

**DOCKET****09-AFC-5**DATE MAY 03 2010RECD. MAY 04 2010

May 3, 2010

Mr. Alan De Salvio
MDAQMD
14306 Park Avenue
Victorville, CA. 92392

Re: Revised Mojave Solar 1-hour NO₂ Modeling Assessment

Dear Mr. De Salvio:

Abengoa and Mojave Solar LLC have revised the air quality modeling to assess the new federal 1-hour NO₂ standard of 188 $\mu\text{g}/\text{m}^3$. The revised modeling included all on-site operations emission sources including the facility operations maintenance emissions as well as any revisions to the onsite operation emissions determined through the response to the other CEC air quality data requests.

To assess 1-hour NO₂ impacts, the Ozone Limiting Method (OLM keyword) was used in AERMOD to estimate the conversion of modeled short-term NO_x concentrations to NO₂ that involves a comparison of the modeled NO_x concentration and the ambient ozone concentration to determine the limiting factor to NO₂ formation. If the ozone concentration is greater than 90% of the maximum NO_x concentration, total conversion is assumed (10% of the NO_x emissions are assumed to be in the form of NO₂ that accounts for in-stack and near-stack thermal conversion). If the NO_x concentration (90% of modeled concentration) is greater than the ozone concentration, the formation of NO₂ is limited by the ambient ozone concentration. In this case, the NO₂ concentration is set equal to the ozone concentration plus 10% of the modeled concentration. Since the maximum impact locations occur in the immediate project vicinity, modeled concentrations are expected to be due to downwash effects so plumes were assumed to be well mixed due to downwash effects and all proposed facility sources were combined in a single OLM source group. For the OLM analysis, ozone data from the Barstow monitoring site was used. Short periods of missing data (less than 4-5 hours) were interpolated from available Barstow ozone data with longer periods substituted from Victorville. To demonstrate compliance with the new 1-hour NO₂ NAAQS, a FORTRAN postprocessor program was used as recently suggested by USEPA to calculate the 5-year average of the 8th highest (98th percentile) daily maximum 1-hour NO₂ concentrations. Based on guidance contained in the last USEPA "Guideline on Air Quality Models" that addressed short-term NO₂ impacts, concurrent hourly NO₂ background concentrations measured at Barstow were added to the modeled NO₂ concentrations to determine the 5-year average of the 8th highest (98th percentile) daily maximum 1-hour NO₂ concentrations. Missing Barstow NO₂ data were interpolated or replaced by Victorville data similar to the ozone data processed for AERMOD OLM processing. The ozone data prepared for the OLM AERMOD modeling analysis (for the 1-hour CAAQS comparison) and the NO₂ data prepared for the

postprocessor program (for the 1-hour NAAQS comparison) were concurrent with the 5-year AERMOD meteorological dataset described elsewhere (i.e., 2001-02 and 2004-06).

Results of the revised modeling analysis are shown in Table 1. The maximum modeled impact for comparison to the 1-hour Federal Standard is 182.98 $\mu\text{g}/\text{m}^3$. The results of the revised modeling analysis demonstrate compliance with the new Federal 1-hour standard of 188 $\mu\text{g}/\text{m}^3$.

Table 1 Revised Air Quality Impacts

| Pollutant | Avg. Period | Maximum Concentration ($\mu\text{g}/\text{m}^3$) | Background ($\mu\text{g}/\text{m}^3$) | Total ($\mu\text{g}/\text{m}^3$) | Class II Significance Level ($\mu\text{g}/\text{m}^3$) | SIL ($\mu\text{g}/\text{m}^3$) | Ambient Air Quality CAAQS/NAAQS | |
|------------------------------|---|--|---|------------------------------------|--|----------------------------------|---------------------------------|------------------------------|
| | | | | | | | ($\mu\text{g}/\text{m}^3$) | ($\mu\text{g}/\text{m}^3$) |
| NO ₂ ^a | 1-hr | 130 | 154 | 284 | - | 19 | 339 | - |
| | NO ₂ 98 th % Avg ^a | - | - | 182.98 ^b | - | - | - | 188 |
| | Annual | 0.18 | 42 | 42.2 | 1 | 1 | 57 | 100 |
| PM ₁₀ | 24-hr | 8.8 | 154 | 163 | 5 | 5 | 50 | 150 |
| | Annual | 2.3 | 38.4 | 40.7 | 1 | 1 | 20 | |
| PM _{2.5} | 24- hr | 4.4 | 28 | 32.4 | 5 | 5 | - | 35 |
| | Annual | 0.7 | 10.4 | 11.1 | 1 | 1 | 12 | 15.0 |
| CO | 1- hr | 76 | 4025 | 4101 | 2000 | 2000 | 23,000 | 40,000 |
| | 8- hr | 7.8 | 1789 | 1797 | 500 | 500 | 10,000 | 10,000 |
| SO ₂ | 1- hr | 0.25 | 94 | 94.3 | - | - | 655 | - |
| | 3- hr | 0.18 | 23 | 23.2 | 25 | 25 | | 1,300 |
| | 24- hr | 0.07 | 13 | 13.1 | 5 | 5 | 105 | 365 |
| | Annual | 0.003 | 3 | 3.00 | 1 | 1 | - | 80 |

^aNO₂ 1-hour impacts evaluated using the Ozone Limiting Method (OLM).

^bFive-year average concentration of 8th-highest (98th percentile) daily maximum concentrations evaluated by a postprocessor as recommended by USEPA, after including concurrent background NO₂ 1-hour concentrations.

Please find the enclosed compact disk that contains the air quality modeling input/output files associated with the revised assessment. A copy of this letter and associated modeling files are also being docketed with the CEC.

Thank you for your attention in this matter. If you have any questions with regards to the application, please contact Gregory Darvin at (805) 569-6555.

Sincerely,
Atmospheric Dynamics, Inc.

Gregory Darvin

Gregory S. Darvin