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DOCKET

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California Energy Commission
Dockets Unit
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: **CAITHNESS BLYTHE II, LLC'S CUMULATIVE SOURCE IMPACT
MODELING ANALYSIS
BLYTHE ENERGY PROJECT PHASE II AMENDMENT
DOCKET NO. (02-AFC-1C)**

Enclosed for filing with the California Energy Commission are 2 (two) hardcopies (one original and one copy), and 2 (two) compact discs of **CAITHNESS BLYTHE II, LLC'S CUMULATIVE SOURCE IMPACT MODELING ANALYSIS**, for the Blythe Energy Project Phase II Amendment (02-AFC-1C).

Sincerely,

A handwritten signature in blue ink, appearing to read "Marie Mills", is written in a cursive style.

Marie Mills

CUMULATIVE SOURCE IMPACT MODELING ANALYSIS

For the:

BLTHYE II AMENDMENT

Prepared for:

Caithness Blythe II, LLC

Prepared by:

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December 2010

Cumulative Modeling Impact Assessment

A cumulative air quality modeling assessment was made for the proposed Blythe II amendment. Localized impacts from Blythe II could result from emissions of carbon monoxide, oxides of nitrogen, sulfur oxides, and directly emitted PM_{10/2.5}. In evaluating the potential cumulative localized impacts of the amendment in conjunction with the impacts of existing facilities and facilities not yet in operation but that are reasonably foreseeable, a potential impact area in which cumulative localized impacts could occur was identified as an area with a radius of 8 miles around the plant site. As defined in the federal air quality modeling guidelines a “significant” air quality impact determination will be ultimately based on the results of the proposed air quality modeling analyses described above. If the project’s impacts do not exceed the significance levels, no cumulative impacts will be expected to occur, and no further analysis will be required. Otherwise, in order to ensure that other projects that might have significant cumulative impacts in conjunction with the amended project are identified, a search area with a radius of 8 miles beyond the project’s impact area was used for the cumulative impacts analysis. Within this search area, three categories of projects with emissions sources will be used as criteria for identification:

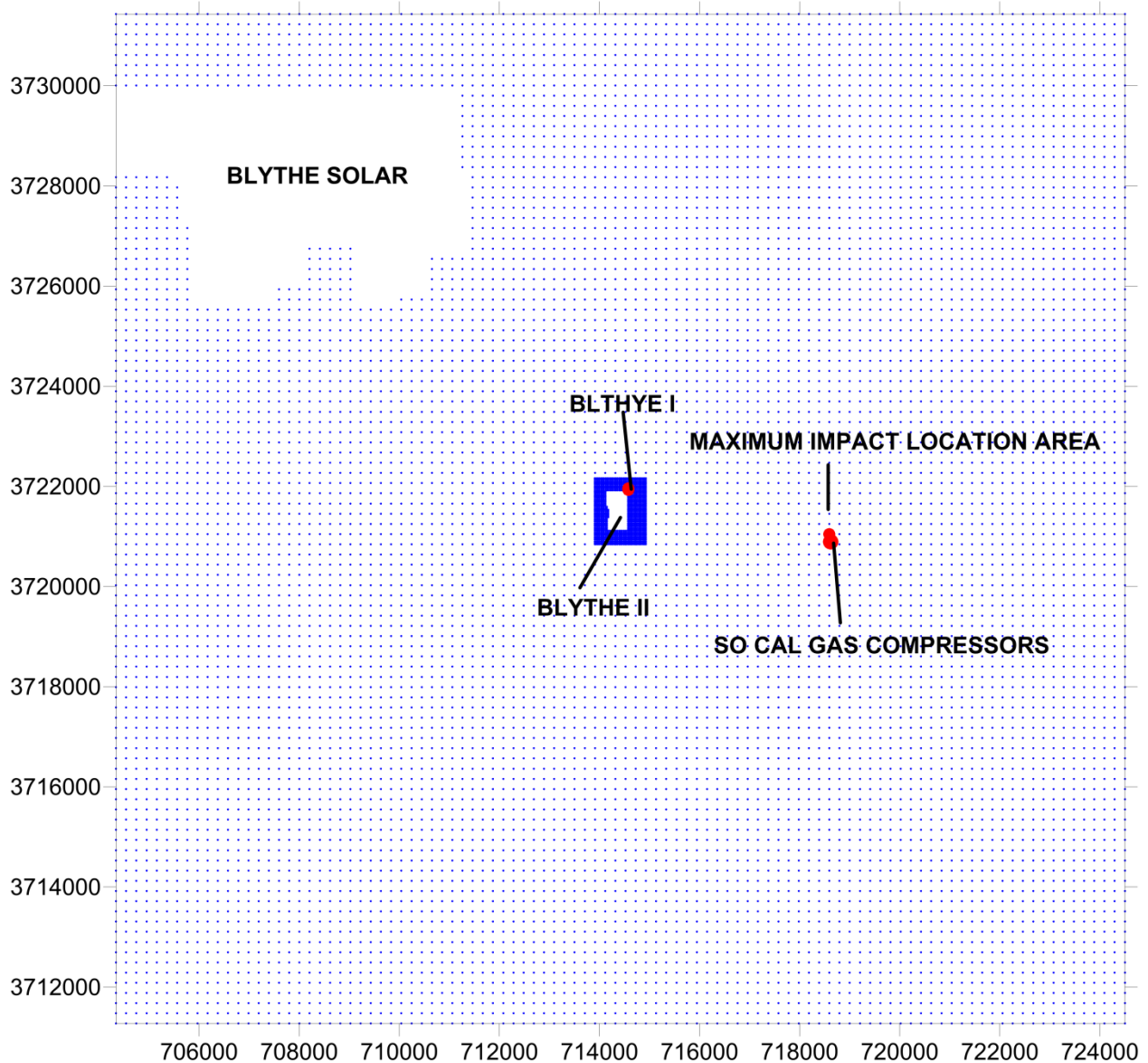
- Projects that have been in operation for a sufficient time period, and whose emissions are included in the overall background air quality data.
- Projects which recently began operations whose emissions may not be reflected in the ambient monitoring background data.
- Projects for which air pollution permits to construct have not been issued, but that are reasonably foreseeable.

The Mojave Desert Air Quality Management District (MDAQMD) provided the initial list of cumulative sources for use in the analysis. The only source identified within an 8 mile radius is the Blythe Solar Power Project. This project had recently completed a cumulative air quality modeling assessment (April 19th, 2010) as required by the CEC and had included the following list of additional sources:

- Blythe I
- Blythe II
- Southern California Gas Company Compressor Station
- Blythe Solar

To be consistent with the Blythe II Solar project analysis, the Blythe II cumulative modeling assessment also took into account the same emission sources. The receptor grid used in the cumulative analysis as well as the locations of the sources used in the analysis are presented in Figure 1. Since AERMOD is NOT currently configured to calculate/present the average of the eighth highest daily 1-hour maximum concentrations (just the average of the annual eighth highest 24-hour impacts for PM-2.5), a post-processor was developed as suggested in the USEPA document “*Notice Regarding Modeling for New Hourly NO₂ NAAQS*” updated 02/25/2010. For the 1-hour NO₂ modeling analysis, the Ozone Limiting Method (OLM) included within the AERMOD code was used to convert modeled NO_x concentrations to NO₂. Hourly ozone data from the nearby Blythe monitoring station was used by AERMOD in the OLM analysis, which was concurrent with the meteorological data modeled. The modeling files used in the cumulative analysis are included in the attached DVD.

Figure 1 Source and Receptor Location Plot
BLYTHE II CUMULATIVE ANALYSIS



As part of the OLM analysis, concurrent hourly background NO₂ concentrations were added to modeled NO₂-OLM impacts before determining the maximum 5-year average of the 8th highest (98th percentile) daily 1-hour maximum concentrations. This use of concurrent ozone and background NO₂ concentrations in the OLM analysis is consistent with past guidance contained in the “*Guideline on Air Quality Models*” when OLM was discussed in any detail (i.e., 3rd Level Screening in Draft GAQM Revisions proposed November 1984 through GAQM Supplement B issued February 1995). Since NO₂ data are not measured

at the Blythe monitoring station, the nearest representative NO₂ station used in the background monitoring determination in the application was used (i.e., Victorville). Results of the AERMOD OLM analysis with the post-processor to determine the maximum 5-year average of the 98th percentile (8th highest) daily maximum 1-hour NO₂ combined (modeled plus background) concentrations are shown below.

The results of the cumulative modeling analysis prepared for the Blythe Solar Project are summarized in Table 1.

Table 1 Cumulative Modeling Results

Pollutant	Averaging Period	Concentrations (ug/m ³)				
		AERMOD Result	Ambient Background ²	Total ³	CAAQS	NAAQS
NO ₂ ¹	1-hr CAAQS	137.74	149	286.74	339	--
	1-hr NAAQS	161.53	N/A	161.53	--	188
	Annual	4.2	38.0	23.5	57	100
CO	1-hr	214.99	2530	2912.6	23,000	40,000
	8-hr	102.35	1789	1121.5	10,000	10,000
PM10	24-hr	33.96	88.0	121.96	50	150
	Annual	2.67	31.0	33.67	20	--
PM2.5	24-hr	6.36	28.0	34.36	--	35
	Annual	0.88	10.4	11.28	12	15
SO ₂	1-hr	29.81	47.2	77.01	665	--
	3-hr	26.63	31.2	57.83	--	1,300
	24-hr	11.39	13.1	24.49	105	365
	Annual	1.37	2.7	4.07	--	80
¹ Modeled NO ₂ concentrations as determined with the OLM and concurrent NO ₂ background. ² From Table 5.2-19 of the AFC. These values correspond to the highest monitored values from 2006 – 2008, except for PM2.5, which is the 98 th percentile value over three years. ³ Modeled concentration plus ambient background.						

This cumulative modeling analysis indicates- that the proposed project would not create new exceedances for any of the modeled air pollutants. The 24-hour and annual PM10 background already exceed the

California State Standard for this pollutant. The cumulative modeling results for this pollutant also indicate that no new exceedances are expected. Many of the maximum impact locations are located adjacent to the Southern California Gas Compressor Station. This location is most likely a product of the receptor grid placed around this source, where the stack location is immediately adjacent to one of the receptors.

This modeling analysis shows that, after implementation of the recommended emission mitigation measures at the Blythe Solar Project, the cumulative effects of all modeled projects are not predicted to cause new exceedances of the NAAQS or CAAQS. Therefore, it has been determined that no adverse impacts would occur after implementation of the recommended mitigation measures.