



TETRA TECH EC, INC.

DOCKET	
09-AFC-8	
DATE	<u>JUN 18 2010</u>
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June 18, 2010

California Energy Commission
Docket No. 09-AFC-8
1516 9th St.
Sacramento, CA 95814

Genesis Solar Energy Project - Docket Number 09-AFC-8

Docket Clerk:

Enclosed for filing with this letter is one hard copy and one electronic copy of the ***Responses to Mojave Desert Air Quality Management District (MDAQMD) Requests for Additional Information Item #9 for the Genesis Solar Energy Project***, dated June 18, 2010. The modeling files to support this conclusion will be sent and docketed next week.

This document was sent to Mr. Richard Wales of the MDAQMD on June 18th, 2010.

Sincerely,

Tricia Bernhardt
Project Manager/Tetra Tech EC

cc: Mike Monasmith /CEC Project Manager
Richard Wales/MDAQMD





**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
1-800-822-6228 – WWW.ENERGY.CA.GOV**

**APPLICATION FOR CERTIFICATION FOR THE
GENESIS SOLAR ENERGY PROJECT**

Docket No. 09-AFC-8

**PROOF OF SERVICE
(Revised 6/7/10)**

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I, Tricia Bernhardt, declare that on June 18, 2010, I served and filed copies of the **Responses to Mojave Desert Air Quality Management District (MDAQMD) Requests for Additional Information Item #9 for the Genesis Solar Energy Project** dated June 18, 2010. The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at: [http://www.energy.ca.gov/sitingcases/genesis_solar].

The documents have been sent to both the other parties in this proceeding (as shown on the Proof of Service list) and to the Commission's Docket Unit, in the following manner:

(Check all that Apply)

FOR SERVICE TO ALL OTHER PARTIES:

sent electronically to all email addresses on the Proof of Service list;

by personal delivery or by depositing in the United States mail at Sacramento, California with first-class postage thereon fully prepaid and addressed as provided on the Proof of Service list above to those addresses **NOT** marked "email preferred."

AND

FOR FILING WITH THE ENERGY COMMISSION:

sending an original paper copy and one electronic copy, mailed and emailed respectively, to the address below (*preferred method*);

OR

depositing in the mail an original and 12 paper copies, as follows:

CALIFORNIA ENERGY COMMISSION

Attn: Docket No. 09-AFC-8
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

I declare under penalty of perjury that the foregoing is true and correct.

Original Signed By:



Tricia Bernhardt

Responses to Mojave Desert Air Quality Management District (MDAQMD) Requests for Additional Information Item #9 for the Genesis Solar Energy Project

June 18, 2010

Genesis Solar Energy Project - Docket Number 09-AFC-8

Request #9: At the time of AFC preparation, the proposed federal one hour standard for NO₂ had not been adopted. The newly adopted standard for NO₂ of 0.100 ppm (188 ug/m³) is attained based upon a 3-year average of the 98th percentile of the daily maximum 1-hour averages (at each monitoring location). The applicant's original analysis used a 1-hour background value of 149 ug/m³. The CEC re-analysis of NO₂ background values resulted in a revised NO₂ 1-hour background level of 118.7 ug/m³ (SA/EIS, Genesis Solar Energy Project, AFC 09-AFC-8, BLM/CEC, March 2010). The revised modeling will therefore use an NO₂ 1 hour background value of 118.7 ug/m³. In addition, please note that the revised modeling for compliance with the new federal NO₂ standard will only include those onsite stationary source emissions subject to the modeling requirements of the District's NSR rule, i.e., the small auxiliary boilers and the emergency generator and fire pump IC engines.

Initial Response (5-18-10):

Due to the complexity of the NO₂ re-modeling analysis for the new federal 1 hour standard, the applicant is estimating that the results will not be available for at least 30 days from the date of this response, we are therefore asking for a 30 day extension from the District response date in order to provide adequate time to prepare the revised modeling analysis.

Revised Response (6-18-10):

COMPLIANCE ANALYSIS OF NEW FEDERAL 1-HOUR NITROGEN DIOXIDE for THE GENESIS SOLAR ENERGY PROJECT

On January 25, 2010, the USEPA promulgated a new 1-hour National Ambient Air Quality Standard (NAAQS) for nitrogen dioxide (NO₂) of 100 ppb (188.7 µg/m³). The new standard is based on the 3-year average of the 98th -percentile of the annual distribution of daily maximum 1-hour concentrations. The final rule for the new hourly NAAQS was published in the Federal Register on February 9, 2010, and the standard became effective on April 12, 2010.

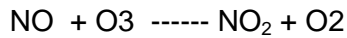
Tetra Tech conducted additional dispersion modeling to determine compliance status of this new NO₂ standard for the proposed Genesis Solar Plant. This report presents the dispersion modeling procedures and results.

The following steps are used to determine the 1-hour maximum NO₂ concentrations from the proposed Genesis Solar Plant. All equipment configuration and emissions remained similar as previous modeling runs, including wet cooling system, auxiliary boilers, emergency generators and fire pumps.

1. AERMOD MODEL RUNS

1. Run AERMOD for the meteorological data period (2002 -2006) to determine the maximum 1-hour concentration for each day of the data period. The Ozone Limiting Method (OLM) option was used. A brief description of the OLM is as below:

Nitrogen Oxides (NO) released from the equipment to the atmosphere are oxidized into NO₂ by ambient ozone (O₃) by the following reaction:



Amount of ambient O₃ has thus a direct effect on the NO₂ formation. The OLM option in the AERMOD model accounts for this effect. Required input to the OLM option is the hourly O₃ concentration. Tetra Tech compiled the measured ambient ozone data from the Blythe monitoring station [Ref. 1].

2. At each receptor for each year modeled, determine the 8th –highest daily 1-hour maximum NO₂ concentration. The 8th – highest concentration represents the 98th –percentile NO₂ concentration from the distribution of daily 1-hour maximum values. The 98th percentile value is defined as the percentile below which 98 percent of detected NO₂ may be found.

3. At each receptor, the 8th highest daily 1 – hour maximum concentrations are averaged across the modeled years.

4. The highest of the average 98th – percentile concentration across all receptors represents the modeled 1-hour maximum NO₂ value.

The highest 1-hour maximum NO₂ concentration is found to be 81.5 ug/m³ at the Genesis Solar Plant's northern boundary line.

2. BACKGROUND NO2 CONCENTRATION

The ambient NO₂ concentration measured at the Palm Spring monitoring station is used as the background concentration. These data are available at the ARB website [Ref. 2].

The ambient NO₂ data were compiled for the period of 2004 to 2006. The data were then calculated to determine the 98th- percentile concentration. The 8th – highest (98th – percentile) is found to be 96.5 ug/m³.

3. RESULTS

The combined 1-hour maximum NO₂ concentration for the proposed Genesis Solar Plant is the sum of the NO₂ concentration emitted from the plant and the background NO₂ concentration, or:

$$\begin{aligned} \text{Total 1-hour max NO}_2 \text{ concentration} &= 81.5 \mu\text{g/m}^3 + 96.5 \mu\text{g/m}^3 \\ &= 178 \mu\text{g/m}^3 \end{aligned}$$

In conclusion, the predicted 1-hour max NO₂ concentration is lower than the new Federal 1-hour NO₂ limit. Table 1 shows the comparison.

Table 1. Summary of Compliance Analysis

Pollutant	Avg. Period	Maximum Concentration (µg/m ³)	Background (µg/m ³)	Total (µg/m ³)	Ambient Air Quality CAAQS/NAAQS	
					(µg/m ³)	(µg/m ³)
NO ₂	1-hr	81.5	96.5	178	339	188.7

REFERENCES

1. Ozone Data Download from ARB website

http://www.arb.ca.gov/aqmis2/display.php?param=OZONE&units=007&statistic=DMOL8&year=2010&mon=6&day=18&county_name=--COUNTY--&basin=MD-Mojave+Desert&latitude=--PART+OF+STATE--&report=7DAY&order=basin%2Ccounty_name%2Cs.name&submit=Retrieve+Data&ptype=aqd

2. Nitrogen Dioxide Data Download from ARB website

http://www.arb.ca.gov/aqmis2/display.php?param=NO2&units=007&statistic=DAVG&year=2010&mon=6&day=18&county_name=33-Riverside&basin=--AIR+BASIN--&latitude=--PART+OF+STATE--&report=7DAY&order=basin%2Ccounty_name%2Cs.name&submit=Retrieve+Data&ptype=aqd