

**INTEROFFICE MEMORANDUM  
JANUARY 20, 2010**

**TO: Kathleen Truesdell**

**Via: Scott B. Lutz  
Brian Bateman**

**FROM: Glen Long, Phil Martien**

**SUBJECT: Summary of CEQA Cumulative impact Analysis for Permit Application  
20798, Oakley Generating Station**

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Per your request, we have completed a health risk screening analysis for the above referenced permit application. The analysis estimates the incremental health risk resulting from toxic air contaminant (TAC) emissions from the operation of two gas powered turbines, an auxiliary boiler, a three-cell evaporative condenser, and a fire pump at the Oakley Generating Station (OGS), as well as TAC emissions from local sources within 1000 feet of the proposed project. Results from the health risk screening analysis indicate that: (1) the proposed project alone cancer risk at the MEI receptor is 0.649 in a million, the chronic hazard index is 0.0347, and the  $PM_{2.5}$  is  $0.16 \text{ ug/m}^3$ . (2) the cumulative cancer risk from local sources and the proposed project at the proposed project MEI receptor is estimated at 51.7 in a million and the total chronic hazard index is estimated at 0.0857. The total cumulative  $PM_{2.5}$  at the proposed project MEI receptor is  $0.69 \text{ ug/m}^3$ .

The proposed project risk alone is less than 10 in a million, the chronic hazard index is less than 1.0, and the  $PM_{2.5}$  is less than  $0.3 \text{ ug/m}^3$ . The cumulative total risk is less than 100 in a million, the chronic hazard index is less than 10.0, and the  $PM_{2.5}$  is less than  $0.8 \text{ ug/m}^3$ . Therefore, the OGS project impacts and cumulative impacts are below the thresholds of significance established in the District's June 2, 2010 revised CEQA guidelines.

**EMISSIONS:** The OGS TAC emission were obtained from your August 10, 2010 emissions spreadsheet for the facility. Table I summarizes these emissions.

There were two stationary facilities with a total of five sources within 1000 feet of the proposed project emitting TACs: Ramrock Leasing and Equipment Company (Plant #14762) and the Delta Diablo Sanitation District (Plant # 7189). Table II summarizes these emissions.

There were no stationary sources found to be located within 1000 feet of the MEI receptor. Emissions from mobile sources (rail and roadway) within 1000 feet of the MEI receptor were also considered. The District's CEQA roadway screening table (<http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx>) and traffic estimates from [http://www.ehib.org/traffic\\_tool.jsp](http://www.ehib.org/traffic_tool.jsp) were used to estimate traffic volumes on old highway 4 (38,000 ADT). Rail emissions were estimated from the BNSF freight and San Joaquin passenger lines data.

**MODELING:** The AERMOD air dispersion computer model was used to estimate maximum one-hour and annual average ambient air concentrations. AERMET was used to create two sets of five years of data with the Contra Costa Power meteorological data (2001-2002 and 2004-2006; 2003 did not meet the EPA required data recovery rates). The first set, Contra Costa Power (CCP), was processed using the land use characteristics around the

meteorological tower. The second set was also created with the Contra Costa Power meteorological data, but the site characteristics around the proposed project site were used. All maximum impacts occurred using the CCGS data. Stack and building parameters for the analysis were based on information provided by the applicant.

A cumulative air quality impact, "Cumulative Air Quality Impact Analysis" dated October 2010, was prepared and submitted by the applicant. Annual PM<sub>2.5</sub> impacts were presented for both the proposed project and for PM<sub>2.5</sub> sources within 8 miles of the plant site or PM<sub>2.5</sub> significant impact area. Impacts from mobile sources were not investigated. Table III summarizes the PM<sub>2.5</sub> impacts at the proposed project MEI location. The total cumulative PM<sub>2.5</sub> impact is 0.69 ug/m<sup>3</sup>.

**HEALTH RISK:** AERMOD results were imported into HARP using the HARP on-ramp module and the latest version of HARP (version 1.4a) was used to predict health impacts from the proposed project. The MEI from the proposed project was found to be at UTM NAD27 coordinates (611500, 4206650). The most recent diesel particulates inhalation cancer potency factor and inhalation reference exposure level were used for determining the health risk emitted by the mobile sources and the facilities located within 1000 feet at the MEI.

Table IV summarizes the health risk impacts from the proposed project and sources within 1000 feet.

Estimates of residential risk assume potential exposure to annual average TAC concentrations occur 24 hours per day, 350 days per year, for a 70-year lifetime. The HARP option "Derived (Adjusted) Method" was used for calculating residential cancer risks. The CRAFs are age-specific weighting factors used in calculating cancer risks from exposures of infants, children and adolescents, to reflect their anticipated special sensitivity to carcinogens. There are no schools located within 1000 feet of the facility.

**Table I: Maximum Oakley Generating Station TAC and Particulate emissions.**

Toxic Air Contaminant	Turbines		Boiler		Evaporative Cooler		Firepump	
	Max 1- hour Emissions per turbine including tuning (lb/hr)	Max Annual lb/yr	Max 1- hour Emissions lb/hr	Max Annual lb/yr	Max 1- hour Emissions per cell (lb/hour)	Max Annual per cell (lb/yr)	Max 1- hour Emissions lb/hour	Max Annual lb/yr
1,3-Butadiene	2.672080E-04	2.199342E+00						
Acetaldehyde	2.693120E+00	2.476060E+03						
Ammonia	1.466053E+01	1.206682E+05	0.000000E+00	0.000000E+00				
Benzene	5.386240E-02	2.314390E+02	1.039500E-04	4.491900E-01				
Benzo(a)anthracene	4.755040E-05	3.913789E-01						
Benzo(a)pyrene	2.924560E-05	2.407153E-01						
Benzo(b)fluoranthene	2.377520E-05	1.956894E-01						
Benzo(k)fluoranthene	2.314400E-05	1.904942E-01						
Chrysene	5.302080E-05	4.364048E-01						
Dibenz(a,h)anthracene	4.944400E-05	4.069648E-01						
Ethylbenzene	6.859040E-02	3.113176E+02						
Formaldehyde	9.741520E+00	8.318029E+03	3.712500E-03	1.604250E+01				
Hexane	5.449360E-01	4.485271E+03						
Indeno(1,2,3-cd)pyrene	4.944400E-05	4.069648E-01						
Naphthalene	3.492640E-03	2.874730E+01						
Propylene	1.622184E+00	1.335191E+04						
Propylene Oxide	1.005712E-01	8.277837E+02						
Toluene	2.066128E-01	1.232017E+03	1.648350E-07	7.272600E-01				
Xylene (Total)	5.491440E-02	4.519907E+02						
Sulfuric Acid Mist (H2SO4)	3.061071E+00	6.397629E+03	7.203230E-02	1.557338E-01				
Arsenic					6.085800E-06	9.128700E-03		
Copper					1.561140E-05	2.341710E-02		
Lead					4.383540E-06	6.575310E-03		
Diesel PM							1.052157E-01	5.155457E+00
PM10		7.619940E+04		1.426650E+02		6.600010E+01		5.155457E+00

**Table II: TAC Emissions from Stationary Facilities located within 1000 feet of the proposed project.**

Facility	Source	Diesel PM emissions (lb/year)
Ramrock Leasing and Equipment Company (Plant #14762)	S1	475.7
	S2	300.0
	S3	74.2
Delta Diablo Sanitation District (Plant # 7189)	S1	23.5
	S2	12.8

**Table III: Summary PM<sub>2.5</sub> impacts at OGS MEI**

	<b>PM2.5 (ug/m3)</b>	<b>BAAQMD sig. level</b>
Oakley Generating Station	0.16	0.3
Stationary Source (including project)	0.58	
Mobile Sources	0.11	
<b>TOTAL CUMULATIVE</b>	0.69	0.8

**Table IV: Summary of Cumulative Risk at the Proposed Project MEI\***

STATIONARY SOURCES		Cancer Risk		Chronic Hazard Index	
		Source Total	CEQA Thresholds of Significance	Source Total	CEQA Thresholds of Significance
<b>Oakley Generating Station</b>	All sources Plant total	6.49E-07 6.49E-07	1.00E-05	3.469E-02 3.469E-02	1.00E+00
<b>Ramrock</b>	S1 S2 S3 Plant Total	3.48E-06 3.33E-07 1.47E-07 3.96E-06		1.000E-03 0.000E+00 0.000E+00 1.000E-03	
<b>Delta Diablo</b>	S1 S2 Plant total	3.95E-08 2.26E-08 6.21E-08		0.000E+00 0.000E+00 0.000E+00	
<b>MOBILE SOURCES</b>	Rail Roadway Total	4.00E-05 7.00E-06 4.70E-05		1.000E-02 4.000E-02 5.000E-02	
<b>TOTAL CUMULATIVE</b>		<b>5.17E-05</b>	1.00E-04	<b>8.569E-02</b>	1.00E+01

\* Notes: Sources modeled included stationary sources located within 1000 feet of proposed project and mobile emissions (rail and roadway) within 1000 feet of MEI. No stationary sources were found to be located within 1000 feet of the MEI.