ATTACHMENT A

APPROVAL OF AIR QUALITY IMPACT ANALYSIS AND PREVENTION OF SIGNIFICANT DETERIORATION REPORT

APPROVAL OF HEALTH RISK ASSESSMENT
TO: Arthur Carbonell  
Mechanical Engineering Section

FROM: Ralph DeSiena  
Meteorology and Modeling Section

Subject: AERMOD Ozone Limiting  
Results for Otay Mesa Generating Project for Commissioning Phase

ENS R has performed an analysis of peak 1-hour NO2 concentrations associated with the commissioning phase of the Otay Mesa Generating Project.

AERMOD (version 99344) was used to estimate hourly NOx concentrations at all ISC and complex terrain receptors previously modeled for the Authority to Construct Air quality Impact Analysis. Both 1 turbine and 2 turbines at 60% load cases were modeled. Data post-processing using the Ozone Limiting Method to determine maximum NO2 concentrations was performed. A worst case, conservative 1-hour background NO2 concentration of 202 ug/m3 was added to the post-processing results for comparison with California 1-hour NO2 standard of 470 ug/m3.

The results indicate the following maximum allowable NOx emission rates during the commissioning period:

<table>
<thead>
<tr>
<th></th>
<th>NO CONTROLS</th>
<th>SCONOX</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Turbine</td>
<td>1,133 lb/hr</td>
<td>283 lb/hr</td>
</tr>
<tr>
<td>Two Turbines</td>
<td>1,649 lb/hr</td>
<td>412 lb/hr</td>
</tr>
</tbody>
</table>

The modeling provided in support of the above NOx emission limits was performed in accordance with District guidance. For the no controls analysis a 10% initial NO2 fraction was used and for the SCONOX operating condition a 40% initial NO2 fraction was assumed due to the non-specific catalytic oxidation that occurs. Only the year 1994 was modeled since this period resulted in the Maximum 1-hour NO2 predicted concentrations for the AQIA modeling previously performed.

In conclusion, the above NOx emission limitation during the commissioning period for the Otay Mesa Generating project will not result in an exceedance of the California 1-hour NO2 standard.
AIR QUALITY IMPACT AND PREVENTION OF SIGNIFICANT DETERIORATION FINAL REVIEW REPORT

OTAY MESA GENERATING PROJECT APPLICATION 973880

MAY 17, 2000

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1.0 INTRODUCTION

An Air Quality Impact Analysis (AQIA) and Prevention of Significant Deterioration (PSD) analysis was performed for the Otay Mesa Generating Project 510 MW natural gas-fired, combined cycle electric generating project by URS Greiner Woodward Clyde for Otay Mesa Generating Company, LLC. In August 1999 an Application to Construct the power plant, including the AQIA and PSD analysis, was submitted to the San Diego Air Pollution Control District (District). This submittal was reviewed and questions and comments regarding the dispersion modeling approach and results were provided to the Applicant. During subsequent meetings additional modeling requirements and procedures were agreed to by stakeholders.

In addition, during the review period the Applicant continued to refine the project/plant design. Design changes that affect the air quality impact assessment were included in a new submittal dated March 2, 2000. Design changes that were included are:

- The facility layout was modified, resulting in changes in stack and structure locations.
- The stacks for the two turbines are now located immediately adjacent to each other resulting in complete plume merging.
- Steam injection for power augmentation has been added to the operating conditions for up to 1800 hours per year for each turbine. This increases mass emissions of NOₓ, CO and PM₁₀ one pound per hour per turbine.

This report focuses on the AQIA and PSD analysis results provided in the March 2000 submittal.

2.0 PROJECT DESCRIPTION

The Project is a natural gas-fired, combined cycle 510 MW power plant consisting of 2 gas combustion turbines. The Project facility is located on the eastern portion of Otay Mesa near the western base of the San Ysidro Mountains and 1.5 miles north of the United States/Mexico border. The Applicant is considering three potential turbine models for the project; the Asea Brown Bovari GT-24, General Electric 7FA and Siemens-Westinghouse 501FD. At this time the final selection has not been made. The applicant is proposing to use the SCONOX system for post combustion NOₓ control. The SCONOX system uses a single catalyst/absorbent for the removal of NOₓ, CO and VOC. The applicant has proposed to use SCR control in the event that the SCONOX control system cannot meet the expected NOₓ emission control of 2.0 ppmvd.

3.0 EMISSION ESTIMATES

The facility potential to emit is as follows:

- Nitrogen oxides 100 tons per year
- Carbon monoxide 207 tons per year
- Sulfur dioxide 38 tons per year
- Particulate matter 160 tons per year
- Volatile organic compounds 7 tons per year

Emissions are based upon the use of either SCONOX or SCR control systems.
The facility is a major stationary source and PSD source for Particulate Matter (PM\textsubscript{10}), Nitrogen oxides (NO\textsubscript{x}) and Carbon Monoxide (CO).

4.0 AIR QUALITY IMPACT ANALYSIS

Dispersion modeling was conducted for operational emissions of NO\textsubscript{x}, CO and PM\textsubscript{10}. Sulfur dioxide emissions were below the AQIA trigger level. The applicant and their consultant (URS Greiner Woodward-Clyde) worked closely with the District in developing modeling and analysis procedures in support of demonstrating compliance with all applicable NSR and PSD requirements.

In addition, during the commissioning period emissions are expected to be much higher since the control system will not yet be optimized. 1-Hour CO and NO\textsubscript{x} emissions were modeled to determine maximum permissible emissions that would not impact the State 1-Hour Ambient Air Quality Standards for CO and NO\textsubscript{x}. These procedures are discussed in the following subsections.

4.1 SCREENING TO SELECT WORST-CASE TURBINE/OPERATING SCENARIO

The Applicant is considering three potential turbine models and has not yet made their final selection. In order to ensure compliance with all NSR and PSD requirements regardless of the final turbine selection a preliminary screening assessment was performed to identify the worst-case turbine and operating conditions. Emission estimates were calculated for various combinations of turbine loads and ambient temperatures for each of the turbine models. The modeling scenarios also included the possibility of power augmentation for 1800 hours per year per turbine.

EPA’s ISCST3 model was used in the screening analysis. Model options used were per the District approved modeling protocol. The Siemens-Westinghouse 501FD turbine was selected as worst case and was used in the refined dispersion modeling analysis. Building downwash was considered. Three consecutive years of meteorological data (1992-1994) from Miramar, CA was used. The receptor grid extended out 10 kilometers in all directions from the facility. The grid density (12,000 receptors) was sufficient for the determination of maximum predicted concentrations.

4.2 GOOD ENGINEERING PRACTICE STACK HEIGHT DETERMINATION

The maximum stack height that can be considered in the dispersion modeling is the greater of 65 meters or GEP formula height. GEP stack height for the proposed stacks is 57.7 meters. The applicant chose and modeled a 39.9 meter stack.

4.3 AIR QUALITY IMPACT ANALYSIS REFINED MODELING METHODOLOGY

Emission profiles and emission release parameters were developed for 1-hour, 8-hour, 24-hour and annual averaging periods. Turbine operating loads of 60% to 100% were used for the calculations. In addition, power augmentation, cold start and warm start emissions were also considered dependent upon the averaging period. Based on the screening modeling the worst case operating scenarios to be used in the refined modeling were determined.

The revised facility layout indicates that the two stacks will be adjacent (flue edges about 4 meters apart). Therefore the two stacks were modeled as a single stack with an effective diameter reflective of the total cross-sectional area of both individual stacks. The exhaust velocity and exhaust temperature used in the modeling are identical to that for 1
individual stack. Volumetric flow for the representative stack is double an individual stack to reflect the merging of plumes. This results in a plume rise enhancement of approximately 25\%.

Empirical (Briggs, 1974) and analytical (Anfossi et al., 1978) approaches support this assumption of enhancement for merged plumes. In addition, wind-tunnel studies (Overcamp and Ku, 1980) also support the assumption that plume rise enhancement would occur regardless of the wind direction angle to stack alignment for stacks in very close proximity, as is the case for this facility.

Refined modeling using EPA’s ISCST3 model was performed in order to demonstrate that the facility would not cause a violation of the National Ambient Air Quality Standards for CO, NO\textsubscript{2}, and PM\textsubscript{10} or the State Standard for CO and NO\textsubscript{2}. Three years of meteorological data (1992-1994) from Miramar, CA were modeled. Approximately 12,000 receptor points in both simple and complex terrain were input in the modeling.

The Ozone Limiting Method (OLM) was used to determine predicted 1-hour NO\textsubscript{2} concentrations. The ISC-OLM model was used to determine maximum predicted concentrations of NO\textsubscript{2} assuming either a 10\% or 40\% initial thermal conversion of NO\textsubscript{x} to NO\textsubscript{2}. Three years (1992-1994) of O\textsubscript{3} and NO\textsubscript{2} data from the District’s Chula Vista monitoring station was used.

EPA’s CTSCREEN and AERMOD models were used to demonstrate that the facility operation would not cause additional violations of the State Ambient Air Quality Standards for PM\textsubscript{10}, especially in the complex terrain areas to the east and north of the project area. These models are considered to be a more refined approach for estimating impacts at complex terrain receptors. Both CTSCREEN and AERMOD were run for all 5,269 complex terrain receptors. Meteorological data input for CTSCREEN consists of a standardized set of meteorological conditions. Meteorological data input to AERMOD consisted of three consecutive years (1994-1996) comprised of the following:

- Wind speed, wind direction, standard deviation of the horizontal wind direction and temperature from the District’s Otay Mesa monitoring station.
- Twice-daily upper-air soundings from Miramar, NAS.
- Cloud height and total opaque cloud amount from Miramar, NAS.
- Wind speed, wind direction and temperature data from Miramar, NAS for replacement of missing data in the Otay Mesa data set.

Vertical temperature profiles for stable conditions (Class E and F) were set to those recommended by EPA and used as defaults in the ISCST3 model. The AERMET model was used to produce the model input data set.

Since AERMOD concentration predictions can be dependent on “controlling hill heights” as produced by the preprocessor AERMAP, a sensitivity study for domain sizes was performed. Controlling hill heights are dependent upon domain sizes used. Terrain processing using both a “super domain” and “local domain” was performed. The super domain results were more conservative and therefore used for the impact analysis. In order to determine whether additional exceedances of the State 24-hour Ambient Air Quality Standard of 50 \(\mu g/m^3\) for PM\textsubscript{10} would result from facility operations all days in the
three year (1994-1996) period with observed background PM2.5 concentrations of ≥ 41 μg/m³ were modeled. This cutoff was selected because the CTSRENE3 modeling predicted a maximum 24-hour PM2.5 concentration of 5.53 μg/m³. In addition, all days for each year in this period were modeled to determine maximum 24-hour and annual predicted concentrations of PM2.5 for comparison to Significant Impact Level (SIL) criteria.

EPA’s SCREEN3 model was also used to verify that inversion break up fumigation conditions would not result in any 1-hour air quality standard exceedance.

5.0 AIR QUALITY IMPACT ANALYSIS RESULTS

In accordance with District guidance and the modeling methodologies described above, predicted concentrations associated with facility operations were determined for each criteria pollutant and the applicable averaging period. The maximum predicted concentrations were then added to worst-case background concentrations for comparison to National and State Ambient Air Quality Standards. Worst case background concentrations were determined from the review of 5 years (1993-1997) of monitoring data taken from the District’s Chula Vista monitoring station, which was deemed to be most representative of air quality in the facility area. Table 5-1 summarizes these results. Also included in Table 5-1 are the Significant Impact Levels for these pollutants.

**TABLE 5-1**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Period</th>
<th>Maximum Modeled Impact (μg/m³)</th>
<th>Significant Impact Level (SIL)¹ (μg/m³)</th>
<th>Background² (μg/m³)</th>
<th>Total Predicted Concentration (μg/m³)</th>
<th>CAAQS (μg/m³)</th>
<th>NAAQS (μg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO₂</td>
<td>1-hour</td>
<td>130</td>
<td>N/A³</td>
<td>202</td>
<td>332</td>
<td>470</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Annual</td>
<td>0.8⁴</td>
<td></td>
<td>36.7</td>
<td>37.5</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>1-hour</td>
<td>2,342</td>
<td>7.823</td>
<td>101</td>
<td>10165</td>
<td>23,000</td>
<td>40,000</td>
</tr>
<tr>
<td></td>
<td>8-hour</td>
<td>643</td>
<td></td>
<td>4.7</td>
<td>5113</td>
<td>11,000</td>
<td>10,000</td>
</tr>
<tr>
<td></td>
<td>Annual</td>
<td>4.6</td>
<td></td>
<td>0.8</td>
<td>50.5</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>PM₂.⁴⁵</td>
<td>24-hour</td>
<td>4.6</td>
<td></td>
<td>103</td>
<td>107.6</td>
<td>50.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annual</td>
<td>0.8</td>
<td></td>
<td>32.4</td>
<td>33.2</td>
<td>30.5</td>
<td></td>
</tr>
</tbody>
</table>

¹ Source: 40 CFR 52.21
² Maximum concentration observed at the Chula Vista Monitoring station (1993-1997).
³ No significant ambient impact concentration has been established.
⁴ The predicted annual NO₂ increase is 1.1 μg/m³. Using the ARM default value of 0.75, this is reduced to 0.8 μg/m³.
⁵ The project area is designated as non-attainment for the state PM₂.⁵ standards.
⁶ Values from AERMOD. Twenty-four hour impacts in simple terrain are predicted by ISCST3 to be 0.5 μg/m³.

Table 5-2 summarizes the fumigation (inversion break-up) results.

**TABLE 5-2**

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Averaging Period</th>
<th>Maximum Modeled Impact (μg/m³)</th>
<th>Background¹ (μg/m³)</th>
<th>Total Predicted Concentration (μg/m³)</th>
<th>NAAQS (μg/m³)</th>
<th>CAAQS (μg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO₂</td>
<td>1-hour²</td>
<td>6.8</td>
<td>202</td>
<td>208.8</td>
<td>470</td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>1-hour²</td>
<td>127.1</td>
<td>7823.0</td>
<td>7950.1</td>
<td>23,000</td>
<td></td>
</tr>
<tr>
<td>PM₂.⁴⁵</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ Maximum observed concentrations at Chula Vista Monitoring Station, 1993 through 1997.
² Only 1-hour averaging periods are used for fumigation impacts due to the short-term nature of fumigation. One-hour impacts include start-up emissions.
The results demonstrate that facility operations will not cause or contribute to an exceedance of the National and State Ambient Air Quality Standards for NO₂. Predicted concentrations for NO₂ did not exceed specified Significant Impact Levels.

The results demonstrate that facility operations will not cause or contribute to an exceedance of the National and State Ambient Air Quality Standards for CO. CO predicted 1-hour and 8-hour concentrations did exceed specified Significant Impact Levels (See Section 6.0).

The results demonstrate that facility operations would not cause or contribute to an exceedance of the PM₁₀ National Ambient Air Quality Standards or the State Annual Ambient Air Quality Standard. Since the project area is designated non-attainment for the State Ambient Air Quality Standards additional modeling using the AERMOD model, as described in Section 4.3 above, was performed in order to determine whether the facility would cause additional violations of the State 24-hour Ambient Air Quality Standard.

It should be noted that predicted concentrations for PM₁₀ did not exceed the EPA specified 24-hour or annual Significant Impact Levels. Predicted impacts less than SILs are normally considered to not significantly affect compliance with Ambient Air Quality Standards regardless of the background level. Specifically in non-attainment areas, project impacts less than the SILs are deemed to not cause or contribute to violations of the Ambient Air Quality Standard.

AERMOD modeling was performed for all days in the 1994-1996 that PM₁₀ background concentrations were >41 μg/m³ but less than 50 μg/m³ (State Standard) to determine whether additional violations would result from facility operations. The results are presented in Table 5-3 for both the "Super Domain" (conservative) and "Local Domain" (more realistic) cases.

The results demonstrate that facility operations would not cause additional violations of the State 24-hour Ambient Air Quality Standard for PM₁₀.

### TABLE 5-3
AERMOD MODELING RESULTS FOR DAYS WITH CHULA VISTA 24-HOUR PM₁₀ CONCENTRATIONS GREATER THAN 41 μg/m³ BUT LESS THAN THE CA AQ S

<table>
<thead>
<tr>
<th>Date of High Background</th>
<th>Chula Vista Background (μg/m³)</th>
<th>Super Domain Controlling Hill Height</th>
<th>Total PM₁₀ (μg/m³)</th>
<th>Local Domain Controlling Hill Height</th>
<th>Highest Daily Prediction (μg/m³)</th>
<th>Total PM₁₀ (μg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 25, 1994 (day 176)</td>
<td>42</td>
<td>2.3</td>
<td>44.3</td>
<td>2.3</td>
<td>44.3</td>
<td></td>
</tr>
<tr>
<td>June 14, 1995 (day 165)</td>
<td>45</td>
<td>1.1</td>
<td>46.1</td>
<td>1.0</td>
<td>46.0</td>
<td></td>
</tr>
<tr>
<td>July 14, 1995 (day 195)</td>
<td>42</td>
<td>0.8</td>
<td>42.8</td>
<td>0.8</td>
<td>42.8</td>
<td></td>
</tr>
<tr>
<td>August 31, 1995 (day 243)</td>
<td>46</td>
<td>1.4</td>
<td>47.4</td>
<td>1.3</td>
<td>47.3</td>
<td></td>
</tr>
<tr>
<td>November 5, 1995 (day 309)</td>
<td>46</td>
<td>1.9</td>
<td>47.9</td>
<td>1.1</td>
<td>47.1</td>
<td></td>
</tr>
<tr>
<td>November 30, 1995 (day 334)</td>
<td>46</td>
<td>0.6</td>
<td>46.6</td>
<td>0.6</td>
<td>46.6</td>
<td></td>
</tr>
<tr>
<td>December 29, 1995 (day 363)</td>
<td>43</td>
<td>0.5</td>
<td>43.5</td>
<td>0.5</td>
<td>43.5</td>
<td></td>
</tr>
<tr>
<td>October 6, 1996 (day 280)</td>
<td>48</td>
<td>0.5</td>
<td>48.5</td>
<td>0.5</td>
<td>48.5</td>
<td></td>
</tr>
<tr>
<td>October 18, 1996 (day 292)</td>
<td>46</td>
<td>2.5</td>
<td>48.6</td>
<td>1.6</td>
<td>47.6</td>
<td></td>
</tr>
</tbody>
</table>
6.0 COMPLIANCE WITH PSD INCREMENTS

The Project's predicted impacts will exceed significant impact levels for only CO (See Table 6-1). PSD increments apply only to NO₂ and PM₁₀. Results of the increment analysis for Class I and Class II areas are provided in Table 6-1. Since predicted concentrations of NO₂ and PM₁₀ did not exceed any of the PSD significant impact thresholds a project impact area is undefined and only the project's emissions were included in the increment analysis. The results demonstrate that the facility operation will not result in an exceedance of any PSD increment in a Class I or Class II area.

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Maximum Class II Impact</th>
<th>Maximum Class I Impact</th>
<th>PSD Increment Class I</th>
<th>PSD Increment Class II</th>
</tr>
</thead>
<tbody>
<tr>
<td>24-Hour NO₂</td>
<td>N/A</td>
<td>0.04</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Annual NO₂</td>
<td>0.8</td>
<td>0.0006</td>
<td>2.5</td>
<td>25</td>
</tr>
<tr>
<td>24-Hour PM₁₀</td>
<td>4.6</td>
<td>0.064</td>
<td>8</td>
<td>30</td>
</tr>
<tr>
<td>Annual PM₁₀</td>
<td>0.8</td>
<td>0.0021</td>
<td>4</td>
<td>17</td>
</tr>
</tbody>
</table>

1 Source: 40 CFR 52.21(c).

7.0 AIR QUALITY RELATED VALUE (AQRV) IMPACTS-VISIBILITY

PSD regulations require an assessment of visibility impairment within the project impact area and the nearest Class I area. Since the significant impact thresholds for NO₂ and PM₁₀, the pollutants contributing to visibility impairment, were not exceeded no project impact area is defined. Therefore the visibility impact analysis was conducted for only the nearest Class I areas to the project.

The closest Class I area to the project is the Agua Tibia National Wilderness Area, which is approximately 90 kilometers north. EPA's VISSCREEN model was applied using worst-case meteorology (Class F Stability and 1 m/s wind speed) to determine project visibility impact. Background visual range data for the San Gorgonio Wilderness Area, as recommended by the U.S. Department of Agriculture, U.S. Forest Service was used. No visibility monitoring is currently conducted in the Agua Tibia Wilderness. Facility emissions for NOₓ and PM₁₀ were input. The model predicts that all visibility impacts within the Agua Tibia Wilderness are below the EPA significance criteria for both plume contrast and perception.

8.0 COMMISSIONING PERIOD

The Otay Mesa Generating Project has proposed the use of the SCONO₂ system for post combustion NOₓ emission controls. To date, this technology has not been applied to a Class "F" sized turbine. During the facility startup, commissioning and early operations, emissions of CO and NOₓ are expected to be substantially greater than
those used throughout this Air Quality Impact and PSD analysis. The following additional analysis was therefore performed for the commissioning period operations.

8.1 AIR QUALITY IMPACT ANALYSIS MODELING METHODOLOGY FOR COMMISSIONING PERIOD

1-Hour CO emissions for both turbines operating at 60% load and both turbines operating at 100% load were modeled using the ISGST3 model. Three consecutive years of meteorological data (1992-1994) were used. All modeling was performed with the agreed modeling options selected. Emission rates from 500 lb/hr per turbine to 3500 lb/hr per turbine were modeled. The predicted maximum 1-Hour CO concentrations plus the worst case CO background concentration were compared to the State 1-Hour CO Ambient Air Quality Standard (most stringent) for each of the modeled cases.

1-Hour NO$_2$ emissions for both turbines operating at 60% load and both turbine operating at 100% load were also modeled. NO$_2$ emission rates were varied from 50 lb/hr per turbine to 150 lb/hr per turbine. 1-Hour NO$_2$ impacts were evaluated using the Ozone Limiting Method and an assumption of 40% initial thermal conversion of NO$_2$ to NO$_2$. The predicted maximum 1-Hour NO$_2$ concentrations plus the worst case NO$_2$ background concentration were compared to the State 1-Hour NO$_2$ Ambient Air Quality Standard for each of the modeled cases.

8.2 AIR QUALITY IMPACT ANALYSIS RESULTS FOR COMMISSIONING PERIOD

Results of the commissioning period modeling for NO$_2$ and CO impacts are presented in Tables 8-1 and 8-2 below.

The maximum NO$_2$ hourly emission rate allowable in order to not exceed the State 1-Hour NO$_2$ Ambient Air Quality Standard is 90 lb/hr per turbine with both units at 60% load and 100 lb/hr per turbine with both units at 100% load. No other operating load scenarios for the facility were evaluated.

The maximum CO hourly emission rate allowable in order to not exceed the State 1-Hour Ambient Air Quality Standard is 2750 lb/hr per turbine with both units at 60% load and 2000 lb/hr per turbine with both units at 100% load. No other operating load scenarios for the facility were evaluated.
<table>
<thead>
<tr>
<th>NO\textsubscript{2} Emissions (lb/hr)</th>
<th>Exit Velocity (m/s)</th>
<th>Exit Temperature (°K)</th>
<th>Emissions (g/s)</th>
<th>NO\textsubscript{2} Modeled (µg/m\textsuperscript{3})</th>
<th>Total* (µg/m\textsuperscript{3})</th>
<th>Percent of Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 Percent Load Conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 lb/turbine</td>
<td>17.95</td>
<td>371.48</td>
<td>12.6</td>
<td>175.64</td>
<td>378.64</td>
<td>81%</td>
</tr>
<tr>
<td>60 lb/turbine</td>
<td>17.95</td>
<td>371.48</td>
<td>15.12</td>
<td>192.43</td>
<td>394.43</td>
<td>84%</td>
</tr>
<tr>
<td>70 lb/turbine</td>
<td>17.95</td>
<td>371.48</td>
<td>17.64</td>
<td>206.22</td>
<td>410.22</td>
<td>87%</td>
</tr>
<tr>
<td>80 lb/turbine</td>
<td>17.95</td>
<td>371.48</td>
<td>20.16</td>
<td>225.03</td>
<td>427.03</td>
<td>91%</td>
</tr>
<tr>
<td>90 lb/turbine</td>
<td>17.95</td>
<td>371.48</td>
<td>22.68</td>
<td>241.89</td>
<td>443.89</td>
<td>94%</td>
</tr>
<tr>
<td>100 lb/turbine</td>
<td>17.95</td>
<td>371.48</td>
<td>25.2</td>
<td>258.75</td>
<td>460.75</td>
<td>98%</td>
</tr>
<tr>
<td>110 lb/turbine</td>
<td>17.95</td>
<td>371.48</td>
<td>27.72</td>
<td>275.61</td>
<td>477.61</td>
<td>102%</td>
</tr>
<tr>
<td>120 lb/turbine</td>
<td>17.95</td>
<td>371.48</td>
<td>30.24</td>
<td>292.47</td>
<td>494.47</td>
<td>105%</td>
</tr>
<tr>
<td>130 lb/turbine</td>
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<td>32.76</td>
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<td>384.30</td>
<td>586.30</td>
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* Emissions assume both turbines are operating.

* A background 1-hour NO\textsubscript{2} concentration of 202 µg/m\textsuperscript{3} was added to the modeled NO\textsubscript{2} concentration.
<table>
<thead>
<tr>
<th>CO Emissions (lb/hr)</th>
<th>Exit Velocity (m/s)</th>
<th>Exit Temperature (°K)</th>
<th>Emissions (g/s)</th>
<th>CO Modeled (µg/m³)</th>
<th>Total (µg/m³)</th>
<th>Percent of Standard</th>
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<td>371.48</td>
<td>126</td>
<td>3723.83</td>
<td>11548.83</td>
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<td>15270.65</td>
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</tr>
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<td>11171.48</td>
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<td>693</td>
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<td>1000 lb/turbine</td>
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<td>5201.79</td>
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<td>1500 lb/turbine</td>
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<td>378</td>
<td>7802.69</td>
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<tr>
<td>2750 lb/turbine</td>
<td>13.53</td>
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<td>693</td>
<td>14304.93</td>
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<tr>
<td>3500 lb/turbine</td>
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<td>882</td>
<td>18206.28</td>
<td>26029.28</td>
<td>113%</td>
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</tbody>
</table>

1 Emissions assume both turbines are operating.

2 A background 1-hour CO concentration of 7823 µg/m³ was added to the modeled CO concentration.
9.0 CONCLUSIONS

From the review of the submitted modeling and associated results, dated March 2, 2000, operation of the proposed Otay Mesa Generating facility will be in compliance with all New Source Review (NSR) and Prevention of Significant Deterioration (PSD) requirements.

10.0 REFERENCES


Prepared By: Ralph DeSiena
Associate Meteorologist

Reviewed By: William C. Brick, CCM
Senior Meteorologist
May 11, 2000

To: Arthur Carbonell

Via: Tom Weeks

From: Dick Brightman

HEALTH RISK ASSESSMENT REVIEW
OTAY MESA GENERATING PROJECT

The District has reviewed the revised Health Risk Assessment (HRA) and reply to district comments submitted on April 14, 2000 for the Otay Mesa Generating Project (Application Number 973880). The District has also reviewed the additional risk modeling for risks during the 120-day commissioning period. District comments are as follows.

1. **Cancer Significant Risk Level.** The District minimum significant risk level for cancer is 1 in a million lifetime cancer probability. The applicant asserts that toxic VOC emissions for this facility can be reduced by 50% by using an oxidizing catalyst. The applicant has accordingly reduced toxic emissions by 50% for the revised risk assessment. The review was conducted assuming this reduction would be valid and properly verified.

2. **Formaldehyde Emission Factor.** The applicant has presented an analysis of the Draft AP-42 Section on Gas Turbine Emissions intended to show that the emission factor for formaldehyde is less than the average from all the source tests cited in AP-42. The District had requested that the default emission factor of 2.05 lb/MMcf be used unless use of an alternative emission factor was approved. Since the applicant proceeded to use the default emission factor in the revised HRA, the above analysis was not reviewed in detail.

3. **Cancer Risk Assessment Results.** The District has reviewed the dispersion and risk modeling for the cancer endpoint. This review included use of the correct unit risk factors, verification of emission and source strength calculations, and correct execution of the models. One issue was that the emission factor used to calculate poly-aromatic hydrocarbon emissions was different than the factor listed. This was adequately explained by the applicant as the result of subtracting the emission factor for naphthalene from the listed PAH emission factor to avoid double counting. The calculated emissions were verified to be correct. Aside from this, the cancer risk modeling appeared to be consistent with District guidelines and practice. Lifetime Cancer Probability at the Point of Maximum Impact (PMI) was determined to be 0.92 per million which is an average of
three years of modeling (1992 Cancer Risk) at 70 percent of the 1996 Cancer Risk, 94 percent, and 1994 Cancer Risk, 91 percent. The average of these values exceeds the District minimum level of significance for Rule 12.

4. Location of Maximum Impact. The HRA results summarized above are conditional on achieving 50% control of emissions. To address the uncertainty of this eventuality and considering that the estimated cancer risk was so close to the District minimum level of significance, it was necessary to locate the point of maximum impact (PMI) from this project. The District determined the location of the PMI to be at a point about 1 mile east of the emission source in unoccupied rugged terrain.

5. Chronic Hazard Index Results. The District has reviewed the dispersion and risk modeling for the chronic health hazard endpoint. This review included use of the correct Reference Exposure Levels (REL), verification of emission and source strength calculations, and correct execution of the models. The District finds that the applicant did not use the most recent chronic RELs for benzene (60 ug/m3) and formaldehyde (3 ug/m3) approved on 2/23/00 by OEHHA. Since the respiratory system toxic endpoint is the only one of concern, only the 20% decrease in the chronic REL for formaldehyde is of concern. Applying this factor to the reported results, the corrected chronic hazard index for the SCONOX alternative was determined by the District to be 0.139, and the corrected chronic hazard index for the SCR/Catalytic Oxidation alternative was determined by the District to be 0.142. Both are below the District significance level for chronic health hazard index.

6. Acute Hazard Index Results. The District has reviewed the dispersion and risk modeling for the acute health hazard endpoint. This review included use of the correct reference exposure levels (REL), verification of emission and source strength calculations, and correct execution of the models. The District finds that the applicant did not use the most recent acute REL for toluene (37,000 ug/m3) approved on 4/1/99 by OEHHA. However, since this represents an increase in the REL from that modeled, the impact of using the correct value would be to lower the risk, therefore use of the incorrect value is of no concern. The District also finds that the applicant did not include the eye as an acute toxic endpoint for formaldehyde. Since the eye was the toxic endpoint of concern for acute risk, it was necessary to add the contribution from formaldehyde to the acute hazard index. Applying this addition to the reported results, the corrected acute hazard index was determined by the District to be 0.762, which is below the District significance level for acute health hazard index.

7. Acute Hazard Index Results for Commissioning Phase Operations. The District has reviewed the dispersion and risk modeling for the acute health hazard endpoint during commissioning operations. This review included use of the correct reference exposure levels (REL), verification of emission and source strength calculations, and correct execution of the models. The above comments regarding the toxic endpoint for formaldehyde do not apply here since all emitted chemicals contribute to the source strength regardless of toxic endpoint. Only acrolein and formaldehyde contribute significantly to the risk. No corrections are necessary. The conclusion of the analysis is
that only for the cases where only one turbine is operating, either at 1.00 load or at 0.6 load, is the acute health hazard index at the point of maximum impact (PMI) less than the District significance level of 1. For the other area conditions evaluated, the acute health hazard index, which ranges from 1.10 to 1.42, exceeds the District significance level of 1. in a small area maximum area of 18 acres on uninhabited mountainous terrain. The maximum acute health hazard index in inhabited terrain is less than 1. The district has independently verified these findings. Since human exposure is not reasonably expected to occur in the above area, the District finds that operation of the Otay Mesa Generating Facility, without SCONOX controls during commissioning should not pose a significant health risk. The District also evaluated the potential for increased cancer risk resulting from commissioning operations. The District conservatively estimates that the cancer risk at the Point of Maximum Impact (PMI) due to commissioning operations could be as high as 2.24 in a million Lifetime Cancer Probability (LCP). However the impacted area is in remote, uninhabited terrain and no exposure could reasonably be expected to occur during the commissioning period, which is less than a year. The maximum cancer risk in areas where exposure of residents or workers to project emissions could reasonably occur is less than 1 in a million.

8. Uncertainty in Acute Toxicity Reference Levels. The applicants concern over use of a health value for eye irritation by acrolein when there is significant uncertainty in that health value is noted. The application of a LOAEL to NOAEL uncertainty factor of 6 is common practice, as is the use of an intraspecies uncertainty factor of 10 to account for varying sensitivity of people to the effects of toxicants. Although there is an added uncertainty due to the extrapolation of exposure time from 5 minutes to 1 hour, no interspecies uncertainty factor was required since data from human subjects was used. Also, note that 15% of the acute health risk due to eye irritation is from formaldehyde, which has a cumulative uncertainty factor of only 10. Finally, District Rule 1200 clearly states that the most recent health values approved and published in OEHHA guidelines will be used in District health risk assessments.

Cc: Mike Lake
    Dan Speer
    Ralph DeSiena
ATTACHMENT B

"ALTERNATIVE MOBILE SOURCE EMISSION REDUCTION PROGRAM FOR REPLACING HEAVY AND MEDIUM HEAVY-DUTY DIESEL POWERED VEHICLES AND REPOWERING OF MARINE VESSELS UNDER RULE 27(c)(1)(vi)"
SAN DIEGO AIR POLLUTION CONTROL DISTRICT

ALTERNATIVE MOBILE SOURCE EMISSION REDUCTION PROGRAM FOR REPLACING MEDIUM AND HEAVY HEAVY-DUTY DIESEL POWERED VEHICLES AND REPOWERING OF MARINE VESSELS UNDER RULE 27 (c)(1)(vi)

Except as provided for below all relevant provisions of Rule 27 are applicable to MERCs applied for and granted under this alternative program.

(a) Applicability

Mobile source emission reduction credits (MERCs) may be created under this alternative mobile source emission reduction program only if all of the following conditions are satisfied:

(1) Application for the credit is made by the owner of the mobile source that generates the credit;

(2) Credit is only granted for oxides of nitrogen (NOx);

(3) The credit is generated by mobile sources that operate solely in San Diego County or Near-Shore San Diego Coastal Waters; and

(4) The credit is generated by one of the following mobile source emission reduction projects:

   (i) Replacement of existing medium heavy-duty (MHD) vehicles that are powered with diesel-fueled compression-ignition engines with new MHD vehicles powered with spark-ignition or compression-ignition engines that are fueled with gaseous fuel;

   (ii) Replacement of existing heavy heavy-duty (HHD) vehicles in refuse collection applications that are powered with diesel-fueled compression-ignition engines with new HHD vehicles powered with spark-ignition or compression-ignition engines that are dual fueled or fueled with gaseous fuel; or

   (iii) Repowering of marine vessels that are powered with diesel-fueled compression-ignition engines with new compression-ignition engines that are fueled with diesel or an alternative clean fuel.

(b) Limitations on Use

MERCs granted under this alternative program may only be used to provide offsets for NOx emission increases pursuant to Rule 20.3 (d)(5). These credits shall not be used as interpollutant offsets.

(c) Definitions

(1) "Activity Metric" means a parameter that is representative of the extent of a mobile source's use and, in conjunction with an emission factor, used to quantify emission reductions during a period of time. Activity metrics are vehicle miles traveled (VMT), volume or mass of fuel burned, or time of operation.

Alternative Program Under SDAPCD Rule 27
9/08/00
(2) "Average Ongoing Emission Reductions" means the average emission reductions generated during a period of time within the District or Near-Shore San Diego County Waters by a mobile source during its use in an existing MERC Project.

(3) "Baseline Activity Level" means the quantity of an activity metric used to quantify annual emissions generated within the District or Near-Shore San Diego County Waters by a baseline mobile source.

(4) "Baseline Emission Factor" means the emission factor used to quantify annual emissions generated within the District or Near-Shore San Diego County Waters by a baseline mobile source.

(5) "Baseline Mobile Source" means, for marine vessels, the existing marine vessel powered with the existing diesel-fueled compression-ignition engine or, for MHD and HHD vehicles, a new vehicle powered with a new diesel-fueled compression-ignition engine.

(6) "Beginning of the MERC Activity Averaging Period" means the first day of the MERC activity monitoring period unless the owners or operators of a stationary source that have surrendered the MERC, or a portion thereof, to provide new source review offsets elect to begin the activity averaging period on a later alternative date. To elect a later alternative beginning date, the stationary source owners or operators must notify the District in writing before the end of the first stationary source ongoing emission reduction monitoring year. Any alternative beginning date elected must be the first day of a calendar quarter following the beginning of the activity monitoring period and not later than the earlier of the beginning of the stationary source ongoing emission reduction monitoring period or two years after the beginning of the MERC activity monitoring period.

(7) "Compression-Ignition" means relating to a type of engine with operating characteristics that are significantly similar to the theoretical Diesel combustion cycle. The absence of a throttle to regulate intake air flow for controlling power during normal operation is indicative of a compression-ignition engine.

(8) "Diesel Fuel" means any fuel that is commonly or commercially known, sold, or represented as diesel fuel No. 1-D or No. 2-D.

(9) "Dual-Fuel Vehicle" means a vehicle designed to be operated simultaneously on gaseous fuel and diesel fuel or diesel fuel alone.

(10) "Equivalent Mobile Sources" means mobile sources owned by the same person or persons and having identical emission factors; full value credit discount factors; extended credit lifetimes; ongoing emission reduction monitoring periods; and baseline, projected, and ongoing activity metrics. Mobile sources with different emission factors and full value credit discount factors may be considered equivalent mobile sources if the Air Pollution Control Officer can determine an average full value credit for the group of mobile sources that is equivalent to the sum of the full value credit for the individual mobile sources.

(11) "Equivalent-use-MERC Mobile Sources" means mobile sources owned by the same person or persons and having identical emission factors; full value credit discount factors; and baseline, projected, and ongoing activity metrics and that form the initial basis of one or
more MERCs. Mobile sources that form the initial basis of a MERC with different emission factors and full value credit discount factors may be considered equivalent-use-MERC mobile sources if the Air Pollution Control Officer can determine an average full value credit for the group of mobile sources that is equivalent to the sum of the full value credit for the individual mobile sources.

(12) "Equivalen-use Mobile Sources" means mobile sources owned by the same person or persons and that are used in the same or closely similar types of operations.

(13) "Gaseous Fuel" means fuel existing as a gas at standard conditions including, but not limited to, natural gas, methane, ethane, propane, butane, and gases stored as a liquid at high pressure such as liquefied petroleum gas.

(14) "Heavy-Duty Vehicle" means any motor vehicle having a manufacturer's gross weight rating greater than 6000 pounds, except passenger cars.

(15) "Heavy Heavy-Duty Vehicle" means a heavy-duty vehicle that is propelled by a heavy heavy-duty engine as defined in 40 CFR § 80.085-2, as amended November 16, 1983.

(16) "Last Stationary Source Ongoing Emission Reduction Monitoring Year" means the stationary source activity monitoring year after which no MERCs that were surrendered to offset the source's emissions are subject to activity monitoring.

(17) "Low NOx Rebuild Engine" means a Low NOx Rebuild Engine as defined in the applicable Settlement Agreement.

(18) "Low NOx Rebuild Kit" means a Low NOx Rebuild Kit as defined in the applicable Settlement Agreement.

(19) "Low NOx Rebuild Program" means the Low NOx Rebuild Program as described in the applicable Settlement Agreement except that the date by which a vehicle must be equipped with a Low NOx Rebuild Kit is modified under this alternative program to the sooner of the date an engine is deployed outside of San Diego County or the date the accumulated mileage or service event criteria specified in the applicable Settlement Agreement is satisfied.

(20) "Maximum Number of Calendar Quarters in the Ongoing Emission Reduction Average" means 40 less the number of calendar quarters from the beginning of the MERC activity monitoring period to the beginning of the MERC activity averaging period.

(21) "Medium Heavy-Duty Vehicle" means a heavy-duty vehicle that is propelled by a medium heavy-duty engine as defined in 40 CFR § 86.085-2, as amended November 16, 1983.

(22) "MERC Activity Monitoring Period" means the ten year period that a MERC is subject to activity monitoring. The MERC activity monitoring period begins on the first day of the first calendar quarter following the date the MERC is granted by the District.

(23) "MERC Creation Date" means the date on which the action is taken to create the emission reductions on which the MERC is based. For replacement of medium or heavy heavy-duty diesel powered vehicles, the MERC creation date is the date that the replacement vehicle is created.
delivered to the owner of the vehicle that is being replaced. For repowering of marine vessels, the MERC creation date is the date that the vessel first takes to sea under the power of the replacement engine.

(24) "MERC Fractional Employment" means the fraction of the mobile sources that form the initial basis of a MERC that are employed during a calendar year. The MERC fractional employment is identical for one or more MERCs if the mobile sources that initially form the basis of each of those MERCs belong to a group of equivalent-use-MERC mobile sources.

(25) "MERC Fractional Employment in Primary Service" means the fraction of the mobile sources that form the initial basis of a MERC that are used in primary service during a calendar year. The MERC fractional employment in primary service is identical for one or more MERCs if the mobile sources that initially form the basis of each of those MERCs belong to a group of equivalent-use-MERC mobile sources.

(26) "MERC Project" means one or more MERCs that are based on equivalent mobile sources.

(27) "MERC Employment Monitoring Period" means the time period a MERC is subject to employment monitoring. The MERC employment monitoring period begins on the first day of the first calendar year following the date the MERC is granted by the District and lasts until the end of the calendar year in which the MERC's unextended lifetime ends.

(28) "Mobile Source Employment Monitoring Period" means the time period that a mobile source owner must monitor the employment of mobile sources that form the initial basis of one or more MERCs. The mobile source employment monitoring period begins when the earliest MERC employment monitoring period begins and ends on the latest date that a MERC employment monitoring period ends.

(29) "Mobile Sources that Form the Basis of the MERC" means the mobile source, or group of equivalent mobile sources, that generates the emission reductions that are represented by the MERC, including all subsequent replacements or repowerings of those mobile sources.

(30) "Mobile Sources that Form the Initial Basis of the MERC" means the mobile source, or group of equivalent mobile sources, that generates the emission reductions that are represented by the MERC, not including any subsequent replacements or repowerings of those mobile sources unless the replacement or repowering is due to accident.

(31) "Near-Shore San Diego Coastal Waters" means the area water lying within all harbors, bays, inlets, and estuaries in the jurisdiction of the San Diego County Air Pollution Control District and the area of water bounded by latitude N 33° 20' 10" on the north and by the oceanward extension of the United States-Mexico International Boundary on the south and lying within 25 English statute miles oceanward of lines drawn in front of all harbors along the outermost works and installations thereof; 25 English statute miles oceanward of lines drawn from headland to headland across the mouth of each bay, inlet, and estuary, regardless of the length of lines; and, where there are no harbors, bays, estuaries, or inlets, 25 miles oceanward of the lowest low-water mark on the shore.
(32) "Ongoing Activity Level" means the quantity of an ongoing activity level metric used to quantify ongoing annual emissions by a mobile source during its use in an existing MERC Project.

(33) "Ongoing Activity Metric" means an activity metric that is not expected to change in magnitude between baseline operations and projected operations in a MERC Project, if the nature and operational mode of a mobile source's use does not change. Ongoing activity metrics include hours of operation and vehicle miles traveled.

(34) "Primary Service" means that a vehicle is dispatched on a daily basis unless unavailable for service due to scheduled and unscheduled maintenance.

(35) "Projected Activity Level" means the quantity of an activity metric that is used to quantify forecast annual emissions generated within the District or Near-Shore San Diego County Waters by a mobile source during its use in a proposed MERC Project.

(36) "Projected Emission Factor" means the emission factor used to quantify forecast annual emissions generated within the District or Near Shore San Diego County Waters by a mobile source during its use in a proposed MERC Project.

(37) "Reserve Service" means that a vehicle is normally active and available for service, but is only used in the event a primary service vehicle is unavailable.

(38) "Settlement Agreement" means one of the following, as applicable: Settlement Agreement Between the California Air Resources Board and Caterpillar Inc., as signed on December 15, 1998; Settlement Agreement Between the California Air Resources Board and Cummins Engine Company, Inc., as signed on December 15, 1998; Settlement Agreement Between the California Air Resources Board and Detroit Diesel Corporation, as signed on December 15, 1998; Settlement Agreement Between the California Air Resources Board and Mack Truck Inc. & Renault V. I., s. a., as signed on December 15, 1998; Settlement Agreement Between the California Air Resources Board and Volvo Truck Corporation, as signed on December 15, 1998; or Settlement Agreement Between the California Air Resources Board and Navistar International Transportation Company, as signed on October 22, 1998.

(39) "Stationary Source Ongoing Emission Reduction Monitoring Period" means the period of time beginning on the first day of the first calendar quarter after the stationary source commences operations and ending on the last day of the last stationary source activity monitoring year.

(40) "Stationary Source Ongoing Emission Reduction Monitoring Year" means one of the successive yearly periods beginning the first day of the stationary source ongoing emission reduction monitoring period and ending on the last day of the last stationary source ongoing emission reduction monitoring year.
(d) MERC Quantification

(1) Full Value Credit Quantification

For each mobile source or group of equivalent mobile sources, the full value credit amount is calculated from the following equation:

\[ C_f = kD_f(A_b F_b - A_p F_p) \]

where:

- \( C_f \) = the full value credit amount, in tons per year;
- \( k = 1.1023 \times 10^{-6} \), the conversion factor for converting grams to tons;
- \( D_f \) = a full value credit discount factor, equal to 0.7 for the replacement of HHD vehicles in refuse collection applications with dual-fueled HHD vehicles and equal to 1.0 in all other cases;
- \( A_b \) = the annual average baseline activity level, in appropriate units;
- \( A_p \) = the annual average projected activity level, in appropriate units;
- \( F_b \) = the emission factor for the baseline mobile source as specified in Section (e), in grams per unit activity level; and
- \( F_p \) = the projected emission factor for the replacement mobile source, in grams per unit activity level.

(2) Baseline Activity Level Quantification

Average baseline activity levels shall be determined as specified in (d)(2)(i)–(d)(2)(ii). In addition, for HHD and MHD vehicles, the average baseline activity level shall be adjusted to account for decreases, but not increases, in the activity level that would have occurred for the baseline vehicles over the vehicles’ useful life, considering both primary and reserve service operational categories.

(i) Unless an alternative representative period is determined by the Air Pollution Control Officer with the concurrence of the Air Resources Board, the average baseline activity level shall be determined from the average activity level of the most representative two consecutive year period during the five year period preceding the application for a MERC.

(ii) If insufficient information is available to determine a representative activity level from a two year average in accordance with Subsection (d)(2)(i), the Air Pollution Control Officer with the concurrence of the Air Resources Board may specify a shorter period, but not less than one year.
(3) Projected Activity Level Quantification

Projected activity levels shall be forecast from average baseline activity levels as specified in (d)(3)(i)–(d)(3)(iii). In addition, for HHD and MHD vehicles, the average projected activity level shall be adjusted to account for decreases, but not increases, in the activity level that would have occurred for the baseline vehicles over the vehicles' useful life considering both primary and reserve service operational categories.

(i) For baseline activity levels quantified in volume or mass of diesel fuel burned, the corresponding projected activity level shall be quantified by the volume or mass of fuel burned and determined by equating the work represented by lower heating value of the baseline activity level combined with the baseline engine efficiency and the lower heating value of the projected activity level combined with the projected engine efficiency.

(ii) For baseline activity levels quantified in vehicle miles traveled or hours of operation, the projected activity level shall be the same as the baseline activity level.

(e) Emission Factors

(1) Medium and Heavy Heavy-Duty Vehicles Emission Factors

(i) Baseline Emission Factors

(A) For MERC creation dates before October 1, 2002, the baseline emission factors used for the replacement of medium and heavy heavy-duty vehicles shall be the applicable emission factor in Table 1 or an emission factor obtained by converting the applicable emission factor to alternate emission factor units in accordance with Subsection (e)(1)(iii). The baseline emission factor for HHD vehicles with standard maintenance shall be used for replacement of HHD diesel powered vehicles unless an enhanced maintenance program for the replacement vehicles has been approved by the Air Pollution Control Officer, the Air Resources Board, and the U.S. Environmental Protection Agency for the MERC Project. Enhanced maintenance programs are not applicable to MHD vehicles.

<table>
<thead>
<tr>
<th>Engine Type and Maintenance</th>
<th>Emission Factor, g/(bhp hr)</th>
<th>Emission Factor, g/gallon</th>
<th>Emission Factor, g/(VMT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heavy Heavy-Duty Vehicles in Refuse Collection Applications with Standard Maintenance</td>
<td>4.4</td>
<td>81.4</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Heavy Heavy-Duty Vehicles in Refuse Collection Applications with Enhanced Maintenance</td>
<td>5.4</td>
<td>99.9</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Medium Heavy-Duty Vehicles with Standard Maintenance</td>
<td>4.0</td>
<td>74</td>
<td>10.4</td>
</tr>
</tbody>
</table>
(B) Notwithstanding Subsection (e)(1)(i)(A), the Air Pollution Control Officer with the concurrence of the Air Resources Board and the U. S. Environmental Protection Agency, may require use of alternative emission factors on a case-by-case basis, but not to exceed the values in Subsection (e)(1)(i)(A), Table 1.

(C) For MERC creation dates on or after October 1, 2002, the baseline emission factors used for the replacement of medium and heavy heavy-duty vehicles shall be determined on a case-by-case basis by the Air Pollution Control Officer with the concurrence of the Air Resources Board and U. S. Environmental Protection Agency, but not to exceed the values in Subsection (e)(1)(i)(A), Table 1.

(ii) Projected Emission Factors

For replacement of medium and heavy heavy-duty vehicles, the projected emission factors used shall be the applicable certified emission factors for the engine powering the replacement vehicle expressed in grams per brake horsepower hour or an emission factor obtained by converting the certified emission factor to alternate emission factor units in accordance with Subsection (e)(1)(iii).

(iii) Conversion of Emission Factor Units

Unless an alternative conversion factor is determined by the Air Pollution Control Officer with the concurrence of the Air Resources Board and U.S. Environmental Protection Agency to be more representative for a mobile source, the applicable certified emission factor expressed in grams of NOx emitted per brake horsepower hour shall be converted to emission factors expressed in the alternate units listed in Table 2 by multiplying by the applicable conversion factor.

---

Table 2. Conversion Factors for Heavy-Duty Vehicle Emission Factors.

<table>
<thead>
<tr>
<th>Alternate Emission Factor Units</th>
<th>Conversion Factor: Multiply the Emission Factor in Grams of NOx Emitted per Brake Horsepower Hour by the Conversion Factor to Obtain the Emission Factor in Alternate Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grams of NOx Emitted per Gallon of Diesel Fuel Combusted</td>
<td>18.5</td>
</tr>
<tr>
<td>Grams of NOx Emitted per Standard Cubic Feet of Natural Gas Combusted</td>
<td>0.1342</td>
</tr>
<tr>
<td>Grams of NOx Emitted per Gallon of Liquefied Natural Gas Combusted</td>
<td>11.07</td>
</tr>
<tr>
<td>Grams of NOx Emitted per Vehicle Mile Traveled</td>
<td>2.6</td>
</tr>
</tbody>
</table>
The conversion factor to obtain emission factors expressed in units other than those in Table 2 shall be determined on a case-by-case basis by the Air Pollution Control Officer with the concurrence of the Air Resources Board and the U. S. Environmental Protection Agency.

(2) Marine Vessel Repowering

(i) Baseline Emission Factors

For repowering marine vessels, the baseline emission factor shall be the emission factor expressed in grams per gallon of fuel combusted determined for each engine in the MERC Project by a source test conducted in accordance with a protocol approved by the Air Pollution Control Officer, but not to exceed 370 grams per gallon of fuel combusted.

(ii) Projected Emission Factors Without Clean Fuel Credit

For repowering marine vessels without clean fuel credit, the projected emission factors expressed in grams per gallon of fuel combusted shall be:

   (A) Determined from the information submitted to the U. S. Environmental Protection Agency and used to obtain certification for that model engine(s) powering the vessel;

   (B) If the engine(s) have not been certified, determined from the information for that model engine submitted to the U. S. Environmental Protection Agency to obtain certification; or

   (C) Determined from a source test of a representative number of engines conducted in accordance with a protocol approved by the Air Pollution Control Officer.

(iii) Emission Factors With Clean Fuel Credit

An applicant for a MERC under this alternative program may request additional credit based on the use of an alternative clean fuel. A clean fuel credit shall only apply if the MERC contains practicably enforceable conditions to ensure that only the clean fuel will be used in the marine engines participating in the MERC Project.

For repowering marine vessels with a clean fuel credit, the projected emission factors expressed in grams per gallon of fuel combusted shall be determined from a source test of a representative number of engines conducted in accordance with a protocol approved by the Air Pollution Control Officer, the Air Resources Board, and the U. S. Environmental Protection Agency. In addition, the applicant must submit a plan with the written approval by the Air Pollution Control Officer, the Air Resources Board, and the U. S. Environmental Protection Agency that at a minimum:

   (A) Demonstrates, based on historical records, the fuel properties of the baseline fuel (the fuel currently being used);

   (B) Establishes the properties of the proposed fuel;
(C) Quantifies the amount of fuel used;

(D) Identifies source test protocols to quantify the emission reductions from using the clean fuel;

(E) Identifies source data to be used to quantify the emission reductions from using clean fuel; and

(F) Provides any other information necessary to determine that the emission reductions are real and surplus.

(f) Credit Lifetime

(1) Unextended Credit Lifetime for Medium and Heavy Heavy-Duty Vehicles

(i) For replacement of MHD and HHD diesel-fueled compression-ignition engine powered vehicles, the unextended credit lifetime equals the useful lifetime of a new diesel-fueled compression-ignition engine powered vehicle in similar service. Except as provided in Subsection (f)(1)(ii) the useful lifetime for MHD and HHD diesel-fueled compression-ignition engines powered vehicles are eight and ten years, respectively.

(ii) A longer useful lifetime for MHD and HHD diesel-fueled compression-ignition engine powered vehicles than that allowed in Subsection (f)(1)(i) may be allowed provided that the Air Pollution Control Officer determines that, based on historical records of similar vehicles in similar applications, including, but not limited to, records of vehicle sales and purchases, maintenance, annual fuel use, and annual miles traveled, a longer useful lifetime is more representative of the vehicle fleet for which the MERC Project is proposed.

(2) Unextended Credit Lifetime for Marine Vessels

For repowering of marine vessels, the unextended credit lifetime equals 30 years.

(3) Extended Credit Lifetime For Initial Credit

(i) The unextended credit lifetime may be extended to a longer lifetime provided that:

(A) The unextended credit life is at least 7.5 years; and

(B) The credit is discounted from the full credit value by application of the following equations:

\[ C_d = D_l \times C_f \]

\[ D_l = T_f/T_e \]

where:

\[ C_d = \text{the discounted credit value for an extended lifetime, in tons per year;} \]

\[ D_l = \text{the lifetime discount factor, not to exceed one;} \]
$C_f =$ the full value credit amount, in tons per year;

$T_l =$ the unextended credit lifetime, in years; and

$T_e =$ the extended credit lifetime factor, not to exceed 30, in years.

(ii) If all the requirements of Subsection (f)(3)(i) are satisfied the credit lifetime shall be:

(A) Equal to the extended lifetime factor ($T_e$) if the extended lifetime factor is less than 30 years; or

(B) Unlimited and permanent if the extended lifetime factor is equal to 30 years.

Once a MERC for a mobile source has been granted the credit lifetime shall not be changed except by application of the credit owner as described in Subsection (f)(4).

(4) Change of Credit Lifetime After Credit is Granted

A MERC's existing credit lifetime may be changed to a new credit lifetime after the credit is granted by application of the credit owner.

(i) For credits with an existing extended credit lifetime less than 30 years, the discounted credit value shall be further discounted by the following equation:

$$C_{dn} = D_I \times C_{de}$$

$$D_I = \frac{T_{ee} - T_u}{T_{en}}$$

where:

$C_{dn} =$ the new discounted credit value for an extended lifetime, in tons per year;

$C_{de} =$ the existing discounted credit value for an extended lifetime, in tons per year;

$D_I =$ the new lifetime discount factor, not to exceed the value of the full credit value, $C_f$ calculated pursuant to Subsection (d)(1) divided by the original discounted credit value, $C_{de}$;

$T_u =$ the time elapsed since the beginning of the credit lifetime, in years;

$T_{ee} =$ the existing extended credit lifetime in years, not to exceed 30, in years; and

$T_{en} =$ the new extended credit lifetime factor, not to exceed 30, in years.

(ii) For credits with an existing lifetime equal to the unextended credit lifetime, the procedure in Subsection (f)(4)(i) is applicable with the existing extended credit lifetime set equal to the unextended credit lifetime.
(iii) For credits with an existing credit lifetime that is unlimited and permanent, the procedure in Subsection (f)(4)(i) is applicable with the existing extended credit lifetime set equal to 30 years.

(iv) For all credits with lifetimes changed pursuant to Subsection (f)(4) (i)–(iii), if the new credit lifetime is an extended credit lifetime that is longer than the unextended credit lifetime, all the requirements of Subsection (f)(3) must be satisfied.

(v) If the new extended credit lifetime factor is equal to 30 years, the credit lifetime shall be deemed unlimited and permanent.

(5) Lifetime of Refunded Credits

Any MERCs refunded pursuant to Subsection (m) shall retain their original lifetime except that MERCs with a pre-surrender lifetime that was extended pursuant to Subsection (f)(3) or (f)(4) to be unlimited and permanent shall be deemed to be a MERC with a lifetime equal to thirty years less the number of days elapsed between the beginning of the original MERC lifetime and the date the application required pursuant to Subsection (m) is deemed complete. The lifetime of refunded MERCs shall begin on one of the following dates, as applicable:

(i) For refunded MERCs with a pre-surrender lifetime that was not extended pursuant to Subsection (f)(3) or (f)(4) to be unlimited and permanent and for which the lifetime began less than one calendar year from the first day of the first calendar quarter following the MERC creation date, the refunded MERCs lifetime shall begin on the same date as the pre-surrender lifetime.

(ii) For refunded MERCs with a pre-surrender lifetime that was not extended pursuant to Subsection (f)(3) or (f)(4) to be unlimited and permanent and for which the lifetime began more than one calendar year from the first day of the first calendar quarter following the MERC creation date, the refunded MERCs lifetime shall begin one calendar year from the first day of the first calendar quarter following the MERC creation date.

(iii) For refunded MERCs with a pre-surrender lifetime that was extended pursuant to Subsection (f)(3) or (f)(4) to be unlimited and permanent, the refunded MERCs lifetime shall begin on the date the application for refund was deemed complete.

The applicant may apply to have any refunded MERCs lifetime changed pursuant to Subsection (f)(4).

(6) Start of Credit Lifetime

For credits with an unlimited lifetime, the lifetime begins on the date the credit is issued to the mobile source owner. For credits with a limited lifetime, the credit lifetime shall begin the sooner of:

(i) Two calendar years from the first day of the first calendar quarter following the MERC creation date; or

(ii) The date the credit is surrendered to provide offsets for a stationary source.
(g) Disposal of Original Engines

In all cases, the original engine of a mobile source that is repowered or replaced shall not be operated in San Diego County and shall be permanently removed from San Diego County or destroyed. For engines that are destroyed, the engines must be destroyed and disposed of in a manner that complies with all applicable federal, state, and local laws. For engines that are not destroyed, the engine shall be disposed of as specified in Subsections (g)(1)–(g)(2).

(1) For an original engine that is a Low NOx Rebuild Engine, the engine shall be sold and/or permanently relocated, separately or as part of a mobile source, to a location:

(i) Outside of California and Baja California;

(ii) Within California but outside the boundaries of the South Coast Air Basin provided that, prior to beginning operations outside of San Diego County, the engine is equipped with a Low NOx Rebuild Kit in accordance with the applicable Low NOx Rebuild Program; or

(iii) Within the boundaries of the South Coast Air Basin provided that, prior to beginning operations outside of San Diego County, the engine is equipped with a Low NOx Rebuild Kit in accordance with the applicable Low NOx Rebuild Program and the mobile source's owner provides a demonstration approved by the Air Pollution Control Officer, the Air Resources Board, and the U. S. Environmental Protection Agency that the air quality of the South Coast Air Basin will not be degraded from the relocation and operation of the mobile source.

(2) For an original engine that is not a Low NOx Rebuild Engine, the engine shall be sold and/or permanently relocated, separately or as part of a mobile source, to a location:

(i) Outside of California and Baja California;

(ii) Within California but outside the boundaries of the South Coast Air Basin; or

(iii) Within the boundaries of the South Coast Air Basin provided that, the engine was manufactured after October 1, 2002, and is certified to be in compliance with all applicable South Coast Air Quality Management District, state, and federal emission standards and the mobile source's owner provides a demonstration approved by the Air Pollution Control Officer, the Air Resources Board, and the U. S. Environmental Protection Agency that the air quality of the South Coast Air Basin will not be degraded from the relocation and operation of the mobile source.
(h) Ongoing Emission Reduction Monitoring and Correction

(1) Average Ongoing Emission Reductions

For each MERC, or portion thereof, that is surrendered to provide offsets for a stationary source, the average ongoing emission reduction for the stationary source ongoing emission reduction monitoring year shall be calculated from the following equation:

\[ E_0 = \frac{4C_{ms}}{nD_{j}A_{of}} \sum_{i=1}^{n} A_{oi} \]

where:

- \( E_0 \) = the average ongoing emission reduction, in tons per year;
- \( C_{ms} \) = the value of the MERC, or portion thereof, in tons per year;
- \( i \) = index that labels individual calendar quarters in the MERC activity averaging period;
- \( n \) = the lesser of the maximum number of calendar quarters in the ongoing emission reduction average or the number of quarters that have elapsed from the beginning of the MERC activity averaging period to the end of the stationary source ongoing emission reduction monitoring year;
- \( D_{j} \) = the lifetime discount factor for the MERC determined in accordance with Subsection (f)(3) or (f)(4);
- \( A_{of} \) = the forecast annual average ongoing activity level of the mobile sources that form the basis of the MERC, in appropriate units; and
- \( A_{oi} \) = the \( i \)th quarter’s ongoing activity level of the mobile sources that form the basis of the MERC, in the same units as the forecast annual average ongoing activity level.

Using an appropriate ongoing activity metric, the forecast annual average ongoing activity level shall be determined in the same manner as an annual average baseline activity level is determined pursuant to Subsection (d)(2).

(2) Aggregate Average Ongoing Emission Reductions

For each stationary source ongoing emission reduction monitoring year, the aggregate average ongoing emission reductions shall be calculated by the following equation:

\[ E_{oa} = \sum_{i=1}^{m} E_{oi} \]

where:

- \( E_{oa} \) = the aggregate average ongoing emission reductions, in tons per year;
i = an index labeling individual MERCs;

m = the total number of individual MERCs surrendered by a stationary source to provide new source review offsets;

$E_{O_i}$ = the average ongoing emission reductions for i’th MERC, calculated in accordance with Subsection (i)(1).

(3) MERC Emission Reduction Deficit

For each stationary source ongoing emission reduction monitoring year, the MERC emission reduction deficit, if any, shall be calculated by the following equation:

$$EMd = a(1.2E_{pte} - C_{ssa}) - E_{oa}$$

where:

$EMd$ = the annual emission reduction deficit, in tons per year;

$a$ = the ongoing activity level compliance factor given in Table 3;

$E_{pte}$ = the stationary source's potential to emit determined pursuant to Rule 20.1 (c); and

$C_{ssa}$ = the aggregate value of the stationary source credits already surrendered to provide offsets for the stationary source, in tons per year.

Table 3. Ongoing Activity Level Compliance Factor

<table>
<thead>
<tr>
<th>Number of years that have elapsed since the start of a stationary source's activity level monitoring period</th>
<th>Compliance factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.0</td>
</tr>
<tr>
<td>2</td>
<td>0.8</td>
</tr>
<tr>
<td>3</td>
<td>0.9</td>
</tr>
<tr>
<td>4 or more</td>
<td>1.0</td>
</tr>
</tbody>
</table>

(4) MERC Emission Reduction Deficit Correction

From the end of the ongoing emission reduction monitoring year in which a deficit occurs, the owner or operator of a stationary source that has a positive emission reduction deficit shall comply with the following schedule to correct the deficit:

(i) Within 6 calendar months submit an application to the District to sufficiently limit the stationary source's potential to emit to reduce the deficit in the ongoing emission reduction monitoring year to zero; and
(ii) Within 12 calendar months accept practicably enforceable permit conditions that limit the stationary source's potential to emit or surrender sufficient additional stationary source emission reduction credits granted under Rules 26.1–26.10 or sufficient MERCs that have a permanent and unlimited lifetime to reduce the deficit in the ongoing emission reduction monitoring year to zero.

For the sole purpose of determining if a deficit for a stationary source ongoing emission reduction monitoring year has been corrected, MERCs that are surrendered to the District before the end of the subsequent stationary source ongoing emission reduction monitoring year and that have an ongoing activity level monitoring period that begins after the end of the year in which the deficit occurred shall be treated as stationary source credits surrendered with a value equal to the credit value divided by the lifetime discount factor for the MERC when determining an annual emission reduction deficit in accordance with Subsection (h)(3).

(i) Reserved

(j) Mobile Source Employment Monitoring

The requirements of this Section shall apply to all MERC Projects based on HHD and MHD vehicles and shall not apply to MERC Projects based on marine vessels.

(1) MERC Fractional Employment

For each calendar year and for each group of equivalent-use–MERC mobile sources, the MERC fractional employment for each MERC that is represented by those mobile sources is calculated by:

\[
 f_c = \frac{\sum_{i=1}^{m} N_{ei}}{\sum_{i=1}^{m} N_{eci}}
\]

where:

\( f_c \) = the MERC fractional employment;

\( i \) = an index labeling individual MERCs;

\( m \) = the number of individual MERCs that are subject to employment monitoring with mobile sources and that are initially based on any mobile source in the group;

\( N_{ei} \) = the number of equivalent-use–MERC mobile sources that form the initial basis of the \( i \)th MERC that are employed in a calendar year.

\( N_{eci} \) = the number of equivalent-use–MERC mobile sources that form the initial basis of the \( i \)th MERC that were projected to be employed in the calendar year to calculate the full credit value.
In determining \( N_{ei} \) or \( N_{cei} \), mobile sources employed for less than an entire calendar year shall be counted as a fraction. The fraction shall be determined by the dividing the sum of the number of calendar months the mobile source is in primary service status and the number of calendar months the mobile source is in reserve service status by 12.

\[
fp = \frac{\sum_{i=1}^{m} N_{pi}}{\sum_{i=1}^{m} N_{pci}}
\]

where:

\( fp \) = the MERC fractional employment in primary service;

\( i \) = an index labeling individual MERCs;

\( m \) = the number of individual MERCs that are subject to employment monitoring and that are initially based on any mobile source in the group;

\( N_{pi} \) = the number of equivalent-use–MERC mobile sources that form the initial basis of the \( i \)th MERC that are employed in primary service in a calendar year.

\( N_{pci} \) = the number of equivalent-use–MERC mobile sources that form the initial basis of the \( i \)th MERC that were projected to be employed in primary service in the calendar year to calculate the full credit value.

In determining \( N_{pi} \) or \( N_{pci} \), mobile sources employed in primary service for less than an entire calendar year shall be counted as a fraction. The fraction shall be determined by the dividing the number of calendar months the mobile source is in primary service status by 12.

(3) MERC Shortfall

In each calendar year during the mobile source employment monitoring period, for each group of equivalent-use–MERC mobile sources, a MERC shortfall occurs if:

(i) The MERC fractional employment, \( f_e \), is less than 0.8; or

(ii) The MERC fractional employment in primary service, \( f_p \), is less than 0.8.
(4) MERC Shortfall Correction

From the end of the calendar year in which a MERC shortfall occurs for any group of equivalent-use MERC mobile sources that form the initial basis of a MERC(s) that has been surrendered to provide new source review offsets for a stationary source, the owner or operator of the stationary source shall:

(i) Within 3 calendar months, estimate the resulting MERC shortfall, and submit supporting documentation for the estimate to the district;

(ii) Within 6 calendar months submit an application to the District to limit the stationary source's potential to emit to reduce the MERC shortfall to zero; and

(iii) Within 12 calendar months accept practicable enforceable permits that limit the stationary source's potential to emit or surrender additional stationary source emission reductions credits granted under Rule 26.1–26.10 or sufficient MERCs to reduce the MERC shortfall to zero.

(k) Subsequent Replacement or Repowering of Mobile Sources that Form the Basis of MERC

If a mobile source that forms the basis of a MERC granted under this alternative program is itself replaced or repowered at any time during the credit lifetime, the replacement or repowered mobile source must have an emission factor that is less than or equal to the smaller of the following two emission factors:

(1) The emission factor derived from any federal or state standard applicable to a new engine powering the replacement or repowered mobile source; or

(2) The emission factor of the mobile source that is replaced or repowered.

(l) Transference of MERCs

MERCs granted under this emission reduction alternative program may be transferred in whole or in part by any means of written conveyance permitted by state law as specified in Rule 27 (c)(5) provided that the MERCs, under new ownership, meet all applicable criteria as set forth in this emission reduction alternative program and any applicable criteria of Rule 27. For purposes of this alternative program, the term "vehicle" in Rule 27 (c)(5) shall mean the same as the term "mobile source" as used in this alternative program. In addition to the information required by Rule 27 (c)(5), the baseline ongoing activity level and the lifetime discount factor shall be included on the portion of the credit transferred and portion retained, if any, by a credit owner.

(m) Refunding Credits for Innovative Emission Controls

MERCs surrendered to provide new source review offsets may be refunded to the stationary source owner provided that the following requirements are satisfied:
(1) The Air Pollution Control Officer, with the concurrence of the U. S. Environmental Protection Agency, determines that the project requiring new source review offsets has the potential to demonstrate innovative emission control technology that is a significant advance in emission control for a category of stationary sources;

(2) Within three calendar years after the facility commences operation, the owner or operator of the stationary source that surrendered the MERCs applies to the District for a refund of some or all of the MERCs, or portions thereof, used as offsets;

(3) The owner or operator of the stationary source demonstrates that the stationary source can achieve a permanent lower potential to emit such that offsets would not have been necessary if that lower potential to emit could have been demonstrated at the time the credits were surrendered;

(4) The owner or operator of the stationary source accepts practicably enforceable permit conditions that limit the source’s potential to emit to the lower level; and

(5) The authority to construct granted for the project or the final determination of compliance for the project under Rule 20.5 contains conditions allowing a refund of MERCs in accordance with this Section.

(n) Recordkeeping and Reporting

(1) For all replacement or repowered mobile sources that form the basis of a MERC, for the lesser of the credit lifetime or 20 years, the owner of the mobile source shall maintain calendar quarterly records of:

   (i) Location where the mobile source is parked, garaged, or docked when not in operation.

   (ii) Mobile source and mobile source engine identifications such as Vehicle Identification Number or Hull Number, engine manufacturer model designation, and engine serial number;

   (iii) Identification of key engine components such as turbocharger, injectors, fuel pump, and electronic control program version;

   (iv) Engine modifications;

   (v) Sale, lease, accidental loss, repowering, or replacement, including the identity of the mobile source and mobile source engine involved and the identity of any mobile source and mobile source engine replacing or repowering the mobile source;

   (vi) Source testing results and supporting information; and

   (vii) Engine maintenance.

Except for engine maintenance records, on or before the last day of the month following each calendar quarter, the owner of the mobile source shall provide copies of these records for
the preceding calendar quarter to the District and any owner of the MERC, or portion thereof, and any owner or operator of any stationary source for which the MERC, or a portion thereof, has been surrendered to provide a new source review offset. In addition, for any mobile sources that are subject to an approved enhanced maintenance program, the owner of the mobile source shall provide copies of these records in the manner specified in the enhanced maintenance program.

(2) For all replacement or repowered mobile sources that form the basis of a MERC, beginning at the start of the MERC activity monitoring period and for each of the succeeding ten years, the owner of the mobile source or group of equivalent mobile sources shall maintain calendar quarterly records of:

(i) Activity level in a metric specified in the MERC approval by the Air Pollution Control Officer;
(ii) Fuel use;
(iii) Hours of operation for each mobile source in San Diego County; and
(iv) Number, duration, and nature of any trips outside of San Diego County and Near Shore San Diego Coastal Waters for each mobile source.

On or before the last day of the month following each calendar quarter, the owner of the mobile source shall provide copies of these records for the preceding calendar quarter to the District and any owner of the MERC, or portion thereof, and the owner or operator of any stationary source for which the MERC, or a portion thereof, has been surrendered to provide a new source review offset.

(3) Beginning with the start of the ongoing emission reduction monitoring period, the owner or operator of a stationary source that surrenders a MERC to provide new source review offsets shall, on or before the last day of the second calendar month following each stationary source ongoing emission reduction monitoring year:

(i) For each ongoing emission reduction monitoring year, based on the quarterly activity levels submitted by the mobile source owners and the applicable calculation method specified in the alternative program, perform a calculation of the annual average and annual aggregate ongoing emission reductions and the ongoing emission reduction deficit for the MERCs used to offset the facility's emissions;

(ii) Provide an annual report to the District that summarizes the annual average ongoing emission reductions for each MERC; aggregate ongoing emission reductions; and the ongoing emission reduction deficit and provides supporting calculations and documentation; and

(iii) Notify the District if the calculated annual ongoing emission reduction deficit is positive and provide a compliance schedule to correct the ongoing emission reduction deficit in accordance with Subsection (h)(4).

(4) During the mobile source owner employment monitoring period, excluding marine vessels, for each mobile source that forms the initial basis of a MERC, the owner or operator shall
maintain records of the nature and dates of changes in mobile source status from primary to reserve service or from reserve to primary service and the date any mobile source is sold, leased, replaced, repowered, lost by accident, or otherwise removed from the owner’s fleet. In addition, the owner or operator shall maintain the following calendar year records:

(i) For each mobile source in a group of equivalent-use MERC mobile sources, records of the number of calendar months, or portions thereof, the mobile source was in primary service status and the number calendar months, or portions thereof, the mobile source was in reserve service status;

(ii) For each group of equivalent-use MERC mobile sources, records of the total number of mobile sources employed;

(iii) For each group of equivalent-use MERC mobile sources, the total number of mobile sources employed in primary service;

(iv) For each MERC, records of the MERC fractional employment; and

(v) For each MERC, records of the MERC fractional employment in primary service.

On or before January 31 of the following calendar year, the owner of the mobile source shall provide copies of these records for the preceding calendar year to the District and any owner of the MERC, or portion thereof, and the owner or operator of any stationary source for which the MERC, or a portion thereof, has been surrendered to provide a new source review offset.

(5) Beginning with the second calendar year following the calendar year that the facility commences operations, the owner or operator of a stationary source that surrenders a MERC to provide new source review offsets shall, on or before March 1 of each calendar year:

(i) Based on information supplied by the mobile source owners for each MERC surrendered to the District to provide new source review offsets, notify the District if the MERC fractional employment is less than 0.8;

(ii) Based on information supplied by the mobile source owners for each MERC surrendered to the District to provide new source review offsets, notify the District if the MERC fractional employment in primary service is less than 0.8; and

(iii) If MERC fractional employment or fractional employment in primary service for any MERC is less than 0.8, provide a compliance schedule to correct the MERC(s) shortfall in accordance with Subsection (j)(4).

(6) For the duration of the credit lifetime, beginning with the MERC creation date, the owner or operator of any mobile source that forms the basis of a MERC granted under this alternative program shall make the mobile source available for source testing upon written request of the District, the Air Resources Board, or the U.S. Environmental Protection Agency.

(7) Each mobile source that forms the basis of a MERC shall be equipped with a nonresettable totalizing clock hour meter, nonresettable totalizing odometer, or any other device
specified by the Air Pollution Control Officer that is necessary to monitor ongoing emission reductions or mobile source employment.

(8) All records shall be maintained on-site or, with the advanced written approval of the Air Pollution Control Officer, an alternative location for a period of five years from the date of the record.

(9) The provisions of Rule 27 (d)(1) shall not apply to MERCs created under this alternative program.

(o) Public Notice and Comment Period

After receipt of a completed application for a MERC and after completing an evaluation of the application for compliance with applicable District rules and prior to approving granting of a MERC, the Air Pollution Control Officer shall cause to be published in at least one newspaper of general circulation within the District, and be sent to any individual submitting a written request to the Air Pollution Control Officer for notification, a notice stating the preliminary decision of the Air Pollution Control Officer to approve the creation of emission reduction credits and inviting written public comment for a thirty-day period following the date of publication. During or following this period, the Air Pollution Control Officer may elect to hold a public meeting to receive oral comments from the public.

The notice shall describe generally the nature and areas of operation of the mobile source that are the basis for the MERC and shall identify the location(s) where copies of the District evaluation, the MERC application, and related documents may be viewed. A copy of the notice, the District evaluation and the proposed MERC documents shall be provided to the U. S. Environmental Projection Agency and the Air Resources Board on or before commencement of the 30-day public comment period.

After considering all comments received, the Air Pollution Control Officer shall make a final decision within thirty days following the close of the comment period, or following a scheduled public meeting, if later.
Alternative Program Approval

The Director of the San Diego County Air Pollution Control District has delegated to the Assistant Director the responsibility of approving this alternative mobile source emission reduction program. Pursuant to District Rule 27 Subsection (c)(1)(vi) and after considering the certified Final Environmental Impact Report for this program, as Assistant Director, I approve this alternative mobile source emission reduction program for the San Diego County Air Pollution Control District.

RICHARD J. SMITH

Title: Assistant Director
San Diego County Air Pollution Control District

Date: 9/8/00
September 8, 2000

Michael Kenney  
Executive Officer  
California Air Resources Board  
P.O. Box 2815  
Sacramento, CA  95812

ALTERNATIVE PROGRAM TO CREATE NOx MERCS

The San Diego County Air Pollution Control District (District) requests formal Air Resources Board (ARB) concurrence with its approval of an alternative emission program to create oxides of nitrogen (NOx) mobile source emission reduction credits (MERCs). This program was developed in accordance with Subsection (c)(1)(vi) of Rule 27 - Banking of Mobile Source Emission Reduction Credit. The final program, entitled “Alternative Emission Reduction Program for Replacing Medium and Heavy Heavy-Duty Diesel Powered Vehicles and Repowering of Marine Vessels Under Rule 27 (c)(1)(vi),” is attached for your review. The final program has not changed in any substantive manner since the draft that was electronically submitted to your staff on September 1, 2000. Also enclosed are the associated final environmental documents for the program prepared pursuant to the California Environmental Quality Act.

The District wishes to thank ARB staff for the substantial time and effort expended collaborating with the District to develop this program. Approval of this innovative program will provide badly needed NOx MERCs for offsetting emission increases at major stationary sources while at the same time providing substantial air quality benefits for San Diego County.

Should you have any questions regarding the program or associated documents, please contact me at (858) 650-4500 or Steven Moore at (858) 650-4598. Thank you for your consideration.

R. J. SOMMERVILLE, Director  
Air Pollution Control District

RJS:SBM:jl

Enclosures

9150 Chesapeake Drive • San Diego • California 92123-1096 • (858) 694-3307  
FAX (858) 694-7730 • Smoking Vehicle Hotline 1-800-58-SMOKE
September 8, 2000

Mr. Richard J. Sommerville  
Air Pollution Control Officer  
San Diego County Air Pollution Control District  
9150 Chesapeake Drive  
San Diego, California 92123-1096

Dear Mr. Sommerville:

In response to your September 8, 2000, request, the Air Resources Board (CARB) formally concurs with the San Diego County Air Pollution Control District's (APCD) "Alternative Mobile Source Emission Reduction Programs For Replacing Medium and Heavy Heavy-Duty Diesel Powered Vehicles and Repowering Of Marine Vessels Under Rule 27(c)(1)(vi)." This alternative program includes replacing or repowering existing diesel trucks with trucks operating on alternative fuels or a combination of natural gas and diesel (dual-fuel), repowering marine vessels with cleaner EPA-certified marine diesel engines and using CARB-certified diesel in lieu of EPA diesel fuel.

Thank you for this opportunity to work with you in developing a first ever on-road and marine mobile source emission reduction credit program for San Diego APCD. If you have any questions concerning this matter, please call me at (916) 445-4383 or Mr. Peter D. Venturini, Chief, Stationary Source Division at (916) 445-0650.

Sincerely,

Michael P. Kenny  
Executive Officer

cc: Peter D. Venturini, Chief  
Stationary Source Division

Mr. Raymond E. Menebroker, Chief  
Project Assessment Branch  
Stationary Source Division
Mr. Jack Kitowski, Chief
On-Road Control Regulation Branch
Mobile Source Control Division

Mr. Michael Lake, Chief,
Engineering Division
San Diego APCD

Ms. Sharron K. Segner
PG&E Generating
7500 Old Georgetown Road, Suite 1300
Bethesda, Maryland 2084-6161

Mr. Matt Haber, Acting Chief
Air Division
U.S. EPA Region IX

Ms. Eileen Allen, Project Manager
California Energy Commission
ATTACHMENT C

RESPONSES TO PUBLIC COMMENTS ON THE PRELIMINARY DETERMINATION OF COMPLIANCE
RESPONSE TO PUBLIC COMMENTS ON THE PRELIMINARY DETERMINATION OF COMPLIANCE (PDOC) FOR THE OTAY MESA GENERATING LLC POWER PLANT (APPLICATION NOS. 973880-81 AND 974980-81)

ARB Comments:

1. **Equipment Description:** The equipment description for the turbines (as found on Page 2 of the PDOC) has been left blank. While ARB recognizes that a final decision has not been made on which turbine the facility will be installing, an equipment description should be included for each turbine that is being considered.

   **District Response:** It is not unprecedented for the District to issue an Authority to Construct with a generic equipment description as long as the worst-case emissions have been evaluated. For clarification purposes the District has included brief equipment descriptions of the turbines proposed to date but will also consider any other turbines able to meet the basic assumptions of the Application for Certification (e.g., power output, heat input, emission limits, etc.) and the conditions of the FDOC.

2. **Table 1A Vendor Data:** Table 1A of the PDOC lists a footnote noting that the fuel sulfur content is 0.075 grains/100 scf. ARB believes this should be 0.75 grains/100 scf.

   **District Response:** This was a typographical error. All applicable emission calculations were based on 0.75 grains/100 scf. The District has made the appropriate change.

3. **Condition 1:** This condition requires operation of all equipment to be conducted in accordance with the data and specification submitted with the application. The decrease in NOx and CO limits, the reconfiguration of the stack height and placement, and the revised data for the health risk assessment (HRA) has resulted in PDOC conditions, which do not match the data, submitted in the application. Specifically:

   a) the calculation data sheets in Appendix I of the application are based on 2.5 ppmvd of NOx instead of 2.0 ppmvd;
   b) Table 1A of the PDOC lists a fuel HHV of 1090 Btu/scf, the toxics emission calculations on Page 11 of the PDOC assumed an HHV of 1024
Btu/scf, and the fuel data submitted to ARB staff indicated an HHV of 1004;
c) the memo from Ralph DeSiena to Arthur Carbonell in Attachment A of the PDOC indicates that the maximum 1-hour emission rates before exceeding the State NOₓ standard (with SCONOX at 60% load) are 283 lbs/hr for one turbine and 412 lbs/hr for two turbines. These limits are included in Condition 20 of the PDOC. However, the data in Table 8.1 of Attachment A of the PDOC indicate the standard would be exceeded at 90 lbs/hr for one turbine operating at 60% load.

It is recommended that updated application/PDOC information be required and/or explain why the existing data is valid.

District Response:
(a) The applicant submitted a supplement to the application (March 2000) which specified emissions assuming a NOₓ concentration of 2.0 ppmv<sub>d</sub> instead of 2.5 ppmv<sub>d</sub>. The data sheets in Appendix I may be adjusted by a ratio of (2.0/2.5) to demonstrate how the estimated emissions were derived.
(b) Emissions calculations for Table1A and the toxics emissions calculations were performed independently of one another. The HHV of 1024 Btu/scf is a common assumption made by APCD staff for utility-supplied natural gas. Recently, data provided by SDG&E indicated that an HHV of 1004 Btu/scf is more appropriate. Regardless of the HHV assumed, the resultant mass emission rates were analyzed and shown to be in compliance with all District rules. Permit conditions will enforce these mass emission rates. Although the District acknowledges the HHV discrepancies, they do not have a significant impact on the evaluation.
(c) Originally, NOₓ emissions were modeled using ISC (results presented in Table 8-1 of Appendix A of the PDOC). Subsequently, in order to ensure that the emissions will not cause or contribute to any additional violations of any ambient air quality standard, the applicant modeled the emissions using AERMOD (results presented in the aforementioned memo), which is a much more refined model than ISC. Either model is acceptable to the District. The results of the AERMOD model analysis were used to establish the final permit limits to protect air quality.

4. **Condition 7:** This condition requires that only PUC quality natural gas be used in this equipment. ARB believes that the specific fuel sulfur content limits of the natural gas should be included in the application to set an upper bound on the quantity of SOₓ emissions that may be emitted.
District Response: The District agrees and has specified a natural gas sulfur content of 0.75 grains per 100 scf of natural gas. Based on comments from PG&E, non-PUC gas may be used but must still meet the sulfur content limit. Specifications of non-PUC gas must be submitted to the District for approval prior to use.

5. **Conditions 16, 40, 46, and 59:** Since this facility will be a major source, all records should be maintained for a minimum of five years instead of three in order to comply with the Title V recordkeeping requirements.

   **District Response:** The District agrees and has modified these conditions to require records to be kept for a minimum of five years.

6. **Conditions 18 and 47:** These conditions contain emission limits that do not specify whether they are a combined total or should be applied on a per turbine basis. ARB recommends that language be added that specifies that the emission limits are intended to apply to each turbine.

   **District Response:** The District agrees that the emission limits of these conditions apply on a per turbine basis and has clarified these conditions.

7. **Calculated NOx Mass Emission Limits:** ARB staff was unable to reproduce the hourly mass emission rates using the information provided in Appendix I of the application for the Siemens-Westinghouse 501FD and the natural gas fuel composition supplied to the District on July 19, 2000. It is recommended that emission calculations be supplied to demonstrate how the mass emission limits were derived.

   **District Response:** The applicant has supplied more detailed calculations to the District that confirm that the information provided in Appendix I of the AFC is accurate. Based on these calculation, ARB was satisfied with the mass emission rates specified in the PDOC.

8. **Conditions 28 and 30:** Condition 30 requires that NOx and CO emissions occurring during the Replacement Period not exceed the lowest sustainable concentrations observed during the Optimization Period. ARB recommends that Condition 28 be revised to include recordkeeping and reporting requirements for the Optimization Period.
District Response: The District agrees and has made the appropriate modifications to these conditions.

9. **Conditions 22, 26, 30, and 33:** Condition 16 requires the applicant to maintain records of the total aggregate mass emissions of NOx, in tons per year. This condition is not carried over to other operating scenario permit conditions. It is recommended that these conditions also include Condition 16 for NOx recordkeeping requirements.

   District Response: The District agrees and has included the recordkeeping requirement of Condition 16 in these other conditions.

10. **Condition 29:** This condition requires that an SCR be installed if SCONOx cannot meet the requirements for on-going operations. However, there is no requirement to install an oxidation catalyst to work with the SCR. It is recommended that this condition be modified to require the installation of an oxidation catalyst if the SCR is installed.

   District Response: The District agrees that an oxidation catalyst should be installed along with an SCR system. This was proposed by the applicant. The District has made the appropriate modifications to this condition.

11. **Data Collection Points for CEMS:** All conditions requiring compliance with emission limits based on CEMS data should specify a data collection frequency at which data points should be collected. ARB recommends that data points be taken at least once every 15 minutes and require this data to be used to determine the rolling average emissions.

   District Response: The District agrees and will specify that CEMS data points be collected at least once every 15 minutes in all applicable conditions.

12. **Conditions 34 and 36:** These conditions require compliance to be determined on continuous 3-hour periods. ARB recommends that these conditions be modified to require compliance to be based on rolling continuous 3-hour periods.

   District Response: The District will modify these conditions as suggested.
13. **Condition 37:** This condition specifies the requirements for compliance for VOCs using CO data. ARB recommends the following:
   a) VOCs should be calculated as methane, not nitrogen dioxide;
   b) VOC compliance should be based on CO CEM data for each rolling continuous 1-hour period (not 3-hour period); excluding hours when the equipment is in startup mode;
   c) the CO/VOC surrogate relationship should be periodically verified (and/or modified if necessary) based on an initial source test and subsequent annual source tests.

**District Response:** The District agrees and has modified this condition accordingly.

14. **Condition 52:** This condition requires annual source testing to verify compliance with applicable emission limits using approved methods. ARB recommends that this condition be modified to require the submittal of a source test protocol which specifies, at a minimum, the source test method, minimum operating parameters, and characteristics and load conditions to be used during the annual tests.

**District Response:** The District has modified the condition to require a source test protocol be submitted for District approval for compliance tests if performed by someone other than the District.

15. **Condition 55(c):** This condition includes language allowing a waiver from correcting the on-going reduction deficit. This language has been stricken from the most recent proposed “Alternative Program” under District Rule 27 and, therefore, should be removed from this condition.

**District Response:** The District agrees and has deleted the language referring to the waiver from this condition.

16. **Condition 33:** This condition lists Conditions 17, 18, 19, 20, and 21 as applicable during the On-Going Operations period. However, the limits in these conditions are less stringent and refer to operation of the facility previous to the “continuous operations” period. In order to provide clarity of the intent of this section, it is recommended that the reference to Conditions 17, 18, 19, 20, and 21 be eliminated from this condition.

**District Response:** The District has deleted the references to Conditions 17, 18, 19, 20, and 21 from this condition.
17. **Condition 35**: This condition, in the “On-Going Operations” section, describes the requirements the applicant must undertake if SCONOx is utilized for emission control. This condition requires information to be provided to the District 30 days prior to initial firing of the turbines. ARB believes that this condition should be moved to the “Construction (at or Prior to Initial Firing) Conditions” section of the PDOC as it relates to conditions that must be accomplished during the construction phase of this project.

**District Response**: The condition has been moved to the “Construction” section of the permit conditions as suggested.

18. **Ammonia Slip**: In addition to contributing to acute and chronic non-cancer health effects, studies have shown that ammonia is a precursor to ambient PM\(_{10}\). Ammonia emissions resulting from the use of SCR on large as turbine power plans may contribute significantly to ambient PM\(_{10}\) concentrations in some areas. Because the District is classified non-attainment for PM\(_{10}\), it should consider the impact of SCR ammonia slip emissions on ambient PM\(_{10}\) concentrations and future progress towards attainment of the State PM\(_{10}\) standard.

This condition limits ammonia emissions to 10 ppmvd at 15% oxygen. Guidance, developed by ARB, recommends an ammonia slip limit of less than 5 ppmvd at 15% oxygen. Therefore, ARB recommends that the District evaluate the impact of ammonia slip emissions of PM\(_{10}\) ambient levels and, if a significant impact is identified, investigate the feasibility of lowering the ammonia slip to below 5 ppmvd at 15% oxygen.

**District Response**: The District’s Rules and Regulations apply only to direct emissions of PM\(_{10}\) from the stack and do not address secondary PM\(_{10}\) formed in the atmosphere. The District does not have the authority to impose additional requirements based on the emissions of precursors to secondary PM\(_{10}\), especially when there is no approved method of quantifying the actual ambient PM\(_{10}\) impacts of these emissions. The District has examined the toxic impacts of ammonia by means of a health risk assessment and determined that the ammonia emissions would not cause a violation of any OEHHA recommended exposure limit. Therefore, the District will retain the 10 ppmv limit at 15% oxygen for ammonia slip.
19. **Conditions 43, 44, and 45:** These conditions limit the duration and total hours of cold and warm starts but do not apply until the unit is operating in the “ongoing operations” mode. ARB believes these conditions should also apply during the Optimization and Replacement periods.

**District Response:** The District agrees that the limits on annual hours of operation under startup conditions should apply during the Replacement Period. However, the nature of the Optimization Period requires that physical modifications be made periodically to the system since SCONOx is a new technology. Emissions from startups during this period are still effectively limited by the annual and hourly NOx emissions limits, which protect the state and national ambient air quality standards.

**EPA Comments:**

1. **The primary concern of the EPA is that the PDOC does not clearly identify which terms of the permit relate to PSD requirements and which conditions relate to non-attainment new source review.** The EPA recommends that the District clearly make this distinction for the following reasons: (a) if a permit appeal is requested, the appeal process is different depending on whether the condition is issued under the District’s PSD authority or non-attainment NSR authority; (b) the District cannot issue the final PSD permit before the Endangered Species Act (ESA) requirements are met; and (c) in general, the District’s authority to issue PSD permits (delegated authority) is separate from the District’s authority to issue non-attainment NSR permits (SIP-approved permit program).

**District Response:** In its transmittal of the FDCO to the California Energy Commission, the District has stated that the FDCO does not constitute a final PSD permit. Once EPA makes its determination on the Endangered Species Act (ESA), the ESA issues and public comments have been considered, and after the District has considered CEC’s final environmental justice analysis, the District will issue a final PSD permit. This will include all the conditions of the FDCO as well as any revised terms and/or permit conditions necessary to ensure compliance with PSD relating to the ESA determination and environmental justice.

When the District takes action to issue a permit (or FDCO in this case), it is a consolidated permit that contains terms and conditions to ensure compliance with all applicable District rules and regulations. These include requirements for New Source Review, rules contained in the SP, rules reflecting state or local
requirements not contained in the SIP, NESHAPS, NSPS, and PSD requirements that have been included in our rules and regulations or delegated to the District. Often conditions serve to ensure compliance with more than one underlying program and cannot be identified solely as PSD related. All of the terms and conditions of the PDOC were publicly noticed and available for public review and comment. All of the terms and conditions of the FDOC will be further scrutinized in the public hearings to be held by the Energy Commission. Therefore, the District sees no need to separate the conditions of the FDOC.

2. **ESA Discussion, Page 30:** The last sentence of this discussion states “The EPA has stated that they cannot approve a final PSD permit until all ESA requirements have been addressed.” This sentence should be changed as follows: “The EPA has stated that the District cannot issue a final PSD permit until all ESA requirements have been addressed. Therefore, the PSD portions of this permit are not final and not subject to review at this time. When EPA has determined that its obligations under the Endangered Species Act have been satisfied, this permit will be issued as final for PSD purposes, and the appeal period for the PSD conditions of this permit (pursuant to 40CFR Part 124) will be initiated at that time.”

**District Response:** Language to this effect will be added to the discussion. However, as noted above, the terms and conditions of the PDOC were already noticed and subject to a public review and comment period.

3. **PSD Requirements:** EPA believes that following conditions should be identified as PSD conditions in the final permit: 4 through 8, 11 through 14, 20 through 30, 33 through 36, 38 through 48, and 52. It is important to identify these conditions as such so that the public is aware which appeal process is available to them and when it is available. In short, PSD conditions are appealed to the Environmental Appeals Board in Washington, D.C. and non-attainment NSR conditions are appealed to the County Hearing Board according to District Rule 25.

Furthermore, for purposes of implementing the federal permit appeal provisions, if there is a public comment requesting a change in a draft preliminary determination or draft permit condition, the final PSD permit issued by the District must state that for federal PSD purposes and in accordance with 40 CFR 124.15 and 124.19, (1) the effective date of the permit is 30 days after the date of the final decision to issue, modify, or revoke and reissue the PSD portions of the permit unless a later date is specified in the final permit; and (2) if an appeal is made to the EPA Administrator, the effective date of the permit is suspended until such time as the appeal is
resolved. After the PSD permit is final, the EPA recommends the District notify the public of the action taken by publishing a notice in a newspaper of general circulation of issuance of the final PSD permit. In addition, the District should provide notice of final action via direct mail to all parties who submitted written or oral comments to the District on the PDOC.

District Response: See District Responses to EPA Comments 1 and 2.

4. **Offset Discussion:** This discussion does not contain a lot of details about the source of offsets. Because the amount of offsets has been identified, EPA assumes that the administrative record contains information about the origin of the offsets. The FDOC should include a statement that the public can find this additional information in the administrative record. EPA would be very concerned if the source of offsets is not in the administrative record.

District Response: A detailed description of the origin of all the offsets currently proposed for the facility is included in the application file. In addition, the FDOC includes a more detailed summary of the proposed offset package and indicates that additional information is available for public review.

5. **Emissions Offsets, Page 25:** Please clarify the language in the paragraph below the table to state the refund of credits is not available if the applicant elects to use SCR. Please include any necessary language to ensure the permit is consistent with the criteria listed in Section (m) of the June 28, 2000 draft version of the “Alternative Program Under SDCAPCD Rule 27.”

District Response: One requirement of Subsection (m) of the approved alternative mobile source emission reduction credits (MERC) program, “Alternative Mobile Source Emission Reduction Program for Replacing Medium and Heavy Heavy-Duty Diesel Powered Vehicles and Repowering of Marine Vessels Under Rule 27 (c)(1)(vi)” (Alternative MERC Program) is that a refund of MERCs requires an Air Pollution Control Officer determination that the project has the potential to demonstrate innovative emission control technology that is a significant advance in emission control for the emission source category. Any such determination requires the concurrence of U. S. EPA. The District agrees that achieving a NOx emission level of 2 ppmvd @ 15% O₂ averaged over 3 hours with SCR does not represent an innovative technology that is a significant advance in emission control for the emission source category, as required by the alternative program.

The FDOC conditions have been revised to require any refund of MERCs be in accordance with Subsection (m) of the approved alternative program.
6. **Optimization Period, Page 31:** Please specify that the targeted averaging time for the 1.0 ppm NOx limit is 3 hours.

**District Response:** The District agrees and has specified an averaging time of 3 hours for compliance with the target 1.0 ppm NOx limit.

7. **Condition 9:** EPA recognizes that NOx measurement techniques are not currently able to measure ultra-low NOx emissions to a relative accuracy of 10% but is optimistic that there will be an improved measurement technique or methodology by 60 days prior to initial firing of the units. However, EPA is concerned that if the NOx CEMS is not “commercially available” 60 days prior to the initial firing, the permit condition would just allow the applicant to provide a status report on the subject and to propose an alternative measurement technique for District approval. EPA believes that some of the burden for developing appropriate monitoring and testing should be the responsibility of the applicant. EPA suggest the following modifications to this condition, which will keep some responsibility on the applicant to pursue appropriate monitoring and to implement it when it becomes available:

“At least 60 days prior to initial firing of the gas turbines, the applicant shall submit a protocol to the District, for written approval, that shows how both the portable and permanent CEMS will be able to meet all District monitoring requirements and measure NOx emissions at a level of 1.0 ppmv plus or minus 10%. In the event that CEMS or testing technology to measure NOx emissions at a level of 1.0 ppmv is not commercially available 60 days prior to initial startup, the applicant shall submit a report to the District regarding the status of the development of such technology and proposing an alternative measurement technique, for District approval, by which the applicant will monitor NOx emissions. If the principal impediment to meeting the 10% relative accuracy requirement is the test method, the applicant shall propose an alternative measurement technique, for district and US EPA approval. If the CEMS installed by the applicant is unable to meet the 10% relative accuracy requirement, the applicant shall include in the annual relative accuracy report to the District, a reassessment for the commercial availability status for the technology. If the technology for the CEMS to meet the required accuracy becomes commercially available, the applicant shall retrofit the CEMS with such technology within 1 year of the date that the technology becomes available.
District Response: The District agrees and has modified this condition as suggested.

8. **Condition 11:** In the first sentence, the second “each” should be deleted.

District Response: The District agrees.

9. **Condition 14:** If written approval is required, this condition should include it.

District Response: Written approval for this protocol has been required in this condition.

10. **Condition 16:** Emissions from exempt equipment can only be excluded from a stationary source’s aggregate emissions if the uncontrolled emissions are less than 5 lbs/day or 25 lbs/wk (pursuant to District Rule 20.3(d)(1)(ii)(A)). Please add this clarifying language or delete the phrase that allows the exclusion if it is expected that the exempt equipment will, at any time, exceed these emission rates.

District Response: Although not excluded from the annual aggregate emission totals, this equipment will only be operated when the turbines are off-line or during maintenance and testing operations. The District’s registration rule (Rule 12) allows 52 hours per year for non-emergency purposes. Emissions during these non-emergency periods will be included in the facility’s total aggregate annual emissions that require offsetting.

11. **Condition 23:** Please include a requirement that the source cannot be selling electricity during the first thirty days of firing if they have not yet installed post-combustion emission controls.

District Response: The District does not have the authority to prohibit the facility’s selling of electricity. However, the District has made every effort to minimize operation without post-combustion controls. Additionally, these emissions will count towards compliance with the annual emissions cap. This can serve as a strong disincentive to extended periods of operation without emission controls.
12. **Condition 25:** In the last sentence, please include a clarifying phrase as follow: “In the event that the applicant elects to install an SCR system, the Optimization Period does not apply and the facility shall comply...”

**District Response:** The District has added the clarifying language to this condition.

13. **Conditions 40, 46, and 59:** To be consistent with Title V recordkeeping requirements, please add the requirement that records must be maintained for 5 years, not just 3.

**District Response:** The District agrees and has made the appropriate changes to these conditions.

14. **Condition 55(c):** The District must delete the end of this condition: “…unless the deficit correction is waived pursuant to Subsection (h)(5).” EPA notes that (h)(5) has already been deleted from the June 28, 2000 draft version of the Alternative Program.

**District Response:** The District has modified this condition accordingly.

15. **Condition 57:** Please clarify that this condition only applies if the applicant decides to use the SCONOx technology. Also, please include any necessary language to ensure the permit is consistent with the criteria listed in Section (m) of the June 28, 2000 draft version of the Alternative Program.

**District Response:** The Alternative Program has been modified such that refunding is only applicable if “innovative control technology” is utilized. The FDOC condition has been revised accordingly.

**PG&E Comments:**

1. **Table 1a:** The values represented in this table are accurate for an ambient temperature of 70°F. However, short-term hourly emission will be higher than those presented for some operating conditions (i.e., 30°F ambient temperature). PG&E has included a summary of vendor emission data (Exhibit A) previously included in the AFC that shows that the worst-case maximum hourly
emissions occur at 30°F. These are the values that need to be used for the maximum hourly emissions in the PDOC description and conditions.

The PDOC needs to be clearer about the difference between “maximum hourly emissions” and the turbine with the “worst case emissions” used for dispersion modeling. The ATC application specifies that the selection of the turbine with the worst-case emissions for dispersion modeling is based on a number of variables interacting with each other, not just mass emissions. PG&E requests adding the following language to the beginning of the section on Emissions Estimates:

“The following hourly emission rate estimates are based on vendor data that was provided for a range of ambient conditions. The air quality impact assessment for the project is based on the turbine vendor data that produces the worst-case predicted impact on ambient air quality. Because of variation in turbine exhaust parameters with ambient conditions, the worst-case ambient air impacts do not necessarily result from the highest hourly mass emission rates.”

District Response: The District has clarified language in the Engineering Evaluation text to distinguish between worst-case mass emission rates and worst-case emissions used in the dispersion modeling.

2. **Table 1A:** The footnotes should be corrected as follows:
   a) (2) should be “...to the nearest 0.1 ton-pound”
   b) (4) should reflect that emissions information is valid for operations with either SCONOx or SCR
   c) (7) should state that the sulfur content of the natural gas was assumed to be 0.75 grains/100 scf
   d) (8) refers to the PM$_{10}$ modeling

District Response: The District agrees and has made the appropriate corrections to the table.

3. **PDOC Section III, Page 3, third paragraph:** In the discussion of the emission information provided in Table 1a, the PDOC states that these emission are based on steady-state operation at 100% load “with a SCONOx add-on control system...” It should be clarified that the emissions set forth in Table 1A also represents operations with SCR.

District Response: The District has made the appropriate changes to the text.
4. **PDOC Section III, Page 5, first partial paragraph:** The PDOC states that "emissions for all operating conditions...will be verified by source testing and continuous emission monitoring system (CEMS)." As is correctly reflected in the permit conditions, not all pollutants will be monitored with CEMS.

   **District Response:** The District has made the appropriate changes to the text.

5. **Monitoring Requirements:** An issue that needs to be considered by the CEMS working group is the quality assurance requirements for RATA testing. QA requirements may need to be revised to reflect the low NOx levels being measured and more latitude than the standard relative accuracy of 10% may be needed. PG&E urges a careful investigation of the monitoring issue so that expensive retrofits can be avoided if the methods prove unworkable.

   **District Response:** The District representatives to the ARB workgroup will request this issue be considered.

6. **PDOC Section III, Page 6, first full paragraph:** In addition to the emergency fire pump, the project will include two additional emergency diesel engines (one for each turbine) used to allow turbine oil to continue to circulate in the event of loss of the electrical grid. These engines will also be registered under District Rule 12 and are exempt from District permitting requirements. Emissions from these sources were included in the modeling.

   **District Response:** The District has added language to the text stating that the modeling did include the emissions from the emergency engines. However, the District has also added permit conditions specifying that the emissions from the emergency engines must be included in the site's annual limit of 100 tons/yr of NOx. Also, the applicant will be required to permit these engines prior to on-site delivery of the equipment. (Note: Registration in lieu of permitting may not be available in the future for such engines.)

7. **Table 2a:** These numbers reflect mass emissions assuming a temperature of 70°F. The expected emissions at 100% load and 30°F are as follows:
   
<table>
<thead>
<tr>
<th>Emission</th>
<th>100% Load</th>
<th>30°F</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOx</td>
<td>14.0 lbs/hr</td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>29.4 lbs/hr</td>
<td></td>
</tr>
<tr>
<td>VOC</td>
<td>3.1 lbs/hr (calculated as methane)</td>
<td></td>
</tr>
<tr>
<td>PM₁₀</td>
<td>19.3 lbs/hr</td>
<td></td>
</tr>
</tbody>
</table>
District Response: The District has clarified the text to distinguish between worst-case mass emission rates and worst-case emissions used in the dispersion modeling.

8. **Table 2b:** The emission rates given here also reflect the 70°F case.

District Response: The District has clarified the text to distinguish between worst-case mass emission rates and worst-case emissions used in the dispersion modeling.

9. **Table 2c:** The cold start, first hour values are correct. Other values are consistent with the March 2000 Supplement to the AFC except the PDOC calculates “Cold Start, second hour” values from the first hour and total values. PG&E suggests clarification that these limits should apply to the total mass over the first-hour period, not as a “rate” since most of the mass would be emitted earlier in the hour, providing for a greater effective “rate” for this period of the hour. The dispersion model calculates a 1-hour average concentration assuming emissions are spread over the entire hour.

District Response: The District recognizes that start-up conditions do not yield a constant emission rate. Clarifying language has been added to the text and the conditions limiting mass emission rates during startup conditions have been modified such that compliance is based on average emissions for each hour (as opposed to 15-minute data points).

10. **PDOC Section III, Page 7, first and second paragraphs:** The opening sentence of each of these paragraphs should clarify that the information which follows is on a per turbine basis.

District Response: The District has clarified the text.

11. **PDOC Section V, Page 13, Rule 20.3(d)(1):** This paragraph was somewhat confusing.

District Response: The contents of this paragraph are accurate, and since no alternative language was suggested, no changes were made.
12. **PDOC Section V, Page 15, PM_{10} and SOx BACT:** The PDOC states that BACT to be 0.25 grains/100 scf based on the District's review of the RACT/BACT/LAER Clearinghouse. However, SDG&E Rule 20 allows the sulfur content in natural gas to be as high as 0.75 grains/100 scf. As the project cannot control the level of sulfur in the SDG&E system, PG&E must assume that sulfur content may be as high as this level and that is what was assumed in all of the analysis completed and submitted to the District in connection with the project. The BACT determination for PM_{10} and SOx must be revised to reflect this level, which is well within the CARB Guidance. In addition, the project must have the ability to obtain natural gas from non-PUCC regulated sources. For example, the recently proposed North Baja pipeline project is a potential source for natural gas for the project will not be PUC-regulated. Thus, PG&E requests that the standard be limited to the quantitative sulfur content and not include any reference to the source of the natural gas. PG&E believes that the appropriate BACT determination should be "pipeline quality natural gas the sulfur content of which complies with approved state or federal tariffs governing the pipeline system from which deliveries are taken." This same comment pertains to PDOC Condition 7.

**District Response:** The BACT requirements for PM_{10} and SOx have been corrected to 0.75 grains/100 scf. Additionally, the District will accept the use of PUC-quality natural gas or its equivalent. The District is requiring that information on any non-PUC quality natural gas be submitted to the District for written approval prior to use. This information shall include, at a minimum, sulfur content and heating value.

13. **PDOC Section V, Page 18, Rule 20.3(d)(3):** The PDOC states that the project's impact area was "insignificant". However, the modeling done for the project did not predict that NO_{x} or PM_{10} concentrations would exceed the PSD Significant Impact Thresholds. Therefore, the impact area is not "insignificant"; it is "non-existent." It should also be made clear that based on the modeling, the PSD analysis that is discussed in the remainder of this portion of the PDOC is not required for the project, although the analysis does reveal that the project complies with the applicable requirements.

**District Response:** The District has revised the text to state that there is no significant impact area for this project since there are no locations where NO_{x} or PM_{10} impact concentrations exceed the significant impact levels defined in District Rule 20.1.
14. **PODC Section V, Page 26, Rule 53:** Please refer to PG&E Comment 7 regarding the discussion of the sulfur content of natural gas used by the project.

**District Response:** See District Response to PG&E Comment 12.

15. **PODC Section VII, Page 31, Commissioning Period:** The applicability of certain emission limits, and the requirement to demonstrate compliance with these limits via CEMS from the moment of first fire, remain amongst PG&E’s greatest concerns with the PDOC. The project will be required to comply with hourly mass emission limits developed for the project and with NOx concentration limits set forth in the District’s RACT and BARCT rules (69.3 and 69.3.1, respectively) from the moment of first fire. Compliance with these limits must be demonstrated with the use of certified portable CEMS units until the project’s permanent CEMS system is fully operational and certified.

It is common practice in California and across the country to provide a commissioning period during which a project brings equipment on-line and tunes it prior to being required to demonstrate compliance with applicable emission limits on a continuous basis. Conditions imposed by local air districts and the CEC on other, recently certified generating facilities are consistent with the federal requirements. The requirement to demonstrate compliance with specified emission limits via CEMS from the moment of first fire is unprecedented. This requirement is unrealistic and imposes undue constraints on the ability of the project operator to bring the equipment on-line. This is true whether the project is equipped with SCR or SCONOX. The inability to commence operation of new equipment, without risk of probable non-compliance imposes a serious impediment to the ability to bring cleaner, more efficient projects on-line. PG&E remains strongly opposed to the imposition of these requirements on the project and requests that the PDOC be modified to provide a standard 120-day commissioning period for the project to come on-line and demonstrate compliance with applicable emission limits via its permanent CEMS.

**District Response:** District Rules 69.3 and 69.3.1 explicitly state that emission standards specified in these rules are applicable upon initial installation and commencement of operation of the equipment (excluding startups and shutdowns as defined in these rules). Previously, the technology did not exist which could confirm compliance with applicable requirements prior to the commissioning of the equipment. However, the use of portable CEMS now make the measurement of emissions possible at the time of initial firing.
Regarding the commissioning period, please see the District Response to PG&E Comment 24.

16. **PDOC Section VII, Page 32, Optimization Period:** It becomes clear from the context but perhaps it should be explicitly stated at the beginning of this portion of the PDOC that the Optimization Period would only apply in the event that the applicant elects to install SCONOx as opposed to SCR.

   **District Response:** The District has clarified the text.

17. **PDOC Section VII, Page 32, Replacement Period:** PG&E Comment 16 applies to the discussion of the Replacement Period as well.

   **District Response:** The District has clarified the text.

18. **Condition 4:** The parenthetical phrase should read “(SCONOx or SCR).” In addition, it is highly unlikely that the emission control system will be designed 90 days prior to the construction of the project. PG&E proposes that this timing requirement be as follows: (i) 90 days prior to commencement of construction the applicant will notify the District of the turbines that will be used in the project; and (ii) 30 days prior to ordering either SCR or SCONOx, the applicant will provide design details to the District.

   **District Response:** The District has modified the parenthetical phrase as indicated. However, the control system must be designed at least 90 days prior to the commencement of construction in order to give the District sufficient time to review its specifications and ensure that all the equipment will be installed in accordance with the data submitted with the application.

19. **Condition 7:** See PG&E Comments 12 and 14. PG&E proposes that this condition be worded as follows:

   “This equipment shall be exclusively fueled with pipeline quality natural gas with a sulfur content not exceeding 0.75 grains per 100 scf on a rolling twelve month average basis. The applicant shall maintain quarterly records of fuel sulfur content (grains of sulfur compounds per 100 scf of natural gas) and higher heating value (Btu/scf) and shall make these records available to District personnel upon request”.

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District Response: See District Response to PG&E Comment 12. This condition has been modified similar to what is being proposed but also specifies that any non-PUC natural gas be approved by the District in writing prior to use.

20. **Condition 3**: As discussed in PG&E Comment 15, the applicant is strongly opposed to the requirement to install and use a portable CEMS prior to initial firing of each turbine and proposes that this condition be deleted in its entirety.

District Response: The requirement of CEMS at the time of initial firing is necessary for several reasons: (a) all aggregate NOx emissions, including emissions during the Commissioning Period, must be counted towards the 100 ton/yr cap as established by the amount of offsets provided; (b) all national and state ambient air quality standards must be protected at all times; and (c) as stated in the District Response to PG&E Comment 15, District Rules 69.3 and 69.3.1 apply upon initial installation and commencement of operation.

21. **Condition 9**: Consistent with PG&E Comment 20, all references to the portable CEMS should be deleted from this condition. Furthermore, even if portable CEMS were to be required, there is no need for this system to be capable of monitoring NOx concentrations down to 1.0 ppm.

District Response: The necessity of the portable CEMS is detailed in the District Response to PG&E Comment 20. However, the District agrees that the CEMS need only be accurate to the emission limits applicable during the periods prior to the installation of the permanent CEMS. Approval of the protocol for the portable CEMS will take this into account.

22. **Conditions 17 and 18**: As discussed in PG&E Comment 15, the applicant is strongly opposed to the requirement that the project demonstrate compliance with District RACT and BARCT rules during the Commissioning Period. In addition, the applicant questions the applicability of RACT and BARCT rules to new sources under any circumstances.

District Response: See the District Response to PG&E Comment 15. The applicability of RACT and BARCT requirements are specified in District Rules 69.3 and 69.3.1, respectively.
23. **Conditions 19, 20, and 21:** As discussed in PG&E Comment 15, the applicant is strongly opposed to the requirement that the project demonstrate compliance with the hourly mass emission limits during the Commissioning Period.

**District Response:** These limits are necessary to protect national and state ambient air quality standards which are applicable at all times, including the Commissioning Period. These standards are for the purpose of protecting public health. Excessive emissions from this project will likely jeopardize the District’s attainment status. Non-attainment with air quality standards carries serious implications for public health and burdens local business.

24. **Condition 23:** In the event that the applicant elects to install SCONOx, it is unrealistic to expect that the system can be installed and “in full operation at all times” within 30 days of initial firing of each turbine. It is not possible to predict with certainty what actions might have to be taken to tune the turbines after initial firing and how long it will take to complete those actions. In addition, there is absolutely no experience with installation of SCONOx on units of this size. The requirement to have the emission control system installed and fully operational has the practical effect of cutting the Commissioning Period to 30 days. PG&E proposes that this condition be deleted in its entirety and, consistent with comments made above, the project be provided a 120-day Commissioning Period during which it will bring the project on-line, including installation of the emission control equipment. At a minimum, the period for installing the control system must be extended to 60 days.

**District Response:** Based on additional conversations with PG&E and ABB Alstom, the District still believes that the control system can be installed and in full operation within 30 days. However, if problems arise, the applicant may submit, for District approval, a written request to extend this time period. This extension shall not exceed an additional 30 days and the request shall include all technical reasons that explain why the extension is needed. Such an extension will only be granted if the applicant can demonstrate that the extension:

(a) is not the result of neglect or disregard of any air pollution control requirement;

(b) is not intentional or the result of negligence, as defined in District Rule 98;

(c) is not the result of improper maintenance;

(d) will not constitute a nuisance;

(e) is not likely to create an immediate threat or hazard to public health or safety;

(f) will not interfere with the attainment or maintenance of any National or California Ambient Air Quality Standard; and
(g) good cause is shown.

25. **Condition 27:** It should be clarified that the emission requirements referred to in this condition are those set forth in Condition 26 and do not include the 1.0 ppm NOx limit.

**District Response:** The District agrees and has clarified this condition accordingly.

26. **Condition 29:** Consistent with comments made above, it should be made clear that the Replacement Period only applies in the event that the applicant elects to install SCONOx, as opposed to SCR, at the outset.

With respect to the substance of this condition, notwithstanding what the District may have been told by ABB Environmental, it would be virtually impossible to design, order, fabricate, install and commission an SCR unit, including an ammonia storage tank, delivery and vaporization system, in 90 days. Based on experience, and on subsequent conversations with ABB Environmental, PG&E believes that there must have been some miscommunication between the District and ABB Environmental, or at a minimum a failure to distinguish between what is theoretically possible under ideal circumstances and likely under real world conditions. A more appropriate timeframe for completing the necessary tasks is one year from the end of the Optimization Period. If the District believes that it cannot at this time provide for a full year, then PG&E suggests that the District require that a plan be submitted to the District for approval within 30 days of commencement of the Replacement Period. The plan would set forth in detail the steps to be taken and the time required for replacing the SCONOx system with SCR. At that point in time, all parties would have a clearer sense of what will be required to accomplish such a switch.

Finally, it should be made clear that the emission requirements referred to in this condition do not include the 1.0 ppm target.

**District Response:** The District has clarified the condition regarding the applicability of the Replacement Period. However, based on additional conversations with PG&E and ABB Alstom, the District still believes that the replacement SCR system can be installed and in full operation within 90 days.
27. **Condition 38:** The maximum hourly emission limits need to reflect higher emissions during worst case conditions (i.e., 30°F)
   
   \[ \text{NOx} = 14.0 \text{ lbs/hr} \]
   \[ \text{CO} = 29.4 \text{ lbs/hr} \]
   \[ \text{VOC} = 3.1 \text{ lbs/hr} \text{ (calculated as methane)} \]

   **District Response:** The District has reviewed the modeling done for this project and notes that these emission rates were considered in the air quality impact analysis. Therefore, the District has made the requested changes to this condition.

28. **Condition 39:** The maximum hourly emission limits need to reflect higher emissions during worst case conditions (i.e., 30°F ambient temperature)
   
   \[ \text{NOx} = 14.9 \text{ lbs/hr} \]
   \[ \text{CO} = 27.1 \text{ lbs/hr} \]
   \[ \text{VOC} = 3.3 \text{ lbs/hr} \text{ (calculated as methane)} \]

   **District Response:** Although the NOx emissions limit is slightly higher than proposed in the PDOC, modeling demonstrates there will be no violation of any ambient air quality standard. This change will not affect the requirements to comply with the 2.0 ppmv BACT limit nor the 1.0 ppmv target limit for NOx. Additionally, the annual emissions of NOx are still limited by the amount of offsets provided. The requested CO and VOC emission rates are lower than what was granted in the PDOC. Therefore, the District agrees and has made the requested changes to this condition.

29. **Conditions 43 and 44:** The duration limits on startups impose a constraint on the operation of the project that does not appear to be warranted and may actually be detrimental to the environment. According to the explanation provided with these conditions, they are intended to ensure that actual operation is consistent with modeled impacts. It seems, however, that this consistency is ensured by Conditions 41 and 42 that limit mass hourly emission during startup. PG&E fails to see what the additional requirement of limiting the duration of a startup will add. In fact, the inability to complete a startup within the specified timeframe would require the project operator to bring the unit down and re-start it. This would result in more time in startup mode and higher emissions. PG&E proposes that these two conditions be deleted.

   An additional consideration is combustor tuning after an annual maintenance outage. The startup will definitely be a cold start and the whole tuning operation could take multiple startups. Some provisions needs to be made for
bring the unit back after these infrequent events. One possible solution would be for the District to proved a mechanism for pre-approving maintenance events.

District Response: Although a full cold startup may require more than 2 hours to reach full load, the control device should be capable of reaching the desired operating parameters necessary to achieve BACT emission levels within 2 hours. Therefore, the definition of a cold start will be defined as the time needed to achieve BACT levels for NOx and CO, but not to exceed 2 hours. If, during normal operation, the permittee demonstrates that after all reasonable efforts the emission controls cannot complete the cold start within 2 hours, the District will consider a request for modification to this condition to increase the time needed for compliance to be achieved during a cold start.

30. **Condition 47:** The 18.0 lbs/hr for normal operations is for 70°F. Operations at 30°F is 19.3 lbs/hr. The maximum hourly emission limits need to be changed to reflect the higher emission rate during worst-case conditions. It should also be clarified that the limit specified in this condition is for each turbine.

District Response: Since 19.1 lbs/hr of PM_{10} (occurring during power augmentation) was the emission rate modeled, this will be the allowable emissions limit specified in the FDOC.

31. **Condition 55:** For purposes of clarification, PG&E suggests that the following phrase be added after “ongoing emission reduction monitoring period” in this condition: “as defined in section (h) of the alternative Mobile Source Emission Reduction Programs for Replacing Heavy-Heavy and Medium-Heavy Duty Diesel Power Vehicles and Re-powering Marine Vessels”.

District Response: The District has clarified this condition to indicate that the term “ongoing emission reduction monitoring period” is as defined in the Alternative MERC Program.

**ABB ALSTOM Comments:**

1. **Page 32, Replacement Period:** The 90-day period specified to install and shakedown an SCR system is an insufficient time frame. Initially ABB had
anticipated a 1-year period to install and shakedown an SCR, as noted in earlier documentation. The installation period needs to take into consideration the lead-time required for the SCR system, as well as the duration of the construction effort. A 1-year period to allow for procurement, manufacture, and delivery of the catalyst and the remaining system components, such as the ammonia storage and injection system, as well as the site preparation and construction time, is a reasonable time frame.


2. Page 43, Condition 23: The requirement to install catalyst within 30 days after initial firing does not allow adequate time to commission the turbine, then the HRSG, and then the regeneration gas production and distribution systems. We have anticipated about twice that amount of time be used for turbine, HRSG, and regeneration gas system commissioning.


3. Page 45, Condition 29: The 90-day period to replace SCONOx with SCR is insufficient. There is a substantial difference between the down time required to install the SCR system and the lead time required to get the system components delivered. The ammonia storage tank requires a concrete foundation, as does the ammonia delivery and vaporization system, but this work can be completed with the unit in operation. The unit would need to be out of operation during the installation of the CO catalyst and catalyst support system, the ammonia injection grid, the removal of the SCONOx catalyst, and the installation of the SCR catalyst. The availability and lead-time for these items will determine the required replacement schedule.


4. Page 45, Condition 37: No hourly basis is provided for the VOC emissions.

District Response: Compliance with the VOC limit is to be based on a 1-hour averaging period.

5. Page 51, Condition 47: The PM$_{10}$ emission rate of 18 lbs/hr is per unit, and this is not clear in this section.
District Response: The District has clarified this condition to specify that the emission rate applies to each turbine.

CEC Comments:

1. The CEC needs final approval of the MERC program by ARB and USEPA.

District Response: The Alternative MERC Program was approved by the District on September 8, 2000, and ARB concurred with the approved Alternative MERC Program on September 8, 2000. Formal approval of the Alternative MERC Program by the U. S. EPA is not required by District Rules and Regulations. However, U. S. EPA has been intimately involved in the development of this program and the program was developed considering both ARB and U. S. EPA written guidance. U. S. EPA was provided with a final draft of the Alternative MERC Program for review and comment. The District has received no comments from U. S. EPA on the final draft. The District plans to submit a portion of the Alternative MERC Program to U. S. EPA for inclusion into the State Implementation Plan (SIP) before the CEC completes its licensing process.

2. For the various periods – Commissioning, Replacement, and Optimization – the headings and which conditions apply are confusing. It would be helpful to organize the conditions and perhaps identify the period specifically in each condition. Also clarify/provide some definitions. For example, Condition 17 allows operation without post-combustion controls. Only later is it clarified that this is during commissioning.

District Response: The conditions were deliberately placed under the headings during which they would apply. Also, the conditions define the beginning and ending of each period (Commissioning, Replacement, and Optimization).

3. Please provide definitions for:
   a) start of construction;
   b) initial firing of a combustion turbine;
   c) commences commercial operation

District Response:
   a) "Commenced construction" is defined by District Rule 20.1(c)(14);
   b) "Initial firing" is the first ignition of the turbine burners;
c) "Commencement of commercial operation" is the date that the facility begins selling electricity.

4. **Condition 19**: What is the basis for 1649 lbs/hour or 1133 lbs/hour? The modeling appendix discusses a maximum of 90 lbs/hour of NOx.

**District Response**: These numbers represent the maximum NOx emissions that may be emitted before causing a violation of any state or federal ambient air quality standard when operating without post-combustion controls. During the Commissioning Period, the turbines must be tuned prior to the installation of the control equipment. Without the control equipment in place, the ozone limiting (OLM) factor is 10%. With post-combustion control equipment, the OLM factor is 40%. This is caused by differences in NO fractions for the exhaust and this accounts for the difference between the standards specified in Conditions 19 and 20. The equipment will also be controlled by the concentration limits of Conditions 17 and 18 as well as the annual mass emission limits of Condition 15. The modeling attachment references the expected controlled emission rates initially modeled, not the maximum emission rates that would still protect air quality standards.

5. **Condition 20**: What is the basis for 412 lbs/hour or 283 lbs/hour? The modeling appendix discusses a maximum of 90 lbs/hour of NOx.

**District Response**: See District Response to CEC Comment 4.

6. **Condition 21**: Where is the basis for CO no greater than 2500 ppm? The modeling appendix discusses a maximum of 2750 lbs/hour of NOx.

**District Response**: Modeling was also performed for CO. This modeling demonstrated that the 1-hour Ambient Air Quality Standard would be protected for a maximum emission rate of 9500 lbs/hr for single turbine operation. At 2500 ppm CO, the equipment emissions are below this rate. The District determined that a CO concentration limit was preferable to the maximum modeled emission rate.

7. **Condition 32**: Given the ongoing PM\textsubscript{10} violations of the state 24 hour PM\textsubscript{10} standard, is it appropriate to allow a 10 ppm NH\textsubscript{3} slip when 5 is achieved in practice?
**District Response:** The District's Rules and Regulations apply to directly emitted \( \text{PM}_{10} \) from the stack and do not address secondary \( \text{PM}_{10} \) formed in the atmosphere. The District does not have the authority to impose additional requirements based on the emissions of precursors to secondary \( \text{PM}_{10} \), especially when there is no approved method of quantifying the actual ambient \( \text{PM}_{10} \) impacts of these emissions. The District has examined the toxic impacts of ammonia by means of a health risk assessment and it was determined that the ammonia emissions would not cause a violation of any OEHHA recommended exposure limit. Therefore, the District will retain the 10 ppmv limit at 15% oxygen for ammonia slip.

8. **Condition 55:** The CEC needs to see the final MERC filing for the fleet. It is understood that there are other ERC activities also underway. The offset package (sources, quantities, emissions) needs to be clearly defined in the FDOC and in the conditions.

**District Response:** The District will provide the CEC with all the available information that is requested on the proposed offsets. The District has received applications for all the proposed MERC offsets and copies of signed sale and option contracts for the ERCs and MERCs currently proposed as offsets for the facility (see also the response to EPA Comment No. 15).