CH2M HILL
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833
Tel 916-286-0207
Fax 916.286-3407

CH2MHILL

February 13, 2009

Ron Yasney
Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814-5512

Subject: **Data Responses Set 2 (Responses to Data Requests 7, 12 through 22)**
GWF Hanford Combined Cycle Power Plant Project (01-EP-7)

On behalf of the GWF Energy LLC., please find attached six hardcopies and six CD copies of the Data Responses, Set 2, in response to Staff's Data Requests dated January 20, 2009.

Included in this submittal are five CD copies of the cumulative HRA and criteria pollutant dispersion modeling files in response to data responses #7 (Public Health) and #19 (Air Quality.

Please call me if you have any questions.

Sincerely,

CH2M HILL

Jennifer L. Scholl

Jennifer Scholl
Senior Project Manager

Petition for License Amendment

GWF Hanford Combined-Cycle Power Plant

Data Responses Set 2

(Responses to Data Requests 12 through 22)

GWF Hanford Energy Park Peaker (01-EP-7)

Submitted by

GWF®

With Technical Assistance by

CH2MHILL

February 2009

EY072008001SAC

GWF Hanford Combined Cycle Power Plant

(01-EP-7)

Data Responses Set 2

(Responses to Data Requests 12 through 22)

Submitted to

California Energy Commission

Submitted by

GWF Energy, LLC

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2485 Natomas Park Drive
Suite 600
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Introduction

Attached are GWF Energy LLC's responses to the California Energy Commission (CEC) staff's Data Requests numbered 12 through 22 – Air Quality for the GWF Hanford Combined Cycle Power Plant Project (GWF Hanford). The CEC staff served these data requests on January 20, 2009, as part of the discovery process for GWF Hanford's License Amendment Application (01-EP-7). The responses are presented in the same order as the CEC staff presented them and numbered (12 through 22). The response for Data Request Set 1 DR7 is also included in this response package. New or revised graphics or tables are numbered in reference to the Data Request number. For example, the first table used in response to Data Request 3 would be numbered Table DR3-1. The first figure used in response to Data Request 3 would be Figure DR3-1, and so on.

Additional documents submitted in response to a data request (i.e., stand-alone documents) are found at the end of this Data Response submittal and are not sequentially page-numbered with the remainder of the document, though they may have their own internal page numbering system.

The Applicant looks forward to continuing our cooperative working relationship with CEC staff as GWF Hanford proceeds through the License Amendment process. We trust that these responses address the staff's questions and remain available to have any additional dialogue the staff may require.

Public Health (7)

Background

The Petition to Amend states that the cumulative impacts of GWF Hanford are not expected to exceed those analyzed in the 21-day Emergency Power Plant License application process conducted in 2001 and that the facility will not contribute to any significant cumulative public health impacts. However, the cumulative impacts of emissions from this proposed modification combined with emissions from the adjacent GWF Hanford LP power plant was not quantitatively assessed.

Staff has consistently found that cumulative impacts on public health from power plants and other sources of toxic air contaminant emissions are not significant unless the sources are either very close to each other – within a block or two - or the incremental risk of one of the sources is almost at the level of significance. However, in this case, the two emission sources are indeed very close to each other, most likely within a few hundred feet. Staff therefore needs this information to fully assess the cumulative health impacts potentially posed to the off-site public.

Also, the Petition to Amend did not provide a health risk assessment for the diesel emissions from construction activities nor did it provide diesel particulate matter (DPM) emission factors for the equipment that will be used. While staff understands that project construction emissions are short-term and may indeed pose an insignificant risk to public health as the Petition states, staff needs to verify this by reviewing the DPM emission factors for construction activities.

Data Request

7. Please provide a cumulative health risk assessment for the combined emissions from the project modification and the existing Hanford LP power plant.

Response: A cumulative Health Risk Assessment (HRA) was performed to evaluate the potential health impacts resulting from the inclusion of the Hanford LP toxic air contaminant (TAC) emissions with GWF Hanford TAC emissions. Per discussion with CEC staff, the Hanford LP cooling tower was omitted from the cumulative HRA because the make-up water for the cooling tower is potable water from the same aquifer used for the City of Hanford drinking water. Therefore, it was assumed that TAC emissions from cooling tower drift were negligible. It was also agreed that hourly TAC emission rates for Hanford LP sources would be based on the most recent AB2588 report (Carnot, 1995).

The AERMOD dispersion model settings used for this HRA were the same as outlined in Section 3.1 (Air Quality) and the receptor grid was the same as the grid used for the HRA analysis outlined in Section 3.6 (Public Health) of the Petition for License Amendment, except the fence line for the cumulative impact assessment was modified to include the Hanford LP facility. The HARP risk evaluation was also conducted using the same

methodologies described in Section 3.6 of the Petition for License Amendment, with the exception of the HARP Health Database. The HARP Health Database was updated by the California Air Resources Board on January 28, 2009. Therefore, new risk values were used for the cumulative HRA.

HRA Modeling

The source parameters and emission rates for the GWF Hanford turbines and emergency fire pump engine were the same as those described in Section 3.6 of the Petition for License Amendment. The hourly TAC emission rates for the fluidized bed combustor and the natural gas-fired low-pressure evaporator (i.e., auxiliary boiler) were based on the 1994 source test data presented in the 1992 AB2588 Air Toxics Inventory Report, which was revised and submitted in August 1995 (Carnot, 1995). To be conservative, the annual operating hours for the fluidized bed combustor were based on a 95 percent annual operating capacity factor (i.e., 8,322 hours). The annual emissions for the auxiliary boiler were estimated based on 4,000 hours of operation. The stack parameters for the fluidized bed combustor were based on the source parameters presented in the 1994 source testing report (Carnot, 1994). The exhaust from the auxiliary boiler is also vented through the same exhaust stack as the fluidized bed combustor. Therefore, an individual stack for the auxiliary boiler was not required in the dispersion model.

The hourly TAC emission rates from the emergency generator, with the exception of diesel particulate matter, were estimated based on the Ventura County Air Pollution Control District's default emission factors for diesel-fired internal combustion engines (VCAPCD, 2001). The diesel particulate matter emission rate for the emergency engine was based on the EPA AP-42 emission factor (EPA, 1996). The hourly and annual emissions were based on the fuel usage reported in the AB2588 report (Carnot, 1995). The stack parameters for the emergency generator were based on the source parameters used to model the GWF Hanford emergency fire pump engine.

The source parameters and the emission rates for Hanford LP sources are presented in Tables DR7-1 and DR7-2, respectively. Detailed calculations are presented in Attachment DR7-1.

TABLE DR7-1
Summary of Modeled Source Parameters (Point Sources)

Source Description	Easting (m)	Northing (m)	Base Elevation (m)	Stack Height (m)	Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
Fluidized Bed Combustor*	262187	4016994	71	24	444	27.4	1.51
Emergency Engine	262172	4016943	71	4	746	74.5	0.15

* The natural gas fired low pressure evaporator (auxiliary boiler) is vented to the same stack as the fluidized bed combustor.

TABLE DR7-2
Summary of Toxic Air Contaminant (TAC) Emission Rates

	Fluidized Bed Combustor		Low Pressure Evaporator		Emergency Diesel Engine	
Pollutant	Annual (lbs/yr)	Hourly (lbs/hr)	Annual (lbs/yr)	Hourly (lbs/hr)	Annual (lbs/yr)	Hourly (lbs/hr)
Benzene	5.55E+00	6.67E-04	3.80E+00	9.50E-04	—	6.22E-03
Formaldehyde	5.18E+01	6.22E-03	8.44E+00	2.11E-03	—	5.77E-02
Naphthalene	9.24E-01	1.11E-04	3.20E+00	8.00E-04	—	6.58E-04
PAHs*	4.16E-02	5.00E-06	4.62E-02	1.16E-05	—	1.87E-03
Acetaldehyde	—	—	7.36E+00	1.84E-03	—	2.62E-02
Acrolein	—	—	3.14E+00	7.86E-04	—	1.13E-03
1,3-Butadiene	—	—	—	—	—	7.26E-03
Chlorobenzene	—	—	—	—	—	6.68E-06
Propylene	—	—	5.68E+01	1.42E-02	—	1.56E-02
Hexane	—	—	—	—	—	8.98E-04
Toluene	—	—	1.23E+00	3.07E-04	—	3.52E-03
Xylenes	—	—	4.56E-01	1.14E-04	—	1.42E-03
Ethyl Benzene	—	—	—	—	—	3.64E-04
Arsenic	2.69E-01	3.23E-05	—	—	—	5.34E-05
Beryllium	2.29E-02	2.75E-06	—	—	—	-
Cadmium	5.47E-02	6.57E-06	—	—	—	5.01E-05
Cr(VI)	3.05E-01	3.66E-05	—	—	—	3.34E-06
Copper	2.88E+00	3.46E-04	—	—	—	1.37E-04
Lead	6.86E-01	8.24E-05	—	—	—	2.77E-04
Manganese	7.66E-01	9.20E-05	—	—	—	1.04E-04
Mercury	1.39E+00	1.67E-04	—	—	—	6.68E-05
Nickel	3.18E+00	3.82E-04	—	—	—	1.30E-04
Selenium	5.97E-02	7.17E-06	—	—	—	7.35E-05
Zinc	6.57E+00	7.89E-04	—	—	—	7.48E-04
HCl	8.41E+03	1.01E+00	—	—	—	6.22E-03
NH3	9.40E+03	1.13E+00	—	—	—	—
Propylene Oxide	—	—	—	—	—	—
Diesel PM	—	—	—	—	2.62	—
HF	5.78E+02	6.94E-02	—	—	—	—

* PAH represents the total carcinogenic PAHs without naphthalene.

Cumulative HRA Results

Table DR7-3 presents a summary of the predicted cumulative health risk impacts. The predicted cumulative incremental increase in cancer risk at the point of maximum impact (PMI) is approximately 1.9 in a million (70-year derived adjusted cancer value). The PMI is located approximately 160 meters (525 feet) southeast of GWF Hanford. The derived adjusted cancer risk value at the maximally exposed individual resident (MEIR) is predicted to be 0.48 in a million, located approximately 1,200 meters (3,940 feet) southeast of GWF Hanford. The predicted incremental increase in cancer risk for the maximally exposed individual worker (MEIW), located approximately 160 meters southeast of GWF Hanford, is 0.36 in a million. The maximum predicted increase in cancer risk for a sensitive receptor is 0.12 in a million at the Lakeside Elementary School, which is approximately 4,000 meters (2.5 miles) southeast of GWF Hanford. The maximum predicted incremental increase in cancer risks for the MEIR, MEIW and the sensitive receptors are below the significance threshold of 10 in one million. Therefore, the cumulative incremental increase in cancer risk would be less than significant.

The maximum chronic hazard index at the PMI is predicted to be 0.053, located approximately 180 meters (590 feet) from the southeast corner of GWF Hanford. The maximum acute hazard index at the PMI is predicted to be 0.19, located approximately 80 meters (262 feet) from the southwest corner of the Hanford LP boundary. The chronic and acute index values are both below the significance threshold of 1.0. Therefore, cumulative chronic and acute health impacts will be less than significant.

Five compact discs containing the HRA modeling files will be provided to CEC staff. Compact discs of the HRA modeling files will also be provided to others upon request.

TABLE DR7-3
Summary of GWF Hanford Cumulative HRA Results

Risk	Receptor Number	Value	Universal Transverse Mercator (NAD 27)	File Name
70-yr Derived OEHHA Cancer Risk at the PMI	723	2.38 per million	(262425, 4016750)	Rep_Can_70yr_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site.txt
70-yr Derived Adjusted Cancer at the PMI	723	1.89 per million	(262425, 4016750)	Rep_Can_70yr_DerAdj_AllRec_AllSrc_AllCh_ByRec_Site.txt
70-yr Derived Adjusted Cancer Risk at the MEIR	2228	0.48 per million	(263100, 4016000)	Rep_Can_70yr_DerAdj_AllRec_AllSrc_AllCh_ByRec_Site.txt
70-yr Derived Adjusted Cancer Risk Sensitive Receptor	4358	0.12 per million	(264575, 4013567)	Rep_Can_70yr_DerAdj_AllRec_AllSrc_AllCh_ByRec_Site.txt
40-yr Cancer Risk at the MEIW	723	0.36 per million	(262425, 4016750)	Rep_Can_WRK_Avg_AllRec_AllSrc_AllCh_ByRec_Site.txt
Chronic HI at the PMI	675	0.053	(262400, 4016725)	Rep_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site.txt
Max. Resident Chronic HI	2228	0.015	(263100, 4016000)	Rep_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site.txt
Max. Worker Chronic HI	675	0.045	(262400, 4016725)	Rep_Chr_Wrk_PtEst_AllRec_AllSrc_AllCh_ByRec_Site.txt
Max. Chronic HI at Sensitive Receptor	4358	0.0039	(264575, 4013567)	Rep_Chr_Res_DerOEH_AllRec_AllSrc_AllCh_ByRec_Site.txt
Acute HI at the PMI	850	0.19	(262075, 4016825)	Rep_Acu_AllRec_AllSrc_AllCh_ByRec.txt
Max. Resident Acute HI	2484	0.07	(262800, 4017700)	Rep_Acu_AllRec_AllSrc_AllCh_ByRec.txt
Max. Worker Acute HI	850	0.19	(262075, 4016825)	Rep_Acu_AllRec_AllSrc_AllCh_ByRec.txt
Max. Acute HI Sensitive Receptor	4359	0.011	(260046, 4019041)	Rep_Acu_AllRec_AllSrc_AllCh_ByRec.txt

Notes:
HI = Hazard Index, MEIR = maximum exposed individual resident, MEIW = maximally-exposed individual worker, PMI = point of maximum impact

ATTACHMENT DR7-1

Summary of Cumulative HRA TAC Emissions

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Summary of Fluidized Bed Combustor TAC Emissions

Annual Hours of Operation: 8,322

Pollutant	Emissions [a] (lb/hr)	Emissions (lb/yr)
As	3.23E-05	2.69E-01
Be	2.75E-06	2.29E-02
Cd	6.57E-06	5.47E-02
Cu	3.46E-04	2.88E+00
Pb	8.24E-05	6.86E-01
Mn	9.20E-05	7.66E-01
Hg	1.67E-04	1.39E+00
Ni	3.82E-04	3.18E+00
Se	7.17E-06	5.97E-02
Zn	7.89E-04	6.57E+00
HCl	1.01E+00	8.41E+03
Benzene	6.67E-04	5.55E+00
Formaldehyde	6.22E-03	5.18E+01
HF	6.94E-02	5.78E+02
Cr VI	3.66E-05	3.05E-01
PAH w/o [b]	5.00E-06	4.16E-02
Naphthalene	1.11E-04	9.24E-01
NH3	1.13E+00	9.40E+03

Notes:

[a] Hourly emission rate based on the AB2588 Air Toxics Inventory Report; Revised August 1995 (Carnot, 1995)

[b] Carcinogenic PAH's without naphthalene

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Summary of Low Pressure Evaporator (Auxiliary Boiler) TAC Emissions

Annual Hours of Operation: 4,000

Pollutant	Emissions [a] (lb/hr)	Emissions (lb/yr)
Benzene	9.50E-04	3.80E+00
Formaldehyde	2.11E-03	8.44E+00
PAH w/o [b, c]	1.16E-05	4.62E-02
Naphthalene [b, c]	8.00E-04	3.20E+00
Acetaldehyde	1.84E-03	7.36E+00
Acrolein	7.86E-04	3.14E+00
Propylene	1.42E-02	5.68E+01
Toluene	3.07E-04	1.23E+00
Xylene	1.14E-04	4.56E-01

Notes:

[a] Hourly emission rates are based on the source test data summarized in the AB2588 Air Toxics Inventory Report; Revised August 1995 (Carnot, 1995) with the exception of PAH and naphthalene

[b] PAH w/o includes the total carcinogenic PAHs (including Benz(a)anthracene) without naphthalene. PAH emission rates in the AB2588 report were based on source testing at ~25% load. Therefore, the source test data were multiplied by four to estimate emissions at 100% load.

[c] Hourly emission rates are based on the source test data summarized in the Air Emissions at GWF Power Systems Company Facility at Hanford, CA, September 1994.

Summary of the Diesel Emergency Engine TAC Emissions

Hourly Fuel Use [a]:	33.4 Gal/hr	0.0334 1000 Gal/hr
	300 Gal/yr	0.3 1000 Gal/yr

	Emission Factor [b]	Emissions	
Pollutant	**lb/1000 gallons**	**lb/hr**	**lb/yr**
Benzene	0.1863	0.0062	0.0559
Formaldehyde	1.7261	0.0577	0.5178
PAHs - Naphthalene	0.0559	0.0019	0.0168
Naphthalene	0.0197	0.0007	0.0059
Acetaldehyde	0.7833	0.0262	0.2350
Acrolein	0.0339	0.0011	0.0102
1,3 Butadiene	0.2174	0.0073	0.0652
Chlorobenzene	0.0002	0.0000	0.0001
Dioxins	ND	ND	ND
Furans	ND	ND	ND
Propylene	0.467	0.0156	0.1401
Hexane	0.0269	0.0009	0.0081
Toluene	0.1054	0.0035	0.0316
Xylenes	0.0424	0.0014	0.0127
Ethyl Benzene	0.0109	0.0004	0.0033
Hydrogen Chloride	0.1863	0.0062	0.0559
Arsenic	0.0016	0.0001	0.0005
Beryllium	ND	ND	ND
Cadmium	0.0015	0.0001	0.0005
Total Chromium	0.0006	0.0000	0.0002
Hexavalent Chromium	0.0001	0.0000	0.0000
Copper	0.0041	0.0001	0.0012
Lead	0.0083	0.0003	0.0025
Manganese	0.0031	0.0001	0.0009
Mercury	0.002	0.0001	0.0006
Nickel	0.0039	0.0001	0.0012
Selenium	0.0022	0.0001	0.0007
Zinc	0.0224	0.0007	0.0067

Notes:

[a] Fuel use rates based on the AB2588 Air Toxics Inventory Report; Revised August 1995 (Carnot, 1995)

[b] Emission Factors from Ventura County APCD AB-2588 Combustion Emission Factors, dated May 17, 2001

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Summary of the Diesel Emergency Engine Criteria Pollutant Emissions

Pollutant	Emission Factor (lb/MMBtu) [a]	Emissions (lb/hr)	Emissions (lb/yr) [b]
NOx	3.2000	14.6458	146.4577
CO	0.8500	3.8903	38.9028
SOx [c]	0.0017	0.0076	0.0756
VOC	0.0900	0.4119	4.1191
PM10	0.0573	0.2623	2.6225
PM2.5 [d]	0.0479	0.2192	2.1923

Notes:

[a] Emission Factors taken from EPA's AP-42, Fifth Edition, Tables 3.4-1 and 3.4-2.

[b] Assumes the engine operates 10 hours per year.

[c] Assumed diesel fuel has a sulfur content of 0.0015% (15 ppm).

[d] Assumed emission factors for PM < 3 micrometers would represent PM2.5.

Summary of the Diesel Emergency Engine Fuel Consumption Data

Fuel Consumption Calculations

Fuel Consumption (gal/hr) [a]	33.4
Assumed Heating Value (Btu/lb) [b]	19,300
Assumed Density (lb/gal) [b]	7.1
Calculated Fuel Consumption (MMBtu/hr)	4.58

Notes:

[a] Fuel use rates based on the AB2588 Air Toxics Inventory Report; Revised August 1995 (Carnot, 1995)

[b] Values taken from EPA's AP-42, Fifth Edition, Section 3.4.

Air Quality (12–22)

Background: Emission Reduction Credits

In order to evaluate the air quality impacts from this project staff need to confirm the emission reduction credits (ERCs) that were surrendered for the Hanford Energy Park Peaker (HEPP) project.

Data Request

12. Please confirm that the ERCs as listed in the May 5, 2001, Hanford 21-Day Staff Assessment plus May 7, 2001, Errata pages 75 through 81 were surrendered in 2001/2002, or if not please provide a modified ERC list that shows the ERCs that were surrendered along with information on:

    a. the location of reduction(s);
    b. the method of reduction; and,
    c. the date of reduction for each of the ERCs not evaluated in the 2001 Staff Assessment.

Response: The ERC certificates to the San Joaquin Valley Air Pollution Control District (SJVAPCD) for the HEPP consisted of both certificates that were listed in the original Staff Assessment and substitute certificates. Table DR12-1 lists the final certificates that were surrendered for the HEPP.

TABLE DR12-1
ERC Certificates Surrendered for the HEPP

Certificate #	2001 Staff Assessment	Location of Reduction	Method of Reduction	Date of Reduction
C-278-2	Yes	29400 Whitesbridge Rd. Mendota	Project retrofit – NOx	4/21/1999
S-1615-2	No	Elk Hills Sec.: 35 Township: 30S Range: 23E	Project retrofit – NOx	9/13/2001
S-1567-1	No	20807 Stockdale Hwy. Bakersfield	Shutdown – VOC	5/10/2001
S-1594-1	No	20807 Stockdale Hwy. Bakersfield	Shutdown – VOC	8/15/2001
C-414-5	No	525 W. Third St. Hanford	Shutdown – SOx (PM10)	5/7/2001
C-415-5	No	525 W. Third St. Hanford	Shutdown – SOx (PM10)	5/7/2001
C-445-5	No	525 W. Third St. Hanford	Shutdown – SOx	11/7/2001
N-101-3	No	18800 Spreckels Blvd. Manteca	Retrofit of Boiler with Low NOx Burners – CO	4/5/1999

Background: Construction Emissions Calculation – Vehicle Class

The onsite and offsite emissions calculations for on-road vehicles appear to have used incorrect vehicle classes and the offsite emissions do not include paved road dust calculations. Staff needs the applicant to correct any emission calculation errors.

Data Request

13. a. Please verify the classification of offsite delivery trucks, onsite water truck and concrete pump truck as a Heavy Heavy Duty Truck (HHDT) vehicle class, and

    b. Update the emission calculations using the correct vehicle emission factors where applicable.

Response: Specific vehicle classifications for trucks used during construction are unknown at this time. Therefore, vehicle classifications for offsite delivery trucks, onsite water trucks, and concrete pump truck were assumed to range from Light Heavy Duty Trucks (LHDT) to HHDT. These classifications include vehicle weights ranging from 8,500 pounds to 60,000 pounds.

Emission factors used to estimate the offsite delivery trucks, onsite water truck, and concrete pump truck emissions in the Petition for License Amendment (October 2008) were based on the EMFAC2007 emission factors for medium duty trucks (MDT). Since specific vehicle classifications for trucks used during construction are unknown at this time, and emission factors for HHDT are higher than MDT, a revised calculation has been prepared using HHDT EMFAC2007 emission factors. The revised calculation results are presented in Table DR13-1. Based on a comparison of the Petition for License Amendment emissions to the revised annual emissions, the use of HHDT emission factors would result in a minimal increase in NOx, CO, VOC, SOx, PM_{10}, and $PM_{2.5}$ emissions as compared to the use of MDT emission factors (Note: offsite PM_{10} and $PM_{2.5}$ emissions also include paved road dust as provided in response to DR14 below). The detailed emissions calculations are included in Attachment DR13-1.

Data Request

14. Please include an estimate of the paved road dust PM10 and PM2.5 emissions in the offsite emission totals.

Response: Emission calculations for offsite delivery trucks and construction worker commutes were revised to include paved road dust emissions. Paved road dust emission factors were estimated using AP-42, Section 13.2.1. Paved road dust PM_{10} and $PM_{2.5}$ emissions are included in Table DR13-1. Detailed emission calculations are included in Attachment DR13-1.

TABLE DR13-1
Range of Annual Construction Emission Estimates for GWF Hanford [a]

Construction Emission Source	Emissions (tons/yr)					
	NO_x	CO	VOC [b]	SO_x	PM_{10}	$PM_{2.5}$
Petition for License Amendment Table 3.1-2 - Onsite Emissions [c, d]	11.1	6.2	1.9	0.012	2.9	0.9
Petition for License Amendment Table 3.1-2 - Offsite Vehicle Emissions	0.10	0.45	0.016	0.00067	0.0055	0.0026
Maximum Total (tons/yr)	**11.2**	**6.7**	**1.9**	**0.012**	**2.9**	**0.9**
Revised HHDT Onsite Emissions [c, d]	11.3	6.3	1.9	0.012	2.9	0.9
Revised HDDT Offsite Vehicle Emissions [e]	1.5	0.55	0.077	0.0018	0.76	0.0996
Revised Maximum Total (tons/yr)	**12.8**	**6.9**	**2.0**	**0.014**	**3.7**	**1.0**

[a] Emission factors used to estimate offsite delivery trucks, onsite water truck, and concrete pump truck emissions in the Petition for License Amendment (October 2008) were based on the EMFAC2007 emission factors for medium duty trucks (MDT). A revised calculation was prepared using the EMFAC2007 HHDT emission factors to evaluate the potential range of emissions using the MDT or HHDT emission factors for GWF Hanford.

[b] Emission factors in URBEMIS and EMFAC are listed as reactive organic gases (ROG). For this analysis, it is assumed ROGs are equivalent to VOCs.

[c] Fugitive dust and construction equipment exhaust emissions were estimated using URBEMIS2007 v. 9.2.4 emission factors.

[d] Onroad exhaust emissions were estimated using EMFAC2007 v. 2.3 emission factors. Onroad emissions include emissions from re-entrained road dust. Re-entrained road dust emissions were estimated using AP-42, Ch. 13.2.1 (EPA, 2006).

[e] Offsite vehicle emissions include emissions from paved road dust. Paved road dust emissions were estimated using AP-42, Ch. 13.2.1 (EPA, 2006).

Background: Construction Greenhouse Gas Emissions

The Amendment Petition does not include an estimate for construction related greenhouse gas emissions (GHG). Staff needs this estimate to complete the GHG analysis for the project.

Data Request

15. Please provide calculations for the project construction GHG emissions in CO2-equivalent tons for the entire construction period, and include estimates of total fuel use by type of fuel.

Response: GHG emissions from construction activities are presented in Table DR15-1. Construction equipment emissions were estimated using emission factors from the California Climate Action Registry (CCAR) General Reporting Protocol (GRP) (version 3.0) and fuel consumption rates from the OFFROAD model. Vehicle emissions (trucks and worker commutes) were estimated using emission factors from the CCAR GRP (version 3.0) and United States Environmental Protection Agency (EPA) fuel economy values. Detailed calculations are included in Attachment DR15-1.

Estimated total fuel use during construction would be 195,082 gallons of diesel and 4,297 gallons of gasoline. Fuel use was estimated assuming all construction equipment,

onsite trucks, and offsite delivery trucks would be diesel fueled and all the construction worker vehicles would be gasoline fueled. Construction equipment fuel consumption rates were obtained from the OFFROAD model. Vehicle fuel use was estimated using the EPA fuel economy values.

TABLE DR15-1
GHG Emissions Estimates for the GWF Hanford Construction Activities

	GHG Emissions (metric tons)			
	CO_2	CH_4	N_2O	CO_2 Equivalent
Total (metric tons)	2,025	0.2	0.03	2,040

Background: Operating Emissions – Modeling Assumptions

The derivation of the modeled emission values presented in Table C3-5 is not clear and there appear to be errors in the values. Staff needs additional information to assess the applicant's operations modeling analysis.

Data Request

16. a. Please provide the specific operating assumptions, in particular the number of startups and shutdowns assumed.

    b. Provide the explicit calculations used to derive the hourly and annual emissions values provided in Table C3-5.

Response: Dispersion modeling emission rates presented in the Petition for License Amendment Table C3-5 were based on the most conservative emission rates for each averaging period, which may or may not have included a startup or shutdown. For example, hourly SO_2 and $PM_{10/2.5}$ emission rates would be greater during steady-state operations than during startup or shutdown. Therefore, the SO_2 and $PM_{10/2.5}$ emission rates represent the maximum hourly steady state emissions provided by the turbine vendor. The maximum 1-hour emission rate was also used to conservatively estimate the 3-, 8-, and 24-hour concentrations regardless of whether or not the maximum 1-hour emission rate would be maintained for 3, 8, or 24 hours. For example, the maximum 1-hour emission rate for CO was assumed to occur for eight consecutive hours even though the facility is not expected to include a start-up for eight consecutive hours.

Table DR16-1 presents operating assumptions, including startup and shutdown assumptions, for each pollutant and averaging period.

Table DR16-2 provides a summary of the calculations used to estimate the hourly and annual emission rates presented in the Petition for License Amendment Table C3-5.

TABLE DR16-1
Assumptions Used to Estimate the Maximum Modeled Emission Rates, GWF Hanford

	Simple Cycle	Combined Cycle
1-hour NOx emission rate	Based on one simple cycle startup event (i.e., 10 minutes) plus 50 minutes of steady state operation	Based on one simple cycle startup (i.e., 10 minutes) plus 50 minutes of a 1-hour combined-cycle startup event
1-hour and 8-hour CO emission rate	Based on one simple cycle startup event (i.e., 10 minutes) plus 50 minutes of steady state operation	Based on one simple cycle startup (i.e., 10 minutes) plus 50 minutes of a 1-hour combined-cycle startup event
1-, 3-, and 24-hour SO_2 emission rate	Based on 1 hour of normal operation (i.e., the startup and shutdown emission rates were less than the steady state operating condition)	Based on 1 hour of normal operation (i.e., the startup and shutdown emission rates were less than the steady state operating condition)
24-hour $PM_{10/2.5}$ emission rate	Based on 1 hour of normal operation (i.e., the startup and shutdown emission rates were less than the steady state operating condition)	Based on 1 hour of normal operation (i.e., the startup and shutdown emission rates were less than the steady state operating condition)
Annual NOx, $PM_{10/2.5}$, and SO_2 emission rate	Based on 325 simple- and combined-cycle startups, 325 simple- and combined-cycle shutdowns, and 8,000 hours of steady-state operation	Based on 325 simple- and combined-cycle startups, 325 simple- and combined-cycle shutdowns, and 8,000 hours of steady-state operation

Note: The elapsed time for a simple-cycle and/or combined-cycle startup event is 10 minutes and 60 minutes, respectively.

TABLE DR16-2
Example Calculations Used to Estimate the Maximum Modeled Emission Rates, GWF Hanford

	Simple Cycle	Combined Cycle
1-hour NOx emission rate	(7.7 lbs NOx per event) + (50 min/60 min * 6.1 lb/hr NOx simple-cycle steady state ops) = **12.78 lb/hr**	(7.7 lbs NOx per simple-cycle event) + (50 min/60 min * 6.1 lb/ NOx combined-cycle startup event) = **12.78 lb/hr**
1-hour and 8-hour CO emission rate	(7.7 lbs CO per event) + (50 min/60 min * 3.1 lb/hr NOx simple-cycle steady state ops) = **10.28 lb/hr**	(7.7 lbs CO per simple-cycle event) + (50 min/60 min * 1.8 lb/ CO combined-cycle startup event) = **9.20 lb/hr**
1-, 3-, and 24-hour SO_2 emission rate	NA	NA
24-hour $PM_{10/2.5}$ emission rate	NA	NA
Annual NOx, $PM_{10/2.5}$, and SO_2 emission rate	Sample Calculation for NOx: 2,503 lbs (simple-cycle startup) + 2502 lbs (simple-cycle shutdown) + 8,235 lbs (simple-cycle steady state) + 1,525 lbs (combined-cycle hot startup) + 305 lbs (combined-cycle warm start) + 153 lbs (combined-cycle cold start) + 676 lbs (combined-cycle shutdown) + 22, 610 lbs (combined-cycle steady state) = 38, 508 lbs/year divided by 8,760 hours = **4.396 lbs /hr**	Sample Calculation for NOx: 2,503 lbs (simple-cycle startup) + 2502 lbs (simple-cycle shutdown) + 8,235 lbs (simple-cycle steady state) + 1,525 lbs (combined-cycle hot startup) + 305 lbs (combined-cycle warm start) + 153 lbs (combined-cycle cold start) + 676 lbs (combined-cycle shutdown) + 22, 610 lbs (combined-cycle steady state) = 38, 508 lbs/year divided by 8,760 hours = **4.396 lbs /hr**

Notes:
The elapsed time for a simple cycle and/or combined cycle startup event is 10 minutes and 60 minutes, respectively.
NA = emission rates were based on the maximum one hour turbine emission rate.

Data Request

17. a. Please identify why the short-term NOx emissions values for simple-cycle and combined-cycle operation shown in Table C3-5 are identical even though the normal operating and startup/shutdown emissions are lower for combined cycle operation.

    b. Identify whether similar issues occur for other pollutants and averaging times.

Response: Short-term NOx emission rates for simple-cycle and combined-cycle operation shown in the Petition for License Amendment Table C3-5 are identical because of the similarity in the values of two different variables used to calculate the emission rates. Specifically, the inclusion of 50 minutes of the steady state NOx emission rate at 6.1 lbs/hr in the worst case 1-hour simple cycle NOx emission rate matches the inclusion of 50 minutes of the 6.1 lb/60 minute combined cycle startup event emission rate for the worst case 1-hour combined cycle NOx emission rate.

It should also be noted that the simple-cycle turbine performance guarantees for NOx were revised after the dispersion modeling had been conducted. Therefore, the results of the modeling presented in the License Amendment conservatively estimate the predicted concentrations based on a simple-cycle NOx BACT level of 3.6 ppm (or 6.1 lb/hr/turbine) compared to the revised performance guarantee of 2.5 ppm (or 3.4 lb/hr/turbine).

The similarity is unique to 1-hour NOx because NOx is the only pollutant where the resulting value of 50 minutes of simple-cycle steady-state operation matches the value of 50 minutes of combined-cycle startup event data. For example, the modeled CO emission rates in the Petition for License Amendment Table C3-5 are different because the simple-cycle steady-state emission rate of 3.1 lbs/hr does not match the combined-cycle startup event emission rate of 1.8 lbs/event (See Table DR16-2).

Background: Cumulative Impacts

The Petition for License Amendment mentions that the Hanford Community Development Department and the Kings County Planning Department was contacted about proposed or foreseeable developments in the site area. However, the SJVAPCD should also have been contacted to determine if any new stationary sources were recently built or are proposed to be built within six miles of the site. Additionally, staff believes that the existing petroleum coke fired generating station at the site, due to its localized impacts, should be included in a cumulative modeling analysis.

Additionally, staff would like to note that the applicant's cumulative impacts analysis discussion (Section 3.1.2.3.4) errs when it says that there are no residential uses and schools within one mile of the project site. There are a limited number of residences within a mile of the site with the closest residence being approximately one-half mile east of the site.

Data Request

18. Please provide a list of recently built or proposed stationary source projects, within a six-mile radius of the project site, from the San Joaquin Air Pollution Control District for the project area.

Response: A list of stationary emission sources within a six-mile radius of GWF Hanford is provided in Attachment DR18-1A.

GWF Energy contacted the SJVAPCD to identify potential cumulative air quality impact sources (both stationary sources and Environmental Impact Report sources). The SJVAPCD list of stationary sources, dated January 15, 2009, and provided in Attachment DR18-1A, includes 67 facilities that have requested or have received approximately 125 Authority to Construct permits within 6 miles of GWF Hanford.

The list was reviewed and it was determined that many of the sources would be excluded from a cumulative impact modeling analysis because they are either: VOC sources (there are no VOC ambient air quality standards), equipment shutdowns (emission decreases), or other permitting actions resulting in no net increase in air emissions (e.g., rule compliance, permit renewals, or replacement/upgrading of existing systems).

The list of proposed exclusions was submitted to SJVAPCD for review. SJVAPCD confirmed on January 26, 2009 that the list of excluded sources was appropriate and that the remaining sources listed in Attachment DR18-1B either had no emission increase or the annual emission increases would be less than 5 tons per year of NOx, SO_x, CO, PM_{10} and $PM_{2.5}$, with the exception of CO from a 21 MMBtu natural gas fired boiler at the Central Valley Meat Company. The annual increase in CO emissions from the Central Valley Meat Company would be approximately 7 tons per year. Although the increase in CO emissions is greater than 5 tons per year, the maximum predicted impact from GWF Hanford plus the background CO concentration is less than 25 percent and 40 percent of the most stringent 1-hour and 8-hour standards, respectively. Therefore, cumulative impacts from the refined list of sources in Table DR18-1 are expected to be less than significant and a cumulative dispersion modeling analysis would not be required.

TABLE DR18-1
GWF Hanford – SJVAPCD Sources Within a 6-Mile Radius

Facility ID	Facility Name	Date Received	Permit Type	Description	Information Received from SJVAPCD
244	Cargill inc/Nutrena Feed	4/21/2006	ATC	increase throughput, op unit 2 and op unit 13	Increase ≤ 0.2 tons-PM10/year
244	Cargill inc/Nutrena Feed	1/3/2008	ATC	modify premix room op unit 14	No emissions Increase
249	Central Valley Cabinet Mfg.	4/21/2006	ATC	evaluate new dust collector	Increase ≤ 0.5 tons-PM10/year
366	Del Monte Corporation	8/8/2006	ATC	modify unit 2 with TREU	Increase < 0.7 tons/year for: NOX, CO, PM10 and SOX
611	Pyramid Systems, Inc	4/4/2007	ATC	replace baghouse (2209 cfm to 28000 cfm)	Increase ≤ 3.9 tons-PM10/year
780	Mineral king Minerals	2/25/2008	ATC	pellet milling fertilizer production	Increase ≤ 0.4 tons-PM10/year
1319	Integrated Grain and Milling	10/17/2007	ATC	increase process rate on units 2 and 7	Increase ≤ 2.5 tons-PM10/year
1871	City of Hanford, Wastewater	7/10/2006	ATC	remove permit conditions from waste gas flare and two boilers	No emissions Increase
2233	Verdegaal Bros Inc	10/1/2007	ATC	installation of sulfur pellet receiving and load out operation	Increase ≤ 0.4 tons-PM10/year
2233	Verdegaal Bros Inc	5/22/2006	ATC	install dry fertilizer bulk blender	Increase ≤ 0.6 tons-PM10/year
2282	Central Valley Meat Co	8/20/2007	ATC	install new 21.0 MMBtu/hr boiler	Increase < 1.0 tons/year for: NOX, PM10 and SOX; Increase ≤ 6.8 tons/year of CO
2610	International Paper	9/30/2008	ATC	modification of units 1-2, 2-2, and 11-2 to increase waste paper throughput	Information received by District indicates facility has been shutdown, project to be cancelled.
2846	City of Hanford	2/9/2007	ATC	364 BHP diesel ICE	Increase < 0.1 tons/year for: NOX, CO, PM10 and SOX
2846	City of Hanford	4/20/2007	ATC	ICE emergency standby unit	Increase < 0.1 tons/year for: NOX, CO, PM10 and SOX
3205	Penny Newman Milling	6/6/2007	ATC	increase receiving operations	Increase ≤ 0.04 tons/year of PM10 emissions
4193	Carl's JR #227	7/10/2006	ATC	increase charbroiler throughput	Increase ≤ 0.2 tons-PM10/year

TABLE DR18-1
GWF Hanford – SJVAPCD Sources Within a 6-Mile Radius

Facility ID	Facility Name	Date Received	Permit Type	Description	Information Received from SJVAPCD
4312	Kent Avenue Dairy	1/9/2007	ATC	application for diesel engine	Increase < 0.2 tons/year for: NOX, CO, PM10 and SOX
6047	Turner Ranch Dairy	6/28/2007	In House PTO	in-house PTO ag ICE	No emissions Increase
6047	Turner Ranch Dairy	6/19/2008	In House PTO	emergency DICE	No emissions Increase
6817	Danell Bros. Dairy	12/18/2008	In House PTO	application for 3 diesel pump engines	No emissions Increase
6911	Manuel Monteiro	11/17/2006	ATC	755 hp Cummins engine	Increase < 0.4 tons/year for: NOX, CO, PM10 and SOX
7057	Valley View Farms	2/15/2007	In House PTO	application for engines	No emissions Increase
7126	Yokum Dairy	3/20/2007	In House PTO	300 hp Cummins diesel engine	No emissions Increase

Data Request

19. Please complete a cumulative modeling analysis that includes the existing petroleum coke fired generating facility, including all existing emission sources such as the cooling tower, and any other sources with more than 5 tons/year of any modeled pollutant discovered through the SJVAPCD stationary source information request above.

Response: The cumulative air quality impact analysis was performed using the model settings and receptor grid outlined in the Petition for License Amendment Section 3.1 (Air Quality.) Because the SJVAPCD cumulative sources within 6 miles of GWF Hanford were less than 5 tons/year, the cumulative air quality impact analysis only included the Hanford LP facility. The GWF Hanford fence line for the cumulative impact assessment was also modified to include the Hanford LP facility.

Modeling Parameters

The emission and exhaust parameters used to estimate cumulative impacts are presented in Tables DR19-1 and DR19-2. The Hanford LP sources include the fluidized bed combustor, the low-pressure evaporator (auxiliary boiler), and the emergency diesel generator. The auxiliary boiler emissions were evaluated during the 1994 fluidized bed combustor stack test (Carnot, 1994) and are also exhausted through the same stack as the fluidized bed combustor. Therefore, the auxiliary boiler emissions were included in the fluidized bed combustor source inputs. Because the Hanford LP cooling tower is not expected to be a significant source of particulate emissions and the particulate emissions from GWF Hanford will be fully offset, the Hanford LP cooling tower was omitted from the cumulative impacts analysis. The 1-hour modeling approach also assumes the GWF Hanford fire pump would not be tested simultaneously with the Hanford LP emergency generator.

The criteria pollutant emission rates and exhaust parameters for the fluidized bed combustor and auxiliary boiler were based on source testing conducted in July and September 1994 (Carnot, 1994). The stack parameters for the fluidized bed combustor were also based on the 1994 source testing report (Carnot, 1994). The criteria pollutant emission rates for the diesel emergency generator were based on the hourly and annual fuel use reported in the AB2588 report (Carnot, 1995) and emission factors published in Tables 3.4-1 and 3.4-2 of the EPA's AP-42 document (EPA, 1996). Detailed calculations for the diesel emergency generator are presented in Attachment DR19-1.

TABLE DR19-1
Summary of Modeled Source Parameters (Point Sources)

Source Description	Easting (m)	Northing (m)	Base Ele. (m)	Stack Height (m)	Temp. (K)	Exit Velocity (m/s)	Stack Diameter (m)
Fluidized Bed Combustor *	262187	4016994	71	24.4	444.3	27.43	1.51
LP Diesel Engine	262172	4016943	71	3.66	745.9	74.54	0.15

* The natural gas fired low pressure evaporator (auxiliary boiler) is vented to the same stack as the fluidized bed combustor.

TABLE DR19-2
Summary of Modeled Emission Rates (Point Sources)

	Emission Rates (g/s)											
Source Description	1-hr NOx	1-hr CO	1-hr SO_2	3-hr SO_2	8-hr CO	24-hr PM_{10}	24-hr $PM_{2.5}$	24-hr SO_2	Annual NOx	Annual PM_{10}	Annual $PM_{2.5}$	Annual SO_2
Fluidized Bed Combustor *	1.26	1.26	1.25	1.25	1.26	0.0189	0.0189	1.12	1.08	0.0180	0.0180	1.06
LP Diesel Engine	1.85	0.490	9.52E-04	9.52E-04	0.490	0.0138	0.0115	3.97E-04	2.11E-03	3.77E-05	3.15E-05	1.09E-06

* The fluidized bed combustor includes the natural gas fired low pressure evaporator (auxiliary boiler) emissions.

Cumulative Impact Assessment Results

The results of the cumulative impact assessment are presented in Table DR19-3. The maximum predicted cumulative impacts represent the impact within 500-meters (1,640 feet) of the maximum receptor location identified in Section 3.1 of the Petition for License Amendment. Because Hanford LP facility has been in operation from 2005 - 2007, the Hanford LP impacts are also included in the background data. Therefore, the total cumulative impact conservatively combines the maximum predicted GWF Hanford cumulative impacts, the maximum Hanford LP contribution within 500 meters of that location, and the background concentration measured at the nearest ambient air quality monitoring station.

TABLE DR19-3
Cumulative Impacts Analysis—Maximum Modeled Impacts Compared to the Ambient Air Quality Standards

Pollutant	Averaging Time	GWF Hanford Impact ($\mu g/m^3$) [a]	Predicted Cumulative Impact ($\mu g/m^3$) [b]	Background [c] ($\mu g/m^3$)	Total Cumulative Impact [d] ($\mu g/m^3$)	State Standard ($\mu g/m^3$)	Federal Standard ($\mu g/m^3$)
NO_2	1-hour	192	197	137	334	338	—
	annual	0.82	2.0	22.6	24.6	—	100
SO_2	1-hour	0.58	17	340	357	655	—
	3-hour	0.47	10	196	206	—	1,300
	24-hour	0.24	4.9	81	86	105	365
	annual	0.057	1.3	18.3	19.6	—	80
CO	1-hour	75	79	5,039	5,118	23,000	40,000
	8-hour	42	137	3,791	3,928	10,000	10,000
PM_{10}	24-hour	3.5	3.7	150	154	50	150
	annual	0.38	0.40	46	46	20	—
$PM_{2.5}$	24-hour	3.5	3.7	92.5	96.2	—	35
	annual	0.38	0.40	17.5	17.9	12	15

[a] Maximum predicted concentrations for GWF Hanford project as reported in Table 3.1-13 of the Petition for License Amendment.

[b] The predicted concentration represents the highest concentration predicted for the cumulative sources at the location of the maximum GWF Hanford impact. This concentration includes GWF Hanford sources.

[c] Background concentrations as reported in Table 3.1-13 of the Petition for License Amendment.

[d] Total cumulative impact includes the predicted cumulative impact plus the background concentration.

Based on the cumulative impact modeling, the total 1-hour and annual NO_2 cumulative impacts would remain below the respective ambient air quality standards. Therefore, the cumulative NO_2 impacts would be less than significant. The modeled cumulative impacts of SO_2 and CO are below the state and federal standards. Therefore, the SO_2 and CO cumulative impacts would be less than significant. The maximum 24-hour and annual PM_{10} and $PM_{2.5}$ cumulative impact concentrations would increase by less than one percent of their respective ambient air quality standards. However, because the background ambient concentrations of PM_{10} and $PM_{2.5}$ are above the respective standards, any increase in PM_{10} or $PM_{2.5}$ concentrations would result in a significant impact without mitigation. Because GWF Hanford is providing full $PM_{2.5}$ and PM_{10} mitigation consistent with SJVAPCD's New Source Review Rule, significant cumulative PM_{10} or $PM_{2.5}$ impacts are not expected.

Five compact diskettes containing the air dispersion modeling files will be provided to CEC staff. Compact diskettes of the air dispersion modeling files will also be provided to others upon request.

Background: Air Quality Permit/Determination of Compliance

A Determination of Compliance (DOC) analysis from the SJVAPCD will be needed for staff's analysis. Staff will need to coordinate with the applicant and District to keep apprised of any air quality issues determined by the District during their permit review.

Data Request

20. Please provide copies of any official submittals and correspondence to or from the District within 5 days of their submittal to or their receipt from the District.

Response: A copy of the SJVAPCD completeness determination is provided in Attachment DR20-1. In the future, GWF will provide copies of formal correspondence with the SJVAPCD to the CEC within 5 days of receipt.

Background: Ammonia Slip Concentration

Staff is unclear on what the applicant is proposing for an ammonia slip concentration limit during simple cycle operation versus what they are proposing during combined cycle operation. A review of this project's amendment request versus the similar Henrietta project amendment request shows different assumptions.

Data Request

21. Please provide the proposed ammonia slip concentration limit for simple cycle operation, and the corresponding ammonia mass emission rate in lbs/hour.

Response: The ammonia slip concentration and mass emission rate expected for the simple cycle operation is 10 ppm and 6.2 pounds per hour.

Data Request

22. Please provide the proposed ammonia slip concentration limit for combined cycle operation, and the corresponding ammonia mass emission rate in lbs/hour.

Response: The proposed ammonia slip concentration and mass emission rate for combined-cycle operation is 5 ppm and 3.1 pounds per hour, respectively.

References

Carnot. 1994. Air Emissions Tests at GWF Power Systems Company Facility at Hanford, California, July 25-July 30, and September 8, 1994. Volume 1. Prepared for GWF Systems. September.

Carnot. 1995. AB2588 1992 Air Toxics Inventory Report (Revised). Prepared for GWF Power Systems Company, Inc. August.

U.S. Environmental Protection Agency (EPA). 1996. Compilation of Air Pollutant Emission Factors, AP-42. Fifth Edition. Volume 1. October.

U.S. Environmental Protection Agency (EPA). 2006. Compilation of Air Pollutant Emission Factors, AP-42. Fifth Edition. Volume 1. Chapter 13.2.1. November.

Ventura County Air Pollution Control District (VCAPCD). 2001. AB2588 Combustion Emission Factors. May 17.

ATTACHMENT DR13-1

Detailed Emission Calculations

Table C1.1g: Onsite Power Plant Construction Motor Vehicle CO Emissions

Vehicle Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Flatbed Truck	0.048	0.048	0.095	0.095	0.095	0.095	0.143	0.143	0.143	0.143	0.143	0.143	0.095	0.048	0.048
Onsite Fuel/Lube Truck	0.095	0.095	0.095	0.095	0.095	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.143	0.095	0
Onsite Water Truck	0.476	0.476	0.476	0.476	0.476	0.476	0.476	0.476	0.476	0.476	0.476	0.476	0.476	0.476	0
Onsite Concrete Pump Truck	0	0.095	0.143	0.143	0.095	0.048	0.048	0	0	0	0	0	0	0	0
Total (lbs/day)	**0.62**	**0.71**	**0.81**	**0.81**	**0.76**	**0.76**	**0.81**	**0.76**	**0.76**	**0.76**	**0.76**	**0.76**	**0.71**	**0.62**	**0.333**
Onsite Flatbed Truck	1.24	1.24	2.47	2.47	2.47	2.47	3.71	3.71	3.71	3.71	3.71	3.71	2.47	1.24	1.24
Onsite Fuel/Lube Truck	2.47	2.47	2.47	2.47	2.47	3.71	3.71	3.71	3.71	3.71	3.71	3.71	3.71	2.47	1
Onsite Water Truck	12.37	12.37	12.37	12.37	12.37	12.37	12.37	12.37	12.37	12.37	12.37	12.37	12.37	12.37	6
Onsite Concrete Pump Truck	0	2.47	3.71	3.71	2.47	1.24	1.24	0	0	0	0	0	0	0	0
Total (lbs/month)	**16.08**	**18.55**	**21.03**	**21.03**	**19.79**	**19.79**	**21.03**	**19.79**	**19.79**	**19.79**	**19.79**	**19.79**	**18.55**	**16.08**	**8.66**

Table C1.1h: Onsite Power Plant Construction Motor Vehicle VOC Emissions

Vehicle Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Flatbed Truck	0.0242	0.0242	0.0484	0.0484	0.0484	0.0484	0.0726	0.0726	0.0726	0.0726	0.0726	0.0726	0.0484	0.0242	0.0242
Onsite Fuel/Lube Truck	0.0484	0.0484	0.0484	0.0484	0.0484	0.0726	0.0726	0.0726	0.0726	0.0726	0.0726	0.0726	0.0726	0.0484	0
Onsite Water Truck	0.2418	0.2418	0.2418	0.2418	0.2418	0.2418	0.2418	0.2418	0.2418	0.2418	0.2418	0.2418	0.2418	0.2418	0
Onsite Concrete Pump Truck	0	0.0484	0.0726	0.0726	0.0484	0.0242	0.0242	0	0	0	0	0	0	0	0
Total (lbs/day)	**0**	**0.363**	**0.411**	**0.411**	**0.387**	**0.387**	**0.411**	**0.387**	**0.387**	**0.387**	**0.387**	**0.387**	**0.363**	**0.314**	**0.1693**
Onsite Flatbed Truck	0.629	0.629	1.258	1.258	1.258	1.258	1.886	1.886	1.886	1.886	1.886	1.886	1.258	0.629	0.629
Onsite Fuel/Lube Truck	1.258	1.258	1.258	1.258	1.258	1.886	1.886	1.886	1.886	1.886	1.886	1.886	1.886	1.258	1
Onsite Water Truck	6.288	6.288	6.288	6.288	6.288	6.288	6.288	6.288	6.288	6.288	6.288	6.288	6.288	6.288	3
Onsite Concrete Pump Truck	0	1.258	1.886	1.886	1.258	0.629	0.629	0	0	0	0	0	0	0	0
Total (lbs/month)	**8.17**	**9.43**	**10.69**	**10.69**	**10.06**	**10.06**	**10.69**	**10.06**	**10.06**	**10.06**	**10.06**	**10.06**	**9.43**	**8.17**	**4.402**

Table C1.1i: Onsite Power Plant Construction Motor Vehicle SOx Emissions

Vehicle Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Flatbed Truck	0.000077	0.000077	0.000154	0.000154	0.000154	0.000154	0.000231	0.000231	0.000231	0.000231	0.000231	0.000231	0.000154	0.000077	0.000077
Onsite Fuel/Lube Truck	0.000154	0.000154	0.000154	0.000154	0.000154	0.000231	0.000231	0.000231	0.000231	0.000231	0.000231	0.000231	0.000231	0.000154	0
Onsite Water Truck	0.000772	0.000772	0.000772	0.000772	0.000772	0.000772	0.000772	0.000772	0.000772	0.000772	0.000772	0.000772	0.000772	0.000772	0
Onsite Concrete Pump Truck	0	0.000154	0.000231	0.000231	0.000154	0.000077	0.000077	0	0	0	0	0	0	0	0
Total (lbs/day)	**0.00100**	**0.00116**	**0.00131**	**0.00131**	**0.00123**	**0.00123**	**0.00131**	**0.00123**	**0.00123**	**0.00123**	**0.00123**	**0.00123**	**0.00116**	**0.00100**	**0.000540**
Onsite Flatbed Truck	0.00201	0.00201	0.00401	0.00401	0.00401	0.00401	0.00602	0.00602	0.00602	0.00602	0.00602	0.00602	0.00401	0.00201	0.00201
Onsite Fuel/Lube Truck	0.00401	0.00401	0.00401	0.00401	0.00401	0.00602	0.00602	0.00602	0.00602	0.00602	0.00602	0.00602	0.00602	0.00401	0
Onsite Water Truck	0.02006	0.02006	0.02006	0.02006	0.02006	0.02006	0.02006	0.02006	0.02006	0.02006	0.02006	0.02006	0.02006	0.02006	0
Onsite Concrete Pump Truck	0	0.00401	0.00602	0.00602	0.00401	0.00201	0.00201	0	0	0	0	0	0	0	0
Total (lbs/month)	**0.0261**	**0.0301**	**0.0341**	**0.0341**	**0.0321**	**0.0321**	**0.0341**	**0.0321**	**0.0321**	**0.0321**	**0.0321**	**0.0321**	**0.0301**	**0.0261**	**0.01404**

Table C1.1j: Onsite Power Plant Construction Motor Vehicle NOx Emissions

Vehicle Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Flatbed Truck	0.0814	0.0814	0.1628	0.1628	0.1628	0.1628	0.2442	0.2442	0.2442	0.2442	0.2442	0.2442	0.1628	0.0814	0.0814
Onsite Fuel/Lube Truck	0.1628	0.1628	0.1628	0.1628	0.1628	0.2442	0.2442	0.2442	0.2442	0.2442	0.2442	0.2442	0.2442	0.1628	0
Onsite Water Truck	0.8140	0.8140	0.8140	0.8140	0.8140	0.8140	0.8140	0.8140	0.8140	0.8140	0.8140	0.8140	0.8140	0.8140	0
Onsite Concrete Pump Truck	0	0.1628	0.2442	0.2442	0.1628	0.0814	0.0814	0	0	0	0	0	0	0	0
Total (lbs/day)	**1.058**	**1.221**	**1.384**	**1.384**	**1.302**	**1.302**	**1.384**	**1.302**	**1.302**	**1.302**	**1.302**	**1.302**	**1.221**	**1.058**	**0.5698**
Onsite Flatbed Truck	2.116	2.116	4.233	4.233	4.233	4.233	6.349	6.349	6.349	6.349	6.349	6.349	4.233	2.116	2.116
Onsite Fuel/Lube Truck	4.233	4.233	4.233	4.233	4.233	6.349	6.349	6.349	6.349	6.349	6.349	6.349	6.349	4.233	2
Onsite Water Truck	21.164	21.164	21.164	21.164	21.164	21.164	21.164	21.164	21.164	21.164	21.164	21.164	21.164	21.164	11
Onsite Concrete Pump Truck	0	4.233	6.349	6.349	4.233	2.116	2.116	0	0	0	0	0	0	0	0
Total (lbs/month)	**27.51**	**31.75**	**35.98**	**35.98**	**33.86**	**33.86**	**35.98**	**33.86**	**33.86**	**33.86**	**33.86**	**33.86**	**31.75**	**27.51**	**14.815**

Table C1.1k: Onsite Power Plant Construction Motor Vehicle PM_{10} Emissions

Vehicle Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Flatbed Truck	0.00558	0.00558	0.01117	0.01117	0.01117	0.01117	0.01675	0.01675	0.01675	0.01675	0.01675	0.01675	0.01117	0.00558	0.00558
Onsite Fuel/Lube Truck	0.01117	0.01117	0.01117	0.01117	0.01117	0.01675	0.01675	0.01675	0.01675	0.01675	0.01675	0.01675	0.01675	0.01117	0
Onsite Water Truck	0.05584	0.05584	0.05584	0.05584	0.05584	0.05584	0.05584	0.05584	0.05584	0.05584	0.05584	0.05584	0.05584	0.05584	0
Onsite Concrete Pump Truck	0	0.01117	0.01675	0.01675	0.01117	0.00558	0.00558	0	0	0	0	0	0	0	0
Total (lbs/day)	**0.0726**	**0.0838**	**0.0949**	**0.0949**	**0.0893**	**0.0893**	**0.0949**	**0.0893**	**0.0893**	**0.0893**	**0.0893**	**0.0893**	**0.0838**	**0.0726**	**0.03909**
Onsite Flatbed Truck	0.1452	0.1452	0.2904	0.2904	0.2904	0.2904	0.4356	0.4356	0.4356	0.4356	0.4356	0.4356	0.2904	0.1452	0.1452
Onsite Fuel/Lube Truck	0.2904	0.2904	0.2904	0.2904	0.2904	0.4356	0.4356	0.4356	0.4356	0.4356	0.4356	0.4356	0.4356	0.2904	0
Onsite Water Truck	1.4519	1.4519	1.4519	1.4519	1.4519	1.4519	1.4519	1.4519	1.4519	1.4519	1.4519	1.4519	1.4519	1.4519	1
Onsite Concrete Pump Truck	0	0.2904	0.4356	0.4356	0.2904	0.1452	0.1452	0	0	0	0	0	0	0	0
Total (lbs/month)	**1.887**	**2.178**	**2.468**	**2.468**	**2.323**	**2.323**	**2.468**	**2.323**	**2.323**	**2.323**	**2.323**	**2.323**	**2.178**	**1.887**	**1.0163**

Table C1.1l: Onsite Power Plant Construction Motor Vehicle $PM_{2.5}$ Emissions

Vehicle Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Flatbed Truck	0.00024	0.00024	0.00048	0.00048	0.00048	0.00048	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00048	0.00024	0.00024
Onsite Fuel/Lube Truck	0.00048	0.00048	0.00048	0.00048	0.00048	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00072	0.00048	0
Onsite Water Truck	0.00240	0.00240	0.00240	0.00240	0.00240	0.00240	0.00240	0.00240	0.00240	0.00240	0.00240	0.00240	0.00240	0.00240	0
Onsite Concrete Pump Truck	0	0.00048	0.00072	0.00072	0.00048	0.00024	0.00024	0.00000	0	0	0	0	0	0	0
Total (lbs/day)	**0.0031**	**0.0036**	**0.0041**	**0.0041**	**0.0038**	**0.0038**	**0.0041**	**0.0038**	**0.0038**	**0.0038**	**0.0038**	**0.0038**	**0.0036**	**0.0031**	**0.00168**
Onsite Flatbed Truck	0.0062	0.0062	0.0125	0.0125	0.0125	0.0125	0.0187	0.0187	0.0187	0.0187	0.0187	0.0187	0.0125	0.0062	0.0062
Onsite Fuel/Lube Truck	0.0125	0.0125	0.0125	0.0125	0.0125	0.0187	0.0187	0.0187	0.0187	0.0187	0.0187	0.0187	0.0187	0.0125	0.0062
Onsite Water Truck	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0625	0.0312
Onsite Concrete Pump Truck	0.0000	0.0125	0.0187	0.0187	0.0125	0.0062	0.0062	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total (lbs/month)	**0.081**	**0.094**	**0.106**	**0.106**	**0.100**	**0.100**	**0.106**	**0.100**	**0.100**	**0.100**	**0.100**	**0.100**	**0.094**	**0.081**	**0.0437**

Table C1.4a: Number of Onsite Power Plant Construction Equipment

Onsite Equipment	Month														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Manlift	1	2	3	3	3	3	4	4	4	4	4	3	2	1	1
Air Compressor	0	0	0	0	0	6	6	6	8	8	9	10	12	0	0
Excavator	2	2	2	2	3	3	3	2	2	1	1	1	1	1	0
Grader	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Cranes	1	1	0	0	0	1	2	2	2	2	2	2	2	1	0
Asphalt Paver	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Compactor	1	0	0	1	1	1	1	0	0	0	0	0	0	0	0
Welding Machine	0	1	3	4	8	10	14	14	15	15	15	10	5	1	0

Table C1.4b: Number of Onsite Power Plant Construction Motor Vehicles

Vehicle Type	Month														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Flatbed Truck	1	1	2	2	2	2	3	3	3	3	3	3	2	1	1
Onsite Fuel/Lube Truck	2	2	2	2	2	3	3	3	3	3	3	3	3	2	1
Onsite Water Truck	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
Onsite Concrete Pump Truck	0	2	3	3	2	1	1	0	0	0	0	0	0	0	0

Table C1.4e: Motor Vehicle Emission Factors [a]

Vehicle Type	Vehicle Class	CO Exhaust lb/mi	VOC Exhaust lb/mi	SO_X Exhaust lb/mi	NO_X Exhaust lb/mi	PM_{10} Exhaust lb/mi	PM_{10} Paved Road lb/mi	$PM_{2.5}$ Exhaust lb/mi	$PM_{2.5}$ Paved Road lb/mi
Onsite Flatbed Truck	HHDT	0.0476	0.0242	0.0001	0.0814	0.0056	NA	0.00024	NA
Onsite Fuel/Lube Truck	HHDT	0.0476	0.0242	0.0001	0.0814	0.0056	NA	0.00024	NA
Onsite Water Truck	HHDT	0.0476	0.0242	0.0001	0.0814	0.0056	NA	0.00024	NA
Onsite Concrete Pump Truck	HHDT	0.0476	0.0242	0.0001	0.0814	0.0056	NA	0.00024	NA
Offsite Delivery Trucks	HHDT	0.0089	0.0015	0.0000	0.0311	0.0012	0.0102	0.00005	0.00161
Construction Worker Commu	LDA	0.0059	0.0002	0.0000	0.0006	0.0001	0.0102	0.00004	0.00161

[a] All emission factors were derived from the emission factors [g/mi] from EMFAC2007 for calendar year 2010 in Kings County. For this model, a speed of 5 mph was assumed for onsite vehicles. A speed of 45 mph was assumed for offsite vehicles and worker commutes. The emission factors account for emissions from running.

Derivation of Paved Road Emission Factor

Paved Roads emission factor from AP-42, Section 13.2.1: P*aved Roads* (11/06)

$$E = [k(sL/2)^{0.65} * (W/3)^{1.5}] - C$$

where:	PM10	PM2.5	
k =	7.3	1.1	particle size multiplier, g/VMT [Table 13.2-1.1]
sL =	0.03	0.03	road surface silt loading (g/m^2) [Table 13.2.1-3, for Ubiquitous Baseline Roadway with ADT >10,000]
W =	14	14	tons [Average vehicle weight, assumes truck weight = 17 tons and construction worker vehicle weight = 2.5 tons]
C =	0.2119	0.1617	emission factor for 1980's vehicle fleet exhaust, brake wear, and tire wear, g/VMT [Table 13.2.1-2 for PM_{10}]
$E_{(PM10/2.5)}$=	4.640	0.731	g/VMT

Table C1.5a: Offsite Motor Vehicle Usage during Construction

Vehicle Type	Number per Month														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks[a]	189	232	392	290	286	265	232	194	238	206	204	87	82	72	50
Construction Worker Commute[b]	17	30	45	54	58	83	116	134	154	144	147	131	81	63	32

[a] Included Standard Deliveries and Heavy Haul Deliveries as Offsite Delivery Trucks.

[b] Assumed 1 commute per 1 worker.

Table C1.5b: Offsite Motor Vehicle CO Emissions

Vehicle Type	Number per Month														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	169.13	207.60	350.78	259.50	255.92	237.13	207.60	173.60	212.97	184.34	182.55	77.85	73.38	64.43	44.74
Construction Worker Commute	6.05	10.68	16.02	19.23	20.65	29.56	41.31	47.72	54.84	51.28	52.34	46.65	28.84	22.43	11.39
Total (lbs/month)	**175.2**	**218.3**	**366.8**	**278.7**	**276.6**	**266.7**	**248.9**	**221.3**	**267.8**	**235.6**	**234.9**	**124.5**	**102.2**	**86.9**	**56.14**
Total (ton/yr)	**0.55**														

Table C1.5c: Offsite Motor Vehicle VOC Emissions

Vehicle Type	Number per Month														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	29.17	35.80	60.49	44.75	44.14	40.90	35.80	29.94	36.73	31.79	31.48	13.43	12.65	11.11	7.72
Construction Worker Commute	0.19	0.34	0.51	0.61	0.66	0.94	1.32	1.52	1.75	1.64	1.67	1.49	0.92	0.72	0.36
Total (lbs/month)	**29.36**	**36.14**	**61.01**	**45.37**	**44.80**	**41.84**	**37.12**	**31.46**	**38.48**	**33.43**	**33.15**	**14.92**	**13.58**	**11.83**	**8.08**
Total (ton/yr)	**0.077**														

Table C1.5d: Offsite Motor Vehicle SOx Emissions

Vehicle Type	Number per Month														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.67	0.82	1.38	1.02	1.01	0.93	0.82	0.68	0.84	0.73	0.72	0.31	0.29	0.25	0.18
Construction Worker Commute	0.0067	0.0119	0.0179	0.0214	0.0230	0.0329	0.0460	0.0532	0.0611	0.0571	0.0583	0.0520	0.0321	0.0250	0.0127
Total (lbs/month)	**0.67**	**0.83**	**1.40**	**1.04**	**1.03**	**0.97**	**0.86**	**0.74**	**0.90**	**0.78**	**0.78**	**0.36**	**0.32**	**0.28**	**0.19**
Total (ton/yr)	**0.0018**														

Table C1.5e: Offsite Motor Vehicle NOx Emissions

Vehicle Type	Number per Month														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	588.13	721.93	1219.81	902.41	889.97	824.62	721.93	603.68	740.60	641.03	634.80	270.72	255.17	224.05	155.59
Construction Worker Commute	0.65	1.15	1.73	2.07	2.22	3.18	4.45	5.14	5.91	5.52	5.64	5.03	3.11	2.42	1.23
Total (lbs/month)	**588.78**	**723.08**	**1221.54**	**904.49**	**892.19**	**827.80**	**726.38**	**608.82**	**746.51**	**646.55**	**640.44**	**275.75**	**258.27**	**226.46**	**156.82**
Total (ton/yr)	**1.48**														

Table C1.5f: Offsite Motor Vehicle PM_{10} Emissions (includes exhaust and paved road emissions)

	Number per Month														
Vehicle Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	215.38	264.39	446.72	330.48	325.92	301.99	264.39	221.08	271.22	234.76	232.48	99.14	93.45	82.05	56.98
Construction Worker Commute	10.50	18.53	27.80	33.36	35.83	51.27	71.66	82.78	95.13	88.96	90.81	80.93	50.04	38.92	19.77
Total (lbs/month)	**225.88**	**282.92**	**474.52**	**363.84**	**361.75**	**353.27**	**336.04**	**303.86**	**366.36**	**323.71**	**323.29**	**180.07**	**143.48**	**120.97**	**76.75**
Total (ton/yr)	**0.767**														

Table C1.5g: Offsite Motor Vehicle PM2.5 Emissions (includes exhaust and paved road emissions)

	Number per Month														
Vehicle Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	2.82	4.98	7.47	8.97	9.63	13.78	19.26	22.25	25.57	23.91	24.41	21.75	13.45	10.46	5.31
Construction Worker Commute	1.68	2.96	4.45	5.34	5.73	8.20	11.46	13.24	15.22	14.23	14.53	12.95	8.01	6.23	3.16
Total (lbs/month)	**4.50**	**7.95**	**11.92**	**14.30**	**15.36**	**21.98**	**30.72**	**35.49**	**40.79**	**38.14**	**38.93**	**34.70**	**21.45**	**16.69**	**8.48**
Total (ton/yr)	**0.100**														

Vehicle Type	**Roundtrip Miles per Day**
Offsite Delivery Trucks	100
Construction Worker Commute	60

ATTACHMENT DR15-1

Detailed GHG Construction Emission Calculations

GWF Hanford Combined Cycle Power Plant Project (01-EP-7)
Data Responses Set 2
Data Response #15 - February 2009

Table 1a: Onsite Power Plant Construction Equipment CO_2 Emissions

	Monthly Emissions														
Onsite Equipment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Manlift	2.8	5.6	8.4	8.4	8.4	8.4	11.1	11.1	11.1	11.1	11.1	8.4	5.6	2.8	2.8
Air Compressor	0	0	0	0	0	35.4	35.4	35.4	47.2	47.2	53.1	59.0	70.7	0	0
Excavator	27.3	27.3	27.3	27.3	41.0	41.0	41.0	27.3	27.3	13.7	13.7	13.7	13.7	13.7	0
Grader	15.3	15.3	15.3	15.3	15.3	15.3	15.3	0	0	0	0	0	0	0	0
Cranes	13.7	13.7	0	0	0	13.7	27.3	27.3	27.3	27.3	27.3	27.3	27.3	13.7	0
Asphalt Paver	0	0	0	0	0	0	0	0	0	0	0	0	8.6	8.6	8.6
Compactor	12.3	0	0	12.3	12.3	12.3	12.3	0	0	0	0	0	0	0	0
Welding Machine	0.0	2.1	6.4	8.6	17.1	21.4	30.0	30.0	32.2	32.2	32.2	21.4	10.7	2.1	0
Total (metric tons/month, E_m)	**71**	**63.99**	**57.40**	**71.87**	**94.11**	**147.43**	**172.46**	**131.19**	**145.13**	**131.46**	**137.36**	**129.75**	**136.61**	**40.84**	**11.36**
Annual Average (metric tons/year, E_a)	**732**														
Total (metric tons/year, E_t)	**1,542**														

Table 1b: Onsite Power Plant Construction Equipment CH_4 Emissions

	Monthly Emissions														
Onsite Equipment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Manlift	0.00038	0.00077	0.00115	0.00115	0.00115	0.00115	0.00154	0.00154	0.00154	0.00154	0.00154	0.00115	0.00077	0.00038	0.00038
Air Compressor	0	0	0	0	0	0.00488	0.00488	0.00488	0.00650	0.00650	0.00732	0.00813	0.00976	0	0
Excavator	0.00377	0.00377	0.00377	0.00377	0.00565	0.00565	0.00565	0.00377	0.00377	0.00188	0.00188	0.00188	0.00188	0.00188	0
Grader	0.00211	0.00211	0.00211	0.00211	0.00211	0.00211	0.00211	0	0	0	0	0	0	0	0
Cranes	0.00188	0.00188	0	0	0	0.00188	0.00377	0.00377	0.00377	0.00377	0.00377	0.00377	0.00377	0.00188	0
Asphalt Paver	0	0	0	0	0	0	0	0	0	0	0	0	0.00118	0.00118	0.00118
Compactor	0.00170	0	0	0.00170	0.00170	0.00170	0.00170	0	0	0	0	0	0	0	0
Welding Machine	0	0.00030	0.00089	0.00118	0.00237	0.00296	0.00414	0.00414	0.00444	0.00444	0.00444	0.00296	0.00148	0.00030	0
Total (metric tons/month, E_m)	**0.010**	**0.0088**	**0.0079**	**0.0099**	**0.0130**	**0.0203**	**0.0238**	**0.0181**	**0.0200**	**0.0181**	**0.0189**	**0.0179**	**0.0188**	**0.0056**	**0.0016**
Annual Average (metric tons/year, E_a)	**0.10**														
Total (metric tons/year, E_t)	**0.21**														

Table 1c: Onsite Power Plant Construction Equipment N_2O Emissions

	Monthly Emissions														
Onsite Equipment	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Manlift	0.00003	0.00005	0.00008	0.00008	0.00008	0.00008	0.00011	0.00011	0.00011	0.00011	0.00011	0.00008	0.00005	0.00003	0.00003
Air Compressor	0	0	0	0	0	0.00035	0.00035	0.00035	0.00046	0.00046	0.00052	0.00058	0.00070	0	0
Excavator	0.00027	0.00027	0.00027	0.00027	0.00040	0.00040	0.00040	0.00027	0.00027	0.00013	0.00013	0.00013	0.00013	0.00013	0
Grader	0.00015	0.00015	0.00015	0.00015	0.00015	0.00015	0.00015	0	0	0	0	0	0	0	0
Cranes	0.00013	0.00013	0	0	0	0.00013	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00013	0
Asphalt Paver	0	0	0	0	0	0	0	0	0	0	0	0	0.00008	0.00008	0.00008
Compactor	0.00012	0	0	0.00012	0.00012	0.00012	0.00012	0	0	0	0	0	0	0	0
Welding Machine	0	0.00002	0.00006	0.00008	0.00017	0.00021	0.00030	0.00030	0.00032	0.00032	0.00032	0.00021	0.00011	0.00002	0
Total (metric tons/month, E_m)	**0.0007**	**0.0006**	**0.0006**	**0.0007**	**0.0009**	**0.0015**	**0.0017**	**0.0013**	**0.0014**	**0.0013**	**0.0014**	**0.0013**	**0.0013**	**0.0004**	**0.0001**
Annual Average (metric tons/year, E_a)	**0.007**														
Total (metric tons/year, E_t)	**0.015**														

Table 1d: Onsite Power Plant Construction Equipment Diesel Fuel Consumption

	Fuel Consumption														
Onsite Equipment	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**
Manlift	275	549	824	824	824	824	1,098	1,098	1,098	1,098	1,098	824	549	275	275
Air Compressor	0	0	0	0	0	3,485	3,485	3,485	4,646	4,646	5,227	5,808	6,970	0	0
Excavator	2,693	2,693	2,693	2,693	4,039	4,039	4,039	2,693	2,693	1,346	1,346	1,346	1,346	1,346	0
Grader	1,505	1,505	1,505	1,505	1,505	1,505	1,505	0	0	0	0	0	0	0	0
Cranes	1,346	1,346	0	0	0	1,346	2,693	2,693	2,693	2,693	2,693	2,693	2,693	1,346	0
Asphalt Paver	0	0	0	0	0	0	0	0	0	0	0	0	845	845	845
Compactor	1,214	0	0	1,214	1,214	1,214	1,214	0	0	0	0	0	0	0	0
Welding Machine	0	211	634	845	1,690	2,112	2,957	2,957	3,168	3,168	3,168	2,112	1,056	211	0
Total (gallons/month)	**7,033**	**6,304**	**5,655**	**7,080**	**9,272**	**14,525**	**16,991**	**12,925**	**14,298**	**12,952**	**13,533**	**12,783**	**13,459**	**4,023**	**1,119**
Total (gallons/project)	**151,953**														

Table 2a: Onsite Power Plant Construction Motor Vehicle CO_2 Emissions

Vehicle Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Flatbed Truck	0.03	0.03	0.06	0.06	0.06	0.06	0.10	0.10	0.10	0.10	0.10	0.10	0.06	0.03	0.03
Onsite Fuel/Lube Truck	0.06	0.06	0.06	0.06	0.06	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.06	0.03
Onsite Water Truck	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.32	0.16
Onsite Concrete Pump Truck	0	0.06	0.10	0.10	0.06	0.03	0.03	0	0	0	0	0	0	0	0
Total (metric tons/month)	**0**	**0.48**	**0.54**	**0.54**	**0.51**	**0.51**	**0.54**	**0.51**	**0.51**	**0.51**	**0.51**	**0.51**	**0.48**	**0.41**	**0.22**
Annual Average (metric tons/year, E_a)	**3.16**														
Total (metric tons/year, E_t)	**7.21**														

Table 2b: Onsite Power Plant Construction Motor Vehicle CH_4 Emissions

Vehicle Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Flatbed Truck	0.000001	0.000001	0.000003	0.000003	0.000003	0.000003	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000003	0.000001	0.000001
Onsite Fuel/Lube Truck	0.000003	0.000003	0.000003	0.000003	0.000003	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000004	0.000003	0.000001
Onsite Water Truck	0.000013	0.000013	0.000013	0.000013	0.000013	0.000013	0.000013	0.000013	0.000013	0.000013	0.000013	0.000013	0.000013	0.000013	0.000007
Onsite Concrete Pump Truck	0	0.000003	0.000004	0.000004	0.000003	0.000001	0.000001	0	0	0	0	0	0	0	0
Total (metric tons/month)	**0.00002**	**0.000020**	**0.000022**	**0.000022**	**0.000021**	**0.000021**	**0.000022**	**0.000021**	**0.000021**	**0.000021**	**0.000021**	**0.000021**	**0.000020**	**0.000017**	**0.000009**
Annual Average (metric tons/year, E_a)	**0.0001**														
Total (metric tons/year, E_t)	**0.0003**														

Table 2c: Onsite Power Plant Construction Motor Vehicle N_2O Emissions

Vehicle Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Flatbed Truck	0.000001	0.000001	0.000002	0.000002	0.000002	0.000002	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003	0.000002	0.000001	0.000001
Onsite Fuel/Lube Truck	0.000002	0.000002	0.000002	0.000002	0.000002	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003	0.000003	0.000002	0.000001
Onsite Water Truck	0.000011	0.000011	0.000011	0.000011	0.000011	0.000011	0.000011	0.000011	0.000011	0.000011	0.000011	0.000011	0.000011	0.000011	0.000006
Onsite Concrete Pump Truck	0	0.000002	0.000003	0.000003	0.000002	0.000001	0.000001	0	0	0	0	0	0	0	0
Total (metric tons/month)	**0.000014**	**0.000017**	**0.000019**	**0.000019**	**0.000018**	**0.000018**	**0.000019**	**0.000018**	**0.000018**	**0.000018**	**0.000018**	**0.000018**	**0.000017**	**0.000014**	**0.000008**
Annual Average (metric tons/year, E_a)	**0.0001**														
Total (metric tons/year, E_t)	**0.0002**														

Table 2d: Onsite Power Plant Construction Motor Vehicle Diesel Fuel Consumption

Vehicle Type	Fuel Consumption														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Flatbed Truck	3	3	6	6	6	6	9	9	9	9	9	9	6	3	3
Onsite Fuel/Lube Truck	6	6	6	6	6	9	9	9	9	9	9	9	9	6	3
Onsite Water Truck	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3
Onsite Concrete Pump Truck	0	6	9	9	6	3	3	0	0	0	0	0	0	0	0
Total (gallons/month)	**16**	**22**	**28**	**28**	**25**	**25**	**28**	**25**	**25**	**25**	**25**	**25**	**22**	**16**	**9**
Total (gallons/project)	**346**														

GWF Hanford Combined Cycle Power Plant Project (01-EP-7)
Data Responses Set 2
Data Response #15 - February 2009

Table 3a: Offsite Motor Vehicle Usage During Construction

Vehicle Type	Number per Month														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks[a, c]	189	232	392	290	286	265	232	194	238	206	204	87	82	72	50
Construction Worker Commute[b]	17	30	45	54	58	83	116	134	154	144	147	131	81	63	32

[a] Included Standard Deliveries and Heavy Haul Deliveries as Offsite Delivery Trucks.
[b] Assumed 1 commute per 1 worker.
[c] Assumed each offsite delivery truck makes 1 delivery.

Table 3b: Offsite Motor Vehicle CO_2 Emissions

Vehicle Type	Monthly Emissions														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	27.41	33.64	56.84	42.05	41.47	38.43	33.64	28.13	34.51	29.87	29.58	12.62	11.89	10.44	7.25
Construction Worker Commute	0.50	0.88	1.32	1.59	1.70	2.44	3.41	3.94	4.52	4.23	4.32	3.85	2.38	1.85	0.94
Total (metric tons/month)	**27.90**	**34.52**	**58.16**	**43.64**	**43.17**	**40.86**	**37.05**	**32.07**	**39.03**	**34.10**	**33.90**	**16.46**	**14.27**	**12.29**	**8.19**
Annual Average (metric tons/year, E_a)	**158**														
Total (metric tons/year, E_t)	**476**														

Table 3c: Offsite Motor Vehicle CH_4 Emissions

Vehicle Type	Monthly Emissions														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.0011	0.0014	0.0024	0.0017	0.0017	0.0016	0.0014	0.0012	0.0014	0.0012	0.0012	0.0005	0.0005	0.0004	0.0003
Construction Worker Commute	0.00004	0.0001	0.0001	0.0001	0.0001	0.0002	0.0003	0.0003	0.0004	0.0003	0.0004	0.0003	0.0002	0.0002	0.0001
Total (metric tons/month)	**0.0012**	**0.0015**	**0.0025**	**0.0019**	**0.0019**	**0.0018**	**0.0017**	**0.0015**	**0.0018**	**0.0016**	**0.0016**	**0.0008**	**0.0007**	**0.0006**	**0.0004**
Annual Average (metric tons/year, E_a)	**0.007**														
Total (metric tons/year, E_t)	**0.021**														

Table 3d: Offsite Motor Vehicle N_2O Emissions

Vehicle Type	Monthly Emissions														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	0.0009	0.0012	0.0020	0.0015	0.0014	0.0013	0.0012	0.0010	0.0012	0.0010	0.0010	0.0004	0.0004	0.0004	0.0003
Construction Worker Commute	0.00004	0.0001	0.0001	0.0001	0.0001	0.0002	0.0003	0.0003	0.0004	0.0003	0.0004	0.0003	0.0002	0.0002	0.0001
Total (metric tons/month)	**0.0010**	**0.0012**	**0.0021**	**0.0016**	**0.0016**	**0.0015**	**0.0014**	**0.0013**	**0.0016**	**0.0014**	**0.0014**	**0.0007**	**0.0006**	**0.0005**	**0.0003**
Annual Average (metric tons/year, E_a)	**0.006**														
Total (metric tons/year, E_t)	**0.018**														

Table 3e: Offsite Motor Vehicle Fuel Consumption

Vehicle Type	Fuel Consumption														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Offsite Delivery Trucks	2,700	3,314	5,600	4,143	4,086	3,786	3,314	2,771	3,400	2,943	2,914	1,243	1,171	1,029	714
Construction Worker Commute	57	100	150	180	193	277	387	447	513	480	490	437	270	210	107
Total (gallons/month)	**2,757**	**3,414**	**5,750**	**4,323**	**4,279**	**4,062**	**3,701**	**3,218**	**3,913**	**3,423**	**3,404**	**1,680**	**1,441**	**1,239**	**821**
Total Diesel (gallons/project)	**43,129**														
Total Gasoline (gallons/project)	**4,297**														
Total (gallons/project)	**47,425**														

Table 3f: Offsite Motor Vehicle Miles Traveled

Vehicle Type	Roundtrip Miles per Delivery
Offsite Delivery Trucks	100
Construction Worker Commute	60

Table 4: Equations Used to Calculate Emissions

Emission Source	Pollutant(s)	Equation	Variables
Construction Equipment	CO2, CH4, N2O	$E_m = N * FC * EF * H * 22 * 0.001$	E_m = Emissions (Mton/month)
			N = Number of pieces of equipment
			FC = Fuel Consumption (gal/hr)
			EF = Emission factor (kg/gal)
			H = Daily hours of operation, assumed to be 12 hr/day
			22 = 22 construction days per month
			0.001 = Conversion from kg to Mton
		$E_t = \Sigma E_m$	E_t = Total Emissions (Mton/yr)
			E_m = Emissions (Mton/month)
		$E_a = \Sigma E_m$ for Worst-Case Months, 9 through 20	E_a = Annual Average Emissions (Mton/yr)
			E_m = Emissions (Mton/month)
Onsite and Offsite Motor Vehicle	CO2	$E_m = N * VMT * 22 * EF * 0.001 / FE$	E_m = Emissions (Mton/month)
			VMT = Vehicle miles traveled per day (miles/day)
			FE = Fuel Economy (miles/hr)
			22 = 22 construction days per month
			0.001 = Conversion from kg to Mton
			EF = Emission Factor (kg/gal)
		$E_t = \Sigma E_m$	E_t = Total Emissions (Mton/yr)
			E_m = Emissions (Mton/month)
		$E_a = \Sigma E_m$ for Worst-Case Months, 9 through 20	E_a = Annual Average Emissions (Mton/yr)
			E_m = Emissions (Mton/month)
Onsite and Offsite Motor Vehicle	CH4, N2O	$E_m = N * VMT * 22 * EF * 0.000001$	E_m = Emissions (Mton/month)
			N = Number of vehicles or Number of deliveries
			VMT = Vehicle miles traveled per day (miles/day)
			22 = 22 construction days per month
			0.000001 = Conversion from g to Mton
			EF = Emission Factor (g/mile)
		$E_t = \Sigma E_m$	E_t = Total Emissions (Mton/yr)
			E_m = Emissions (Mton/month)
		$E_a = \Sigma E_m$ for Worst-Case Months, 9 through 20	E_a = Annual Average Emissions (Mton/yr)
			E_m = Emissions (Mton/month)

Reference: California Climate Action Registry General Reporting Protocol, Version 3.0, Chapter 7, April 2008.

Table 5a: Number of Onsite Power Plant Construction Equipment

Project Construction GHG Emissions	Month														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Manlift	1	2	3	3	3	3	4	4	4	4	4	3	2	1	1
Air Compressor	0	0	0	0	0	6	6	6	8	8	9	10	12	0	0
Excavator	2	2	2	2	3	3	3	2	2	1	1	1	1	1	0
Grader	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0
Cranes	1	1	0	0	0	1	2	2	2	2	2	2	2	1	0
Asphalt Paver	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Compactor	1	0	0	1	1	1	1	0	0	0	0	0	0	0	0
Welding Machine	0	1	3	4	8	10	14	14	15	15	15	10	5	1	0

Table 5b: Number of Onsite Power Plant Construction Motor Vehicles

Vehicle Type	Month														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Onsite Flatbed Truck	1	1	2	2	2	2	3	3	3	3	3	3	2	1	1
Onsite Fuel/Lube Truck	2	2	2	2	2	3	3	3	3	3	3	3	3	2	1
Onsite Water Truck	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1
Onsite Concrete Pump Truck	0	2	3	3	2	1	1	0	0	0	0	0	0	0	0

Table 6: Power Plant Construction Equipment Emission Factors

Project Construction GHG Emissions	Fuel Type	Hours per Month[a]	Fuel Consumption, EF (gal/hr)[b]		
			CO_2	CH_4	N_2O
Manlift	diesel	264	1.04	1.04	1.04
Air Compressor	diesel	264	2.20	2.20	2.20
Excavator	diesel	264	5.10	5.10	5.10
Grader	diesel	264	5.70	5.70	5.70
Cranes	diesel	264	5.10	5.10	5.10
Asphalt Paver	diesel	264	3.20	3.20	3.20
Compactor	diesel	264	4.60	4.60	4.60
Welding Machine	diesel	264	0.80	0.80	0.80

[a] Hours per month assumes 12 work hours per day and 22 days per month.

[b] Fuel Consumption based on consumption in the OFFROAD2007 model for San Joaquin APCD in the year 2011.

Table 7: Motor Vehicle Fuel Economy

Project Construction GHG Emissions	Fuel Type	Fuel economy (miles per gallon)*
Onsite Flatbed Truck	Diesel	7
Onsite Fuel/Lube Truck	Diesel	7
Onsite Water Truck	Diesel	7
Onsite Concrete Pump Truck	Diesel	7
Offsite Delivery Trucks	Gasoline	7
Construction Worker Commute	Gasoline	18

* Fuel economy for trucks based on assumptions from the California Climate Action Registry, General Reporting Protocol, April 2008. Construction worker commute vehicle fuel economy based on assuming workers would drive model year 2000 or newer passenger cars and fuel economy data from EPA (www.fueleconomy.gov).

Table 8: Greenhouse Gas Emission Factors

Project Construction GHG Emissions	Emission Factor	Emission Factor Units	Emission Factor Source
Mobile Combustion			
Gasoline	8.81	kg CO2/gallon	California Climate Action Registry General Reporting Protocol, Version 3.0, Table C.4, April 2008.
Diesel	10.15	kg CO2/gallon	California Climate Action Registry General Reporting Protocol, Version 3.0, Table C.4, April 2008.
Mobile Combustion			
Gasoline Passenger Car Model Year 2000-Present	0.04	g N2O/mile	California Climate Action Registry General Reporting Protocol, Version 3.0, Table C.5, April 2008.
Gasoline Delivery Truck Model Year 1990-Present	0.2	g N2O/mile	California Climate Action Registry General Reporting Protocol, Version 3.0, Table C.5, April 2008.
Diesel Heavy Duty Trucks Model Year 1996-Present	0.05	g N2O/mile	California Climate Action Registry General Reporting Protocol, Version 3.0, Table C.5, April 2008.
Diesel Off-road Vehicles	0.0001	kg N2O/ gallon	California Climate Action Registry General Reporting Protocol, Version 3.0, Table C.5, April 2008.
Mobile Combustion			
Gasoline Passenger Car Model Year 2000-Present	0.04	g CH4/mile	
Gasoline Delivery Truck Model Year 1990-Present	0.12	g CH4/mile	California Climate Action Registry General Reporting Protocol, Version 3.0, Table C.5, April 2008.
Diesel Heavy Duty Trucks Model Year 1996-Present	0.06	g CH4/mile	California Climate Action Registry General Reporting Protocol, Version 3.0, Table C.5, April 2008.
Diesel Off-road Vehicles	0.0014	kg CH4/ gallon	California Climate Action Registry General Reporting Protocol, Version 3.0, Table C.5, April 2008.

ATTACHMENT DR18-1A

SJVAPCD ATCs within 6 Miles of GWF Hanford

ATC Within 6 Miles

APPs Received Between 1/1/2006 and 1/13/2009

Region C

Facility ID 96

Facility Name BEACON OIL CO. #3090

Facility Type GASOLINE DISPENSING

Distance To Location 6413.529

Degrees 81.61732

Received	*Type*	*Status*	*Description*
5/30/2008	ATC	FINAL	upgrade Phase II vapor recovery system to Healy EVR with ISD (VR-202-F)

Facility ID 100

Facility Name BEACON OIL COMPANY #3228

Facility Type GASOLINE DISPENSING

Distance To Location 5663.917

Degrees 355.0031

Received	*Type*	*Status*	*Description*
5/30/2008	ATC	FINAL	upgrade Phase II vapor recovery system to Healy EVR with ISD (VR-202-F)

Facility ID 153

Facility Name BUFORD OIL CO (STAR MART)

Facility Type GASOLINE DISPENSING

Distance To Location 7374.334

Degrees 312.9812

Received	*Type*	*Status*	*Description*
8/6/2007	ATC	FINAL	gdf
10/10/2007	ATC	FINAL	modify GDF

Facility ID 156

Facility Name BUFORD OIL CO. (LITTLE'S TEX.)

Facility Type GASOLINE DISPENSING

Distance To Location
8097.833
Degrees
81.75729

Received	*Type*	*Status*	*Description*
3/19/2008	ATC	FINAL	GEAR: GDF MODIFICATION

Facility ID 160

Facility Name BUFORD OIL CO (STAR MART)

Facility Type GASOLINE DISPENSING

Distance To Location
6138.09
Degrees
356.0191

Received	*Type*	*Status*	*Description*
5/22/2007	ATC	FINAL	GDF

Facility ID 244

Facility Name CARGILL INC / NUTRENA FEED DIV

Facility Type ANIMAL FEED PROCESSING

Distance To Location
1564.101
Degrees
75.20011

Received	*Type*	*Status*	*Description*
4/21/2006	ATC	FINAL	modify grinding operation unit -2 and receiving operation unit -13 to increase daily process throughputs
5/15/2006	ATC	FINAL	for changing the boiler's alternate monitoring scheme from "B" to "A"
1/3/2008	ATC	FINAL	modify animal feed pre-mix room operation unit -14 (condition 10)

Facility ID 249

Facility Name CENTRAL VALLEY CABINET MFG.

Facility Type WOOD KITCHEN CABINETS

Distance To Location
7643.517
Degrees
315.3857

Received	*Type*	*Status*	*Description*
4/21/2006	ATC	FINAL	Evaluate new dust collector

Facility ID 264

Facility Name EXOPACK LLC

Facility Type COMMERCIAL PRINTING

Distance To Location
1486.203
Degrees
332.5779

Received	*Type*	*Status*	*Description*
7/6/2006	ATC	FINAL	modify adhesive application operation unit -14 as an adhesive and labeling operation by installing 11 new jet printers
3/5/2007	ATC	FINAL	add inkjet printers to adhesive process
12/4/2007	ATC	FINAL	to install a new four-color in-line flexographic printing press with two "end patch" four-color printers (C-264-15-0) and an additional "tuber" and "bottomer" (to be listed on (C-264-14-3) for manufacturing bags
10/23/2008	ATC	PR-INCO	Update manufacturer make and Model for permit 15

Facility ID 275

Facility Name ROBERT V. JENSEN INC.- CHEVRON

Facility Type GASOLINE DISPENSING

Distance To Location
6879.116
Degrees
344.1265

Received	*Type*	*Status*	*Description*
6/12/2007	ATC	FINAL	modify GDF

Facility ID 284

Facility Name MINERAL KING CHEVRON

Facility Type GASOLINE DISPENSING

Distance To Location
5785.46

Degrees
354.6111

Received	*Type*	*Status*	*Description*
8/8/2007	ATC	FINAL	modify GDF
7/16/2007	ATC	FINAL	modify GDF to upgrade to Phase II Healy system

Facility ID 333

Facility Name CITY OF HANFORD

Facility Type GOVERNMENT SERVICES

Distance To Location
7145.857

Degrees
81.02052

Received	*Type*	*Status*	*Description*
1/31/2006	ATC	FINAL	compliance with District Rule 4702
3/19/2008	ATC	FINAL	GEAR: GDF MODIFICATION

Facility ID 366

Facility Name DEL MONTE CORPORATION

Facility Type AGRICULTURAL PRODUCTS PROCESSING

Distance To Location
5912.139

Degrees
85.70422

Received	*Type*	*Status*	*Description*
8/8/2006	ATC	FINAL	modify unit -2 with TREU
8/28/2006	ATC	FINAL	to designate boiler unit -2 as Dormant Emissions Unit (DEU)

6/29/2007	ATC	FINAL	the modifications of two 128 MMBtu/hr boilers to install a selective catalytic reduction (SCR) system on each boiler and remove fuel oil #2 as a curtailment fuel for District Rule 4306 compliance

Facility ID *415*

Distance To Location
6173.782

Facility Name DELUX TAILORS AND CLEANERS

Facility Type DRY CLEANING

Degrees
86.66242

Received	*Type*	*Status*	*Description*
6/26/2007	ATC	FINAL	GEAR - DRY CLEANER

Facility ID *430*

Distance To Location
7028.053

Facility Name FAST AND FRIENDLY

Facility Type GASOLINE DISPENSING

Degrees
309.5423

Received	*Type*	*Status*	*Description*
6/13/2007	ATC	FINAL	modify GDF

Facility ID *603*

Distance To Location
116.8782

Facility Name HANFORD L P

Facility Type ELECTRICAL GENERATION

Degrees
223.7277

Received	*Type*	*Status*	*Description*
10/19/2007	TV RENEWAL	COMPLE	TV Renewal DROP DEAD DATE: 4/19/09

Facility ID 611

Facility Name PYRAMID SYSTEMS, INC

Facility Type WOOD KITCHEN CABINETS

Distance To Location
6852.554

Degrees
64.53761

Received	*Type*	*Status*	*Description*
4/4/2007	ATC	FINAL	modifying an existing woodworking operation, permit unit -1, by replacing the existing 2,209 cfm baghouse with a new 28,000 cfm baghouse

Facility ID 614

Facility Name HANFORD TRI MART INC

Facility Type GASOLINE DISPENSING

Distance To Location
6474.423

Degrees
79.85216

Received	*Type*	*Status*	*Description*
5/7/2008	ATC	FINAL	GEAR: MODIFY GDF

Facility ID 734

Facility Name KING GAS

Facility Type GASOLINE DISPENSING

Distance To Location
6546.587

Degrees
349.1539

Received	*Type*	*Status*	*Description*
10/16/2008	ATC	FINAL	GEAR: GDF MODIFICATION TO INSTALL HEALY VP-1000 RETRO FIT KITS ON FOUR DISPENSERS

Facility ID *780*

Facility Name MINERAL KING MINERALS, INC.

Facility Type FERTILIZER PRODUCTION

Distance To Location

905.5698

Degrees

335.5774

Received	*Type*	*Status*	*Description*
2/25/2008	ATC	FINAL	pellet milling fertilizer operation

Facility ID *813*

Facility Name MARI-MATT MINI MART

Facility Type GASOLINE DISPENSING

Distance To Location

7019.523

Degrees

80.70522

Received	*Type*	*Status*	*Description*
9/2/2008	ATC	FINAL	GEAR: GDF

Facility ID *994*

Facility Name STOP ZONE INC

Facility Type GASOLINE DISPENSING

Distance To Location

4805.38

Degrees

355.709

Received	*Type*	*Status*	*Description*
5/7/2008	ATC	FINAL	GEAR: MODIFY GDF

Facility ID *1058*

Distance To Location
5938.19

Facility Name MARQUEZ BROTHERS INTERNATIONAL INC

Facility Type CHEESE PRODUCTION

Degrees
356.2213

Received	*Type*	*Status*	*Description*
7/7/2008	ATC	FINAL	add conditions for Rule 4309 compliance

Facility ID *1151*

Distance To Location
7029.156

Facility Name TRI-MART

Facility Type GASOLINE DISPENSING

Degrees
63.81239

Received	*Type*	*Status*	*Description*
11/1/2007	ATC	FINAL	Replace balance system with Healy system
1/29/2008	ATC	FINAL	modify GDF

Facility ID *1152*

Distance To Location
7584.915

Facility Name SIERRA LIQUOR & DELI

Facility Type GASOLINE DISPENSING

Degrees
81.45204

Received	*Type*	*Status*	*Description*
1/10/2007	ATC	FINAL	modify GDF

Facility ID *1168*

Distance To Location
5778.262

Facility Name 7-ELEVEN, INC

Facility Type GASOLINE DISPENSING

Degrees
354.6926

Received	*Type*	*Status*	*Description*
5/19/2008	ATC	FINAL	installation of Healy EVR Phase II

Facility ID *1212*

Distance To Location
8069.477

Facility Name T & A MOBIL MINI-MART

Facility Type GASOLINE DISPENSING

Degrees
81.65508

Received	*Type*	*Status*	*Description*
3/15/2006	ATC	FINAL	modify GDF
7/22/2008	ATC	FINAL	installing Healy Phase II vapor control with ISD

Facility ID *1275*

Distance To Location
8025.741

Facility Name LANNY TAYLOR DBA HANFORD 76

Facility Type GASOLINE DISPENSING

Degrees
88.56106

Received	*Type*	*Status*	*Description*
2/13/2008	ATC	FINAL	modify GDF [install Healy EVR and ISD]

Facility ID *1319*

Distance To Location
923.5769
Degrees
98.45463

Facility Name INTEGRATED GRAIN & MILLING
Facility Type AGRICULTURAL PRODUCTS PROCESSING - GRAIN

Received	*Type*	*Status*	*Description*
10/17/2007	ATC	FINAL	modify grain rolling and grain cleaning operation units -2 and -7 and to increase hourly process rate

Facility ID *1365*

Distance To Location
1356.422
Degrees
76.54823

Facility Name ANDERSON CLAYTON CORP/HANFORD
Facility Type COTTON GINNING

Received	*Type*	*Status*	*Description*
8/28/2007	ERC	FINAL	Shutdown of Cotton Gin
12/26/2007	ERC T/O	FINAL	ERC certificate C-863-4 T/O to Olduvai Gorge LLC
4/10/2008	ERC T/O	FINAL	ERC certificate C-863-2 T/O from Anderson Clayton Corporation to Gulf Capital Partners, Inc.
2/24/2006	ATC	FINAL	modify cotton gin to replace 36" cone with 36" enhance cone on the overflow separator

Facility ID *1871*

Distance To Location
2948.637
Degrees
81.89856

Facility Name CITY OF HANFORD,WASTEWATER FAC
Facility Type SANITARY SERVICES

Received	*Type*	*Status*	*Description*
7/10/2006	ATC	FINAL	Modify a waste gas flare and two boilers, by removing various permit conditions.

Facility ID *1901*

Distance To Location
6707.529
Degrees
44.11612

Facility Name KINGS WASTE & RECYCLING AUTHORITY
Facility Type WASTE DISPOSAL

Received	*Type*	*Status*	*Description*
11/4/2008	ATC	PR-IN PR	designation of grinder C-1901-6 as a dormant emissions unit

Facility ID *2120*

Distance To Location
4879.692
Degrees
78.03679

Facility Name KINGS REHABILITATION CENTER
Facility Type JOB TRAINING AND VOCATIONAL REHABILITATION SERVICE

Received	*Type*	*Status*	*Description*
2/1/2007	ATC	FINAL	Dormant GDF

Facility ID *2233*

Distance To Location
805.5389
Degrees
307.0699

Facility Name VERDEGAAL BROS INC
Facility Type FERTILIZER AND FERTILIZER MATERIALS

Received	*Type*	*Status*	*Description*
10/1/2007	ATC	FINAL	the installation of a new sulfur pellet (Tiger 90CR) railcar/truck receiving, storage and loadout operation
5/22/2006	ATC	FINAL	Install dry fertilizer bulk blender

Facility ID 2282

Facility Name CENTRAL VALLEY MEAT CO

Facility Type MEAT PACKING PLANT

Distance To Location

6402.545

Degrees

62.73921

Received	*Type*	*Status*	*Description*
8/20/2007	ATC	FINAL	installing a new 21.0 MMBtu/hr natural gas-fired boiler

Facility ID 2297

Facility Name ALL STAR MINI MART

Facility Type GASOLINE DISPENSING

Distance To Location

6912.18

Degrees

308.6248

Received	*Type*	*Status*	*Description*
2/27/2008	ATC	FINAL	Install Healy w/o ISD

Facility ID 2318

Facility Name SILVAS OIL COMPANY, INC.

Facility Type GASOLINE DISPENSING

Distance To Location

5927.393

Degrees

356.7144

Received	*Type*	*Status*	*Description*
6/14/2007	ATC	FINAL	the transfer of location of an entire cardlock gasoline dispensing operation and the upgrade of the Phase I and Phase II Vapor Recovery Systems

Facility ID 2319

Facility Name SHELL FOOD MART

Facility Type GASOLINE DISPENSING

Distance To Location
6155.956
Degrees
355.9787

Received	*Type*	*Status*	*Description*
2/21/2006	ATC	FINAL	Retrofit to ORVR balance system
3/13/2008	ATC	FINAL	GEAR: GDF

Facility ID 2383

Facility Name ULTRAMAR, INC.

Facility Type SOIL AND GROUNDWATER REMEDIATION

Distance To Location
5926.393
Degrees
80.62346

Received	*Type*	*Status*	*Description*
6/26/2008	ATC	FINAL	modification of soil remediation operation

Facility ID 2384

Facility Name HANFORD COMMUNITY MEDICAL CTR

Facility Type GENERAL MEDICAL AND SURGICAL HOSPITALS

Distance To Location
6675.44
Degrees
352.4117

Received	*Type*	*Status*	*Description*
3/27/2007	ATC	FINAL	modify equipment description to correct IC engine rating to 755 bhp

Facility ID 2610

Distance To Location
1642.304
Degrees
78.84914

Facility Name INTERNATIONAL PAPER COMPANY
Facility Type CORRUGATED AND SOLID BOX MANUFACTURING

Received	*Type*	*Status*	*Description*
1/24/2007	ATC	FINAL	modify the Crittenden bulk laminator (C-2610-14) to increase the number of glueheads from one to a maximum eight in the equipment description. This project does not involve any increase in emissions or change to the previously approved project.
9/30/2008	ATC	FR-ASSI	the modification of units -1-2, -2-2 and -11-2 to increase annual waste paper throughput
11/13/2006	ATC	FINAL	Install new flexographic print line

Facility ID 2844

Distance To Location
6704.813
Degrees
350.7141

Facility Name CITY OF HANFORD
Facility Type MUNICIPALITY

Received	*Type*	*Status*	*Description*
1/31/2006	ATC	FINAL	compliance with District Rule 4702

Facility ID 2846

Distance To Location
6617.239
Degrees
88.97971

Facility Name CITY OF HANFORD
Facility Type CITY GOVERNMENT

Received	*Type*	*Status*	*Description*
2/9/2007	ATC	FINAL	364 BHP CUMMINS/ONAN MODEL QSL9-G2 DIESEL-FIRED EMERGENCY STANDBY IC ENGINE
1/31/2006	ATC	FINAL	compliance with District Rule 4702

4/20/2007	ATC	FINAL	DIESEL ICE EMERGENCY STANDBY GEAR

Facility ID *2849*

Distance To Location
1755.085
Degrees
337.1144

Facility Name CITY OF HANFORD
Facility Type GOVERNMENT SERVICES

Received	*Type*	*Status*	*Description*
1/31/2006	ATC	FINAL	compliance with District Rule 4702

Facility ID *3205*

Distance To Location
6405.037
Degrees
175.3561

Facility Name PENNY NEWMAN MILLING COMPANY
Facility Type AGRICULTURAL PRODUCTS PROCESSING-GRAIN MILLING

Received	*Type*	*Status*	*Description*
6/6/2007	ATC	FINAL	modify grain and dry commodities railcar and truck receiving operations to increase daily amounts of materials received

Facility ID *3365*

Distance To Location
9676.227
Degrees
82.90868

Facility Name SHAH'S SHELL
Facility Type GASOLINE DISPENSING

Received	*Type*	*Status*	*Description*
10/29/2008	ATC	FINAL	retrofit with Healy system

Facility ID 3507

Distance To Location
1193.166

Facility Name NORWESCO, INC.

Facility Type POLYETHYLENE PROCESSING

Degrees
327.4771

Received	*Type*	*Status*	*Description*
7/15/2008	ATC	FINAL	modify polyethylene mixing and grinding operation unit -3 to install a dust collector (routine replacement)

Facility ID 3525

Distance To Location
6266.893

Facility Name DASSEL'S PETROLEUM, INC.

Facility Type GASOLINE DISPENSING

Degrees
70.82209

Received	*Type*	*Status*	*Description*
8/6/2008	ATC	FINAL	Install Healy retrofit

Facility ID 3613

Distance To Location
9780.509

Facility Name GRANGEVILLE MARKET

Facility Type GASOLINE DISPENSING

Degrees
326.8851

Received	*Type*	*Status*	*Description*
3/25/2008	ATC	FINAL	GEAR: MODIFY GDF

Facility ID *3801*

Distance To Location
3354.038
Degrees
319.3167

Facility Name E & B TRUCKING INC
Facility Type LOCAL TRUCKING WITHOUT STORAGE

Received	*Type*	*Status*	*Description*
3/23/2007	ATC	FINAL	Transportable diesel-fired IC engine

Facility ID *4140*

Distance To Location
0
Degrees

Facility Name GWF ENERGY LLC
Facility Type POWER GENERATION

Received	*Type*	*Status*	*Description*
10/19/2007	TV RENEWAL	COMPLE	TV Renewal DROP DEAD DATE: 4/19/09
8/4/2008	ATC	FR-IN PR	the modification of two 47.5 MW simple-cycle peak-demand power generating gas turbine systems to convert them to allow operation in both combined cycle mode and simple cycle mode

Facility ID *4193*

Distance To Location
6489.656
Degrees
353.8783

Facility Name CARL'S JR #227
Facility Type RESTAURANT - FAST FOOD

Received	*Type*	*Status*	*Description*
7/10/2006	ATC	FINAL	modify charbroiler to increase the daily amount of meat cooked

Facility ID *4312*

Distance To Location
6185.661
Degrees
231.8121

Facility Name KENT AVENUE FAMILY DAIRY LLC
Facility Type AGRICULTURAL CROP PRODUCTION, DAIRY

Received	*Type*	*Status*	*Description*
1/9/2007	ATC	FINAL	New Dairy: 2400 cows
1/9/2007	ATC	FINAL	Application for diesel engine
9/24/2007	INHOUSE PTO	FINAL	Existing engine

Facility ID *5097*

Distance To Location
5912.139
Degrees
85.70422

Facility Name MANZANILLO RANCH
Facility Type AGRICULTURAL CROP PRODUCTION

Received	*Type*	*Status*	*Description*
4/6/2006	INITIAL FARM	FINAL	IC Eng - 3 additional not identified with original application

Facility ID *5524*

Distance To Location
7383.13
Degrees
104.96

Facility Name RIVER RANCH DAIRY
Facility Type AGRICULTURAL CROP PRODUCTION, DAIRY

Received	*Type*	*Status*	*Description*
3/5/2007	INHOUSE PTO	FINAL	existing GDO and 3 engines
7/23/2007	ATC	FINAL	Modify Dairy: PM10 mitigations - install shades
12/14/2006	ATC	FINAL	Rule 4570 Mitigation Measures
3/5/2007	CMPP MOD.	FINAL	CMP MOD

Facility ID 5646

Facility Name GRIMMIUS CALF RANCH

Facility Type AGRICULTURAL CROP PRODUCTION

Distance To Location
9110.161
Degrees
34.18061

Received	*Type*	*Status*	*Description*
8/8/2006	CMPP MOD.	FINAL	CMPP MOD
4/2/2007	CMPP MOD.	FINAL	CMPP MOD

Facility ID 5741

Facility Name C A PLAZA

Facility Type GASOLINE DISPENSING

Distance To Location
6775.448
Degrees
88.76333

Received	*Type*	*Status*	*Description*
5/7/2008	ATC	FINAL	GEAR: MODIFY GDF

Facility ID 5996

Facility Name JCJ DAIRY INC

Facility Type AGRICULTURAL CROP PRODUCTION, DAIRY

Distance To Location
9379.49
Degrees
41.48721

Received	*Type*	*Status*	*Description*
1/23/2006	INITIAL FARM	FINAL	Initial Dairy
12/12/2006	ATC	FINAL	Rule 4570 Mitigation Measures
12/12/2006	CMPP MOD.	FINAL	CMPP MOD
12/12/2007	CMPP MOD.	FINAL	CMPP MOD - Reduce Acreage to zero farming being done by C-7540

Facility ID *6011*

Distance To Location
3585.528
Degrees
120.2984

Facility Name LONE STAR DAIRY
Facility Type AGRICULTURAL CROP PRODUCTION, DAIRY

Received	*Type*	*Status*	*Description*
12/15/2006	INITIAL FARM	PR-INCO	Initial Dairy application

Facility ID *6046*

Distance To Location
6282.827
Degrees
85.77341

Facility Name MARTIN RANCH DAIRY LLC
Facility Type DAIRY FARM

Received	*Type*	*Status*	*Description*
6/6/2007	CMPP MOD.	FINAL	CMP MOD
6/6/2007	ATC	FINAL	Modifying Dairy: Increase herd size
6/28/2007	INHOUSE PTO	FINAL	AG Pump engine
9/11/2007	INHOUSE PTO	FINAL	diesel ag pump engine (420 hp) to update incorrect information on previous application showing (230 hp)
11/15/2006	ATC	FINAL	Rule 4570 Mitigation Measures
11/15/2006	INITIAL FARM	FINAL	Initial Dairy
11/20/2006	CMP PLAN APP	FINAL	CMP Plan

Facility ID 6047

Facility Name TURNER RANCH FAMILY DAIRY

Facility Type DAIRY FARM

Distance To Location

6282.827

Degrees

85.77341

Received	*Type*	*Status*	*Description*
6/28/2007	INHOUSE PTO	FINAL	In-house PTO Ag ICE
6/19/2008	ATC	PR-INCO	emergency diesel engine
8/6/2007	ATC	FINAL	Modifying Dairy: expand existing 1,172 milk cow (1,172 total head) dairy to 2,171 milk cows (3,988 total head)
11/20/2006	CMP PLAN APP	FINAL	CMP plan
11/15/2006	ATC	FINAL	Rule 4570 Mitigation Measures
11/15/2006	INITIAL FARM	FINAL	Initial Dairy
9/27/2007	INHOUSE PTO	FINAL	existing ic engine

Facility ID 6103

Facility Name KANSAS HOLSTEIN DAIRY

Facility Type

Distance To Location

7385.367

Degrees

154.3094

Received	*Type*	*Status*	*Description*
11/28/2006	ATC	FINAL	Rule 4570 Mitigation Measures

Facility ID 6817

Distance To Location
6282.827
Degrees
85.77341

Facility Name DANELL BROTHERS, INC DBA DB 2 DAIRY
Facility Type AGRICULTURAL CROP PRODUCTION

Received	*Type*	*Status*	*Description*
6/13/2006	CMPP MOD.	FINAL	CMPP MOD
12/18/2008	ATC	PR-IN PR	Application for 3 diesel pump engines

Facility ID 6911

Distance To Location
6265.034
Degrees
143.1938

Facility Name MANUEL MONTEIRO
Facility Type AGRICULTURAL CROP PRODUCTION, DAIRY

Received	*Type*	*Status*	*Description*
11/17/2006	CMP PLAN APP	FINAL	CMP 2036 Cows, 581 Acres, Corn, Wheat, Alfalfa
3/28/2007	CMPP MOD.	FINAL	CMPP MOD
11/17/2006	ATC	FINAL	755 Hp Cummins engine
8/16/2006	INITIAL FARM	FINAL	initial farm
11/17/2006	ATC	FINAL	Rule 4570 Mitigation Measures
3/28/2007	ATC	FINAL	Modifying Dairy: Increase 1285 milk cows

Facility ID 7057

Distance To Location
5912.139
Degrees
85.70422

Facility Name VALLEY VIEW FARMS
Facility Type DAIRY FARMS

Received	*Type*	*Status*	*Description*

12/ /2006	ATC	FINAL	Rule 4570 Mitigation Measures
2/6/2007	INITIAL FARM	FINAL	Initial Dairy
2/6/2007	CMP PLAN APP	FINAL	cmp
2/15/2007	INHOUSE PTO	FINAL	Application for engines

Facility ID *7126*

Distance To Location
8162.011
Degrees
177.6149

Facility Name YOKUM DAIRY
Facility Type DAIRY

Received	*Type*	*Status*	*Description*
3/6/2006	ATC	FINAL	Modifying Dairy: increase number of milk cows from 1,700 to 2,400
3/20/2007	INHOUSE PTO	PR-INCO	300 hp Cummins diesel engine
1/23/2007	ATC	FINAL	Rule 4570 Mitigation Measures
1/17/2007	CMPP MOD.	FINAL	CMPP Mod.
11/6/2006	CMP PLAN APP	FINAL	
3/6/2006	INITIAL FARM	FINAL	Determine Commencement of Construction
10/4/2006	ATC	FINAL	Modifying Dairy: Milkbarn

Region **N**

Facility ID *4583*

Distance To Location
1789.14
Degrees
250.7766

Facility Name DEL MONTE FOODS - HANFORD PLANT 24
Facility Type ERC PLACEHOLDER FACILITY

Received	*Type*	*Status*	*Description*
4/11/2007	ERC T/O	FINAL	ERC certificate N-330-5 to Gulf Capital Partners, Inc.

Region P

Facility ID 2843

Facility Name CITY OF HANFORD

Facility Type GOVERNMENT SERVICES

Distance To Location 5128.289

Degrees 77.99659

Received	*Type*	*Status*	*Description*
2/13/2008	PORTABLE	PROPOS	Street sweeper with Tier 3 engine

Facility ID 7141

Facility Name RICK LARSON - AMERICAN TRAVELING SHOWS

Facility Type

Distance To Location 6781.079

Degrees 316.9057

Received	*Type*	*Status*	*Description*
4/3/2006	PORTABLE	PROPOS	Diesel engine

ATTACHMENT DR18-1B

Summary of SJVAPCD Cumulative Sources within 6 Miles of GWF Hanford

GWF Hanford Combined Cycle Power Plant Project (01-EP-7)
Data Responses Set 2
Data Response #18 - February 2009

Summary of SJVAPCD Cumulative Sources with 6 Miles of GWFHanford

Facility ID	Facility Name	Facility Type	Date Received	Project	Project Type	Decision	Comment
96	Beacon Oil Co. #3090	Gasoline Dispensing	5/30/2008	Upgrade Phase II VRS	ATC	Exclude	VOC Source
100	Beacon Oil Co. #3228	Gasoline Dispensing	5/30/2008	Upgrade Phase II VRS	ATC	Exclude	VOC Source
153	Buford Oil Company	Gasoline Dispensing	10/10/2007	Modify GDF	ATC	Exclude	VOC Source
153	Buford Oil Company	Gasoline Dispensing	8/8/2007	GDF	ATC	Exclude	VOC Source
156	Buford Oil Company	Gasoline Dispensing	3/19/2008	Gear: GDF Modification	ATC	Exclude	VOC Source
160	Buford Oil Company	Gasoline Dispensing	5/22/2007	GDF	ATC	Exclude	VOC Source
244	Cargill inc/Nutrena Feed	Animal Feed Processing	4/21/2006	Increase throughput, op unit 2 and op unit 13	ATC	Exclude	Increase of 0.2 tons-PM10/year
244	Cargill inc/Nutrena Feed	Animal Feed Processing	5/15/2008	Change Boiler alt monitoring scheme from B to A	ATC	Exclude	Emissions Monitoring
244	Cargill inc/Nutrena Feed	Animal Feed Processing	1/3/2008	modify premix room op unit 14	ATC	Exclude	No emissions Increase
249	Central Valley Cabinet Mfg.	Wood Cabinets	4/21/2006	Evaluate New Dust Collector	ATC	Exclude	Increase of 0.5 tons-PM10/year
264	Exopack LLC	Commercial Printing	7/6/2006	11 new printers added to op unit 14	ATC	Exclude	VOC Source
264	Exopack LLC	Commercial Printing	3/5/2007	add inkjet printers to adhesive process	ATC	Exclude	VOC Source
264	Exopack LLC	Commercial Printing	12/4/2007	install new printing press	ATC	Exclude	VOC Source
264	Exopack LLC	Commercial Printing	10/23/2008	update permit 15	ATC	Exclude	VOC Source
275	Robert V Jensen Inc	Gasoline Dispensing	6/12/2007	modify GDF	ATC	Exclude	VOC Source
284	Mineral King Chevron	Gasoline Dispensing	8/8/2007	modify GDF	ATC	Exclude	VOC Source
284	Mineral King Chevron	Gasoline Dispensing	7/16/2007	update VCS	ATC	Exclude	VOC Source
333	City of Hanford	Government Services	1/31/2006	Rule 4702 Compliance	ATC	Exclude	Emission Reduction
333	City of Hanford	Government Services	3/19/2008	GDF Modification	ATC	Exclude	VOC Source
366	Del Monte Corporation	Ag Products Processing	8/8/2006	modify unit 2 with TREU	ATC	Exclude	Small increase (< 0.7 tons/year) in each of the following: NOX, CO, PM10 and SOX
366	Del Monte Corporation	Ag Products Processing	8/28/2006	boiler unit 2 designated as dormant	ATC	Exclude	No emissions Increase
366	Del Monte Corporation	Ag Products Processing	6/29/2007	modification of two 128 MMBtu/hr boilers - install SCR system	ATC	Exclude	emission decrease - install control equipment
415	Delux Tailors and Cleaners	Dry Cleaning	6/26/2007	Gear - Dry Cleaning	ATC	Exclude	VOC Source
430	Fast and Friendly	Gasoline Dispensing	6/13/2007	Modify GDF	ATC	Exclude	VOC Source
603	Hanford LP	Electrical Generation	10/19/2007	TV Renewal	TV Renewal	Exclude	No emissions Increase
611	Pyramid Systems, Inc	Wood Cabinets	4/4/2007	replace baghouse (2209 cfm to 28000 cfm)	ATC	Exclude	Increase of 3.9 tons-PM10/year
614	Hanford Tri Mart inc	Gasoline Dispensing	5/7/2008	Modify GDF	ATC	Exclude	VOC Source
734	King Gas	Gasoline Dispensing	10/16/2008	VCS Retro Fit	ATC	Exclude	VOC Source
780	Mineral king Minerals	Fertilizer Production	2/25/2008	pellet milling fertilizer production	ATC	Exclude	Increase of 0.4 tons-PM10/year
813	Mari-Matt Mini Mart	Gasoline Dispensing	9/2/2008	GDF	ATC	Exclude	VOC Source
994	Stop Zone Inc	Gasoline Dispensing	5/7/2008	Modify GDF	ATC	Exclude	VOC Source
1058	Marquez Bros. Intnl	Cheese production	7/7/2008	rule 4309 Compliance	ATC	Exclude	Emission Reduction
1151	Trimart	Gasoline Dispensing	11/1/2007	replace balance system with healy system	ATC	Exclude	VOC Source
1151	Trimart	Gasoline Dispensing	1/29/2008	modify GDF	ATC	Exclude	VOC Source
1152	Sierra Liquor and Deli	Gasoline Dispensing	1/10/2007	Modify GDF	ATC	Exclude	VOC Source
1168	7-Eleven Inc	Gasoline Dispensing	5/19/2008	installation of healy EVER Phase II	ATC	Exclude	VOC Source
1212	T&A Mobil Mini Mart	Gasoline Dispensing	3/15/2006	Modify GDF	ATC	Exclude	VOC Source
1212	T&A Mobil Mini Mart	Gasoline Dispensing	7/22/2008	install Healy phase II	ATC	Exclude	VOC Source
1275	Lanny Taylor DBA	Gasoline Dispensing	2/13/2008	Modify GDF	ATC	Exclude	VOC Source
1319	Integrated Grain and Milling	Ag Processing - Grain	10/17/2007	increase process rate on units 2 and 7	ATC	Exclude	Increase of 2.5 tons-PM10/year
1365	Anderson Clayton Corp	Cotton Ginning	8/28/2007	shutdown Cotton Gin	ERC	Exclude	Production decrease
1365	Anderson Clayton Corp	Cotton Ginning	12/26/2007	ERC T/O	ERC T/O	Exclude	ERC T/O
1365	Anderson Clayton Corp	Cotton Ginning	4/10/2008	ERC T/O	ERC T/O	Exclude	ERC T/O
1365	Anderson Clayton Corp	Cotton Ginning	2/24/2006	modify cotton gin replace cone with enhanced cone	ATC	Exclude	No emissions Increase
1871	City of Hanford, Wastewater	Sanitary Services	7/10/2006	Remove permit conditions from waste gas flare and two boilers	ATC	Exclude	No emissions Increase
1901	Kings Waste & Recycling	Waste Disposal	11/4/2008	Designate C-1901-6 as Dormant EU	ATC	Exclude	Emissions Decrease
2120	Kings Rehab Center	Job Training and Rehab	2/1/2007	Dormant GDF	ATC	Exclude	VOC Source
2233	Verdegaal Bros Inc	Fertilizer	10/1/2007	installation of sulfur pellet receiving and loadout operation	ATC	Exclude	Increase of 0.4 tons-PM10/year
2233	Verdegaal Bros Inc	Fertilizer	5/22/2006	Install dry fertilizer bulk blender	ATC	Exclude	Increase of 0.6 tons-PM10/year
2282	Central Valley Meat Co	Meat Packing plant	8/20/2007	install new 21.0 mmbtu/hr boiler	ATC	Exclude	Small increase (< 1.0 tons/year) in each of the following: NOX, PM10 and SOX Increase of 8.8 tons/year in CO.
2297	All Star Mini Mart	Gasoline Dispensing	2/27/2008	Install Healy w/o ISD	ATC	Exclude	VOC Source
2318	Silvas Oil Company	Gasoline Dispensing	6/14/2007	location transfer and upgrade of VRS	ATC	Exclude	VOC Source
2319	Shell Food Mart	Gasoline Dispensing	2/21/2006	Retrofit to ORVR Balance System	ATC	Exclude	VOC Source
2319	Shell Food Mart	Gasoline Dispensing	3/13/2008	Gear GDF	ATC	Exclude	VOC Source
2383	Ultramar, Inc	Soil and Groundwater Rem.	6/26/2008	Modification of soil remediation operation	ATC	Exclude	VOC Source
2384	Hanford Comm. Med. Center	Hospital	3/27/2007	Modify IC Engine Description to 755 bhp	ATC	Exclude	No emissions Increase
2610	International Paper	Box Manufacturing	1/24/2007	modify laminator	ATC	Exclude	No Emissions Increase
2610	International Paper	Box Manufacturing	9/30/2008	modification of units 1-2, 2-2, and 11-2 to increase waste paper throughput	ATC	Exclude	Information received by District indicates facility has been shutdown, project to be cancelled.
2610	International Paper	Box Manufacturing	11/13/2006	install new flexographic print line	ATC	Exclude	VOC Source
2843	City of Hanford	Government Services	2/13/2008	Street Sweeper with Tier 3 engine	Portable	Exclude	Mobile Source
2844	City of Hanford	Municipality	1/13/2006	Rule 4702 Compliance	ATC	Exclude	Emission Reduction
2846	City of Hanford	City Government	2/9/2007	364 BHP Diesel ICE	ATC	Exclude	Small increase (< 0.1 tons/year) in each of the following: NOX, CO, PM10 and SOX
2846	City of Hanford	City Government	1/31/2006	Rule 4702 Compliance	ATC	Exclude	Emission Reduction
2846	City of Hanford	City Government	4/20/2007	ICE Emergency Standby Unit	ATC	Exclude	Small increase (< 0.1 tons/year) in each of the following: NOX, CO, PM10 and SOX

Summary of SJVAPCD Cumulative Sources with 6 Miles of GWFHanford

Facility ID	Facility Name	Facility Type	Date Received	Project	Project Type	Decision	Comment
2849	City of Hanford	Government Services	1/31/2006	Rule 4702 Compliance	ATC	Exclude	Emission Reduction
3205	Penny Newman Milling	Ag Prod Grain Milling	6/6/2007	Increase receiving operations	ATC	Exclude	Small increase (0.0 tons/year) in PM10 emissions
3365	Shah's Shell	Gasoline Dispensing	10/29/2008	helay Retrofit	ATC	Exclude	VOC Source
3507	Norwesco	Ployethylene Processing	7/15/2008	install dust collector on unit 3 (routine operation)	ATC	Exclude	Control Equip
3525	Dassel's Petroleum	Gasoline Dispensing	8/6/2008	install Healy	ATC	Exclude	VOC Source
3613	Grangeville Market	Gasoline Dispensing	3/25/2008	Modify GDF	ATC	Exclude	VOC Source
3801	E&B Trucking	Local Trucking	3/23/2007	Portable Diesel ICE	ATC	Exclude	Mobile Source
4140	GWF Energy Hanford	Power Generation			TV Renewal	Exclude	HANFORD
4193	Carl's JR #227	Restaurant	7/10/2006	increase charbroiler throughput	ATC	Exclude	Increase of 0.2 tons-PM10/year
4312	Kent Avenue Dairy	Ag Crop Production	1/9/2007	New Dairy: 2400 Cows	ATC	Exclude	Non-point Source
4312	Kent Avenue Dairy	Ag Crop Production	1/9/2007	Application for diesel engine	ATC	Exclude	Small increase (< 0.2 tons/year) in each of the following: NOX, CO, PM10 and SOX
4312	Kent Avenue Dairy	Ag Crop Production	9/24/2007	existing engine	In House PTO	Exclude	No emissions Increase
4583	Del Monte Foods	ERC Placeholder Facility	4/11/2007	ERC Transfer to Gulf Capital Partners	ERC T/O	Exclude	ERC trade
5097	Manzanillo Ranch	Ag Crop Production	4/6/2006	3 additional IC engines	Initial Farm	Exclude	Outside 6 miles
5524	River Ranch Dairy	Ag Crop Production	3/5/2007	Existing GDO and 3 engines	In House PTO	Exclude	No emissions Increase
5524	River Ranch Dairy	Ag Crop Production	7/23/2007	install shades for PM mitigation	ATC	Exclude	Control Equip
5524	River Ranch Dairy	Ag Crop Production	12/14/2006	Rule 4750 Mitigation Measures	ATC	Exclude	Control Equip
5524	River Ranch Dairy	Ag Crop Production	3/5/2007	CMP MOD	CMPP Mod	Exclude	Emission Reduction Plan
5646	Grimmius Calf Ranch	Ag Crop Production	8/8/2006	CMPP Mod	CMPP Mod	Exclude	Emission Reduction Plan
5646	Grimmius Calf Ranch	Ag Crop Production	4/2/2007	CMPP Mod	CMPP Mod	Exclude	Emission Reduction Plan
5741	C A Plaza	Gasoline Dispensing	5/7/2008	Modify GDF	ATC	Exclude	VOC Source
5996	JCJ Dairy inc	Ag Crop Production	1/23/2006	Initial Dairy	Initial Farm	Exclude	No emissions Increase
5996	JCJ Dairy inc	Ag Crop Production	12/12/2006	Rule 4570 Mitigation measures	ATC	Exclude	Control Equip
5996	JCJ Dairy inc	Ag Crop Production	12/12/2006	CMPP Mod	CMPP Mod	Exclude	Emission Reduction Plan
5996	JCJ Dairy inc	Ag Crop Production	12/12/2007	CMPP Mod	CMPP Mod	Exclude	Emission Reduction Plan
6011	Lone Star Dairy	Ag Crop Production	12/15/2006	Initial Dairy Application	Initial Farm	Exclude	Outside 6 Miles
6046	Martin Ranch Dairy	Dairy Farm	6/6/2007	CMP Mod	CMPP Mod	Exclude	Emission Reduction Plan
6046	Martin Ranch Dairy	Dairy Farm	6/6/2007	Increase herd size	ATC	Exclude	Non-Criteria Source
6046	Martin Ranch Dairy	Dairy Farm	8/28/2007	AG pump engine	In House PTO	Exclude	Outside 6 Miles
6046	Martin Ranch Dairy	Dairy Farm	9/11/2007	update ag pump engine hp (420 from 230)	In House PTO	Exclude	Outside 6 Miles
6046	Martin Ranch Dairy	Dairy Farm	11/15/2006	Rule 4570 Mitigation measures	ATC	Exclude	Control Equip
6046	Martin Ranch Dairy	Dairy Farm	11/15/2006	Initial Dairy	Initial Farm	Exclude	Outside 6 Miles
6046	Martin Ranch Dairy	Dairy Farm	11/20/2006	CMP Plan	CMP Plan APP	Exclude	Emission Reduction Plan
6047	Turner Ranch Dairy	Dairy Farm	6/28/2007	In-House PTO Ag ICE	In House PTO	Exclude	No emissions Increase
6047	Turner Ranch Dairy	Dairy Farm	6/19/2008	Emergency DICE	In House PTO	Exclude	No emissions Increase
6047	Turner Ranch Dairy	Dairy Farm	8/6/2007	Increase Dairy Heed	ATC	Exclude	Non-Criteria Source
6047	Turner Ranch Dairy	Dairy Farm	11/20/2006	CMP Plan	CMP Plan APP	Exclude	Emission Reduction Plan
6047	Turner Ranch Dairy	Dairy Farm	11/15/2006	Rule 4570 Mitigation measures	ATC	Exclude	Control Equip
6047	Turner Ranch Dairy	Dairy Farm	11/15/2006	Initial Dairy	Initial Farm	Exclude	No emissions Increase
6047	Turner Ranch Dairy	Dairy Farm	9/27/2007	Existing ICE	In House PTO	Exclude	Already in background
6103	Kansas Holstein Dairy	Dairy Farm	11/28/2006	Rule 4570 Mitigation measures	ATC	Exclude	Control
6817	Danell Bros. Dairy	Ag Crop Production	6/13/2006	CMPP Mod	CMPP Mod	Exclude	Emission Reduction Plan
6817	Danell Bros. Dairy	Ag Crop Production	12/18/2008	Application for 3 Diesel pump engines	In House PTO	Exclude	No emissions Increase
6911	Manuel Monteiro	Ag Crop Production	11/17/2006	CMP	CMP Plan APP	Exclude	Emission Reduction Plan
6911	Manuel Monteiro	Ag Crop Production	3/28/2007	CMPP Mod	CMPP Mod	Exclude	Emission Reduction Plan
6911	Manuel Monteiro	Ag Crop Production	11/17/2006	755 hp Cummins Engine	ATC	Exclude	Small increase (< 0.4 tons/year) in each of the following: NOX, CO, PM10 and SOX
6911	Manuel Monteiro	Ag Crop Production	8/16/2006	initial farm	Initial Farm	Exclude	No emissions Increase
6911	Manuel Monteiro	Ag Crop Production	11/17/2006	Rule 4570 Mitigation measures	ATC	Exclude	Control
6911	Manuel Monteiro	Ag Crop Production	3/28/2007	Modifying Dairy	ATC	Exclude	Non-Criteria Source
7057	Valley View Farms	Dairy Farm	12/27/2006	Rule 4570 Mitigation measures	ATC	Exclude	Control
7057	Valley View Farms	Dairy Farm	2/6/2007	Initial Dairy	Initial Farm	Exclude	No emissions Increase
7057	Valley View Farms	Dairy Farm	2/6/2007	CMP	CMP Plan APP	Exclude	Emission Reduction Plan
7057	Valley View Farms	Dairy Farm	2/15/2007	Application for Engines	In House PTO	Exclude	No emissions Increase
7126	Yokum Dairy	Dairy Farm	3/6/2006	Modify Dairy Increase Head	ATC	Exclude	Non-Criteria Source
7126	Yokum Dairy	Dairy Farm	3/20/2007	300 hp Cummind Diesel Engine	In House PTO	Exclude	No emissions Increase
7126	Yokum Dairy	Dairy Farm	1/23/2007	Rule 4570 Mitigation measures	ATC	Exclude	Control
7126	Yokum Dairy	Dairy Farm	1/17/2007	CMPP Mod	CMPP Mod	Exclude	Emission Reduction Plan
7126	Yokum Dairy	Dairy Farm	11/6/2006	CMP	CMP Plan APP	Exclude	Emission Reduction Plan
7126	Yokum Dairy	Dairy Farm	3/6/2006	Determine Commencement of Construction	Initial Farm	Exclude	Temporary
7126	Yokum Dairy	Dairy Farm	10/4/2006	Modify Dairy, Milk Barn	ATC	Exclude	No emissions Increase
7141	Rick Larsen		4/3/2006	Diesel Engine	Portable	Exclude	Mobile Source

ATTACHMENT DR20-1

SJVAPCD ATC Completeness Determination

San Joaquin Valley
AIR POLLUTION CONTROL DISTRICT

SEP 0 5 2008

Mark Kehoe
GWF Energy LLC - Hanford
4300 Railroad Avenue
Pittsburg, CA 94565

Re: Notice of Receipt of Complete Applications
Project Number: C-1083169

Dear Mr. Kehoe:

The San Joaquin Valley Air Pollution Control District (District) has received your Authority to Construct applications for the modification of two 47.5 MW simple-cycle peak-demand power generating gas turbine systems to convert them to allow operation in both combined cycle mode and simple cycle mode and the installation of one 460 bhp diesel fired emergency internal combustion engine powering a firewater pump, located at 10550 Idaho Avenue in Hanford, CA. Based on our preliminary review, the applications appear to be complete. This means that your applications contain sufficient information to proceed with our analysis. However, during the processing of your applications, the District may request additional information to clarify, correct, or otherwise supplement, the information on file.

According to District Rule 2201, Section 5.3, *Final Action*, please be aware that the District will not be able to issue the final Authority to Construct (ATC) permit(s) until the requirements of the California Environmental Quality Act have been fully satisfied by the Lead Agency.

Per your request, the Authority to Construct will be issued with a Certificate of Conformity (COC). Your project will therefore go for EPA Review per District Rule 2520 for a 45-day period at the conclusion of our analysis, prior to the issuance of the final Authority to Construct.

We will begin processing your application as soon as possible. In general, complete applications are processed on a first-come first-served basis.

It is estimated that the project analysis process will take 118 hours, and you will be charged at the weighted hourly labor rate in accordance with District Rule 3010. This estimate includes the following major processing steps: Determining Completeness (18 hours), Engineering Evaluation (45 hours), BACT Analysis (25 hours), Health Risk Assessment (10 hours), CEQA Analysis (10 hours) and Permit Preparation (10 hours). The current weighted labor rate is $90.00 per hour, but please note that this fee is revised annually to reflect actual costs and therefore may change. No payment is due at this time; an invoice will be sent to you upon completion of this project.

Please note that this letter is not a permit and does not authorize you to proceed with your project. Final approval, if appropriate, will be in the form of an Authority to Construct permit after application processing is complete. If you have any questions, please contact Mr. Jim Swaney at (559) 230-5900.

Sincerely,

David Warner
Director of Permit Services

Jim Swaney, P.E.
Permit Services Manager
DW:ddb