during the first couple of years after divestiture (1999 and 2000), when the *'97 Clean Air Plan* anticipated a decrease, and may not decrease at the rate assumed in the *'97 Clean Air Plan* after that time. The latter effect, i.e., decreases that do not match the rate that is anticipated, is referred to by the commenter as "minimization of reduction." (The DEIR describes this effect beginning with the last paragraph on page 4.5-80.) The commenter's conclusion that such effects would be significant is consistent with the DEIR, which also concludes that the effect would be significant, at least through 2002. The one main difference is that the commenter characterizes the effect as "cumulative," while the DEIR identifies it as a project effect. Please see response to comment U16 for information concerning the regional air quality plans and their connection to future trends in ozone and PM-10 levels. Please also see response to Comment U27 concerning comparison of PG&E's continued ownership beyond 1999 to the proposed sale of the plants.

U30 The DEIR notes on page 4.5-16, second full paragraph, the recent decision by U.S. EPA to re-designate the Bay Area back to "nonattainment" for the national one-hour average ozone standard, which triggers the need for a revised SIP. The revised SIP must be adopted by the Association of Bay Area Governments, BAAQMD, and the Metropolitan Transportation Commission and submitted to U.S. EPA, through the California Air Resources Board, by June 15, 1999. The DEIR identifies the increase in power plant NO_x emissions as a significant, unavoidable impact of the project (see Impact 4.5-5 on page 4.5-77 of the DEIR). The discussion of cumulative power plant emissions of ozone precursors has been revised; please see the response to Comment U14. Also, please refer to the discussion of the distinction and application of Best Available Retrofit Control Technology (BARCT) (existing sources) and Best Available Control Technology (BACT) (new sources) in response to Comment U5.

U31 This apparent inconsistency can be explained through reference to the different averaging periods of the various ambient air quality standards. To calculate worst-case concentrations of carbon monoxide, nitrogen dioxide, and sulfur dioxide for averaging periods from one-hour to 24-hours, the maximum hourly emissions rates from Potrero Power Plant sources were used in combination with actual meteorological data compiled at the plant. This essentially assumes that on a maximum day the power plant would operate at full capacity for periods including 24-hours, and since the maximum emissions rate at

full capacity would be the same under all scenarios in a given year (such as 1999 Baseline and 1999 A-Max), then it follows that the corresponding maximum concentrations would also be the same. It should be noted that Table 4.5-29 indicates that maximum concentrations of these pollutants for these averaging periods (i.e., including the power plant increment and the background increment) would be less than the corresponding ambient air quality standards, and the impact would therefore not be significant.

In contrast, the concentration modeling method used to estimate annual averages took into account the different annual capacity factors, which were also used in developing the annual emissions estimates shown in Table 4.5-23 of the DEIR. Thus, the changes in estimated annual-average concentrations of nitrogen dioxide and sulfur dioxide from the Potrero plant, as shown in Table 4.5-29 (column Titled "1999 Analytical Maximum") of the DEIR, are roughly proportional to the annual emissions changes shown in Table 4.5-23. The resulting maximum annual concentrations of these pollutants would be less than the corresponding standards, and the impact would therefore not be significant.

U32 As explained in response to Comment U31, the changes in annual emissions estimates shown in Table 4.5-23 of the DEIR are reflected in changes in annual-average concentration estimates shown in Table 4.5-29 (not for lesser averaging periods).

U33 See response to Comment F29.

U34 Although there is no standard significance threshold for cancer risk, the California Air Pollution Control Officers Association (CAPCOA) has established the level of 10 in a million for the Air Toxics “Hot Spots” legislation (AB2588) as a conservative significance threshold for assessing health effects. This level was identified in the DEIR under Significance Criterion #3 on page 4.5-50. The DEIR takes into consideration the changes in cancer risks from the plants in future years under divestiture, and it states on pages 4.5-71 and 72 that cancer risks would change in proportion to the amount of fuel use that is caused by increases in energy generation. The changes in carcinogenic risks that are reported in the DEIR take into consideration the additional fuel use. The incremental risks from the PG&E plant emissions under divestiture are shown on Table 4.5-34 of the DEIR. These incremental risks are no greater than 0.1 in a million. The cumulative health risks which are reported in response to comment B6 show that the health risks, including other proposed plants near the Pittsburg and Contra Costa facilities, are also less than one in a million. These minimal incremental health risks are not cumulatively considerable (even in light of the existing setting of concern) since they are *de minimus* conditions, i.e., the environmental conditions would be essentially the same with or without the project.

The comment refers to studies that indicate higher cancer levels for certain population sectors. However, none of the studies indicate the causes of these increased rates, nor do they establish a linkage between ambient air pollution levels in the region and health effect endpoints.

U35 Table 4.5-10 of the DEIR shows that in 1992 and earlier, measurable emissions of metals and PAHs, as well as benzene and formaldehyde, occur as a result of burning fuel oil and natural gas in the steam boilers. Annual emissions of these substances in 1987 are the greatest, because of greater use of fuel oil. In 1990 and 1992, annual emissions of metals and PAHs decrease, and for some pollutants, the emissions are below measurable levels, which is indicated by the dashed line in the table entry. The levels that are below measurable levels vary by pollutant, partly because of different measurement techniques for each pollutant. However, any trace quantities below measurable levels are so low that, even as a total, they would not contribute to the exposure level risks in any measurable amount, which is less than 0.1 in a million. These emissions again would occur as a result of burning fuel oil for part of the year and would not contribute to chronic exposure levels. For 1995, the table shows emissions of benzene and formaldehyde, because only natural gas was burned in the boilers, due to BAAQMD Regulation 9, Rule 11. Annual emissions from the standby turbines at Potrero are immeasurably small and do not significantly affect total annual emissions from the plant. Thus, after 1995, the toxic pollutants of concern for chronic exposure are benzene and formaldehyde.

The DEIR (pages 4.5-71 and 4.5-72) states that annual emissions of benzene and formaldehyde for 1999 and 2005 will increase because of increases in annual natural gas usage. The health risk changes from these emissions changes in 1999 and 2005 are shown in Table 4.5-34. The table shows that at the Potrero plant, maximum cancer risks would increase from 0.17 in a million in 1999 Baseline to 0.23 in a million for 1999 A-Max. Under the 2005 A-Max scenario, the maximum risks are estimated to increase to 0.28 in a million. These maximum risk estimates are well below the significance threshold of 10 in a million.

U36 Table 5.1 is a list of existing, proposed, and planned projects that would be located within a one-mile radius of each of the power plants, including the Potrero plant. In the case of the Potrero plant, the information was provided by the San Francisco Planning Department and the Port of San Francisco (see response to Comment F51 regarding additions to Table 5.1). Because no site has been identified and no specific project proposal for a new facility has been received, it was not appropriate to include such a speculative project in Table 5.1. However, the DEIR does assess the cumulative environmental impacts of a new power plant in San Francisco. The 2005 Cumulative Analytical Maximum Scenario assumes construction and operation in or near San Francisco of new generation facilities totaling 480 MW. Section 5.3.3 (commencing on page 5-38) examines the cumulative impacts of Variant 1, which includes construction of a new 240 MW power plant in northern San Mateo County or within the City and County of San Francisco. The discussion in Section 5.3.3 acknowledges that the plant could be located on the same site as, or adjacent to, the Potrero Power Plant, and could be considered an expansion of that plant.

If the Potrero Power Plant were repowered, for cumulative analysis purposes, the impacts would be essentially the same as the impacts identified for construction of a new 480 MW

at or near the Potrero plant. See response to Comment U37 for additional information. Project-specific impacts of repowering the Potrero plant or constructing new generating facilities would be evaluated in the project-specific environmental review that would be required under CEQA at the time such a project were proposed.

U37 As noted in response to Comment U36, the DEIR does in fact anticipate that the additional generating capacity could be built adjacent to or on the Potrero Power Plant site. The commenter correctly cites the DEIR text regarding a new owner's interest in repowering the Potrero Power Plant. Based on projected demand, the DEIR forecasts that an additional 480 MW of generation would be needed by 2005 to support the closure of the Hunters Point Power Plant. While the new owners of the Potrero Power Plant might elect to expand capacity at the plant, they would only do so if construction of any other proposed new plant supplying 480 MW did not proceed. There are several reasons for this. From a regulatory standpoint, public agencies with jurisdiction over new generating facilities, such as the Bay Area Air Quality Management District (BAAQMD) and the CEC, have demonstrated a reluctance to approve excess generating capacity for environmental and other reasons. For example, if the existing Potrero Power Plant were to continue operating, a new 480 MW facility were constructed, and the Potrero Power Plant Units 1 and 2 were repowered, San Francisco would have generating capacity beyond its anticipated demand in 2005. In the unlikely event that significant excess generating capacity were to be approved in San Francisco, the Potrero Power Plant owner would be precluded from exporting excess power to other markets due to the same transmission constraints that limit the amount of power that can be imported into San Francisco. Within the San Francisco market, since the lowest bidder would prevail, power generated at the Potrero Power Plant's older, less efficient (and hence more costly) units would be unable to compete with newer generating facilities. Thus, even absent the regulatory impediments, there would be strong economic disincentives for the owner of the Potrero Power Plant to expand its capacity if other new 480 MW facilities were also built.

The DEIR examined the potential 2005 cumulative environmental effects from continued operation of the Potrero Power Plant along with the addition of a new 480 MW power plant. The resulting modeled capacity factors are presented in Table 5.2 on page 5-17. For the reasons discussed above and in response to Comment U36, this analysis also covers the potential environmental effects that would result from repowering of the Potrero Power Plant.

U38 The cleanup of potentially contaminated soils at the plant sites, a beneficial environmental impact, could be advanced by the project. No specific remediation plan has been proposed at this time and the nature and extent of any remediation have not been determined. Soil remediation activities have, in general, the potential to affect surface water quality since the work typically includes disturbing soils. However, as explained on page 4.4-14, soil remediation activities are highly regulated and it is expected that the regulations for erosion and water quality control described in Section 4.3 and the regulations governing hazardous wastes described in Section 4.9.1 would be sufficient to protect water quality so

that any impacts would be at a less-than-significant level. Please also see responses to Comments F40 and F41.

U39 The EIR does not claim to substitute the NPDES permit for an environmental analysis. It does, however, assume that the RWQCB issued the permit conditions such that no significant impact to water quality would occur from operation of the facilities at the maximum generating capacity of each plant. Therefore, the continued compliance with those conditions by the new owners, regardless of the plant operational levels, would result in less than significant impacts.

U40 The plant operating conditions reasonably foreseen and analyzed in this EIR project less-than-significant impacts on water quality. There is no reason to believe that new owners of the plants would have any increased tendency (over PG&E) to violate applicable permits. If the RWQCB decides at any point in the future that the operating conditions are detrimental to the environment or that there is a reason to suspect that the plant will not be able to meet discharge requirements that adequately protect marine resources, the RWQCB would modify its permit conditions. The RWQCB, as a trustee and regulatory agency, is properly entrusted with this role by the state.

U41 The DEIR does conclude that air quality impacts would be significant. Specifically, the DEIR concludes that the project would result in power plant NO_x emissions that are sufficiently different from those included in the regional air quality plan, and therefore, the project can be determined to be inconsistent with that plan. The DEIR further concludes that this impact would be unavoidable (albeit temporary) (page 4.5-81). The commenter is correct in noting that increasingly stringent NO_x controls would likely be installed, over time, to reduce overall power plant NO_x emissions with or without the project, but the commenter calls for an accelerated schedule for installation of these controls. However, an implementation schedule has already been established through BAAQMD Regulation 9, Rule 11, which presumably represents the most aggressive, and yet feasible, schedule possible considering such factors as cost and reliability issues.

U42 Please see responses to Comments F30 and 1-12. If the Potrero plant were repowered, the repowered facility would be subject to BAAQMD Rules and Regulations, which may require implementation of Best Available Control Technology (BACT). The EIR's use of the Analytical Maximum capacity factors for the plants under new ownership ensures that emissions estimates were not minimized, and instead are likely overstated. The air quality analysis presents and analyzes data in a straightforward manner that meets or exceeds the requirements of CEQA and pertinent case law.