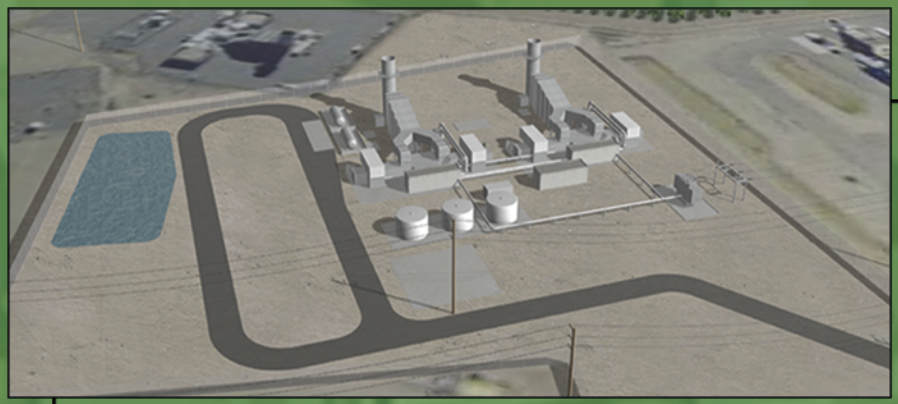

RESPONSES TO DATA REQUESTS (#1-67)

APPLICATION FOR CERTIFICATION
STARWOOD POWER-MIDWAY, LLC PEAKING PROJECT

SUBMITTED TO THE
CALIFORNIA ENERGY COMMISSION
MARCH 2007

SUBMITTED BY
STARWOOD POWER-MIDWAY, LLC

WITH SUPPORT FROM
URS
1615 MURRAY CANYON ROAD, SUITE 1000
SAN DIEGO, CA 92108
TEL: 619.294.9400
FAX: 619.293.7920

DOCKET
06-AFC-10
DATE MAR 09 2007
RECD. MAR 12 2007

URS

March 9, 2007

Che McFarlin
California Energy Commission
1516 9th Street, MS-15
Sacramento, CA 95814-5504

Subject: Starwood-Midway Project (06-AFC-10)
Responses to Data Requests (#1-67)
URS Project No. 27656131.00400

Dear Mr. McFarlin:

On behalf of Starwood Power-Midway, LLC, URS Corporation Americas (URS) hereby submits the Responses to Data Requests (#1-67).

I certify under penalty of perjury that the foregoing is true, correct, and complete to the best of my knowledge. I also certify that I am authorized to submit the Responses to Data Requests (#1-67) on the behalf of Starwood Power-Midway, LLC.

Sincerely,

URS CORPORATION

Angela Leiba
Project Manager

AL:ml

URS Corporation
1615 Murray Canyon Road, Suite 1000
San Diego, CA 92108
Tel: 619.294.9400
Fax: 619.293.7920

Data Response Guide for 3/6/07 Submittal

Data Request	Page
Air Quality	
AQ-1	AQ-1
AQ-2	AQ-2
AQ-3	AQ-3
AQ-4	AQ-4
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AQ-8	AQ-8
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AQ-13	AQ-15
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AQ-16	AQ-18
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AQ-22	AQ-24
AQ-23	AQ-25
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AQ-25	AQ-30
AQ-26	AQ-31
AQ-27	AQ-36
Biological Resources	
BIO-28	BIO-1
BIO-29	BIO-2
BIO-30	BIO-3
BIO-31	BIO-4
Cultural Resources	
CULT-32	CULT-1
CULT-33	CULT-3
CULT-34	CULT-4
CULT-35	CULT-5
CULT-36	CULT-6
CULT-37	CULT-7

TECHNICAL AREA: AIR QUALITY

Data Request 1: Please provide copies of all substantive District correspondence regarding the Starwood permit application, including e-mails, within one week of submittal or receipt. This request is in affect until the final Commission Decision has been recorded.

Response: District correspondence (to date) regarding the Starwood permit application is provided as an attachment to this sheet.

DATA REQUEST RESPONSE #1 ATTACHMENT

"Rich Weiss" <rweiss@houston.rr.com>
02/20/2007 12:47 PM
Please respond to <rweiss@houston.rr.com>

To "Amy Gramlich" <amy_gramlich@urscorp.com>, "Angela Leiba" <angela_leiba@urscorp.com>, "John Lague" <john_lague@urscorp.com>
cc
bcc
Subject DEC Data Request #!

Sell email string below

Richard H. Weiss
Starwood Power-Midway LLC
2737 Arbuckle St. Suite L
Houston, TX 77005
713-662-3688
713-828-1810 cell

-----Original Message-----
From: Dave Warner [mailto:dave.warner@valleyair.org]
Sent: Monday, February 12, 2007 11:55 AM
To: rweiss@houston.rr.com
Cc: Arnaud Marjollet; Errol Villegas
Subject: RE: :::: FW: PDOC date for Starwood Power 06-AFC-10

Hi Rich,

We appreciate your situation, and we will expedite your project to the extent possible.

I am not certain that we will make up the entire 6-week difference but we will see what we can do.

On the issue of RO processing, if it appears at some point in the process that it will improve our delivery time, we will accept this email as approval to do so. Currently, it would not help.

Dave

From: Rich Weiss [mailto:rweiss@houston.rr.com]

Sent: Monday, February 12, 2007 5:33 AM
To: Dave Warner
Subject: :::: FW: PDOC date for Starwood Power 06-AFC-10

First attempt to send was bounced?

Richard H. Weiss
Starwood Power-Midway LLC
2737 Arbuckle St. Suite L
Houston, TX 77005
713-662-3688
713-828-1810 cell

-----Original Message-----
From: Rich Weiss [mailto:rweiss@houston.rr.com]
Sent: Friday, February 09, 2007 2:40 PM
To: Dave Warner
Cc: Steve Zaminski; Ron Watkins; Angela Leiba; John Lague
Subject: RE: PDOC date for Starwood Power 06-AFC-10

Dave,

Power projects such as Midway are very capital intensive. The Midway plant represents approximately a $90 million transaction. Failure to achieve the CEC permit schedule enabling us to release construction will jeopardize achieving our PPA on-line date. The sum of PPA delay penalties and incurred project carrying costs totals about $44,000/day. Those damages will accrue on a daily basis until we demonstrate commercial operations per the terms of the PPA. Per the CEC notice, the APCD PDOC is 6 weeks behind the CEC schedule. The potential cost impact to Midway of a 6-week delay is $1.8 million. As good managers, we will try to mitigate any and all delays but the exposure for higher construction costs or PPA penalties has increased because of the delayed APCD PDOC schedule. Any schedule improvement would be appreciated.

If the RO option can save some time, please sign us up.

Appreciate your personnel constraints. Let me know if there is anything else we can do to support your effort.

Rich

Richard H. Weiss
Starwood Power-Midway LLC

2737 Arbuckle St. Suite L
Houston, TX 77005
713-662-3688
713-828-1810 cell

-----Original Message-----
From: Dave Warner [mailto:dave.warner@valleyair.org]
Sent: Monday, February 05, 2007 7:38 PM
To: rweiss@houston.rr.com
Cc: Arnaud Marjollet
Subject: RE: PDOC date for Starwood Power 06-AFC-10

Rich,

I spent some time following up on this today, and the answer is that we are just that impacted with applications for permits. We process applications in the order in which they were deemed complete (data-adequate), and there are several hundred applications in front of yours.

However, we do have a couple of ways for applicants to receive expedited application processing:

1. An applicant can request that the District push their application in front of others in the queue for one of two reasons:

   a. The project is needed quickly to prevent environmental degradation (such as a permit for a ground-water clean-up project).

   b. Financial reasons – i.e., not receiving the project approval in a given timeframe will cost the company $x/day, per/week, whatever.

2. We can process some applications on a "reimbursable overtime" (RO) basis, in which the applicant (in addition to making one of the above claims) also agrees to paying the District's overtime costs generated by an engineer working evenings and weekends.

In this case, we do not believe that the RO option will get you much, because there are many applications already requesting such processing. However, we do believe that we may be able to speed up the processing of your application upon the receipt of a letter or email that asks for expedited processing for financial reasons.

Of course, such requests have to be judged in comparison to other similar requests, but I encourage the submittal of the request as soon as possible.

Dave

From: Rich Weiss [mailto:rweiss@houston.rr.com]
Sent: Sunday, February 04, 2007 6:30 AM
To: Dave Warner
Cc: Allan Thompson; Angela Leiba; Ron Watkins
Subject: FW: PDOC date for Starwood Power 06-AFC-10

Dave, the SJAPCD schedule for a Preliminary Determination will delay our AFC process. What can we do to accelerate this schedule? What is the SJAPCD schedule driven by?

Thanks,

Rich

Richard H. Weiss
Starwood Power-Midway LLC
2737 Arbuckle St. Suite L
Houston, TX 77005
713-662-3688
713-828-1810 cell

-----Original Message-----
From: Che McFarlin [mailto:Cmcfarli@energy.state.ca.us]
Sent: Friday, February 02, 2007 12:22 PM
To: rweiss@houston.rr.com; angela_leiba@urscorp.com
Cc: Amy_Gramlich@URSCorp.com
Subject: PDOC date for Starwood Power 06-AFC-10

The San Joaquin Valley Air Pollution Control District (SJVAPCD) has informed us that they estimate that the Preliminary Determination of Compliance (PDOC) will be published by May 30th. This is approximately six weeks later then we'd anticipated and would likely affect the project schedule accordingly.

TECHNICAL AREA: AIR QUALITY

Data Request 2: Please provide the estimated operating hours at each specific ambient temperature used to determine the annual emission estimate.

Response: The note in Appendix I Attachment C of the Starwood AFC indicating that operating hours at different ambient temperatures were used to estimate annual turbine emissions is incorrect and should be deleted. In fact, the annual emission totals for each pollutant were calculated by adding the emissions associated with 365 startups and shutdowns for all four turbines plus the emissions corresponding to 3,781 hours of normal operation, with the latter represented by the highest controlled, full-load mass emission rate among those given by the turbine manufacturer for different ambient conditions. This approach is more conservative than an approach based on different emission rates at different ambient temperatures.

TECHNICAL AREA: AIR QUALITY

Data Request 3: Please provide a table with the project's estimated quarterly and annual ammonia emissions using the same ambient temperature assumptions used to develop the other pollutant emission estimates.

Response: Ammonia slip emissions from the Midway Project combustion turbine generators were presented in Section 5.6, Public Health of the AFC and are presented by quarter below. These emissions were estimated based on an assumed stack gas concentration of 10 ppmvd @15% O_2. The totals for four turbines (two Swiftpac units) operating 4,000 hours per year and for the requested hours of operation for each quarter are presented in the table below. Annual emissions assumed the worst-case hourly emission rate for all operating hours, rather than a combination of hours at different ambient temperatures.

Annual Ammonia Slip Emissions (pounds for 4 Turbines based on 10 ppmvd @ 15% O_2				
Annual (4,000 hours)	1st Quarter (800 hours)	2nd Quarter (800 hours)	3rd Quarter (1,400 hours)	4th Quarter (1,000 hours)
116,800	23,360	23,360	40,880	29,200

TECHNICAL AREA: AIR QUALITY

Data Request 4: Please provide summary information for the source test(s), preferably copied from the specific source test report(s), being used to determine the requested startup and shutdown NOx emission limits.

Response: The following table has been assembled with excerpts from source test reports documenting three separate startups and shutdowns on three different days at three different units operated by CalPeak. All of these source tests were conducted on Pratt & Whitney FT8-2 turbines, which are very similar to the proposed FT8-3 units, the main difference being that the former are equipped with dry low-NO_x combustors, while the latter use water injection as the first stage NO_x control measure.

Each number under Lbs per start or shutdown represents total pounds of the emitted pollutant, based on a 30 minute CEMS measurement period and a 5 MW per minute ramp rate on the start and an 8 MW per minute ramp rate on the shutdown. At this startup ramp rate the CalPeak Panoche units are typically in compliance with their permit emission limits within 7 to 9 minutes after the introduction of gas fuel.

The total emissions for a startup/shutdown cycle at the Enterprise and Border Stations operated by Calpeak average 3.09 lb and 2.52 pounds, respectively. The El Cajon unit measured 4.81 pounds per cycle, but this Swiftpac had known problems which have been corrected. The original installation of the Catalyst modules was done incorrectly and spaces were left in between the some of the modules. This allowed a minimal amount of leakage that did not have the benefit of being converted by the active catalyst. While the unit was still able to operate within its permitted emission limitations, it was nonetheless operating at a higher emissions rate than other plants operated by CalPeak.

Note that the startups and shutdowns documented in the following table occurred over a 30-minute period, whereas the Starwood Midway units will be required under the terms of the Power Purchase Agreement with PG&E to have the capability of starting up within 10 minutes. Thus, with faster ramp rates that willl be employed during startups and shutdowns of the FT8-3 units and the benefit of Calpeak's growing operational experience obtained with these machines, Starwood is confident that startup/shutdown emissions for the Midway project can be managed below the proposed emission level of 3.4 pounds NOx.

NO_x Start up

Plant	Lbs per start 1	Lbs per start 2	Lbs per start 3	Lbs per start Avg
Enterprise	2.42	1.48	2.72	2.20
El Cajon	4.33	3.41	2.78	3.50
Border	2.14	1.43	2.25	1.94

NO_x Shutdown

Plant	Lbs per stop 1	Lbs per stop 2	Lbs per stop 3	Lbs Per stop Avg
Enterprise	1.02	.94	.72	.89
El Cajon	1.25	1.41	1.29	1.31
Border	.32	.76	.68	.58

TECHNICAL AREA: AIR QUALITY

Data Request 5: Please provide a technical justification to explain why the legacy FT8 turbine that is being used to determine the NOx startup and shutdown emissions basis would be conservative in comparison with the SwiftPac FT8-3 turbines proposed for this project.

Response: There are currently no source test data for the FT8-3 Swiftpac and the only vendor data that are available are the product of theoretical computer simulations. The parameters under which the vendor startup and shutdown data is developed for the FT8-3 Switpac are very different from the proposed physical arrangement and operation of the units at the Midway Project. First, the vendor data applies specifically to units not equipped with SCR or CO oxidation catalyst. It represents engine emissions without the benefit of additional reductions from catalyst systems. Clearly, when these control systems are in place and operational within a few minutes of introducing gas fuel during a startup and until the last portion of a shutdown they will significantly lower emissions. Second, the vendor startup data pertain to 30-minute startups and shutdowns, whereas Starwood's Power Purchase Agreement with PG&E requires the ability to achieve full power operation within 10 minutes of notification. The longer startup period provided by the vendor data will correspond to a higher amount of emissions. For these reasons the available vendor data have not been considered to be representative of the startup and shutdown characteristics of the FT8-3 units of the Midway project.

The CalPeak CEMS data presented in the response to Data Request No 4 refers to startups over a 30-minute period, whereas the Midway units will usually start up in one-third of this time. Thus the Midway F8-3 units will attain the exhaust temperature to activate the catalyst systems much more quickly than the FT8-2 units represented in the available CEMS data. This shorter ramp-up time will more than compensate for the very short intervals without water injection that will occur during startups and shutdowns with the FT8-3 Swiftpacs and that will briefly elevate NOx emission levels. The latter issue does not petain to the FT8-2 units, which are equipped with DLN combustors.

TECHNICAL AREA: AIR QUALITY

Data Request 6: Please identify the approximate age and total hours of use for the legacy FT8 turbine at the time of its source test(s) and provide a description of how this would relate to this project's proposed SwiftPac turbines after 30 years and several thousand hours of service.

Response: The CalPeak Panoche facility was put into service in December of 2001 and as of 2-23-07 has 1228 operating hours. Annual source tests have been performed on the following dates with the number of operating hours between tests noted next to the test date.

		Source Test Date	
12-27-01	through	2-19-02	150 hours
2-19-02	through	4-1-03	400 hours
4-01-03	through	4-1-04	360 hours
4-01-04	through	4-26-05	123 hours
4-26-05	through	4-26-06	107 hours

TECHNICAL AREA: AIR QUALITY

Data Request 7: Please provide the calculations for the 18 minute startup event CO emissions based on the data provided in Appendix I, Attachment C, Table 3.4-1A.

Response: We do not understand the basis for the CEC's calculations of CO startup emissions. The turbine vendor data on startup emissions presented in Appendix I, Attachment C, Table 3.4-1A represent the total pollutant emissions in pounds over a 30 minute startup period, which, as described in Note 5 to this table, includes 12 minutes of operation with the SCR and CO catalyst operating at design effectiveness. In the case of CO, the total emissions over the full 30 minutes amount to 3.75 pounds for one turbines (7.5 lb for one Swiftpac). Under the terms of its Power Purchase Agreement with PG&E, the Midway turbines will be required to have the capability to attain full power within 10 minutes, a shorter time period than 30 minutes, a situation for which no vendor data are available. In order to provide a conservative estimate of emissions for each turbine during any hour that includes a startup, the entire 3.75 pounds were assumed to occur during an 18-minute period (rather than 30 minutes as assumed by the vendor), and then the maximum normal full-load operating emissions (4.08 pounds per hour per turbine at 18 deg F) were assumed to occur over the remaining 42 minutes, essentially double-counting the emissions in the last 12 minutes of the vendor startup period.

Thus, for each combustion turbine, the emissions for any hour that includes a startup were estimated as follows:

3.75 pounds + (42/60) x 4.08 pounds per hour = 6.61 pounds (13.22 pounds per Swiftpac). These values are expected to be conservative, because in reality, the Swiftpac will be capable of attaining full operating power and full compliance with permit emission limits in as few as 10 minutes. When this occurs, CO emissions will be lower than the values calculate here for a 30 minute event.

Note that the expected CO emissions per Swiftpac unit are about 8 pounds per shutdown event, which is actually higher than the expected startup emissions. This difference is explained by the slower ramp rate during a shutdown.

The above calculation is executed in cell E50 of the "Midway Turbines 100%" Excel worksheet of Appendix I, Attachment C, a copy of which is attached as Attachment 7-1.

For reference, CO source test data from legacy FT8-2 Swiftpacs are considered to be unrepresentative of the new FT8-3 units. The FT8-2 units use dry low-NO_x (DLN) combustors that result in a non-stoichiometric combustion condition that is specifically tuned to minimize NO_x emissions, somewhat at the cost of higher CO emissions. Representatives of Pratt & Whitney stated that the FT8-3 units can be expected to have CO emissions that will typically be lower than the FT8-2 units by a factor of two or three. For this reason, we have not presented FT8-2 CO emissions data in these Data Request responses, and have not relied on such source test information to support turbine manufacturer emissions projections for this pollutant.

DATA REQUEST RESPONSE #7
ATTACHMENT

APPENDIX B

AIR QUALITY DATA

ATTACHMENT C

SUPPORTING INFORMATION ON ESTIMATION OF PROJECT OPERATION EMISSIONS

low catalyst temps

	1 UNIT	2 UNITS	1 UNIT	2 UNITS	1 UNIT	2 UNITS
Ambient Temperature (°F)	114	114	63.3	63.3	18	18
Stack Diameter (ft)	15	15	15	15	15	15
Exhaust Flow (lb/hr)	780654.0	1561308	840143.5	1680287	883119.0	1766238
Exhaust Flow (acfm)	423776.83	847554	444060.84	888122	441869.49	883739
Stack Exit Velocity, ft/m	2398.09	4796.2	2512.87	5025.7	2500.47	5000.9
Stack Exit Velocity, m/s	12.18	24.36	12.77	25.53	12.70	25.40
Stack Exit Velocity, ft/s	39.97	79.94	41.88	83.76	41.67	83.35
Turbine Outlet Temperature (°F)	830	830	796	796	729	729
CTG Load Level	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Evap. Cooler	ON	ON	ON	ON	OFF	OFF

Data from Vendor Area = 176.71 ft^2

Expected Operation of Each Gas Turbine - Normal Operation

(Reference: Table 3.4-1 Midway Generating Unit Estimated Performance and Emissions Data FT8-3 Swift Pacs with Foggers)

Heat Consumed (MMBTU/hr)	290.8	290.8	311.2	311.2	309.5	309.5
Nitrogen, % Vol	73.13	73.13	74.20	74.20	74.69	74.69
Oxygen, % Vol	15.45	15.45	15.50	15.50	15.44	15.44
Carbon Dioxide, % Vol	2.14	2.14	2.26	2.26	2.36	2.36
Argon, % Vol	0.87	0.87	0.89	0.89	0.89	0.89
Water Vapor, % Vol	8.41	8.41	7.15	7.15	6.61	6.61
Molecular Weight	28.22	28.22	28.37	28.37	28.44	28.44

Data from Vendor

Average Emission Rates from Each Gas Turbine (lbs/hr) - Normal Operations

NO_X at 37 ppmvd pre-BACT level	39.10	39.10	41.80	41.80	41.60	41.60
NO_X at 2.5 ppmvd BACT level	2.60	5.30	2.80	5.70	2.80	5.70
CO at pre BACT level	12.40	12.40	13.30	13.30	17.60	17.60
CO ppmvd pre-BACT level	19.00	19.00	19.00	19.00	26.00	26.00
CO at BACT level	2.40	4.80	2.60	5.20	26.00	8.16
CO ppmvd BACT level	3.80	3.80	3.80	3.80	6.00	6.00
VOC at 1.7 ppmvd BACT level	0.60	1.20	0.70	1.40	0.70	1.40
SO_2 short-term rate	0.41	0.81	0.43	0.87	0.43	0.86
SO_2 long-term rate	0.26	0.52	0.28	0.56	0.28	0.55
PM_{10}	1.85	3.70	1.85	3.70	1.85	3.70
NH_3 at 10 ppmvd tBACT level	7.30	14.60	7.30	14.60	7.30	14.60

Sulfur content in fuel basis for above: 0.5 grain total S/100 scf short-term
0.32 grain total S/100 scf long-term

high catalyst temps

	1 UNIT	2 UNITS	1 UNIT	2 UNITS	1 UNIT	2 UNITS
Ambient Temperature (°F)	114	114	63.3	63.3	18	18
Stack Diameter (ft)	15	15	15	15	15	15
Exhaust Flow (lb/hr)	723774.5	1447549	777753	1555506	814816	1629632
Exhaust Flow (acfm)	408145.11	816290	428435.38	856871	426215.12	852430
Stack Exit Velocity, ft/m	2309.63	4619.3	2424.45	4848.9	2411.88	4823.8
Stack Exit Velocity, m/s	11.73	23.47	12.32	24.63	12.25	24.50
Stack Exit Velocity, ft/s	38.49	76.99	40.41	80.81	40.20	80.40
Turbine Outlet Temperature (°F)	880	880	849	849	783	783
CTG Load Level	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Evap. Cooler	ON	ON	ON	ON	OFF	OFF

Data from Vendor Area = 176.71 ft^2

Data from Vendor

Startup / Shutdown Emissions from Each Turbine (2 Turbines = 1 SwiftPac Unit)

Startup

duration in minutes	18	18	42	Average	1 hour of
	Startup	Total Startup	Normal	Startup	Startup
	Emissions	Emissions	Emissions	Emissions	Emissions
	lb/event	**lb/event**	lb/hour	lb/hour	lb/hour
NO_X	1.25	1.25	2.80	3.21	4.2
CO	3.75	3.75	26.00		12.50
VOC	0.25	0.25	1.40	1.23	0.83
SO_2	0.13	0.13	0.43	0.44	0.44
PM_{10}	0.56	0.56	1.85	1.85	1.85

Assumptions:

Startup Emissions for CO, NO_2, PM_{10}, and VOC integrated from data provided by client.

SO_2 emissions assume complete conversion of all sulfur to SO_2.

Normal emissions are highest of six operating cases listed above

NO_x emission estimates from actual CEMS data. VOC and CO emission estimates from client Table 3.4-1A.

PM_{10} emission estimates from normal operations. SO_2 estimates based on 0.5 grains/100 scf natural gas.

Shutdown

duration in minutes	18	42	Average	1 hour of
	Shutdown	Normal	Startup	Shutdown
	Emissions	Emissions	Emissions	Emissions
	lb/event	lb/hour	lb/hr	lb/hour
NO_X	0.45	2.80	2.41	1.50
CO	6.40	26.00	24.60	21.33
VOC	0.25	0.70	0.74	0.83
SO_2	0.13	0.43	0.44	0.44
PM_{10}	0.56	1.85	1.85	1.85

Assumptions:

Shutdown Emissions for CO, NO_2, PM_{10}, and VOC integrated from data provided by client.

SO_2 emissions assume complete conversion of all sulfur to SO_2.

Normal emissions are highest of six operating cases listed above.

NO_x emission estimates from actual CEMS data. VOC and CO emission estimates from client Table 3.4-1A.

PM_{10} emission estimates from normal operations. SO_2 estimates based on 0.5 grains/100 scf natural gas.

Commissioning Emissions

		Total Pounds Emitted		
	Hours	NO_x	CO	VOC
Controlled Break-in	5	47.79	12.09	0.41
Overspeed Test	1	9.56	2.42	0.08
Brush Generator Test	17	322.91	142.08	6.74
Water Injection Tuning	12.5	374.08	209.53	8.72
Fogger Commissioning	4	166.61	52.91	2.66
Catalyst Loading	4	166.61	52.91	2.66
SCR Commissioning	4	88.94	31.61	2.66
Full Load Testing	7.75	19.68	22.54	5.05
Emission Compliance	12	33.79	30.89	7.99
Startups/Shutdowns		44.37	31.16	1.44
Total Commissioning Hours	67.25	1274.34	588.14	38.41
		Maximum Emission Rates lb/hr		
		NO_x	CO	VOC
Controlled Break-in		9.56	2.42	0.08
Overspeed Test		9.56	2.42	0.08
Brush Generator Test		18.99	8.36	0.40
Water Injection Tuning		29.93	16.76	0.70
Fogger Commissioning		41.65	13.23	0.67
Catalyst Loading		41.65	13.23	0.67
SCR Commissioning		22.24	7.90	0.67
Full Load Testing		2.54	2.91	0.65
Emission Compliance		2.82	2.57	0.67

Worst-Case 1-Hour Emissions per Turbine

Worst-Case 1-Hour Emissions are equal to the commissioning emission rates, except for SO_2 and PM_{10} which have worst-case emissions during startup.

Emissions per turbine	lb/hr		g/s
NO_2	41.65		5.25
CO	19.90		2.51
VOC	0.70		0.09
SO_2	0.44		0.05
PM_{10}	1.85		0.23

The highest 1-hour commissioning emission rate occurs during a subset of the water injection tuning test.

Worst-Case 3 Hour Emission Rate per Turbine

Only SO_2 is considered for an average 3-hour Ambient Air Quality Standard.

Worst-case 3-Hour Scenario are equal to 3 hours at normal rate.

	Worst-case Total	Startup /Warmup	Shutdown	Normal Operations	Worst-case Total	Startup /Warmup	Shutdown	
Emissions per turbine	lb/hr							Total lbs
Total Hours of Operation	3.0			3.00				
SO_2	0.44			0.44	1.31			

Worst-Case 8-Hour Emission Rates

Only CO is considered for an average 8-hour Ambient Air Quality Standard.

Worst-case 8-Hour Scenario includes 8 hours of commissioning. Only one turbine will be undergoing commissioning at any one time.

	Worst-case Total	Startup /Warmup	Shutdown	Commissioning	Normal Operations	Worst-case Total	Startup /Warmup	
Emissions per turbine	lb/hr							
Total Hours of Operation	8			8	0			
CO	16.76			16.76	0.00	134.10		

Worst-Case 3 Hour Emission Rate per Turbine (Continued)

Normal Operations	Worst-case Total
	g/s
3.000	
1.31	0.05

Worst-Case 8-Hour Emission Rates (Continued)

Shutdown	Commissioning	Normal Operations	Worst-case Total
Total lbs			g/s
	8	0.00	
	134.10	0.00	2.11

Worst-Case 24 Hour Emission Rate

Only SO_2 and PM_{10} are considered for an average 24-hour Ambient Air Quality Standard.

Worst-case 24-Hour Scenario for PM_{10} includes 1 Startup, 1 Shutdown, and remaining time at normal rate.

Worst-case 24-hour scenario for SO_2 uses normal operations.

Emissions per turbine	Worst-case Total	Startup /Warmup	Shutdown	Normal Operations	Worst-case Total	Startup /Warmup	Shutdown	
	lb/hr							Total lbs
Total Hours of Operation	24	0.90	0.900	22.200		0.90	0.900	
NO_X	2.80	4.17	1.50	2.80	67.26	3.75	1.35	
CO	3.67	12.50	21.33	2.60	88.17	11.25	19.20	
VOC	0.71	0.83	0.83	0.70	17.04	0.75	0.75	
SO_2	0.43	0.44	0.44	0.43	10.43	0.40	0.40	
PM_{10}	1.85	1.85	1.85	1.85	44.40	1.67	1.67	

CTG Commissioning testing could operate for 24 hours.

Average Annual Emissions

Average Operation lb/hr Emission Rates presented below for normal operations are based on the 63°F, 100% load operation scenario for 4,000 total operating hours, which includes 365 startup/warmup events and 365 shutdown events. Worst-case total emission rate incorporates estimated operating hours at different temperatures.

Emissions per turbine	Worst-case Total	Startup /Warmup	Shutdown	Normal Operations	Worst-case Total	Startup /Warmup	Shutdown	
	lb/hr							Total lbs
Total Hours of Operation	4000	109.50	109.50	3781.00				
Number per Scenario		365	365					
Duration of Event (min)		18.0	18.0	60				
NO_X	1.28	4.17	1.50	2.80	11207.3	456.3	164.3	
CO	11.65	12.50	21.33	26.00	102010.8	1368.8	2336.0	
VOC	0.32	0.83	0.83	0.70	2829.2	91.3	91.3	
SO_2	0.13	0.44	0.44	0.28	1147.3	48.4	48.4	
PM_{10}	0.84	1.85	1.85	1.85	7400.0	202.6	202.6	

Note: Worst-case lb/hr is the total emissions (lbs) over 8760 hours/year

Annual SO_2 normal operations based on 0.32 grains/100 scf natural gas.

Estimated annual normal operating hours 3781

ANNUAL TOTALS	1 turbine	2 turbines (1 unit)	2 units (4 turbines)	
NO_X	5.60	11.21	22.41	tpy
CO	51.01	102.01	204.02	tpy
VOC	1.415	2.829	5.66	tpy
SO_2	0.57	1.15	2.29	tpy
PM_{10}	3.70	7.40	14.80	tpy

Worst-Case 24 Hour Emission Rate (Continued)

Normal Operations	Worst-case Total
	g/s
22.200	
62.16	0.35
57.72	0.46
15.54	0.09
9.64	0.05
41.07	0.23

Average Annual Emissions (Continued)

Normal Operations	Worst-case Total
	g/s
10586.8	0.16
98306.0	1.47
2646.7	0.04
1050.6	0.02
6994.9	0.11

1-Hour Worst-Case Emission Scenario for Midway

Only NO_2, CO and SO_2 are considered for the 1-hour Ambient Air Quality Standard.

Worst-case 1-Hour Scenario for NO_2 and CO includes new turbines operating for 1 hour at highest commissioning rate.

Worst-case 1-Hour Scenario for SO_2 includes new turbines operating for 1 hour at startup.

Emissions per turbine	lb/hr	g/s
NO_2	41.65	5.25
CO	19.90	2.51
SO_2	0.44	0.05

3 Hour Emissions Scenarios for Midway

Only SO_2 is considered for an average 3-hour Ambient Air Quality Standard.

The worst-case 3-hour emission rate is the maximum SO_2 rate for 100% load, normal operating case (63°F; with Evap. Cooler On).

Emissions per turbine	lb/hr	g/s
SO_2	0.44	0.05

8-Hour Emissions Scenarios for Midway

Only CO is considered for an average 8-hour Ambient Air Quality Standard.

Worst-case 8-Hour Scenario includes 8 hours of commissioning.

Emissions per turbine	lb/hr	g/s
CO	19.90	2.51

24-Hour Emissions Scenarios for Midway

Only SO_2 and PM_{10} are considered for an average 24-hour Ambient Air Quality Standard.

Worst-case 24-Hour Scenario for PM_{10} includes 1 Startup, 1 Shutdown, and remaining time at normal rate. SO_2 uses normal operating rate.

Emissions per turbine	lb/hr	g/s
NO_2	2.80	0.35
CO	3.67	0.46
VOC	0.71	0.09
SO_2	0.44	0.05
PM_{10}	1.85	0.23

Average Annual Emissions for Midway

Average Operation Emission Rates are based on the annual operation scenarios for 4,000 hours
which includes 365 startup/warmup events and 365 shutdown events.
annual SO_2 assumes 0.32 grains/scf

Emissions per turbine	lb/hr	g/s
NO_X	1.28	0.16
CO	11.65	1.47
VOC	0.32	0.04
SO_2	0.13	0.02
PM_{10}	0.84	0.11

Note: Worst-case annual lb/hr is the total emissions (lbs) over 8760 hours/year

Table 3.4-1
Midway Generating Unit
Estimated Performance and Emissions Data
FT8-3 Swift Pacs (TP) with Foggers
Water Injected to 37 PPM NOx at GT Exit
72290 Generators, 60 Hz, 0.85 PF

Gas Turbines Operating		2	1	2	1	2	1	2
Foggers Operating		No	No	Yes	Yes	Yes	Yes	Yes
Ambient Temperature	Deg F	18	18	63.3	63.3	114	114	59
Relative Humidity	%	91	91	40	40	22	22	60
Ambient Pressure	PSIA	14.48	14.48	14.48	14.48	14.48	14.48	14.48
Altitude	Feet	410	410	410	410	410	410	410
Compressor Inlet Temperature	Deg F	18.0	18.0	51.1	51.1	80.8	80.8	51.8
Fogger Water Consumption per GT	GPM	0.0	0.0	3.9	3.9	9.7	9.7	2.3
Inlet Duct Pressure Loss	in. H2O	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Exhaust Duct Pressure Loss	in. H2O	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Fuel Lower Heating Value	BTU/lb	20559	20559	20559	20559	20559	20559	20559
HHV/LHV Ratio		1.11	1.11	1.11	1.11	1.11	1.11	1.11
Twin Pac Gross Power Output	MW	60.889	28.211	60.107	27.794	54.867	25.170	60.020
Gross Heat Rate (LHV)	BTU/kWh	9158	9883	9327	10086	9549	10408	9331
Gross Heat Rate (HHV)	BTU/kWh	10165	10970	10353	11195	10600	11553	10357
Inlet Flow per GT	PPS	202.8	202.8	193.7	193.7	180.5	180.5	193.5
Fuel Input (HHV) per GT	MMBTU/H	309.5	309.5	311.2	311.2	290.8	290.8	310.8
Fuel Flow per GT	PPH	13561	13561	13635	13635	12743	12743	13620
Water Injection Flow per GT	GPM	22.9	22.9	24.5	24.5	23.1	23.1	24.5
Gas Turbine Exhaust Flow per GT	PPS	208.7	208.7	199.9	199.9	186.3	186.3	199.6
Gas Turbine Exhaust Gas Temperature	Deg F	839	839	904	904	933	933	905
GT Exhaust Gas Relative Enthalpy (ref 77 F)	BTU/lb	198.0	198.0	217.5	217.5	228.2	228.2	217.8
Exhaust Emissions at GT Exit								
NOx referenced to 15% O2	ppmvd	37	37	37	37	37	37	37
NOx as NO2 per GT	PPH	41.6	41.6	41.8	41.8	39.1	39.1	41.8
CO referenced to 15% O2	ppmvd	26	26	19	19	19	19	19
CO per GT	PPH	17.6	17.6	13.3	13.3	12.4	12.4	13.3
VOC as CH4 referenced to 15% O2	ppmvd	1.7	1.7	1.7	1.7	1.7	1.7	1.7
VOC per GT	PPH	0.7	0.7	0.7	0.7	0.6	0.6	0.7
SO2 per GT	PPH	1.0	1.0	1.0	1.0	0.9	0.9	1.0
Total Particulates per GT	PPH	2.0	2.0	2.1	2.1	1.9	1.9	2.1
GT Exhaust Streams Combined Prior to SCR / CO Converter (Data presented on a Unit basis with the indicated number of GT's Operating)								
Dilution Air Added Before SCR	PPS	56.0	28.0	99.8	49.9	119.7	59.9	99.3
Total Stack Flow	PPS	473.5	236.8	499.5	249.8	492.3	246.1	498.6
Stack Temperature	Deg F	750	750	750	750	750	750	750
SCR Effectiveness Assumed	%	93.2	93.2	93.2	93.2	93.2	93.2	93.2
NOx after SCR referenced to 15% O2	ppmvd	2.5	2.5	2.5	2.5	2.5	2.5	2.5
NOx after SCR as NO2	PPH	5.6	2.8	5.7	2.8	5.3	2.6	5.6
CO Converter Effectiveness Assumed	%	81	81	81	81	81	81	81
CO After CO Converter referenced to 15% O2	ppmvd	5.0	5.0	3.8	3.8	3.8	3.8	3.8
CO after CO Converter	PPH	6.8	3.4	5.2	2.6	4.8	2.4	5.2
Stack Exhaust Composition								
N2	Vol %	74.13	74.13	73.58	73.58	72.36	72.36	73.51
Ar	Vol %	0.88	0.88	0.88	0.88	0.86	0.86	0.87
CO2	Vol %	2.76	2.76	2.62	2.62	2.47	2.47	2.62
H2O	Vol %	7.73	7.73	8.30	8.30	9.73	9.73	8.39
O2	Vol %	14.50	14.50	14.62	14.62	14.58	14.58	14.59

Notes:

1. Data assumes the use of fuel and water conforming to PWPS Specifications FR-2 and Ar-1.
2. Emissions measured using appropriate USEPA reference methods.
3. Particulates shown are the based on AP42 Factor (0.0066 lb/MMBTU(HHV)).
4. Sulfur dioxide estimates based on a fuel sulfur content of 1 gr/100scf.
5. Data labeled as "per GT" applies to each gas turbine in the Twin Pac unit.
6. Estimates assume the use of SCR's with catalyst limitations of 750F, use of higher temperature catalyst would chang the amount of dilution air required as well as stack temperature and total stack flow estimates shown.
7. All data is to be considered as estimated and is supplied for informational purposes.
8. Single GT operation assumes the opposite power turbine is coupled to the generator and windmilling

8/28/2006

FT8-3 Emissions Estimates During Commissioning

	Commissioning Step	Load	Duration (Hours)	Water Inj	SCR	CO Conv	NOx (PPH) per GT	CO (PPH) per GT	VOC (PPH) per GT	NOx (Pounds) per GT	CO (Pounds) per GT	VOC (Pounds) per GT
I	Power Turbine Break In	SI	5	No	No	No	9.56	2.42	0.08	47.79	12.09	0.41
II	Overspeed Test	SI	1	No	No	No	9.56	2.42	0.08	9.56	2.42	0.08
III	Brush Generator Testing	SI	8	No	No	No	9.56	2.42	0.08	76.47	19.34	0.65
		Base	1.5	Yes	No	No	41.65	13.23	0.67	62.48	19.84	1.00
		50	1.5	Yes	No	No	35.35	14.95	0.56	53.02	22.42	0.85
		40	1.5	Yes	No	No	29.58	2.59	0.72	44.36	3.88	1.08
		30	1.5	Yes	No	No	23.88	18.40	0.68	35.82	27.61	1.01
		20	1.5	Yes	No	No	18.67	18.61	0.74	28.01	27.91	1.11
		10	1.5	Yes	No	No	15.17	14.05	0.69	22.75	21.08	1.03
IV	Water Injection Tuning											
	Heat Soak	Base	2	Yes	No	No	41.65	13.23	0.67	83.31	26.46	1.33
	Tuning	Base	1.5	Yes	No	No	41.65	13.23	0.67	62.48	19.84	1.00
		83%	2	Yes	No	No	35.18	14.99	0.57	70.36	29.98	1.13
		67%	2	Yes	No	No	29.65	18.39	0.72	59.30	36.78	1.43
		50%	2	Yes	No	No	23.85	18.39	0.67	47.70	36.78	1.35
	1050 F EGT		3	Yes	No	No	16.98	19.90	0.83	50.93	59.69	2.48
V	Fogger Commissioning	Base	4	Yes	No	No	41.65	13.23	0.67	166.61	52.91	2.66
VI	Run Prior to Catalyst Loading	Base	4	Yes	No	No	41.65	13.23	0.67	166.61	52.91	2.66
VII	SCR Commissioning	Base	2	Yes	No	No	41.65	13.23	0.67	83.31	26.46	1.33
			2	Yes	Yes	Yes	2.82	2.57	0.67	5.63	5.15	1.33
VIII	Performance Test											
	Heat Soak	Base	2	Yes	Yes	Yes	2.82	2.57	0.67	5.63	5.15	1.33
		Base	2	Yes	Yes	Yes	2.82	2.57	0.67	5.63	5.15	1.33
		95%	0.75	Yes	Yes	Yes	2.68	2.73	0.63	2.01	2.04	0.47
		90%	0.75	Yes	Yes	Yes	2.55	3.10	0.60	1.91	2.33	0.45
		80%	0.75	Yes	Yes	Yes	2.31	3.15	0.59	1.73	2.36	0.44
		70%	0.75	Yes	Yes	Yes	2.07	3.78	0.69	1.56	2.83	0.52
		50%	0.75	Yes	Yes	Yes	1.61	3.58	0.67	1.21	2.68	0.51
IX	Emission Compliance	Base	12	Yes	Yes	Yes	2.82	2.57	0.67	33.79	30.89	7.99
							(lbs)	(lbs)	(lbs)			
	Startups to Sync. Idle (5)						0.27	0.075	0	1.35	0.375	0
	Startup Cycles to Base (6)						5.05	3.38	0.13	30.3	20.28	0.78
	Shutdown cycles from 50% (6)						2.12	1.75	0.11	12.72	10.5	0.66
									Pounds Emitted per GT	1274.34	588.14	38.41

Total Time (Hours)	67.25	**Total Pounds Emitted**	2548.7	1176.3	76.8
FT8-2 CEM Data	94		1283	878	
		Ratio FT8-3 to FT8-2 CEM Data	**2.0**	**1.3**	

Notes:

1. SCR commissioning estimates are preliminary. Waiting for more accurate estimate of test requirements.
2. Data based on Tamb of 52 F, the average of the average monthly temperatures for Jan., Feb. and March. Assumed commissioning would occur during first quarter.
3. Assumed 1 start to baseload and 1 shutdown from 50% load per phase for pases IV to IX. No reduction from SCR or CO converter included.(5 MW/min loading/unload rate, 17.9 min start, 11.8 min shutdown from 50%).

10/13/06

Table 3.4-1A
FT8-3 Swift Pac
Estimated Startup and Shutdown Emission Quantities

1) The following emissions estimates are based on the Northern California Natural Gas used for CalPeak.
2) Total emissions produced during the startup or shutdown period will vary if loading/unloading rates different than the indicated value are selected.
3) Estimated emission quantities below are based upon steady state emission rates at various operating conditions during startup and shutdown, such as purge timer duration, accel to GG Idle, GG idle hold, accel to sync idle, synchronization and breaker closure, 25%, 50%, 75%, and 100% of rated output.
4) Calculation of emission quantities are performed by integrating the emission rates at various operating points, over the duration at the representative condition. Quantities of emissions reported below are the sum of each emission from initiation of fuel flow through attainment of rated power.
5) No credit has been taken for reduction of emissions from the CO converter or SCR during the 17.9 minute start up to full load or for the shut down cycle making the values shown conservative. Design effectiveness will be reached by full load. SCR and CO converter reduction efficiencies were taken into account for the 12.1 minute period after full load is reached out to 30 minutes.
6) WI-37 designation indicates base-load water injection NOx control levels (37 ppmvd@15% O2).
7) Duration refers to the amount of time from start initiation to full load or stop initiation to fuel chop using the indicated load / unload rates.

		Estimated Emissions	
		Specified Natural Gas, WI-37	
		Quantities per Swift Pac	
Parameter		**Startup**	**Shutdown**
Duration	min	30.0	30.0
Load / Unload Rate Used	MW/min	5	2.5
NOx as NO2	lbs	11.2	20.2
CO	lbs	7.5	12.8
VOC	lbs	0.5	0.5

SCR SYSTEM DATA SHEET

Quote/Job: 4145-4528 End User:
Customer: ESI Project:

LOW CATALYST TEMPERATURE

Item	Units			
		52500	52500	52500
Case		18F	63.3F	114F
Fuel		NG	NG	NG
Reactor Inlet Conditions:				
Flow Rate with Cooling Air, Wet	lb/hr	1,763,434	1,677,498	1,558,537
Flue Gas Temperature (Cooled)	degrees F	729	796	830
O2	Vol %, wet	15.44	15.50	15.45
H2O	Vol %, wet	6.61	7.15	8.41
N2	Vol %, wet	74.69	74.20	73.13
CO2	Vol %, wet	2.36	2.26	2.14
Ar	Vol %, wet	0.89	0.89	0.87
NOx @ 15 % O2	ppmvd	37	37	37
NOx	lb/hr	73.20	66.81	59.10
CO	ppmvd	26	19	19
CO	lb/hr	31.32	20.89	18.48
SOx	ppmvd	0	0	0
SOx	lb/hr	0	0	0
NO Reduction	Percent	93.2432432	93.24324324	93.2432432
CO Reduction	Percent	76.9230769	68.42105263	68.4210526
Dilution Air Required	lb/hr	2633	2633	2633
Dilution Air Required	SCFM	544	544	544
Aqueous Ammonia Consumption	lb/hr	171	156	138
Aqueous Ammonia Consumption	gal/month	15410	14065	12442
Total Mass Injected by SCR	lb/hr	2804	2789	2771
Reactor Outlet Conditions:				
Flue Gas Flow Rate, Wet	lb/hr	1,766,238	1,680,287	1,561,308
Emissions:				
NOx	ppmvd	2.5	2.5	2.5
NOx	lb/hr	4.9	4.5	4.0
CO	ppmvd	6.0	6.0	6.0
CO	lb/hr	7.2	6.6	5.8
SOx	ppmvd	0.0	0.0	0.0
NH3	ppmvd	9.9	9.9	9.9
NH3	lb/hr	7.26566419	6.6	5.9
Required Heater Capacity	kW	120	120	120
Required Heater Size	inches	24	24	24
Aqueous Ammonia Concentration	Percent	19	19	19

PEERLESS SCR SYSTEM DATA SHEET - CONFIDENTIAL
Existing 150 HP

Quote/Job: 4145-4528 End User: Starwood Power
Customer: ESI Project: Midway

HIGH CATALYST TEMPERATURE

Item	Units			
		25000	25000	25000
Case		18F	63.3F	114F
Fuel		NG	NG	NG
Reactor Inlet Conditions:				
Flow Rate with Cooling Air, Wet	lb/hr	1,626,828	1,552,717	1,444,777
Flue Gas Temperature (Cooled)	degrees F	783	849	880
O2	Vol %, wet	14.99	15.07	15.02
H2O	Vol %, wet	7.16	7.71	9.06
N2	Vol %, wet	74.44	73.89	72.75
CO2	Vol %, wet	2.52	2.43	2.30
Ar	Vol %, wet	0.88	0.88	0.87
NOx @ 15 % O2	ppmvd	37	37	37
NOx	lb/hr	73.25	66.81	59.10
CO	ppmvd	26	19	19
CO	lb/hr	31.34	20.89	18.48
SOx	ppmvd	0	0	0
SOx	lb/hr	0	0	0
NO Reduction	Percent	93.24	93.24	93.24
CO Reduction	Percent	76.92	68.42	68.42
Dilution Air Required	lb/hr	2,633	2,633	2,633
Dilution Air Required	SCFM	544	544	544
Aqueous Ammonia Consumption	lb/hr	171	156	138
Aqueous Ammonia Consumption	gal/month	15,420	14,065	12,442
Total Mass Injected by SCR	lb/hr	2,804	2,789	2,771
Reactor Outlet Conditions:				
Flue Gas Flow Rate, Wet	lb/hr	1,629,632	1,555,506	1,447,549
Emissions:				
NOx	ppmvd	2.5	2.5	2.5
NOx	lb/hr	4.9	4.5	4.0
CO	ppmvd	6.0	6.0	6.0
CO	lb/hr	7.2	6.6	5.8
SOx	ppmvd	0.0	0.0	0.0
NH3	ppmvd	9.9	9.9	9.9
NH3	lb/hr	7.27	6.6	5.9
Required Heater Capacity	kW	120	120	120
Required Heater Size	inches	24	24	24
Aqueous Ammonia Concentration	Percent	19	19	19

BASE CASE
Start Up and Shut Down NOx = CalPeak Actual Data
NOx, CO, NH4 per EPC Guarantee
SO2 at .32 gr/100scf
PM10 from P&W

	EPC PPM	2 Units Air Permit lbs/hr	2 Units Startup lbs/cycle	Tons 365 Cycles/yr	Tons 4000 Hours/yr	Less Cycle Time/hours 219	Total Emissions	ERC Offset Tons 1.5 X	PM10 to SO2 Conversion 1.8	
NOx (1)	2.5	11.4	6.8	1.24	22.8	1.25	**22.79**	34.19		
VOC	2	2.8	2	0.37	5.6	0.31	5.66	5.66	(4)	
CO	6	13.6	40.6	7.41	27.2	1.49	33.12	NR		
PM10 (6)		7.4	4.44	0.81	14.8	0.81	14.80	22.20	40	(5)
SO2		1.13	0.68	0.12	2.27	0.12	2.27	2.27	(4)	
NH4	<10									
				Hours for Start Cycle (3)		219				

15-Oct-06

Quarterly Allocation of ERC's

	Annual	1st qtr	2nd qtr	3rd qtr	4th qtr	Check lbs	Check tns
Oper. Hours	4000	800	800	1400	1000		
ERC allocation		20%	20%	35%	25%		
ERC Offset lbs							
NOx	68378	13676	13676	23932	17095	68378	34.19
VOC	11317	2263	2263	3961	2829	11317	5.66
PM10	44400	8880	8880	15540	11100	44400	22.20
SO2	4531	906	906	1586	1133	4531	2.27

(1) NOx startup/ shutdown based upon CalPeak data with a 30 minute startup cycle.
(2) PM10 and SO2 startup/shutdown amounts are prorated from the hourly emission rate
(3) The startup/shutdown cycle is from P&W with an 18 minute startup and 18 minute shutdown
(4) The VOC and SO2 emissions are offset on a 1X1 basis

Quarterly Allocation of ERC's SOX as PM10

	Annual	1st qtr	2nd qtr	3rd qtr	4th qtr	Check lbs	Check tns
Oper. Hour	4000	800	800	1400	1000		
ERC allocation		20%	20%	35%	25%		
ERC Offset lbs							
NOx	0	13676	13676	23932	17095	68378	34.19
VOC	11317	2263	2263	3961	2829	11317	5.66
SO2	79920	15984	15984	27972	19980	79920	39.96
SO2	4531	906	906	1586	1133	4531	2.27
Total SO2	84451	16890	16890	29558	21113	84451	42.23

$8/ton
$10/ton
$25.9/ton
$27.5/ton

(1) NOx startup/ shutdown based upon CalPeak data with a 30 minute startup cycle.
(2) PM10 and SO2 startup/shutdown amounts are prorated from the hourly emission rate
(3) The startup/shutdown cycle is from P&W with an 18 minute startup and 18 minute shutdown
(4) The VOC and SO2 emissions are offset on a 1X1 basis
(5) The PM10 is converted to SO2 using a 1.8 factor

TECHNICAL AREA: AIR QUALITY

Data Request 8: Please combine all of the receptor grids, the pollutant averaging periods, and annual meteorological files and then rerun the construction and operations modeling to create single run modeling files. Pollutants should also be combined for cases with similar exhaust parameter inputs. The combined modeling files should also address any other modeling issues identified in these data requests.

Response: Revised dispersion model input/output files reflecting the changes to operational project emissions discussed in these data request responses are provided electronically on a DVD accompanying these data request responses. All of these simulations have been conducted with the combined multiple-year meteorological input files and the combined receptor grids requested by CEC. The results of the revised modeling for Midway operations are presented in the response to Data Request No. 10. Construction modeling results are presented as the response to Data Request 23.

TECHNICAL AREA: AIR QUALITY

Data Request 9: Please describe why these modeling cases were provided in the normal operating runs and not ruled out during the screening modeling. It appears that none of these three turbines on/one turbine off operating cases result in a worst-case impact. If this is true, please do not include these cases again when completing the requested remodeling noted in the previous data request.

Response: Comment noted. For this particular project, the screening modeling looked at the variability of the stack parameters for different ambient temperatures and two different catalyst designs. This screening analysis showed which combination of catalyst design and ambient temperature produced the peak offsite impacts with only one turbine operating for each unit. However, we were concerned that the geometry of the different stack locations relative to the site boundary and to all receptors could possibly result in maximum ground-level impacts for a case with only 3 of the turbines running. Thus, to be sure that the maximum impacts would be addressed, we ran the model with the stack parameters identified in the screening analysis, for each of the three combinations of operational turbines that may actually occur. As suggested by the Data Request, the results confirmed that four turbines operating at full load did produce the highest ground-level impacts for all pollutants and averaging times, but this was not obvious before we did the runs. In any case, any future modeling can focus on the case with four turbines operating at full load.

TECHNICAL AREA: AIR QUALITY

Data Request 10: Please correct the modeling runs or correct the descriptions of the worst-case modeling scenarios as necessary for the short-term operating impacts so that they correspond to the same operating case. Please integrate revisions to the modeling runs necessary to coordinate the proper initial commissioning exhaust parameters as determined in the response to the following initial commissioning data request.

Response: The modeling for commissioning that was presented in the AFC very conservatively assumed that two Swiftpac units would be simultaneously engaged in the commissioning tests that produced the highest NOx and CO emissions. Revised modeling results for turbine commissioning that reflect the detailed exhaust parameters for the commissioning tests in the response to Data Request 11 are provided below. In the revised modeling, we have assumed that only one Swiftpac will be engaged in commissioning at any one time, since this is in fact the expected procedure.

Note that the revised modeling was conducted for the initial stages of commissioning, during which the SCR and CO catalyst will not be operational. The highest NO_x and CO emissions will necessarily occur during these earlier tests, which will occur without the benefit of post-combustion controls. Emissions during the later commissioning stages will be much lower, and will in fact be similar to those for normal operations, except that they will involve tests over a range of operating loads. Therefore the dispersion modeling presented below focused on evaluating the impacts from the pre-catalytic control commissioning tests.

ISCST3 COMMISSIONING IMPACT MODELING RESULTS

Pollutant	Averaging Period	Maximum Modeled Impact (μg/m³)	PSD Significant Impact Level (μg/m³)	Background (μg/m³)	Maximum Total Predicted Concentration (μg/m³)	Most Stringent AAQS (μg/m³)	UTM Coordinates	
							East (m)	North (m)
Commissioning Impacts – Water Injection 1								
CO	1 hour	91.59	2,000	7,705	7,796.6	23,000	716,526	4,059,089
	8 hour	22.91	500	5,156	5,178.9	10,000	716,526	4,059,089
NO_2	1 hour	147.67	NA	118.4	266.1	470	716,526	4,059,089
Commissioning Impacts – Water Injection 2								
CO	1 hour	171.59	2,000	7,705	7,876.6	23,000	716,526	4,059,089
	8 hour	47.41	500	5,156	5,203.4	10,000	716,526	4,059,089
NO_2	1 hour	146.42	NA	118.4	264.8	470	716,526	4,059,089
Commissioning Impacts – Water Injection 3								
CO	1 hour	61.51	2,000	7,705	7,766.5	23,000	716,526	4,059,089
	8 hour	14.12	500	5,156	5,170.1	10,000	716,550	4,049,125
NO_2	1 hour	144.35	NA	118.4	262.8	470	716,526	4,059,089
Commissioning Impacts – Brush Generator 1								
CO	1 hour	46.24	2,000	7,705	7,751.2	23,000	716,526	4,059,089
	8 hour	9.64	500	5,156	5,165.6	10,000	716,550	4,049,125
NO_2	1 hour	145.57	NA	118.4	264.0	470	716,526	4,059,089
Commissioning Impacts – Brush Generator 2								
CO	1 hour	154.48	2,000	7,705	7,859.5	23,000	716,526	4,059,089
	8 hour	42.24	500	5,156	5,198.2	10,000	716,526	4,059,089
NO_2	1 hour	154.98	NA	118.4	273.4	470	716,526	4,059,089
Commissioning Impacts – Brush Generator 3								
CO	1 hour	142.66	2,000	7,705	7,847.7	23,000	716,526	4,059,089
	8 hour	41.56	500	5,156	5,197.6	10,000	716,525	4,049,100

Pollutant	Averaging Period	Maximum Modeled Impact ($\mu g/m^3$)	PSD Significant Impact Level ($\mu g/m^3$)	Background ($\mu g/m^3$)	Maximum Total Predicted Concentration ($\mu g/m^3$)	Most Stringent AAQS ($\mu g/m^3$)	UTM Coordinates	
							East (m)	North (m)
NO_2	1 hour	154.04	NA	118.4	272.4	470	716,526	4,059,089
Commissioning Impacts –Break In								
CO	1 hour	31.71	2,000	7,705	7,736.7	23,000	716,156	4,059,108
	8 hour	11.29	500	5,156	5,167.3	10,000	716,450	4,048,900
NO_2	1 hour	125.26	NA	118.4	243.7	470	716,516	4,059,108

DATA REQUEST RESPONSE #10
ATTACHMENT

FT8-3 Emissions Estimates During Commissioning

	Commissioning Step	Load	Duration (Hours)	Water Inj	SCR	CO Conv	NOx (PPH) per GT	CO (PPH) per GT	VOC (PPH) per GT	NOx (Pounds) per GT	CO (Pounds) per GT	VOC (Pounds) per GT	Added in Rev-1 Ambient Temp, F	PT Exh Temp, F	PT Exh Flow, PPS	Equiv. FT8-2 NOx (PPH) per GT	Equiv. FT8-2 NOx (Pounds) per GT
I	Power Turbine Break In	SI	5	No	No	No	9.56	2.42	0.08	47.79	12.09	0.41	52	662	64	9.6	47.8
II	Overspeed Test	SI	1	No	No	No	9.56	2.42	0.08	9.56	2.42	0.08	52	662	64	9.6	9.6
III	Brush Generator Testing	SI	8	No	No	No	9.56	2.42	0.08	76.47	19.34	0.65	52	662	64	9.6	76.5
		Base	1.5	Yes	No	No	41.65	13.23	0.67	62.48	19.84	1.00	52	905	200	24.8	37.2
		50	1.5	Yes	No	No	35.35	14.95	0.56	53.02	22.42	0.85	52	850	186	23.1	34.7
		40	1.5	Yes	No	No	29.58	2.59	0.72	44.36	3.88	1.08	52	816	169	24.0	36.0
		30	1.5	Yes	No	No	23.88	18.40	0.68	35.82	27.61	1.01	52	783	150	34.5	51.8
		20	1.5	Yes	No	No	18.67	18.61	0.74	28.01	27.91	1.11	52	752	133	27.0	40.5
		10	1.5	Yes	No	No	15.17	14.05	0.69	22.75	21.08	1.03	52	703	104	17.8	26.8
IV	Water Injection Tuning																
	Heat Soak	Base	2	Yes	No	No	41.65	13.23	0.67	83.31	26.46	1.33	52	905	200	N/A	N/A
	Tuning	Base	1.5	Yes	No	No	41.65	13.23	0.67	62.48	19.84	1.00	52	905	200	N/A	N/A
		83%	2	Yes	No	No	35.18	14.99	0.57	70.36	29.98	1.13	52	849	186	N/A	N/A
		67%	2	Yes	No	No	29.65	18.39	0.72	59.30	36.78	1.43	52	817	169	N/A	N/A
		50%	2	Yes	No	No	23.85	18.39	0.67	47.70	36.78	1.35	52	783	150	N/A	N/A
	1050 F EGT		3	Yes	No	No	16.98	19.90	0.83	50.93	59.69	2.48	52	739	126	N/A	N/A
V	Fogger Commissioning	Base	4	Yes	No	No	41.65	13.23	0.67	166.61	52.91	2.66	52	905	200	24.8	99.2
VI	Run Prior to Catalyst Loading	Base	4	Yes	No	No	41.65	13.23	0.67	166.61	52.91	2.66	52	905	200	41.7	166.6
VII	SCR Commissioning	Base	2	Yes	No	No	41.65	13.23	0.67	83.31	26.46	1.33				41.7	83.3
			2	Yes	Yes	Yes	2.82	2.57	0.67	5.63	5.15	1.33				2.8	5.6
VIII	Performance Test																
	Heat Soak	Base	2	Yes	Yes	Yes	2.82	2.57	0.67	5.63	5.15	1.33				2.8	5.6
		Base	2	Yes	Yes	Yes	2.82	2.57	0.67	5.63	5.15	1.33				2.8	5.6
		95%	0.75	Yes	Yes	Yes	2.68	2.73	0.63	2.01	2.04	0.47				2.7	2.0
		90%	0.75	Yes	Yes	Yes	2.55	3.10	0.60	1.91	2.33	0.45				2.5	1.9
		80%	0.75	Yes	Yes	Yes	2.31	3.15	0.59	1.73	2.36	0.44				2.3	1.7
		70%	0.75	Yes	Yes	Yes	2.07	3.78	0.69	1.56	2.83	0.52				2.1	1.6
		50%	0.75	Yes	Yes	Yes	1.61	3.58	0.67	1.21	2.68	0.51				1.6	1.2
IX	Emission Compliance	Base	12	Yes	Yes	Yes	2.82	2.57	0.67	33.79	30.89	7.99				2.8	33.8
	Startups to Sync. Idle (5)						0.27	0.075	0	1.35	0.375	0					
	Startup Cycles to Base (6)						5.05	3.38	0.13	30.3	20.28	0.78					
	Shutdown cycles from 50% (6)						2.12	1.75	0.11	12.72	10.5	0.66					
									Pounds Emitted per GT	1274.34	588.14	38.41					768.90
			Total Time (Hours)	67.25					**Total Pounds Emitted**	2548.7	1176.3	76.8					1537.8
			FT8-2 CEM Data	94						1283	878						
									Ratio FT8-3 to FT8-2 CEM Data	**2.0**	**1.3**						

10/13/06 Notes:

1. SCR commissioning estimates are preliminary. Waiting for more accurate estimate of test requirements.
2. Data based on Tamb of 52 F, the average of the average monthly temperatures for Jan., Feb. and March. Assumed commissioning would occur during first quarter.
3. Assumed 1 start to baseload and 1 shutdown from 50% load per phase for pases IV to IX. No reduction from SCR or CO converter included.(5 MW/min loading/unload rate, 17.9 min start, 11.8 min shutdown from 50%).

Revision-1, 3/2/2007 Notes:

4. Data referenced to PT Exh does not include SCR dilution or secondary cooling air flows.
5. Data referenced to Stack includes SCR dilution but does not include secondary cooling air flows.

TECHNICAL AREA: AIR QUALITY

Data Request 11: Please provide the expected exhaust parameters (temperature and velocity only) for the nine specific initial commissioning tests identified in Appendix I, Attachment C of the AFC.

Response: The requested exhaust parameters are presented in Attachment 11-1

DATA REQUEST RESPONSE #11
ATTACHMENT

FT8-3 Emissions Estimates During Commissioning

	Commissioning Step	Load	Duration (Hours)	Water Inj	SCR	CO Conv	NOx (PPH) per GT	CO (PPH) per GT	VOC (PPH) per GT	NOx (Pounds) per GT	CO (Pounds) per GT	VOC (Pounds) per GT	Added in Rev-1 Ambient Temp, F	Added in Rev-1 PT Exh Temp, F	Added in Rev-1 PT Exh Flow, PPS	Equiv. FT8-2 NOx (PPH) per GT	Equiv. FT8-2 NOx (Pounds) per GT
I	Power Turbine Break In	SI	5	No	No	No	9.56	2.42	0.08	47.79	12.09	0.41	52	662	64	9.6	47.8
II	Overspeed Test	SI	1	No	No	No	9.56	2.42	0.08	9.56	2.42	0.08	52	662	64	9.6	9.6
III	Brush Generator Testing	SI	8	No	No	No	9.56	2.42	0.08	76.47	19.34	0.65	52	662	64	9.6	76.5
		Base	1.5	Yes	No	No	41.65	13.23	0.67	62.48	19.84	1.00	52	905	200	24.8	37.2
		50	1.5	Yes	No	No	35.35	14.95	0.56	53.02	22.42	0.85	52	850	186	23.1	34.7
		40	1.5	Yes	No	No	29.58	2.59	0.72	44.36	3.88	1.08	52	816	169	24.0	36.0
		30	1.5	Yes	No	No	23.88	18.40	0.68	35.82	27.61	1.01	52	783	150	34.5	51.8
		20	1.5	Yes	No	No	18.67	18.61	0.74	28.01	27.91	1.11	52	752	133	27.0	40.5
		10	1.5	Yes	No	No	15.17	14.05	0.69	22.75	21.08	1.03	52	703	104	17.8	26.8
IV	Water Injection Tuning																
	Heat Soak	Base	2	Yes	No	No	41.65	13.23	0.67	83.31	26.46	1.33	52	905	200	N/A	N/A
	Tuning	Base	1.5	Yes	No	No	41.65	13.23	0.67	62.48	19.84	1.00	52	905	200	N/A	N/A
		83%	2	Yes	No	No	35.18	14.99	0.57	70.36	29.98	1.13	52	849	186	N/A	N/A
		67%	2	Yes	No	No	29.65	18.39	0.72	59.30	36.78	1.43	52	817	169	N/A	N/A
		50%	2	Yes	No	No	23.85	18.39	0.67	47.70	36.78	1.35	52	783	150	N/A	N/A
	1050 F EGT		3	Yes	No	No	16.98	19.90	0.83	50.93	59.69	2.48	52	739	126	N/A	N/A
V	Fogger Commissioning	Base	4	Yes	No	No	41.65	13.23	0.67	166.61	52.91	2.66	52	905	200	24.8	99.2
VI	Run Prior to Catalyst Loading	Base	4	Yes	No	No	41.65	13.23	0.67	166.61	52.91	2.66	52	905	200	41.7	166.6
VII	SCR Commissioning	Base	2	Yes	No	No	41.65	13.23	0.67	83.31	26.46	1.33	52	905	200	41.7	83.3
			2	Yes	Yes	Yes	2.82	2.57	0.67	5.63	5.15	1.33	52	905	200	2.8	5.6
VIII	Performance Test																
	Heat Soak	Base	2	Yes	Yes	Yes	2.82	2.57	0.67	5.63	5.15	1.33	52	905	200	2.8	5.6
		Base	2	Yes	Yes	Yes	2.82	2.57	0.67	5.63	5.15	1.33	52	905	200	2.8	5.6
		95%	0.75	Yes	Yes	Yes	2.68	2.73	0.63	2.01	2.04	0.47	52	882	196	2.7	2.0
		90%	0.75	Yes	Yes	Yes	2.55	3.10	0.60	1.91	2.33	0.45	52	866	192	2.5	1.9
		80%	0.75	Yes	Yes	Yes	2.31	3.15	0.59	1.73	2.36	0.44	52	842	183	2.3	1.7
		70%	0.75	Yes	Yes	Yes	2.07	3.78	0.69	1.56	2.83	0.52	52	822	173	2.1	1.6
		50%	0.75	Yes	Yes	Yes	1.61	3.58	0.67	1.21	2.68	0.51	52	783	150	1.6	1.2
IX	Emission Compliance	Base	12	Yes	Yes	Yes	2.82	2.57	0.67	33.79	30.89	7.99	52	905	200	2.8	33.8
	Startups to Sync. Idle (5)						0.27	0.075	0	1.35	0.375	0					
	Startup Cycles to Base (6)						5.05	3.38	0.13	30.3	20.28	0.78					
	Shutdown cycles from 50% (6)						2.12	1.75	0.11	12.72	10.5	0.66					
									Pounds Emitted per GT	1274.34	588.14	38.41					768.90
			Total Time (Hours)	67.25					**Total Pounds Emitted**	2548.7	1176.3	76.8					1537.8
			FT8-2 CEM Data	94						1283	878						
									Ratio FT8-3 to FT8-2 CEM Data	**2.0**	**1.3**						

10/13/06 Notes:

1. SCR commissioning estimates are preliminary. Waiting for more accurate estimate of test requirements.
2. Data based on Tamb of 52 F, the average of the average monthly temperatures for Jan., Feb. and March. Assumed commissioning would occur during first quarter.
3. Assumed 1 start to baseload and 1 shutdown from 50% load per phase for pases IV to IX. No reduction from SCR or CO converter included.(5 MW/min loading/unload rate, 17.9 min start, 11.8 min shutdown from 50%).

Revision-1, 3/2/2007 Notes:

4. Data referenced to PT Exh does not include SCR dilution or secondary cooling air flows.
5. Data referenced to Stack includes SCR dilution but does not include secondary cooling air flows.

Technical Area: Air Quality

Data Request 12: Please complete, and correct as necessary, the values in the following table.

		Pollutant Emissions (lbs)				
Project	Period	NOx	VOC	PM10	SOx	CO
CalPeak Panoche	1st Quarter					
Starwood Power		9,116	2,263	5,920	908	13,248
CalPeak Panoche	2nd Quarter					
Starwood Power		9,116	2,263	5,920	908	13,248
CalPeak Panoche	3rd Quarter					
Starwood Power		15,953	3,961	10,360	1,589	23,184
CalPeak Panoche	4th Quarter					
Starwood Power		11,395	2,829	7,400	1,135	16,560
CalPeak Panoche	Annual	20,000				
Starwood Power		45,580	11,317	29,600	4,540	66,240
Combined Project Emissions	Annual					
District Offset Threshold	Annual	20,000	20,000	27,200	54,750	NA
Emissions Over Threshold	Annual					NA

Response: The current operating permit for the existing CalPeak Panoche facility contains limits on the turbine startup and shutdown emissions and durations, as well as the hourly and daily emissions of the two turbines individually and in combination. There are no quarterly emission limits and only NOx has an annual emission limit of 20,000 pounds. While there is no limit on allowable operating hours, this latter requirement obviously does limit operating hours.

The SJVAPCD conducted an analysis to determine whether the Midway project would be permitted as a new facility or a modification to the existing facility. The District's findings were documented in a memo dated September 6, 2006 and concluded that the project constitutes a minor modification to a minor source as these terms are used in the SJVAPCD rules. This finding was based on the fact that the existing facility is a minor source and the new modification by itself does not trigger the major source thresholds. The Districts findings regarding the quantity of offsets triggered by the project are consistent with the amounts proposed in the AFC. Offsets are being provided for all pollutant emissions that exceed SJVAPCD offset thresholds at a 1.5 to 1 distance ratio and at 1 to 1 for nonattainment pollutants and precursors that do not exceed these thresholds. Offsets were not required for the existing emission units, since the permitted emissions did not exceed offset thresholds and the existing units did not undergo the CEC licensing process. Therefore it would be misleading to add the emissions from the existing units with those of the proposed units and compare the totals with District offset thresholds as suggested by the table in this Data Request.

The Operating Permit for the existing CalPeak Panoche facility and the SJVAPCD memo of September 6, 2006 are provided as Attachments A and B to this sheet.

DATA REQUEST RESPONSE #12
ATTACHMENT A

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: C-3811-1-4 **EXPIRATION DATE:** 05/31/2008

EQUIPMENT DESCRIPTION:
24.7 MW NOMINALLY RATED SIMPLE-CYCLE PEAK-DEMAND POWER GENERATING SYSTEM #1 CONSISTING OF PRATT & WHITNEY MODEL FT-8 NATURAL GAS-FIRED GAS TURBINE ENGINE WITH DRY LOW NOX (DLN) COMBUSTORS, SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND AN OXIDATION CATALYST WITH A 49.5 MW GENERATOR (SHARED WITH C-3811-2)

PERMIT UNIT REQUIREMENTS

1. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
2. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
3. Selective catalytic reduction (SCR) system and oxidation catalyst shall serve the common exhaust duct from C-3811-1 and C-3811-2. Common exhaust ducting shall be equipped with a fresh air inlet and blower to be used to lower the exhaust temperature prior to inlet of the SCR system catalyst. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Gas turbine engine and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater except for up to three minutes in any hour. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Gas turbine engine shall be equipped with continuous monitoring system to measure and record hours of operation and fuel consumption. [District Rule 2201, District Rule 4703, 6.2.6, and 40 CFR Part 64] Federally Enforceable Through Title V Permit
6. The owner or operator shall certify, maintain, operate, and quality-assure a system which continuously measures and records the exhaust gas NOx and O2 concentrations. [40 CFR 60.334(b) and District Rule 4703, 6.2.1] Federally Enforceable Through Title V Permit
7. The CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [40 CFR 60.334(b)(2) and District Rule 1080, 6.4] Federally Enforceable Through Title V Permit
8. The NOx and O2 CEMS shall meet the requirements in 40 CFR 60, Appendix F Procedure 1 and Part 60, Appendix B Performance Specification 2 and 3, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [40 CFR 60.334(b)(1) and District Rule 1080, 6.3, 6.5, 6.6, & 7.2]
9. The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEM data polling software system and shall make CEM data available to the District's automated polling system on a daily basis. [District Rule 1080]
10. Upon notice by the District that the facility's CEM system is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEM data is sent to the District by a District-approved alternative method. [District Rule 1080]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

he exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with PA test methods and provisions to sample stack gases at ground level with a portable NOx, CO, and O2 analyzer. District Rule 1081] Federally Enforceable Through Title V Permit

12. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) which has a total sulfur content of less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b), County Rules 404 (Madera), 406 (Fresno), and 407 (Kings, Merced, San Joaquin, Tulare, Kern, and Stanislaus County)] Federally Enforceable Through Title V Permit
13. The thermal stabilization period shall be defined as the start up or shut down time during which the exhaust gas is not within the normal operating temperature range, not to exceed two hours. [District Rule 4703, 3.25] Federally Enforceable Through Title V Permit
14. Number of startups and shutdowns shall not exceed 365 in one calendar year. [District Rules 2201] Federally Enforceable Through Title V Permit
15. Each startup or shutdown shall not exceed 30 minutes. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit
16. Combined emission rates from units C-3811-1 and C-3811-2 during startup or shutdown shall not exceed : 8.28 lb NOx/hr, 1.42 lb SOx/hr, 3.42 lb PM10/hr, 35.46 lb CO/hr, and 1.28 lb VOC/hr. [District Rule 2201] Federally Enforceable Through Title V Permit
17. Except during startup and shutdown, emission rates from gas turbine engines C-3811-1 and C-3811-2 combined, shall not exceed any of the following limits: PM10 - 3.24 lb/hr, SOx (as SO2) - 1.42 lb/hr, NOx (as NO2) - 3.4 ppmvd @ 15% O2 and 6.16 lb/hr, VOC (as methane) - 2.0 ppmvd @ 15% O2 and 1.28 lb/hr, CO - 6.8 ppmvd @ 15% O2 and 7.48 lb/hr, or ammonia - 10 ppmvd @ 15% O2. All emission limits are three hour rolling averages. [40 CFR 60.332, District Rules 2201, and District Rule 4703, 5.1 and 5.2] Federally Enforceable Through Title V Permit
18. Except during startup and shutdown, emission rates from gas turbine engine C-3811-1 shall not exceed any of the following limits: PM10 - 1.62 lb/hr, SOx (as SO2) - 0.71 lb/hr, NOx (as NO2) - 3.4 ppmvd @ 15% O2 and 3.08 lb/hr, VOC (as methane) - 2.0 ppmvd @ 15% O2 and 0.64 lb/hr, CO - 6.8 ppmvd @ 15% O2 and 3.74 lb/hr, or ammonia - 10 ppmvd @ 15% O2. All emission limits are three hour rolling averages. [40 CFR 60.332, District Rules 2201, and District Rule 4703, 5.1 and 5.2] Federally Enforceable Through Title V Permit
19. Daily emissions from gas turbine engine C-3811-1 shall not exceed any of the following emission limits, regardless of type of operation: 74.0 lb NOx/day, 17.0 lb SOx/day, 38.9 lb PM10/day, 128.8 lb CO/day, and 15.4 lb VOC/day. [District Rule 2201] Federally Enforceable Through Title V Permit
20. Combined emission from units C-3811-1 and C-3811-2 shall not exceed any of the following emission limits, regardless of type of operation: 148.0 lb NOx/day, 34.0 lb SOx/day, 77.8 lb PM10/day, 257.6 lb CO/day, and 30.8 lb VOC/day. [District Rule 2201] Federally Enforceable Through Title V Permit
21. NOx emissions from gas turbine engines C-3811-1 and C-3811-2 combined, shall not exceed 20,000 lb/year. [District Rule 2201] Federally Enforceable Through Title V Permit
22. Compliance with ammonia slip limit shall be demonstrated by using the following calculation procedure: ammonia slip ppmv @ 15% O2 = ((a-(bx(c-d)/1,000,000)) x 1,000,000/b), where a = ammonia injection rate (lb/hr)/17 (lb/lb mol), b = dry exhaust gas flow rate (lb/hr)/29 (lb/lb mol), c = SCR inlet NOx concentration ppmv at 15% O2 for the operating load determined by the most recent source test data, and d = SCR outlet NOx concentration ppmv at 15% O2 from the continuous emission monitor. [District Rule 4102]
23. Compliance testing to demonstrate compliance with the PM10, NOx (as NO2), VOC, CO, and ammonia emission limits, and fuel gas sulfur content shall be conducted at least once every twelve months. Compliance testing may be demonstrated when both C-3811-1 and C-3811-2 are operating. NOx emission concentration at the SCR inlet shall be determined for 50%, 75%, 90%, and 100% loads during annual compliance testing by measuring NOx emissions at each load for a minimum of 5 minutes or until NOx concentration has stabilized. [District Rule 1081 and District Rule 4703, 6.3.1] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

24. Compliance demonstration (source testing) shall be District witnessed, or authorized and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit

25. The following test methods shall be used PM10: EPA method 5 (front half and back half), NOx: EPA Method 7E or 20, CO: EPA method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA method 18 or 25, ammonia: BAAQMD ST-1B, and fuel gas sulfur content: ASTM D3246. Alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [40 CFR 60.8(a), 40 CFR 60.335(c)(3), District Rule 1081, and District Rule 4703, 6.4] Federally Enforceable Through Title V Permit

26. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080, 7.2 and 40 CFR Part 64] Federally Enforceable Through Title V Permit

27. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080, District Rule 4703, 6.2.3, and 40 CFR Part 64] Federally Enforceable Through Title V Permit

28. The owner or operator shall submit a written report of CEM operations for each calendar quarter to the APCO. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess NOx emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the CEM was inoperative (monitor downtime), except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [40 CFR 60.334(j), (j)(5) and District Rule 1080, 8.0] Federally Enforceable Through Title V Permit

29. The owner or operator shall maintain CEMS records that contain the following: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments, maintenance, duration of any periods during which a continuous monitoring system or monitoring device is inoperative, and emission measurements. [40 CFR 60.7(b) and District Rule 1080, 7.3] Federally Enforceable Through Title V Permit

30. The permittee shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NOx mass emission rates (lb/hr and lb/twelve month rolling period). [40 CFR 60.334(a), District Rule 2201, District Rule 4703, 6.2.6, and 40 CFR Part 64] Federally Enforceable Through Title V Permit

31. APCO or an authorized representative shall be allowed to inspect, as he or she determines to be necessary, the monitoring devices required by this rule to ensure that such devices are functioning properly. [District Rule 1080, 11.0] Federally Enforceable Through Title V Permit

32. The owner or operator shall be required to conform to the compliance testing and sampling procedures described in District Rule 1081 (as amended 12/16/93). [District Rule 1081] Federally Enforceable Through Title V Permit

33. Sulfur compound emissions shall not exceed 0.015% by volume, 150 ppmv, on a dry basis averaged over 15 consecutive minutes. [40 CFR 60.333(a), Fresno County Rules 406, and District Rule 4801] Federally Enforceable Through Title V Permit

34. The sulfur content of each fuel source shall be documented in a valid purchase contract, a supplier certification, a tariff sheet, or a transportation contract. [40 CFR 60.334(h)(3) and District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

35. All continuous monitoring systems and monitoring devices shall be installed and operational prior to conducting performance tests. Verification of operational status shall, as a minimum, include completion of the manufacturer's written requirements or recommendations for installation, operation, and calibration of the device. [40 CFR 60.13(b) and 40 CFR Part 64] Federally Enforceable Through Title V Permit

36. Results of the CEM system shall be averaged over a three hour period, using consecutive 15-minute sampling periods in accordance with all applicable requirements of CFR 60.13. [40 CFR 60.13 and District Rule 4703, 5.1, 6.4] Federally Enforceable Through Title V Permit

37. The owners and operators of each affected source and each affected unit at the source shall: (i) Operate the unit in compliance with a complete Acid Rain permit application or a superceding Acid Rain permit issued by the permitting authority; and (ii) Have an Acid Rain permit. [40 CFR 72] Federally Enforceable Through Title V Permit

38. The owners and operators and, to the extent applicable, designated representative of each affected source and each affected unit at the source shall comply with the monitoring requirements as provided in 40 CFR part 75. [40 CFR 75] Federally Enforceable Through Title V Permit

39. The emissions measurements recorded and reported in accordance with 40 CFR part 75 shall be used to determine compliance by the unit with the Acid Rain emissions limitations and emissions reduction requirements for sulfur dioxide and nitrogen oxides under the Acid Rain Program. [40 CFR 75] Federally Enforceable Through Title V Permit

40. The owners and operators of each source and each affected unit at the source shall: (i) Hold allowances, as of the allowance transfer deadline, in the unit's compliance subaccount (after deductions under 40 CFR 73.34(c)) not less than the total annual emissions of sulfur dioxide for the previous calendar year from the unit; and (ii) Comply with the applicable Acid Rain emissions limitations for sulfur dioxide. [40 CFR 73] Federally Enforceable Through Title V Permit

41. Each ton of sulfur dioxide emitted in excess of the Acid Rain emissions limitations for sulfur dioxide shall constitute a separate violation of the Act. [40 CFR 77] Federally Enforceable Through Title V Permit

An affected unit shall be subject to the sulfur dioxide requirements starting on the later of January 1, 2000, or the deadline for monitoring certification under 40 CFR part 75, an affected unit under 40 CFR 72.6(a)(3) that is not a substitution or compensating unit. [40 CFR 72, 40 CFR 75] Federally Enforceable Through Title V Permit

43. Allowances shall be held in, deducted from, or transferred among Allowance Tracking System accounts in accordance with the Acid Rain Program. [40 CFR 72] Federally Enforceable Through Title V Permit

44. An allowance shall not be deducted in order to comply with the requirements under 40 CFR part 73, prior to the calendar year for which the allowance was allocated. [40 CFR 73] Federally Enforceable Through Title V Permit

45. An allowance allocated by the Administrator under the Acid Rain Program is a limited authorization to emit sulfur dioxide in accordance with the Acid Rain Program. No provision of the Acid Rain Program, the Acid Rain permit application, the Acid Rain permit, or the written exemption under 40 CFR 72.7 and 72.8 and no provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization. [40 CFR 72] Federally Enforceable Through Title V Permit

46. An allowance allocated by the Administrator under the Acid Rain Program does not constitute a property right. [40 CFR 72] Federally Enforceable Through Title V Permit

47. The owners and operators of each affected unit at the source shall comply with the applicable Acid Rain emissions limitation for nitrogen oxides. [40 CFR 72] Federally Enforceable Through Title V Permit

48. The designated representative of an affected unit that has excess emissions in any calendar year shall submit a proposed offset plan, as required under 40 CFR part 77. [40 CFR 77] Federally Enforceable Through Title V Permit

49. The owners and operators of an affected unit that has excess emissions in any calendar year shall: (i) Pay without demand the penalty required, and pay up on demand the interest on that penalty; and (ii) Comply with the terms of an approved offset plan, as required by 40 CFR part 77. [40 CFR 77] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

50. The owners and operators of the each affected unit at the source shall keep on site the following documents for a period of five years from the date the document is created. This period may be extended for cause, at any time prior to the end of five years, in writing by the Administrator or permitting authority: (i) The certificate of representation for the designated representative for the source and all documents that demonstrate the truth of the statements in the certificate of representation, in accordance with 40 CFR 72.24; provided that the certificate and documents shall be retained on site beyond such five-year period until such documents are superceded because of the submission of a new certificate of representation changing the designated representative. [40 CFR 72] Federally Enforceable Through Title V Permit

51. The owners and operators of each affected unit at the source shall keep on site each of the following documents for a period of five years from the date the document is created. This period may be extended for cause, at any time prior to the end of five years, in writing by the Administrator or permitting authority; (ii) All emissions monitoring information, in accordance with 40 CFR part 75; (iii) Copies of all reports, compliance certifications and other submissions and all records made or required under the Acid Rain Program; (iv) Copies of all documents used to complete an Acid Rain permit application and any other submission that demonstrates compliance with the requirements of the Acid Rain Program. [40 CFR 75] Federally Enforceable Through Title V Permit

52. The designated representative of an affected source and each affected unit at the source shall submit the reports and compliance certifications required under the Acid Rain Program, including those under 40 CFR 75 Subpart I. [40 CFR 75] Federally Enforceable Through Title V Permit

San Joaquin Valley
Air Pollution Control District

PERMIT UNIT: C-3811-2-4 **EXPIRATION DATE:** 05/31/2008

EQUIPMENT DESCRIPTION:
24.7 MW NOMINALLY RATED SIMPLE-CYCLE PEAK-DEMAND POWER GENERATING SYSTEM #2 CONSISTING OF PRATT & WHITNEY MODEL FT-8 NATURAL GAS-FIRED GAS TURBINE ENGINE WITH DRY LOW NOX (DLN) COMBUSTORS, SERVED BY A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM AND AN OXIDATION CATALYST WITH A 49.5 MW GENERATOR (SHARED WITH C-3811-1)

PERMIT UNIT REQUIREMENTS

1. All equipment shall be maintained in good operating condition and shall be operated in a manner to minimize emissions of air contaminants into the atmosphere. [District Rule 2201] Federally Enforceable Through Title V Permit
2. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
3. Selective catalytic reduction (SCR) system and oxidation catalyst shall serve the common exhaust duct from C-3811-1 and C-3811-2. Common exhaust ducting shall be equipped with a fresh air inlet and blower to be used to lower the exhaust temperature prior to inlet of the SCR system catalyst. [District Rule 2201] Federally Enforceable Through Title V Permit
4. Gas turbine engine and generator lube oil vents shall be equipped with mist eliminators. Visible emissions from lube oil vents shall not exhibit opacity of 5% or greater except for up to three minutes in any hour. [District Rule 2201] Federally Enforceable Through Title V Permit
5. Gas turbine engine shall be equipped with continuous monitoring system to measure and record hours of operation and fuel consumption. [District Rule 2201, District Rule 4703, 6.2.6, and 40 CFR Part 64] Federally Enforceable Through Title V Permit
6. The owner or operator shall certify, maintain, operate, and quality-assure a system which continuously measures and records the exhaust gas NOx and O2 concentrations. [40 CFR 60.334(b) and District Rule 4703, 6.2.1] Federally Enforceable Through Title V Permit
7. The CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [40 CFR 60.334(b)(2) and District Rule 1080, 6.4] Federally Enforceable Through Title V Permit
8. The NOx and O2 CEMS shall meet the requirements in 40 CFR 60, Appendix F Procedure 1 and Part 60, Appendix B Performance Specification 2 and 3, or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [40 CFR 60.334(b)(1) and District Rule 1080, 6.3, 6.5, 6.6, & 7.2]
9. The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEM data polling software system and shall make CEM data available to the District's automated polling system on a daily basis. [District Rule 1080]
10. Upon notice by the District that the facility's CEM system is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEM data is sent to the District by a District-approved alternative method. [District Rule 1080]

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

11. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and provisions to sample stack gases at ground level with a portable NOx, CO, and O2 analyzer. [District Rule 1081] Federally Enforceable Through Title V Permit

12. This unit shall be fired exclusively on natural gas as defined in 40 CFR 60.331(u) which has a total sulfur content of less than or equal to 1.0 gr/100 scf. [40 CFR 60.333(b), County Rules 404 (Madera), 406 (Fresno), and 407 (Kings, Merced, San Joaquin, Tulare, Kern, and Stanislaus County)] Federally Enforceable Through Title V Permit

13. The thermal stabilization period shall be defined as the start up or shut down time during which the exhaust gas is not within the normal operating temperature range, not to exceed two hours. [District Rule 4703, 3.25] Federally Enforceable Through Title V Permit

14. Number of startups and shutdowns shall not exceed 365 in one calendar year. [District Rules 2201] Federally Enforceable Through Title V Permit

15. Each startup or shutdown shall not exceed 30 minutes. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit

16. Combined emission rates from units C-3811-1 and C-3811-2 during startup or shutdown shall not exceed : 8.28 lb NOx/hr, 1.42 lb SOx/hr, 3.42 lb PM10/hr, 35.46 lb CO/hr, and 1.28 lb VOC/hr. [District Rule 2201] Federally Enforceable Through Title V Permit

17. Except during startup and shutdown, emission rates from gas turbine engines C-3811-1 and C-3811-2 combined, shall not exceed any of the following limits: PM10 - 3.24 lb/hr, SOx (as SO2) - 1.42 lb/hr, NOx (as NO2) - 3.4 ppmvd @ 15% O2 and 6.16 lb/hr, VOC (as methane) - 2.0 ppmvd @ 15% O2 and 1.28 lb/hr, CO - 6.8 ppmvd @ 15% O2 and 7.48 lb/hr, or ammonia - 10 ppmvd @ 15% O2. All emission limits are three hour rolling averages. [40 CFR 60.332, District Rules 2201, and District Rule 4703, 5.1 and 5.2] Federally Enforceable Through Title V Permit

18. Except during startup and shutdown, emission rates from gas turbine engine C-3811-2 shall not exceed any of the following limits: PM10 - 1.62 lb/hr, SOx (as SO2) - 0.71 lb/hr, NOx (as NO2) - 3.4 ppmvd @ 15% O2 and 3.08 lb/hr, VOC (as methane) - 2.0 ppmvd @ 15% O2 and 0.64 lb/hr, CO - 6.8 ppmvd @ 15% O2 and 3.74 lb/hr, or ammonia - 10 ppmvd @ 15% O2. All emission limits are three hour rolling averages. [40 CFR 60.332, District Rules 2201, and District Rule 4703, 5.1 and 5.2] Federally Enforceable Through Title V Permit

19. Daily emissions from gas turbine engine C-3811-2 shall not exceed any of the following emission limits, regardless of type of operation: 74.0 lb NOx/day, 17.0 lb SOx/day, 38.9 lb PM10/day, 128.8 lb CO/day, and 15.4 lb VOC/day. [District Rule 2201] Federally Enforceable Through Title V Permit

20. Combined emission from units C-3811-1 and C-3811-2 shall not exceed any of the following emission limits, regardless of type of operation: 148.0 lb NOx/day, 34.0 lb SOx/day, 77.8 lb PM10/day, 257.6 lb CO/day, and 30.8 lb VOC/day. [District Rule 2201] Federally Enforceable Through Title V Permit

21. NOx emissions from gas turbine engines C-3811-1 and C-3811-2 combined, shall not exceed 20,000 lb/year. [District Rule 2201] Federally Enforceable Through Title V Permit

22. Compliance with ammonia slip limit shall be demonstrated by using the following calculation procedure: ammonia slip ppmv @ 15% O2 = ((a-(bx(c-d)/1,000,000)) x 1,000,000/b), where a = ammonia injection rate (lb/hr)/17 (lb/lb mol), b = dry exhaust gas flow rate (lb/hr)/29 (lb/lb mol), c = SCR inlet NOx concentration ppmv at 15% O2 for the operating load determined by the most recent source test data, and d = SCR outlet NOx concentration ppmv at 15% O2 from the continuous emission monitor. [District Rule 4102]

23. Compliance testing to demonstrate compliance with the PM10, NOx (as NO2), VOC, CO, and ammonia emission limits, and fuel gas sulfur content shall be conducted at least once every twelve months. Compliance testing may be demonstrated when both C-3811-1 and C-3811-2 are operating. NOx emission concentration at the SCR inlet shall be determined for 50%, 75%, 90%, and 100% loads during annual compliance testing by measuring NOx emissions at each load for a minimum of 5 minutes or until NOx concentration has stabilized. [District Rule 1081 and District Rule 4703, 6.3.1] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

24. Compliance demonstration (source testing) shall be District witnessed, or authorized and samples shall be collected by a California Air Resources Board certified testing laboratory. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified 30 days prior to any compliance source test, and a source test plan must be submitted for approval 15 days prior to testing. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit

25. The following test methods shall be used PM10: EPA method 5 (front half and back half), NOx: EPA Method 7E or 20, CO: EPA method 10 or 10B, O2: EPA Method 3, 3A, or 20, VOC: EPA method 18 or 25, ammonia: BAAQMD ST-1B, and fuel gas sulfur content: ASTM D3246. Alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [40 CFR 60.8(a), 40 CFR 60.335(c)(3), District Rule 1081, and District Rule 4703, 6.4] Federally Enforceable Through Title V Permit

26. Results of continuous emissions monitoring shall be reduced according to the procedure established in 40 CFR, Part 51, Appendix P, paragraphs 5.0 through 5.3.3, or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080, 7.2 and 40 CFR Part 64] Federally Enforceable Through Title V Permit

27. Audits of continuous emission monitors shall be conducted quarterly, except during quarters in which relative accuracy and total accuracy testing is performed, in accordance with EPA guidelines. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080, District Rule 4703, 6.2.3, and 40 CFR Part 64] Federally Enforceable Through Title V Permit

28. The owner or operator shall submit a written report of CEM operations for each calendar quarter to the APCO. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess NOx emissions, nature and cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the CEM was inoperative (monitor downtime), except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [40 CFR 60.334(j), (j)(5) and District Rule 1080, 8.0] Federally Enforceable Through Title V Permit

29. The owner or operator shall maintain CEMS records that contain the following: the occurrence and duration of any start-up, shutdown or malfunction, performance testing, evaluations, calibrations, checks, adjustments, maintenance, duration of any periods during which a continuous monitoring system or monitoring device is inoperative, and emission measurements. [40 CFR 60.7(b) and District Rule 1080, 7.3] Federally Enforceable Through Title V Permit

30. The permittee shall maintain the following records: hours of operation, fuel consumption (scf/hr and scf/rolling twelve month period), continuous emission monitor measurements, calculated ammonia slip, and calculated NOx mass emission rates (lb/hr and lb/twelve month rolling period). [40 CFR 60.334(a), District Rule 2201, District Rule 4703, 6.2.6, and 40 CFR Part 64] Federally Enforceable Through Title V Permit

31. APCO or an authorized representative shall be allowed to inspect, as he or she determines to be necessary, the monitoring devices required by this rule to ensure that such devices are functioning properly. [District Rule 1080, 11.0] Federally Enforceable Through Title V Permit

32. The owner or operator shall be required to conform to the compliance testing and sampling procedures described in District Rule 1081 (as amended 12/16/93). [District Rule 1081] Federally Enforceable Through Title V Permit

33. Sulfur compound emissions shall not exceed 0.015% by volume, 150 ppmv, on a dry basis averaged over 15 consecutive minutes. [40 CFR 60.333(a), Fresno County Rules 406, and District Rule 4801] Federally Enforceable Through Title V Permit

34. The sulfur content of each fuel source shall be documented in a valid purchase contract, a supplier certification, a tariff sheet, or a transportation contract. [40 CFR 60.334(h)(3) and District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

35. All continuous monitoring devices shall be installed and operational prior to conducting

36. Results of the CEM system shall be averaged over a three hour period, using consecutive 15-minute sampling periods in accordance with all applicable requirements of CFR 60.13. [40 CFR 60.13 and District Rule 4703, 5.1, 6.4] Federally Enforceable Through Title V Permit

37. The owners and operators of each affected source and each affected unit at the source shall: (i) Operate the unit in compliance with a complete Acid Rain permit application or a superceding Acid Rain permit issued by the permitting authority; and (ii) Have an Acid Rain permit. [40 CFR 72] Federally Enforceable Through Title V Permit

38. The owners and operators and, to the extent applicable, designated representative of each affected source and each affected unit at the source shall comply with the monitoring requirements as provided in 40 CFR part 75. [40 CFR 75] Federally Enforceable Through Title V Permit

39. The emissions measurements recorded and reported in accordance with 40 CFR part 75 shall be used to determine compliance by the unit with the Acid Rain emissions limitations and emissions reduction requirements for sulfur dioxide and nitrogen oxides under the Acid Rain Program. [40 CFR 75] Federally Enforceable Through Title V Permit

40. The owners and operators of each source and each affected unit at the source shall: (i) Hold allowances, as of the allowance transfer deadline, in the unit's compliance subaccount (after deductions under 40 CFR 73.34(c)) not less than the total annual emissions of sulfur dioxide for the previous calendar year from the unit; and (ii) Comply with the applicable Acid Rain emissions limitations for sulfur dioxide. [40 CFR 73] Federally Enforceable Through Title V Permit

41. Each ton of sulfur dioxide emitted in excess of the Acid Rain emissions limitations for sulfur dioxide shall constitute a separate violation of the Act. [40 CFR 77] Federally Enforceable Through Title V Permit

An affected unit shall be subject to the sulfur dioxide requirements starting on the later of January 1, 2000, or the deadline for monitoring certification under 40 CFR part 75, an affected unit under 40 CFR 72.6(a)(3) that is not a substitution or compensating unit. [40 CFR 72, 40 CFR 75] Federally Enforceable Through Title V Permit

43. Allowances shall be held in, deducted from, or transferred among Allowance Tracking System accounts in accordance with the Acid Rain Program. [40 CFR 72] Federally Enforceable Through Title V Permit

44. An allowance shall not be deducted in order to comply with the requirements under 40 CFR part 73, prior to the calendar year for which the allowance was allocated. [40 CFR 73] Federally Enforceable Through Title V Permit

45. An allowance allocated by the Administrator under the Acid Rain Program is a limited authorization to emit sulfur dioxide in accordance with the Acid Rain Program. No provision of the Acid Rain Program, the Acid Rain permit application, the Acid Rain permit, or the written exemption under 40 CFR 72.7 and 72.8 and no provision of law shall be construed to limit the authority of the United States to terminate or limit such authorization. [40 CFR 72] Federally Enforceable Through Title V Permit

46. An allowance allocated by the Administrator under the Acid Rain Program does not constitute a property right. [40 CFR 72] Federally Enforceable Through Title V Permit

47. The owners and operators of each affected unit at the source shall comply with the applicable Acid Rain emissions limitation for nitrogen oxides. [40 CFR 72] Federally Enforceable Through Title V Permit

48. The designated representative of an affected unit that has excess emissions in any calendar year shall submit a proposed offset plan, as required under 40 CFR part 77. [40 CFR 77] Federally Enforceable Through Title V Permit

49. The owners and operators of an affected unit that has excess emissions in any calendar year shall: (i) Pay without demand the penalty required, and pay up on demand the interest on that penalty; and (ii) Comply with the terms of an approved offset plan, as required by 40 CFR part 77. [40 CFR 77] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

50. The owners and operators of the each affected unit at the source shall keep on site the following documents for a period of five years from the date the document is created. This period may be extended for cause, at any time prior to the end of five years, in writing by the Administrator or permitting authority: (i) The certificate of representation for the designated representative for the source and all documents that demonstrate the truth of the statements in the certificate of representation, in accordance with 40 CFR 72.24; provided that the certificate and documents shall be retained on site beyond such five-year period until such documents are superceded because of the submission of a new certificate of representation changing the designated representative. [40 CFR 72] Federally Enforceable Through Title V Permit

51. The owners and operators of each affected unit at the source shall keep on site each of the following documents for a period of five years from the date the document is created. This period may be extended for cause, at any time prior to the end of five years, in writing by the Administrator or permitting authority; (ii) All emissions monitoring information, in accordance with 40 CFR part 75; (iii) Copies of all reports, compliance certifications and other submissions and all records made or required under the Acid Rain Program; (iv) Copies of all documents used to complete an Acid Rain permit application and any other submission that demonstrates compliance with the requirements of the Acid Rain Program. [40 CFR 75] Federally Enforceable Through Title V Permit

52. The designated representative of an affected source and each affected unit at the source shall submit the reports and compliance certifications required under the Acid Rain Program, including those under 40 CFR 75 Subpart I. [40 CFR 75] Federally Enforceable Through Title V Permit

DATA REQUEST RESPONSE #12
ATTACHMENT B

San Joaquin Valley
Air Pollution Control District

MEMORANDUM

Date: **September 6, 2006**

To: **Arnaud Marjollet, Permit Services Manager**

From: **Errol Villegas, Supervising Air Quality Engineer**

Subject: **Stationary Source Determination for CalPeak Power Panoche, LLC (C-3811) and Starwood Power, LLC. (New Facility) and the implications regarding District Rule 2201 Requirements (Offsets and Major Modification)**

Background:
The District recently met with representatives of Starwood Power, LLC and discussed the proposal to install a new 120 MW power plant near PG&E's Panoche Power Substation. At first glance, it appeared as if a new power plant/stationary source was being installed. However, after further discussion, it came to the District's attention that the owners of Starwood Power, also owned an existing power plant, CalPeak Power Panoche, LLC (C-3811).

This memo will attempt to make a determination on whether or not the two facilities will be considered one stationary source, and will identify the implications of Rule 2201 with regards to the determination.

Analysis:
District Rule 2201 defines a "Stationary Source" as the following:

3.37 Stationary Source: any building, structure, facility, or installation which emits or may emit any affected pollutant directly or as a fugitive emission. Building, structure, facility or installation includes all pollutant emitting activities including emissions units which:
- 3.37.1 Are under the same or common ownership or operation, or which are owned or operated by entities which are under common control; and
- 3.37.2 Belong to the same industrial grouping either by virtue of falling within the same two-digit standard industrial classification code or by virtue of being part of a common industrial process, manufacturing process, or connected process involving a common raw material; and
- 3.37.3 Are located on one or more contiguous or adjacent properties; or

3.37.4 Are located on one or more properties wholly within either the Western Kern County Oil Fields or the Central Kern County Oil Fields or Fresno County Oil Fields and are used for the production of light oil, heavy oil or gas. Notwithstanding the provisions of this definition, light oil production, heavy oil production, and gas production shall constitute separate Stationary Sources.

As discussed above, there is common ownership for the CalPeak Power and Starwood Power facilities; the installations belong to the same two-digit standard industrial classification (SIC) code, since they're both power plants and the properties are contiguous or adjacent.

Based on that information, the new 120 MW power plant (Starwood Power) should be considered the same stationary source as the existing CalPeak Power Panoche facility and should be permitted under facility ID C-3811.

NSR Implications: (Only Discussing NO_X)

One of the main reasons for the pre-application meeting with the District was to answer a few questions regarding offsets and Emission Reduction Credit (ERC) Certificates. With the determination that the facility should be treated as one stationary source, the application of District Rule 2201 requirements change.

Based on a operating schedule of 4,000 hours per year, the Potential to Emit (PE) for the new power plant is approximately 24.5 tons NO_X/year.

1.) Offsets:
Since the 120 MW power plant will be considered new equipment at the existing facility, the amount of offsets required for the project will change.

Commonly, with new installations, the facility is only required to offset emissions increases above a specific threshold (i.e. 20,000 lb NO_X/year or 10 tons/year). Therefore, with a PE of 24.5 tons NO_X/year, the new power plant would only have to offset 14.5 tons of NO_X emissions (without a Distance ratio) or up to 21.75 tons of NO_X (assuming a 1.5-to-1 distance ratio). It should also be noted that the CEC commonly requires a new power plant to offset the entire Potential to Emit (without any additional ratios); therefore, the facility would likely have to provide 24.5 tons NO_X regardless.

However, since the new power plant will be added to the existing facility, offsets will be calculated as follows:

Pursuant to Project C1041101 the existing facility has the Stationary Source Potential to Emit (SSPE1) of 19,998 lb NO_X/year:

So for the new power plant, the facility would have to offset all 24.5 tons of NO_X (instead of only 14.5 tons, w/o a distance ratio) or 36.75 tons of NO_X (instead of only 21.75 tons of NO_X with a 1.5-to-1 ratio), since the existing emissions are only 2 lbs away from the 20,000 lb (10 ton/year) offset threshold. Therefore, an additional 12.25 tons of NO_X

would have to be provided above the CEC requirement (of 24.5 tons), in order to satisfy the District's NSR offsetting requirement.

2.) Major Modifications:
Also discussed in the meeting, one major concern expressed by the facility was the "Surplus at time of use" or "RACT Adjusted Credits" offset issues.

As discussed above, the power plant will have a NO_X Potential to Emit of 24.5 tons/year.

Based on the stationary source determination above, the District must make a determination whether or not the new 120 MW power plant would qualify as a Major Modification under Rule 2201, since this project would be a modification to the existing facility C-3811.

District Rule 2201 defines a "Major Modification" as the following:

3.23 Major Modification: as defined in 40 CFR Part 51.165 (as in effect on December 19, 2002) and part D of Title I of the CAA. For the purposes of this definition, the major modification thresholds for existing major sources are listed as follows:

Table 3-3, Major Modification Thresholds

POLLUTANT	THRESHOLD (POUNDS PER YEAR)
VOC	50,000
NOx	50,000
PM10	30,000
SOx	80,000

According to District Policy APR-1010:
"A facility becoming a Major Source as a result of a project does not necessarily mean the project is a Major Modification. The project by itself would need to be a significant increase in order to trigger a Major Modification."

In other words, if the new emissions unit(s) within the power plant project do not have a total potential to emit which is greater than Major Modification thresholds (above). The project cannot be a significant increase and according to District Policy, the project would not constitute a Major Modification.

Therefore, even though the new 120 MW installation would be associated with the existing power plant, the project itself would not constitue a Major Modification if total emissions from the project do not exceed the values in the table above. According to the preliminary calculations, the new power plant project would not constitute a Major Modification. Therefore, "surplus at time of use" would not be a criteria to be taken into consideration for ERC/offset purposes.

TECHNICAL AREA: AIR QUALITY

Data Request 13: Please identify for the CalPeak Panoche facility the quantity of emission reduction credits (ERCs) that were provided for SJVAPCD permitting for each pollutant that required offsets.

Response: No ERCs were provided for SJVAPCD permitting of the CalPeak Panoche facility, because that facility's permitted emission did not trigger SJVAPCD offset thresholds.

TECHNICAL AREA: AIR QUALITY

Data Request 14: a. Please provide a tabulated list showing quarterly emission and emission offset accounting indicating the proposed quantity to be used quarterly from each ERC source to fully offset the project's emissions.

b. Please show the current updated ERC certificate number and former certificate number for all certificates that have been recently split and/or re-issued in the name of the project.

c. Please also indicate the location, method, and date of emission reduction for each of the ERCs.

Response:

a. A table showing the current status of the Starwood emissions offsets package, including quarterly Project emission and emission offset accounting is provided as an attachment to this sheet.

b. The current certificate numbers of the credits purchased by Starwood are provided in the response to Part a. above. The current updated certificate numbers that have4 been issued to Starwood by SJVAPCD are S-2422-1 (VOC) and S-2382-2 (NO_x). SJVAPCD is currently processing the transaction of the SO_2 credits previously banked as S-2386-5, so a new Certificate number has not yet been issued. However, a fully executed agreement is in place for the purchase of these SO_2 credits

c. NO_x ERC's
Location: Elk Hills
Date: 12/1/06
Method: Retrofit 31 engines with precombustion chambers: S-2234 (4091-017) + 30 Others

VOC ERC's
Location: Rosedale HWY
Date: 2/7/07
Method: Incineration of Coker exhaust in CO boiler – renew

SO2 ERC's
Location: 7714 Panama Lane, Bakersfield CA
Date: 2/22/07 filing with the APCD for processing and transfer.
Method: Discontinued residual oil firing of process heater: S-2403-5

DATA REQUEST RESPONSE #14
ATTACHMENT

As Purchased Cert. Number		Annual	1st	2nd	3rd	4th	
S-2382-2	NOx	68378	13676	18234	18234	18234	
	Re-Allocati	68378	13676	13676	23931	17095	
	Req'd	68378.1	13675.62	13675.62	23932.34	17094.53	
	Additonal N	0.1	-0.38	-0.38	1.335	-0.475	
S-2368-1	VOC	11400	2263	3046	3046	3045	
	Re-Allocati	11400	2566	2566	3061	3207	
	Req'd	12829.2	2565.84	2565.84	4490.22	3207.3	
	Additional V	1429.2	0.16	0.16	1429.22	-0.3	Need 1500 lbs. VOC 3rd quarter.
S-2386-5[1]	SO2	90000	21500	21500	25500	21500	**Transaction currently being processed by SJVAPCD**
	As SO2	4531.2	911.4	911.4	1594.95	1139.25	
	Req'd	4531.2	911.4	911.4	1594.95	1139.25	
	Additional S	0	0	0	0	0	
	Balance as	85468.8	20588.6	20588.6	23905.05	20360.75	
	Re-Allocati	85443	16606	20588.6	27491.4	20757	
	Req'd for P	83028	16605.6	16605.6	29059.8	20757	
	Additional S	-2415	-0.4	-3983	1568.4	0	Need 1600 lbs. SO2 3rd quarter. Extra 3900 lbs. 2nd quarter

[1]The original certificate S-2386-5 (used in the ERC purchase contract) was replaced by S-2403-5.

TECHNICAL AREA: AIR QUALITY

Data Request 15: If the use of interpollutant offsets is proposed, such as the use of SOx or NOx ERCs for PM10 offset mitigation, please provide an analysis that justifies the proposed interpollutant offset ratio.

Response: The materials that were sent to SJVAPCD to support the use of proposed interpollutant offsets, specifically, SO_2 for PM10 calculations, are presented as attachments to this response. Information is also provided in these documents for a NOx for PM_{10} ratio, but thus far Starwood has not proposed any ERCs of this type.

Attachment A: SO_2 to PM10 Ratio Rationale
Attachment B: Interpollutant Offset Ratio Calculations

DATA REQUEST RESPONSE #15
ATTACHMENT A

Supplement C
Development of NOx/PM_{10} and SO_2/PM10 Inter-pollutant Offset Ratio for Fresno County

1.0 Introduction

The San Joaquin Valley Unified Air Pollution Control District is a PM_{10} non-attainment area with respect to both the federal and California ambient standards for this pollutant. The Starwood Power-Midway, LLC Peaking Project proposed for Fresno County would result in PM_{10} emissions from various onsite stationary source units. Because the background concentrations already exceed the National and California ambient standards for this pollutant, such emissions increases in PM_{10} have the potential to exacerbate existing exceedances. Accordingly, SJVAPCD regulations require a project that will cause an increase in PM_{10} emissions to provide offsets in sufficient amounts to provide a net air quality benefit.

Reductions of SO_x and NO_x emissions can be used to offset the PM_{10} impact from a new source within the SJVAPCD, because sulfates and nitrates are precursors of particulate matter. In order to quantify the offset requirement when such interpollutant trading is used, the appropriate ratios between PM_{10} and SO_x and PM_{10} and NO_x must be calculated. According to SJVAPCD policy (Sweet, 2006), inter-pollutant trading ratios specific to the Panoche project area can be calculated using results of Chemical Mass Balance (CMB) modeling conducted by SJVAPCD staff as part of the District's 2003 PM_{10} Attainment Plan. As recently as the spring of 2006, URS was informed by SJVAPCD that the assumptions, monitoring data, emissions inventory data and calculation methods used in the Attainment Plan are sufficiently recent to be considered valid for the purpose of estimating current SO_x/PM_{10} and NO_x/PM_{10} interpollutant offset ratios.

2.0 CMB Modeling Results and Annual Roll Back Analysis

Receptor modeling using the chemical mass balance model was conducted by SJVAPCD for sites in the project area that currently do not comply with the federal PM_{10} air quality standards. This method uses chemical analysis of collected air monitoring samples and information about the chemical composition of contributing sources to evaluate the link between observed concentrations and contributing emission sources. The SJVAPCD used the results of its CMB analysis with a modified rollback approach to calculate the effects on design particulate values that would result from implementation of adopted and proposed control measures to reduce PM_{10} pollution and other predicted emission trends for the most recent PM_{10} Attainment Plan. The results can also be used to support calculation of interpollutant offset ratios, as described later. The data used for this purpose were taken from an Excel workbook titled N2-Annual Rollback Analysis which was provided by SJVAPCD. Tables 1-4 summarize the data from the N2 Rollback Analysis that are relevant to this application

Table 1 presents monthly and annual average CMB modeling results for Fresno County. This includes measured PM10 concentrations at the Fresno Drummond monitoring site and model predicted contributions to these concentrations due to various source types. Table 2 shows the annual average CMB modeling results and design values for the SJVAPCD areas that are noncompliant with the PM_{10} standards from Table 1, including Fresno Drummond results. The design values were determined using EPA calculation methods (EPA 2004) and the air quality

monitoring data collected in Fresno County. In Table 2, 'Sum of Species' represents the summation of the mass concentrations across all source categories, including 'Burning', 'Motor Vehicle', 'Tire/Brake', 'Sulfate', 'Nitrate', and 'Geological'. The value difference between 'Sum of Species' and 'Design Value' was left in the "unassigned" column.

The rollback analyses conducted by SJVAPCD used a speciation model with the CMB results. This modified rollback analysis showed not only the speciation, but also how the species were distributed and estimated source attributions for both primary and secondary pollutant species. The rollback analysis also considered other factors, including geological information, PM, VOC, and NO_x inventory totals, and other relevant information. Separate modeling was conducted in the rollback analysis for each county to account for conditions and characteristics that are unique to specific areas of the SJVAPCD. The rollback analysis for Fresno County is shown in the tab labeled "Fresno" within the Excel Workbook provided in Attachment 1 "N2-Annual Rollback Analysis".

The SJVAPCD rollback analysis was conducted as follows. Line 1 in Table 3 shows the concentration values influenced by the local area emissions. The 'Annual design value' equivalent to the chemistry of the CMB monthly analysis of the Fresno Drummond data in the Table 2 matches with the 'General Note' in Line 1 of Table 3. The mass concentrations of 'Geological', 'Mobile', 'Tire/Brake', and 'Unassigned' in Table 2 are equivalent to the corresponding attributes in line 1 of Table 3. The cells in Line 1 for vegetative burning and organic carbon represent 70% and 30% respectively of the value for 'Burning' in Table 2.

Line 2 of Table 3 shows concentration values for the natural and transport contributions for each attribute, which come from background concentration measurements. Line 3 is the 'net for rollback' concentrations, which means the differences in values between Line 1 and Line 2. The values of Line 3 are distributed to Line 4 through Line 7 based on the area of influence and the percentage distribution of PM10 source categories used by SJVAPCD. The attributes of 'Geological and Construction', 'Tire/Brake', and 'Unassigned' follow the corresponding percentages of PM_{10} distribution. The attributes of 'Mobile', 'Organic Carbon', 'Vegetation Burning', 'Ammonium Nitrate', and 'Ammonium Sulfate' follow the percent of $PM_{2.5}$ distribution. Lines 4 and 5 represent the local contribution of $PM_{2.5}$ minus PM_{10} and $PM_{2.5}$, respectively. Line 6 presents the sub-regional contribution, and Line 7 shows the regional contributions.

The most current emission inventory (lb/day) for PM_{10}, NO_x, total organic compounds (TOG) and SO_x for the Fresno-Madera area is provided in Table 4.

Values from Tables 3 and 4 were used to calculate the inter-pollutant trading ratio for Fresno County. The methods employed for these calculations are addressed in the next section.

Table 1 Monthly and Annual Average CMB results at the Fresno Drummond site for February to December 2000 plus the January 2001 Episode (all concentrations are in µg/m^3)

Fresno Drummond Monthly							Burning		Motor Vehicle		Tire/Brake		Sulfate		Nitrate		Geological	
SITE ID	DATE	CONC	UCONC	PCMASS	RSQ	CHISQ	Mass	Unc	Mass	Unc	Mass	Unc	Mass	Unc	Mass	Unc	Mass	Unc
FSD	1/1/01	186	9.4	87.9	1.0	1.1	40.1	11.3	18.5	9.6	2.5	1.5	5.0	0.7	62.4	5.1	35.1	6.8
FSD	Feb	27.0	2.1	97.3	1.0	0.7	5.7	2.5	3.1	1.8	0.3	0.4	1.1	0.2	7.7	0.8	8.3	2.1
FSD	Mar	23.9	2.1	116.0	1.0	0.7	4.6	2.4	3.1	1.8	0.1	0.4	1.8	0.2	8.2	0.9	9.9	2.3
FSD	Apr	24.8	2.2	112.1	1.0	0.6	3.4	2.7	2.4	1.6	0.2	0.5	2.4	0.2	5.0	0.5	14.4	3.0
FSD	May**	20.0	2.1	99.5	1.0	0.6	0.345	0.329	2.1	1.4			2.327	0.226	2.4774	0.3211	12.6	1.7055
FSD	Jun*	34.1	2.5	105.8	1.0	1.0	1.9	0.4	3.8	2.3	0.0	0.6	4.2	0.4	3.6	0.4	22.5	3.8
FSD	Jul*	26.4	2.3	100.6	1.0	0.6	1.0	0.4	1.5	1.3			1.7	0.2	2.7	0.3	19.6	2.2
FSD	Aug*	38.2	2.5	90.2	0.9	2.7	3.8	0.7	0.9	1.5	1.4	0.9	2.0	0.3	3.3	0.4	23.1	4.3
FSD	Sep*	56.7	3.3	92.8	1.0	0.9	1.5	0.6	3.4	2.5	0.9	1.0	2.6	0.4	3.6	0.4	40.6	6.0
FSD	Oct*	50.7	3.4	93.5	1.0	0.5	1.8	0.4	4.5	2.6			2.2	0.3	8.4	0.8	30.6	3.3
FSD	Nov	40.5	2.6	95.7	1.0	0.4	11.9	3.3	4.5	2.7	0.4	0.4	2.1	0.2	13.1	1.2	6.8	1.8
FSD	Dec	65.8	3.9	89.7	1.0	0.8	13.7	4.3	7.3	3.8	0.8	0.6	3.2	0.3	23.4	2.0	10.6	2.6
Min		20.0	2.1	87.9	0.9	0.4	0.3	0.3	0.9	1.3	0.0	0.4	1.1	0.2	2.5	0.3	6.8	1.7
Avg		49.5	3.2	98.4	1.0	0.9	7.5	2.4	4.6	2.8	0.7	0.7	2.6	0.3	12.0	1.1	19.5	3.3
Max		186.0	9.4	116.0	1.0	2.7	40.1	11.3	18.5	9.6	2.5	1.5	5.0	0.7	62.4	5.1	40.6	6.8

Note:
CONC: concentration
UCONC: Uncertainty of concentration
PCMASS: Percent of mass
RSQ: R square
CHISQ: Chi square
Mass: concentration based on mass
UNC: Uncertainty of concentration based on mass

Table 2 Annual Average CMB results and Design Value for the Counties Noncompliant with the Standards (50) in San Joaquin Valley Unified Air Pollution Control District (All concentrations in µg/m^3)

SITE ID	CONC	UCONC	PCMASS	Design Value *	Sum of species	Burning		Motor Vehicle		Tire/Brake		Sulfate		Nitrate		Geological		Geological	Un-assigned
						Mass	UNC	Mass	UNC	Mass	UNC	Mass	UNC	Mass	UNC	Mass	UNC	Profile	
BGS	57.7	3.6	98.5	57.0	55.6	6.3	2.3	3.6	2.4	1.1	1.2	3.0	0.3	14.9	1.3	26.7	5.8	FDKERANN	1.4
FSD	**49.5**	**3.2**	**98.4**	**50.0**	**46.9**	**7.5**	**2.4**	**4.6**	**2.8**	**0.7**	**0.7**	**2.6**	**0.3**	**12.0**	**1.1**	**19.5**	**3.3**	**FDFSDANN**	**3.1**
HAN	51.5	3.3	104.1	53.0	52.9	6.6	2.0	4.0	2.3	0.5	0.7	3.0	0.3	15.7	1.4	23.2	4.2	FDHANANN	0.1
VCS	52.5	3.3	99.6	54.0	51.8	6.7	2.5	4.0	2.5	0.5	1.0	3.1	0.3	15.9	1.5	21.7	3.8	FDVCSANN	2.2

Note:

* All Design Values are equal to or exceed the California 24-Hour Standard (50 µg/m^3)

BGS: Bakersfield Golden State for Kern County

FSD: Fresno Drummond for Fresno County

HAN: Hanford for Kings County

VCS: Visalia Church Street for Tulare County

Unassigned: Mass based concentration that CMB model did not assign to attribute.

Table 3
SJVAPCD N2 Annual Rollback Analysis (Concentrations on Lines 1 through 7 are in µg/m^3)

Fresno - Drummond, Annual, Design value = 50 µg/m3	General Note	Geologic and Construction	Mobile Exhaust	Tire and Brake Wear	Organic Carbon	Vegetative Burning	Ammonium Nitrate including associated water	Ammonium Sulfate	Marine	Unassigned
Line1 Source Contribution from Analysis	From CMB monthly analysis Feb 2000 to Dec 2000, adding January 2001 episode for chemistry equivalent to annual design value	From CMB	From CMB	From CMB	Estimated portion of mass included in Vegetative Burning =30%	From CMB minus estimated Organic Carbon from other sources	From CMB	From CMB	From CMB, if present	Unaccounted mass from CMB, if any.
LINE 1	**50.00**	**19.50**	**4.60**	**0.70**	**2.25**	**5.25**	**12.00**	**2.60**	**0.00**	**3.1**
Line2 Natural and Transport Contribution, see "Background" sheet	Portion not included in rollback analysis, removed prior to rollback as not subject to local control, added back to projected future concentrations	See background sheet for numerical estimate and episode adjustment. Removed prior to rollback as not subject to local control, added back to projected future concentrations	0, no natural background, transport estimated at 0	0, no natural background, transport estimated at 0	See background sheet for numerical estimate and episode adjustment. Removed prior to rollback as not subject to local control, added back to projected future concentrations. Includes biogenic emissions. = 20%	See background sheet for numerical estimate and episode adjustment. Removed prior to rollback as not subject to local control, added back to projected future concentrations. Includes wildfires and biogenic. =20% + 10%	See background sheet for numerical estimate and episode adjustment. Removed prior to rollback as not subject to local control, added back to projected future concentrations	See background sheet for numerical estimate and episode adjustment. Removed prior to rollback as not subject to local control, added back to projected future concentrations	100% because marine salts are a natural emission	0, background estimate at maximum, no additional background estimate for unexplained mass
LINE 2	**8.25**	**4.0**	**0.0**	**0.0**	**0.7**	**1.6**	**1.0**	**1.0**		
Line 3 Net for Rollback	Net for Rollback, default percentages adjustable for episode characteristics, applicable to all columns except						Net for non-linear rollback, default percentages adjustable for episode characteristics		Removed entirely from rollback, added back to result	

Fresno - Drummond, Annual, Design value = 50 µg/m3	General Note	Geologic and Construction	Mobile Exhaust	Tire and Brake Wear	Organic Carbon	Vegetative Burning	Ammonium Nitrate including associated water	Ammonium Sulfate	Marine	Unassigned
	as indicated.									
LINE 3	**41.75**	**15.5**	**4.6**	**0.7**	**1.6**	**3.7**	**11.0**	**1.6**	**0.0**	**3.1**
Line4 Local Contribution PM2.5-PM10 Area of Influence	Source contribution from smallest area of influence, representative of large particle primary source area, includes all PM size emissions in the area - Rolled back against local area of influence emission estimates	70%PM10 50%PM2.5 of net	70%PM10 50%PM2.5 of net	70%PM10 50%PM2.5 of net	70%PM10 50%PM2.5 of net	70%PM10 50%PM2.5 of net	70%PM10 50%PM2.5 of net, non-linear rollback	70%PM10 50%PM2.5 of net		70%PM10 50%PM2.5 of net
LINE 4	**24.74**	**10.9**	**2.3**	**0.5**	**0.8**	**1.8**	**5.5**	**0.8**		**2.2**
Line5 Local Contribution Area of Influence of PM2.5	Rolled back against local PM2.5 area of influence emission estimates - episode specific adjustments based on meteorology and episode duration	15%PM10 30%PM2.5	15%PM10 30%PM2.5	15%PM10 30%PM2.5	15%PM10 30%PM2.5	15%PM10 30%PM2.5	15%PM10 30%PM2.5 non-linear rollback	15%PM10 30%PM2.5		15%PM10 30%PM2.5
LINE 5	**9.63**	**2.3**	**1.4**	**0.1**	**0.47**	**1.1**	**3.3**	**0.5**		**0.5**
Line6 Sub regional Contribution	Rolled back against specified County(ies) emission estimates - episode specific	10%PM10 15%PM2.5	10%PM10 15%PM2.5	10%PM10 15%PM2.5	10%PM10 15%PM2.5	10%PM10 15%PM2.5	10%PM10 15%PM2.5 non-linear rollback	10%PM10 15%PM2.5		10%PM10 15%PM2.5

Fresno - Drummond, Annual, Design value = 50 µg/m3	General Note	Geologic and Construction	Mobile Exhaust	Tire and Brake Wear	Organic Carbon	Vegetative Burning	Ammonium Nitrate including associated water	Ammonium Sulfate	Marine	Unassigned
	adjustments based on meteorology and episode duration									
LINE 6	**5.30**	**1.6**	**0.7**	**0.1**	**0.24**	**0.6**	**1.65**	**0.24**		**0.3**
Line7 Regional Contribution	Rolled back against Valley-wide emission estimates - episode specific adjustments based on meteorology and episode duration	5%PM10 5%PM2.5	5%PM10 5%PM2.5	5%PM10 5%PM2.5	5%PM10 5%PM2.5	5%PM10 5%PM2.5	5%PM10 5%PM2.5 non-linear rollback	5%PM10 5%PM2.5		5%PM10 5%PM2.5
LINE 7	**2.09**	**0.8**	**0.2**	**0.0**	**0.08**	**0.2**	**0.55**	**0.08**		**0.2**
Associated Emissions Categories	Based upon appropriate seasonal or annual inventory	PM10 paved roads+ PM10 unpaved roads+ PM10 off road mobile+ PM10 farm operations+ PM10 construction+ PM10 windblown	PM10, TOG & CO onroad mobile+ PM10, TOG & CO 860 offroad equipment PM10, TOG & CO 870 farm equipment CO presumed to add minimal mass	Tire and brake wear as predicted by EMFAC2002	Total TOG minus motor vehicle, OC may also include a small portion of otherwise unassigned elemental carbon PM10 & CO Area, Stationary CO presumed to add minimal mass	PM10 & CO residential burning PM10 & CO waste burning and disposal PM10 cooking PM10 & CO fires CO presumed to add minimal mass	Total E.I. NOx (+ bacterial soil NOx estimate removed as natural background)	Total SOx	None, natural emission from the ocean, bay and delta waters	Total PM10

Table 4 Emission Inventory for Year 1999 through Current Year (valid for this project)- All emissions in tons per day

Emissions Inventory	Area of Influence	Geologic and Construction	Mobile Exhaust	Tire and Brake Wear	Organic Carbon	Vegetative Burning	Ammonium Nitrate including associated water	Ammonium Sulfate	Marine	Unassigned
PM10	Fresno	74.4504	4.1236	0.511	5.6266	10.4843				39.92145356
NOx	Fresno						174.7763			
TOG	Fresno		58.2653		396.7168					
SOx	Fresno							9.0772		

3.0 Interpollutant Trading Ratio

The SJVAPCD (Sweet, 2005) provided the interpollutant trading calculation method, which is presented in Tables 5, 6, and 7. Summing 'organic carbon' and 'vegetation burning' from Line 1 in Table 3 gave the value of 'Vegetative Burning Total' in Table 5. 'Industry Component' and 'Regional Background' were calculated as 30% and 20% of the'Vegetative Burning Total', respectively. The value for 'Regional Background' was subtracted from the 'Industry Component' to obtain the 'Industry minus Background' value. The value for 'County Contribution' was estimated to be 50% of the value of 'Industry minus Background'. The value for 'Organic Carbon PM_{10} Inventory-Fresno County' was obtained from the emission inventory shown in Table 4. The value for 'County Contribution' divided by the value of 'Organic Carbon PM_{10} Inventory' gave the 'County Impact' in units of $\mu g/m^3$ per ton.

The values of 'Ammonium Sulfate' and 'Regional Background' in Table 6 were obtained from the values of 'Ammonium Sulfate' in Lines 1 and 2 in Table 4, respectively. The value of 'Ammonium Sulfate' was reduced by the value of 'Regional Background' to obtain the entry labeled 'Ammonium Sulfate minus Background'. The value for 'County Contribution' was also determined as 50% of the value of 'Ammonia Sulfate minus Background'. The value of 'SO_x Inventory-Fresno County' was obtained from the emission inventory shown in Table 4. The value of 'County Contribution' divided by the value of 'SO_x Inventory' gave the 'County Impact' in units of $\mu g/m^3$ per ton.

The inter-pollutant trading ratio of SO_2 to PM_{10} was calculated as the ratio of the 'County Impact' of PM_{10} to the 'County Impact' of SO_x. The ratio is 1.8 (tons of SO_2 to equal the effect of 1 ton of PM_{10} reduction). Likewise, the interpollutant trading ratio of NO_2 to PM_{10} was calculated in Table 7 as a ratio of the 'County Impact' of PM_{10} to the 'County Impact' of NO_x. The resulting ratio is 3.0 (tons of NO_2 to equal the effect of reducing 1 ton of PM_{10}).

Table 5 PM_{10} County Impact

PM_{10}	Note	Units	Estimate	Uncertainty
"Vegetative Burning" Total	1	$\mu g/m^3$	7.50	2.43
Industry Component (30%)	2	$\mu g/m^3$	2.25	
Regional Background (20%)	3	$\mu g/m^3$	0.45	
Industry minus Background		$\mu g/m^3$	1.80	
County Contribution	4	$\mu g/m^3$	0.90	
Organic Carbon PM_{10} Inventory - Fresno County	5	ton/day	5.63	
County Impact		$\mu g/m^3$ per ton	0.16	0.21

Table 6 SO_x County Impact and Inter-pollutant trading ratio of SO_x and PM_{10}

Sulfate	Note	Units	Estimate	Uncertainty
Ammonia Sulfate	6	$\mu g/m^3$	2.60	0.29
Regional Background	7	$\mu g/m^3$	1.00	
Ammonium Sulfate minus Background		$\mu g/m^3$	1.60	
County Contribution	8	$\mu g/m^3$	0.80	
SO_x Inventory - Fresno County	9	ton/day	9.08	
County Impact		$\mu g/m^3$ per ton	0.09	0.10
Tons of SO_x to Equal Effect of 1 ton PM_{10} Reduction	10		**1.8**	2.2

Table 7 NOx County Impact and Inter-pollutant trading ratio of NO_x and PM_{10}

Nitrate	Note	Units	Estimate	Uncertainty
Ammonium Nitrate	11	$\mu g/m^3$	12.00	0.29
Regional Background	12	$\mu g/m^3$	1.00	
Ammonium Nitrate minus Background		$\mu g/m^3$	11.00	
County Contribution	13	$\mu g/m^3$	5.50	
NOx Inventory - Fresno	14	ton/day	174.7763	
County Impact		$\mu g/m^3$ per ton	0.03	0.03
Tons of NO_x to Equal Effect of 1 ton PM_{10} Reduction	15		**3.0**	4.0

Note:
1. Per SJVUAPCD and CARB, PM_{10} emissions from stationary industrial combustion sources are included in the Vegetative Burning category from Chemical Mass Balance modeling performed for the SJVUAPCD 2003 PM_{10} Attainment Plan (Fresno-Drummond monitoring station).
2. Per SJVUAPCD, 30% of this category is attributed to stationary industrial combustion sources.
3. Per SJVUAPCD, regional background is estimated to be 20% of net concentration after previous adjustment to Vegetative Burning category.
4. Contribution from sources within Fresno County is estimated to be 50% of net concentration after previous adjustments to Vegetative Burning category.
5. Organic carbon PM_{10} inventory for Fresno County that contributes to this monitoring location; from SIP inventory with updates and adjustments based on Central California Ozone Study (CCOS) study.

6. Ammonium sulfate category from Chemical Mass Balance modeling performed for the SJVUAPCD 2003 PM_{10} Attainment Plan (Fresno-Drummond monitoring station).
7. Per SJVUAPCD, regional background of ammonium sulfate is estimated to be 1 mg/m^3.
8. Contribution from sources within Fresno is estimated to be 50% of net concentration after previous adjustment to Vegetative Burning category.
9. SO_x inventory for Fresno that contributes to this monitoring location; from SIP inventory with updates and adjustments based on CCOS study.
10. PM_{10} County Impact divided by Ammonium Sulfate County Impact.
11. Ammonium nitrate category from Chemical Mass Balance modeling performed for the SJVUAPCD 2003 PM_{10} Attainment Plan (Fresno - Drummond monitoring station).
12. Per SJVUAPCD, regional background of ammonium nitrate is estimated to be 1 mg/m^3.
13. Contribution from sources within Fresno County is estimated to be 50% of net concentration after previous adjustment to Vegetative Burning category.
14. NO_x inventory for Fresno County that contributes to this monitoring location; from SIP inventory with updates and adjustments based on Central California Ozone Study (CCOS) study.
15. PM_{10} County Impact divided by Ammonium Nitrate County Impact.

4.0 Reference

1) EPA-CMB8.2 Users Manual, December, 2004
2) San Joaquin Valley Air Pollution Control District State Implementation Plan PM10 Modeling Protocol (SJVAPCD, 2005)
3) Attachment 6 and calculation method obtained from SJVAPCD (James Sweet, james.sweet@valleyair.org, 559-230-5810)

DATA REQUEST RESPONSE #15
ATTACHMENT B

Starwood Miday Project
PM10 Interpollutant Offset Ratio Analysis

PM10

	Notes	Units	Estimate	Uncertainty
"Vegetative Burning" Total	1	$\mu g/m^3$	7.50	2.43
Industry Component (30%)	2	$\mu g/m^3$	2.25	
Regional Background (20%)	3	$\mu g/m^3$	0.45	
Industry minus Background		$\mu g/m^3$	1.80	
County Contribution	4	$\mu g/m^3$	0.90	
Organic Carbon PM10 Inventory - Kern Cou	5	ton/day	5.63	
County Impact		$\mu g/m^3$ per ton	0.16	0.21

Sulfate

Ammonium Sulfate	6	$\mu g/m^3$	2.60	0.29
Regional Background	7	$\mu g/m^3$	1.00	
Ammonium Sulfate minus Background		$\mu g/m^3$	1.60	
County Contribution	8	$\mu g/m^3$	0.80	
SOx Inventory - Kern County	9	ton/day	9.08	
County Impact		$\mu g/m^3$ per ton	0.09	0.10
Tons of SOx to Equal Effect of 1 ton PM10	10		1.81	2.16

1. Per SJVUAPCD and CARB, PM10 emissions from stationary industrial combustion sources ar in the Vegetative Burning category from Chemical Mass Balance modeling performed for the S 2003 PM10 Attainment Plan (Bakersfield - Golden State monitoring station).
2. Per SJVUAPCD, 30% of this category is attributed to stationary industrial combustion sources.
3. Per SJVUAPCD, regional background is estimated to be 20% of net concentration after previo adjustment to Vegetative Burning category.
4. Contribution from sources within Kern County is 50% of net concentration after previous adjustments to Vegetative Burning category.
5. Organic carbon PM10 inventory for Kern County that contributes to this monitoring location; from SIP inventory with updates and adjustments based on CCOS study.
6. Ammonium sulfate category from Chemical Mass Balance modeling performed for the SJVUA 2003 PM10 Attainment Plan (Bakersfield - Golden State monitoring station).
7. Per SJVUAPCD, regional background of ammonium sulfate is estimated to be 1 $\mu g/m^3$.
8. Contribution from sources within Kern County is 50% of net concentration after previous adjustment to Vegetative Burning category.
9. SOx inventory for Kern County that contributes to this monitoring location; from SIP inventory with updates and adjustments based on CCOS study.
10. PM10 County Impact divided by Ammonium Sulfate County Impact.

Starwood Miday Project
PM10 Interpollutant Offset Ratio Analysis

PM10

	Notes	Units	Estimate	Uncertainty
"Vegetative Burning" Total	1	$\mu g/m^3$	6.31	2.28
Industry Component (30%)	2	$\mu g/m^3$	1.89	
Regional Background (20%)	3	$\mu g/m^3$	0.38	
Industry minus Background		$\mu g/m^3$	1.51	
County Contribution	4	$\mu g/m^3$	0.76	
Organic Carbon PM10 Inventory - Kern County	5	ton/day	7.90	
County Impact		$\mu g/m^3$ per ton	0.10	0.13

Nitrate

Ammonium Nitrate	6	$\mu g/m^3$	12.00	0.29
Regional Background	7	$\mu g/m^3$	1.00	
Ammonium Nitrate minus Background		$\mu g/m^3$	11.00	
County Contribution	8	$\mu g/m^3$	5.50	
NOx Inventory - Kern County	9	ton/day	174.7763	
County Impact		$\mu g/m^3$ per ton	0.03	0.03
Tons of NOx to Equal Effect of 1 ton PM10	10		3.04	4.05

1. Per SJVUAPCD and CARB, PM10 emissions from stationary industrial combustion sources are i in the Vegetative Burning category from Chemical Mass Balance modeling performed for the SJ\ 2003 PM10 Attainment Plan (Bakersfield - Golden State monitoring station).
2. Per SJVUAPCD, 30% of this category is attributed to stationary industrial combustion sources.
3. Per SJVUAPCD, regional background is estimated to be 20% of net concentration after previous adjustment to Vegetative Burning category.
4. Contribution from sources within Kern County is 50% of net concentration after previous adjustments to Vegetative Burning category.
5. Organic carbon PM10 inventory for Kern County that contributes to this monitoring location; from SIP inventory with updates and adjustments based on CCOS study.
6. Ammonium nitrate category from Chemical Mass Balance modeling performed for the SJVUAPC 2003 PM10 Attainment Plan (Bakersfield - Golden State monitoring station).
7. Per SJVUAPCD, regional background of ammonium nitrate is estimated to be 1 $\mu g/m^3$.
8. Contribution from sources within Kern County is 50% of net concentration after previous adjustment to Vegetative Burning category.
9. NOx inventory for Kern County that contributes to this monitoring location; from SIP inventory with updates and adjustments based on CCOS study.
10. PM10 County Impact divided by Ammonium nitrate County Impact.

TECHNICAL AREA: AIR QUALITY

Data Request 16: Please identify how many heavy haul trips will be necessary to clear the existing equipment/debris from the site, and indicate where that equipment will be shipped.

Response: The Selected Catalytic Systems presently stored at the Midway site will be removed for refurbishment and then returned. It is estimated that it will require approximately 15 heavy truck hauls to remove the systems and 15 more to return them after they have been refurbished. The equipment will be refurbished at a Fabricating shop contracted to Peerless Manufacturing Inc. in Corona California. Emissions from these truck trips are incorporated in the revised construction emissions and dispersion modeling results presented in the Response to Data Request No. 23.

TECHNICAL AREA: AIR QUALITY

Data Request 17: The Geotechnical report, Appendix L of the AFC, appears to indicate very fine soils exist at and near the surface of the site, approximately 80 percent silt content for the three sieved samples. Please describe how much of the surface soils will need to be removed, how much fill will need to be imported, and describe the final disposal for the removed soils.

Response: The Midway Project would not import or export soils. The utilization of fill materials dug up for the foundations and pond construction will be applied where needed for fill. The geotechnical report indicates site soil to be adequate relative to structural considerations. The plan is to uniformly increase site elevation by approximately one foot using fill and stone.

Additionally, a 6" layer of stone will be placed over the top of the soil on the entire site, which will lessen the effects of the soil silt content for the operational project.

With respect to the final disposal of the removed soils – not applicable since none will be removed.

TECHNICAL AREA: AIR QUALITY

Data Request 18: It is assumed that emulsified diesel fuel among several other exotic diesel engine mitigation measures are used in the URBEMIS model runs. These mitigation measures are not mentioned in other areas of the AFC. Please confirm or refute that the use of emulsified diesel and the other URBEMIS identified measures can be stipulated for construction or please remove them from the analysis.

Response: As noted in subsequent responses, the Project construction emissions have been recalculated using spreadsheets, rather than the URBEMIS model, and South Coast AQMD emission factors recommended by CEC, which do not assume the use of emulsified diesel fuel.

TECHNICAL AREA: AIR QUALITY

Data Request 19: There are problems with the URBEMIS model that cause fugitive dust emission mitigation efficiency to be grossly overestimated. In the case of the URBEMIS model runs provided with this estimate the overall mitigation efficiency for fugitive dust control is over 87 percent even though no single fugitive dust operation would be controlled by more than 68 percent with the given inputs. Please provide an appropriate correction for the fugitive dust mitigation efficiency overestimate by URBEMIS considering the applicant's proposed fugitive dust mitigation measures.

Response: As described in subsequent responses, pollutant emissions for all construction activities have been recalculated using a revised approach in place of the URBEMIS model. The spreadsheets introduced in the response to Data Request No 23 clearly show the level of dust control assumed for each activity. In most cases, an 85% reduction in dust emissions was credited for watering the site at least three times daily or applying chemical dust suppressants on disturbed bare areas.

TECHNICAL AREA: AIR QUALITY

Data Request 20: Other URBEMIS model inputs appear to be problematic. For example: 1) the fugitive dust basis uses non-conservative default model values when the site is known to have particularly fine soils, 10 lbs/acre versus the worst-case 38.2 lbs/acre; and 2) the construction equipment types, numbers, horsepower differ from those presented in Appendix I, Attachment B of the AFC, Table 3.8-4. Please review all of the modeling inputs, correct as necessary based on this request and other applicable data requests using URBEMIS or an alternative with a more site specific emission estimating approach and resubmit the construction emission estimates. If the URBEMIS modeling runs are revised, please also submit the electronic input files.

Response: A new Excel workbook with separate spreadsheets showing the equipment exhaust and fugitive dust emissions estimates for each construction activity has been prepared in lieu of the previous URBEMIS2002 model calculations. The spreadsheets, which are presented in the response to Data Request No. 23 are annotated to document the sources of emission factors and assumptions used in developing the emissions estimates.

TECHNICAL AREA: AIR QUALITY

Data Request 21: It is unclear from the simplified onroad vehicle emission calculation method whether the worst case day and annual onroad emissions are correctly estimated. There are likely to be construction periods that would require comparatively higher numbers of heavy truck trips. For this project that would likely occur during major concrete pours required for the foundation. To confirm the onroad emission estimates, please identify the maximum number of daily heavy vehicle trips and vehicle miles traveled (VMT) necessary during peak periods and the total number of heavy vehicle trips, by type and assumed round trip locations, needed for all construction activities.

Response: The numbers of heavy truck trips for site clearing were presented in the response to Data Request No. 16. The current estimate for the number of concrete deliveries to the site by heavy trucks over the entire construction project is 400 trips. The new Excel workbook that has been prepared to estimate emissions form all Midway sources, including heavy truck trips for different construction phases, is presented in the response to Data Request No. 23, Also included are EMFAC2002 model runs used to estimate emissions from vehicle trips associated with the construction effort.

TECHNICAL AREA: AIR QUALITY

Data Request 22: Please provide a $PM_{2.5}$ emission estimate for construction. For engine emissions please either assume 100% of particulate emissions are PM2.5 or use approved California Air Resources Board (CARB) California Emission Inventory Development and Reporting System (CEIDARS) particulate size speciation profiles. For fugitive dust emissions please use approved CEIDARS particulate size speciation profiles, or if USEPA fugitive dust emission factor calculations are used, then use the appropriate referenced procedures for those methods.

Response: The revised emission calculations presented in the response to Data Request No. 23 include $PM_{2.5}$ emissions estimates for fugitive dust and exhaust sources based on the CEIDARS data base, and the revised construction dispersion modeling provides estimated concentrations of $PM_{2.5}$ resulting from these emissions.

TECHNICAL AREA: AIR QUALITY

Data Request 23: The construction schedule assumption in the emission calculations shows construction will occur eight hours a day. However, the modeling files do not use hourly emission factors and assume either emissions occur 24 hours per day at reduced hourly levels (PM10) or assume 24 hours per day emissions at the 8-hour peak levels (NOx). Neither approach is correct and will underestimate some impacts and overestimate other impacts. Additionally, the emission values provided in the model do not always quite match the construction emission levels provided in AFC Table 5.2-9 or 5.2-10.

Please rerun the model using appropriate hourly emission factors for the hours in the day assumed for construction. Also as noted previously, please combine receptors and meteorological files to reduce the number of modeling runs by a factor of ten or more.

Response: The revised construction emissions data presented in the attached Excel workbook take into account the daily working hours during construction. Revised dispersion modeling has been conducted to estimate the impacts to air quality from all construction activities. The resulting maximum predicted pollutant concentrations are presented in tablular form below.

Dispersion model runs have been made incorporating all of the changes to construction emission sources that are discussed in the responses to previous data requests. The Starwood construction effort will be comprised of a number of separate activities occurring at different times over a 10-month period. Each phase of construction will require different numbers and sizes of construction equipment operating at different locations within the site. Thus it is not obvious which activity would be likely to produce the highest offsite concentrations of air pollutants. Accordingly, two different candidate scenarios were modeled to ensure that worst-case impacts would in fact be addressed. Experience shows that the pollutants and averaging times that are generally most important for construction emissions in California are: 1-hour NO_2 concentrations and 24-hour PM_{10}/$PM_{2.5}$ concentrations; therefore scenarios that would maximize potential offsite impacts for these values were chosen. The main criteria for selecting these modeling scenarios were magnitude of estimated emissions, activity duration and proximity of emission sources to the Starwood site boundary. The two selected scenarios are:

- Site Grading (Month 1) and
- Site Building which includes Excavation for the natural gas pipeline extension (Months 2 – 10).

The schedule of construction equipment by month in the AFC as been modified and a revised table is included in the Excel workbook attached to this response. For each scenario, short-term impacts were modeled using the largest equipment grouping (in terms of potential emissions) that would be expected to cause the highest emissions on the same day. All construction activities were assumed to occur during an 8-hour day. Calculation of annual emissions assumed all construction activities that would occur over a 12-month period.

The results of the revised construction modeling are summarized in the following tables. Full electronic copies of the construction phase modeling input/output files are provided on an accompanying DVD along with the operational modeling files. The natural gas pipeline will be constructed above ground (thus the Excavation heading is a misnomer).

ISCST3 CONSTRUCTION IMPACT MODELING RESULTS

Pollutant	Averaging Period	Maximum Modeled Impact ($\mu g/m^3$)	PSD Significant Impact Level ($\mu g/m^3$)	Background ($\mu g/m^3$)	Maximum Total Predicted Concentration ($\mu g/m^3$)	Most Stringent AAQS ($\mu g/m^3$)	UTM Coordinates	
							East (m)	North (m)
Construction Impacts – Site Grading								
CO	1 hour	136.52	NA	7,705	7,841.5	23,000	716,250	4,059,150
	8 hour	52.83	NA	5,156	5,208.8	10,000	716,300	4,059,225
NO_2	1 hour*	436.86	NA	118.4	182.1	470	716,250	4,059,150
	Annual	0.1	NA	24.5	24.6	100	716,625	4,058,875
PM_{10}	24 hour	31.42	NA	193.0	224.4	50	716,509	4,059,015
	Annual	0.52	NA	43.0	43.5	20	716,527	4,059,033
$PM_{2.5}$	24 hour	6.9	NA	110.0	116.9	35	716,509	4,059,015
	Annual	0.05	NA	21.6	21.7	12	716,527	4,059,033
SO_2	1 hour	0.43	NA	23.6	24.0	655	716,250	4,059,150
	3 hour	0.27	NA	15.6	15.9	1,300	716,250	4,059,175
	24 hour	0.07	NA	10.5	10.6	105	716,250	4,059,175
	Annual	0.0001	NA	5.3	5.3	80	716,625	4,058,875

Notes:
$\mu g/m^3$ = micrograms per cubic meter
CO = carbon monoxide
ISCST3 = USEPA Industrial Source Complex model, Version 02035
m = meters
NA = Not applicable
NAAQS = Most stringent ambient air quality standard for the averaging period
NO_2 = nitrogen dioxide
OLM = ozone limiting method
PM_{10} = particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter.
PSD = Prevention of Significant Deterioration
SO_2 = sulfur dioxide
UTM = Universal Transverse Mercator
* = OLM calculations used with actual ozone concentration (0.01 ppm) from Hanford monitoring station for same hour as maximum modeled concentration

ISCST3 CONSTRUCTION IMPACT MODELING RESULTS

Pollutant	Averaging Period	Maximum Modeled Impact ($\mu g/m^3$)	PSD Significant Impact Level ($\mu g/m^3$)	Background ($\mu g/m^3$)	Maximum Total Predicted Concentration ($\mu g/m^3$)	Most Stringent AAQS ($\mu g/m^3$)	UTM Coordinates	
							East (m)	North (m)
Construction Impacts – Building and Excavation								
CO	1 hour	830.01	NA	7,705	8,535.0	23,000	716,300	4,058,850
	8 hour	225.52	NA	5,156	5,381.5	10,000	716,350	4,058,850
NO_2	1 hour*	2032.5	NA	118.4	341.7	470	716,300	4,058,850
	Annual	2.47	NA	24.5	27.0	100	716,600	4,058,900
PM_{10}	24 hour	24.39	NA	193.0	217.4	50	716,500	4,059,000
	Annual	1.03	NA	43.0	44.0	20	716,509	4,059,015
$PM_{2.5}$	24 hour	8.29	NA	110.0	118.3	35	716,250	4,058,950
	Annual	0.22	NA	21.6	21.8	12	716,509	4,059,015
SO_2	1 hour	2.00	NA	23.6	25.6	655	716,300	4,058,850
	3 hour	0.90	NA	15.6	16.5	1,300	716,300	4,058,850
	24 hour	0.12	NA	10.5	10.6	105	716,250	4,058,950
	Annual	0.002	NA	5.3	5.3	80	716,600	4,058,900

Notes:
$\mu g/m^3$ = micrograms per cubic meter
CO = carbon monoxide
ISCST3 = USEPA Industrial Source Complex model, Version 02035
m = meters
NA = Not applicable
NAAQS = Most stringent ambient air quality standard for the averaging period
NO_2 = nitrogen dioxide
OLM = ozone limiting method
PM_{10} = particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter.
PSD = Prevention of Significant Deterioration
SO_2 = sulfur dioxide
UTM = Universal Transverse Mercator
= OLM calculations used with actual ozone concentration (0.01 ppm) from Hanford monitoring station for same hour as maximum modeled concentration

DATA REQUEST RESPONSE #23
ATTACHMENT

Site Grading - Diesel Fired Equipment

Activity occurs in month 1 only.

					Emission factors (lb/hr)						Hourly Emissions (lb/hr)					
Equipment	**Quantity**	**Hours/Day**	**Horsepower**	**Days/year**	**PM10**	**PM2.5**	**CO**	**VOC**	**NOx**	**SOx**	**PM10**	**PM2.5**	**CO**	**VOC**	**NOx**	**SOx**
Wheeled Loader	1	6	250	22	0.068	0.063	0.496	0.178	1.845	0.002	0.07	0.06	0.50	0.18	1.85	0.00
Tracked Dozer	1	6	250	22	0.093	0.086	0.671	0.239	2.282	0.002	0.09	0.09	0.67	0.24	2.28	0.00
Backhoe	1	6	120	22	0.064	0.059	0.375	0.118	0.698	0.001	0.06	0.06	0.38	0.12	0.70	0.00
Water Truck	1	4	250	22	0.071	0.065	0.510	0.193	1.999	0.002	0.07	0.07	0.51	0.19	2.00	0.00
Compactor	1	6	175	22	0.075	0.069	0.640	0.175	1.419	0.001	0.07	0.07	0.64	0.17	1.42	0.00
Dump Trucks	1	6	250	22	0.071	0.065	0.510	0.193	1.999	0.002	0.07	0.07	0.51	0.19	2.00	0.00
										Total	**0.44**	**0.41**	**3.20**	**1.10**	**10.24**	**0.010**

Notes:

Equipment list, quantity, horsepower, and hours of operation from EIF and Bibb

Emission factors from CARB Off-road Mobile Source Emission Factors (2006-2020). (2007 data used).

PM2.5 emission factors from updated CEIDARS List with PM2.5 fractions. PM2.5 numbers obtained by multiplying the PM10 values by fraction in CEIDARS list for onroad or offroad diesel vehicles.

Construction activities occur 8 hours per day.

MODEL EMISSION RATE INPUTS

CO 1-HR	CO 8-HR	NOx 1-HR	NOx Annual
3.20	3.20	10.24	0.144

PM10 24-HR	PM10 Ann	PM2.5 24-H	PM2.5 Annual
0.31	0.006	0.29	0.006

SO2 1-HR	SO2 3-HR	SO2 24-HR	SO2 Annual
0.01	0.01	0.01	1.35E-04

Minor differences between inputs and calculated values are due to rounding differences.

Daily Emissions (lb/day)						Annual Emissions (ton/yr)					
PM10	**PM2.5**	**CO**	**VOC**	**NOx**	**SOx**	**PM10**	**PM2.5**	**CO**	**VOC**	**NOx**	**SOx**
0.41	0.38	2.98	1.07	11.07	0.01	0.00	0.00	0.03	0.01	0.12	0.00
0.56	0.51	4.02	1.43	13.69	0.01	0.01	0.01	0.04	0.02	0.15	0.00
0.38	0.35	2.25	0.71	4.19	0.01	0.004	0.004	0.025	0.008	0.046	0.000
0.28	0.26	2.04	0.77	8.00	0.01	0.00	0.00	0.02	0.01	0.09	0.00
0.45	0.41	3.84	1.05	8.52	0.01	0.00	0.00	0.04	0.01	0.09	0.00
0.43	0.39	3.06	1.16	12.00	0.01	0.00	0.00	0.03	0.01	0.13	0.00
2.51	**2.31**	**18.19**	**6.19**	**57.46**	**0.05**	**0.03**	**0.03**	**0.20**	**0.07**	**0.63**	**0.001**

Bulldozing

Activity occurs in month 1 only.

$E = p * 1 * G^{1.5} / H^{1.4}$ PM10 Emissions from bulldozing (lb/hr)

EPA AP-42 Table 11.9-1 EMISSION FACTOR EQUATIONS FOR UNCONTROLLED OPEN DUST SOURCES AT WESTERN SURFACE COAL MINES (Overburden)

0.75 p = particle size multiplier = 0.75 for PM10

15 G = Silt content (%) (from Table A9-9-F-1 for blended dirt)

15 H = Moisture content of surface material (%) (from Table A9-9-F-2 for moist dirt)

0.98 lb/hr of PM10

Equipment	Quantity	Hours/Day	Days/year	Watering Control Efficiency	PM10 Emissions (lb/hr)	PM10 Emissions (lb/day)	PM10 Emissions (tons/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (lb/day)	PM2.5 Emissions (tons/yr)
Tracked Dozer	1	6	22	85%	0.15	0.88	0.01	0.03	0.20	0.00
				Total	**0.15**	**0.88**	**0.01**	**0.03**	**0.20**	**0.00**

22 construction days per month

1 duration of activity (months)

Water efficiency from CEQA Table 11-4 watering 3 times daily or using chemical suppressants

Truck filling or storage pile emptying

PM10 emissions per ton of material handled (SCAQMD Table A9-9)

0.02205 lb/ton

Truck dumping

PM10 emissions per ton of material handled (SCAQMD Table A9-9)

0.009075 lb/ton

Equipment	Quantity	Hours/Day	Days/year	Material Handled (ton/day)	Material Handled (ton)	Watering Control Efficiency	PM10 Emissions (lb/hr)	PM10 Emissions (lb/day)	PM10 Emissions (tons/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (lb/day)	PM2.5 Emissions (tons/yr)
Wheeled Loader	1	6	22	474	10,434	85%	0.26	1.57	0.10	0.06	0.35	0.00
Dump Trucks	1	6	22	474	10,434	85%	0.11	0.65	0.04	0.02	0.14	0.00
						Total	**0.37**	**2.21**	**0.14**	**0.08**	**0.49**	**0.01**

Water efficiency from CEQA Table 11-4 watering 3 times daily or using chemical suppressants

363	yd3/day	474	ton/day	14.5	trucks/day	1	trucks/hr
7,986	yd3	10,434	tons	2613	density of soil (lb/yd3)		

(USDA NRCS Physical Soil Properties from Fresno County for Exeter Sandy Loam soil)

assume all soil moved in first 1 month (22 days)
assume each dump truck carries 25 yd3 = 32.66 tons
assume each truck can haul 2 loads per hour
5.0 acres = 7,986 cubic yds, assume depth of 0.33 yd (1 foot) of soils moved

Cover Storage Pile

Activity occurs in month 1 only.
SCAQMD Table A9-9-E
E = 1.7 * G/1.5 * (365-H)/235 * I/15 * J
PM10 Emission factor from wind erosion of storage piles per day per acre

15	G = Silt content (%) (from Table A9-9-E-1 for blended dirt)
46	H = Number of days with >= 0.01 inches of precipitation per year (from Fresno WSO Ap weather station WRCC)
8	I = Percentage of time that the unobstructed wind speed exceeds 12 mph at mean pile height
0.5	J = Fraction of TSP that is PM10 = 0.5
6.154	lb/acre/day

wind speed percentage based on 1984-92 (9 yrs) of wind speed data (actual hours > 10 knots) as recorded at Fresno Air Terminal data from EPA SCRAM website

Source	Quantity	Size of Pile (acre)	Hours/Day	Days/year	Watering Control Efficiency	PM10 Emissions (lb/hr)	PM10 Emissions (lb/day)	PM10 Emissions (tons/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (lb/day)	PM2.5 Emissions (tons/yr)
Cover Storage Pile	1	0.25	24	365	85%	0.01	0.23	0.04	0.00	0.05	0.01

Water efficiency from CEQA Table 11-4 watering 3 times daily or using chemical suppressants
pile size assumed

Travel on unpaved road

Activity occurs in month 1 only.

$F = 2.1 * G/12 * H/30 * (J/3)^{0.7} * (I/4)^{0.5} * (365-K)/365$ SCAQMD Table A9-9-D

Emission factor for vehicle travel on unpaved roads (lb/VMT)

16 G = Surface silt loading (%) (from Table A9-9-D-1 for farm road)

4 H = Mean vehicle speed (mph)

10 I = Mean number of wheels on vehicle (from Table A9-9-D-3)

13 J = Mean vehicle weight (ton) (from Table A9-9-D-3)

46 K = Number of days with >= 0.01 inches of precipitation per year (from Fresno WSO Airport weather station WRCC)

1.440 PM10 lb/VMT

MODEL EMISSION RATE INPUTS

PM10 24-H	PM10 Annua	PM2.5 24-H	PM2.5 Annual
0.565	0.046	0.124	0.004

Minor differences between inputs and calculated values are due to rounding differences.

Equipment	Quantity	Hours/Day	Days/year	Miles travelled per hour	Watering Control Efficiency	PM10 Emissions (lb/hr)	PM10 Emissions (lb/day)	PM10 Emissions (tons/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (lb/day)	PM2.5 Emissions (tons/yr)
Service Truck	1	2	22	1	85%	0.22	0.43	0.00	0.05	0.09	0.00
Service Trucks will operate 2 hours at end of day, not during daily activities											
Water Truck	1	4	22	0.25	85%	0.05	0.22	0.00	0.01	0.05	0.00
Dump Truck	1	6	22	0.25	85%	0.05	0.32	0.00	0.01	0.07	0.00
Backhoe	1	6	22	0.25	85%	0.05	0.32	0.00	0.01	0.07	0.00
Compactor	1	6	22	0.25	85%	0.05	0.32	0.00	0.01	0.07	0.00
					Total	**0.22**	**1.19**	**0.01**	**0.05**	**0.25**	**0.00**

Assumed maximum travel speed is 10 mph

Equipment weight from SCAQMD Table A9-9-D-3 for Waste Dump trucks

Water efficiency from CEQA Table 11-4 watering 3 times daily or using chemical suppressants

PM2.5 emission factors from updated CEIDARS List with PM2.5 fractions.

PM2.5 numbers obtained by multiplying the PM10 values by fraction in CEIDARS list for appropriate fugitive dust sources.

Excavation - Diesel Fired Equipment

Activity occurs in month 2 only (overlap with building).

					Emission factors (lb/hr)						Hourly Emissions (lb/hr)					
Equipment	**Quantity**	**Hours/Day**	**Horsepower**	**Days/year**	**PM10**	**PM2.5**	**CO**	**VOC**	**NOx**	**SOx**	**PM10**	**PM2.5**	**CO**	**VOC**	**NOx**	**SOx**
Water Truck	1	4	250	22	0.071	0.065	0.510	0.193	1.999	0.002	0.07	0.07	0.51	0.19	2.00	0.00
Bobcat	1	6	75	22	0.055	0.051	0.441	0.177	0.532	0.001	0.06	0.05	0.44	0.18	0.53	0.00
Dump Truck	1	6	175	22	0.092	0.085	0.770	0.209	1.588	0.001	0.09	0.08	0.77	0.21	1.59	0.00
Notes:										**Total**	**0.22**	**0.20**	**1.72**	**0.58**	**4.12**	**0.00**

Equipment list, quantity, horsepower, and hours of operation EIF and Bibb

Emission factors from CARB Off-road Mobile Source Emission Factors (2006-2020). (2007 data used).

Values presented are scaled (as needed) to match the HP presented.

PM2.5 emission factors from updated CEIDARS List with PM2.5 fractions.

PM2.5 numbers obtained by multiplying the PM10 values by fraction in CEIDARS list for onroad or offroad diesel vehicles.

All Trucks are assumed to be Off-Highway Trucks.

MODEL EMISSION RATE INPUTS

CO 1-HR	CO 8-HR	NOx 1-HR	NOx Annual
0.25	0.25	0.59	0.007
PM10 24-HR	**PM10 Annual**	**PM2.5 24-HR**	**PM2.5 Annual**
0.02	4.18E-04	0.02	3.85E-04
SO2 1-HR	**SO2 3-HR**	**SO2 24-HR**	**SO2 Annual**
5.43E-04	5.43E-04	3.39E-04	6.82E-06

Minor differences between inputs and calculated values are due to rounding differences.

(7 area sources)

Daily Emissions (lb/day)						Annual Emissions (ton/yr)					
PM10	**PM2.5**	**CO**	**VOC**	**NOx**	**SOx**	**PM10**	**PM2.5**	**CO**	**VOC**	**NOx**	**SOx**
0.28	0.26	2.04	0.77	8.00	0.01	0.00	0.00	0.02	0.01	0.09	0.00
0.33	0.30	2.64	1.06	3.19	0.00	0.00	0.00	0.03	0.01	0.04	0.00
0.55	0.51	4.62	1.26	9.53	0.01	0.01	0.01	0.05	0.01	0.10	0.00
1.17	**1.07**	**9.30**	**3.09**	**20.72**	**0.02**	**0.01**	**0.01**	**0.10**	**0.03**	**0.23**	**0.00**

Truck filling or storage pile emptying

PM10 emissions per ton of material handled (SCAQMD Table A9-9)

0.02205 lb/ton

Truck dumping

PM10 emissions per ton of material handled (SCAQMD Table A9-9)

0.009075 lb/ton

Equipment	Quantity	Hours/Day	Days/year	Material Handled (ton/day)	Material Handled (ton)	Watering Control Efficiency	PM10 Emissions (lb/hr)	PM10 Emissions (lb/day)	PM10 Emissions (tons/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (lb/day)	PM2.5 Emissions (tons/yr)
Wheeled Loader	1	6	22	6	131	85%	0.07	0.18	0.00	0.02	0.10	0.00
Dump Trucks	1	6	22	6	131	85%	0.03	0.18	0.00	0.01	0.04	0.00
						Total	**0.10**	**0.36**	**0.00**	**0.02**	**0.14**	**0.00**

22 construction days per month

1 duration of activity (months)

Water efficiency from CEQA Table 11-4 watering 3 times daily or using chemical suppressants

5 yd3/day 6 ton/day 0.2 trucks/day 0.0 trucks/hr

100 yd3 131 tons 2613 density of soil (lb/yd3)

(USDA NRCS Physical Soil Properties from Fresno County for Exeter Sandy Loam soil)

assume all soil moved in first 1 month (22 days)

assume each dump truck carries 20 yd3 = 26.13 tons

assume each truck can haul 2 loads per hour

0.25 acres (entire pipeline run) = 100 cubic yds, assume depth of 0.25 foot (0.083 yd) of soils moved

Travel on unpaved road

Activity occurs in month 1 only.

F = 2.1 * G/12 * H/30 * $(J/3)^{0.7}$ * $(I/4)^{0.5}$ * (365-K)/365 SCAQMD Table A9-9-D

Emission factor for vehicle travel on unpaved roads (lb/VMT)

16 G = Surface silt loading (%) (from Table A9-9-D-1 for farm road)

4 H = Mean vehicle speed (mph)

10 I = Mean number of wheels on vehicle (from Table A9-9-D-3)

13 J = Mean vehicle weight (ton) (from Table A9-9-D-3)

46 K = Number of days with >= 0.01 inches of precipitation per year (from Fresno WSO Airport weather station WRCC)

1.440 PM10 lb/VMT

MODEL EMISSION RATE INPUTS

PM10 24-HF	PM10 Annu	PM2.5 24-H	PM2.5 Annual
0.014	0.0002	0.004	0.0001

Minor differences between inputs and calculated values are due to rounding differences.

Equipment	Quantity	Hours/Day	Days/year	Miles travelled per hour	Watering Control Efficiency	PM10 Emissions (lb/hr)	PM10 Emissions (lb/day)	PM10 Emissions (tons/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (lb/day)	PM2.5 Emissions (tons/yr)
Service Truck	1	2	22	1	85%	0.22	0.43	0.00	0.05	0.09	0.00
Service Trucks will operate 2 hours at end of day, not during daily activities											
Water Truck	1	4	22	0.2	85%	0.04	0.17	0.00	0.01	0.04	0.00
Dump Truck	1	6	22	0.2	85%	0.04	0.26	0.00	0.01	0.05	0.00
					Total	**0.09**	**0.43**	**0.00**	**0.02**	**0.09**	**0.00**

Assumed maximum travel speed is 10 mph

Equipment weight from SCAQMD Table A9-9-D-3 for Waste Dump trucks

Water efficiency from CEQA Table 11-4 watering 3 times daily or using chemical suppressants

PM2.5 emission factors from updated CEIDARS List with PM2.5 fractions.

PM2.5 numbers obtained by multiplying the PM10 values by fraction in CEIDARS list for appropriate fugitive dust sources.

Site Building - Diesel Fired Equipment

Activity occurs in months 2 through 10 only.

Equipment	Quantity	Hours/Day	Horsepower	Days/year	Emission factors (lb/hr) PM10	PM2.5	CO	VOC	NOx	SOx
Water Truck	1	4	250	198	0.071	0.065	0.510	0.193	1.999	0.002
Dump Truck	1	6	250	198	0.071	0.065	0.510	0.193	1.999	0.002
Forklift	1	6	120	198	0.043	0.039	0.234	0.079	0.436	0.000
Welder	1	6	50	198	0.032	0.029	0.317	0.139	0.283	0.000
Concrete Truck	1	8	400	198	0.091	0.084	0.771	0.250	2.515	0.002
Concrete Boom Truck	1	8	250	198	0.071	0.065	0.510	0.193	1.999	0.002
Excavator	1	6	175	198	0.079	0.073	0.676	0.179	1.390	0.001
Aerial Lift	2	6	25	198	0.008	0.008	0.068	0.027	0.110	0.000
Backhoe	2	4	120	198	0.0635	0.058	0.375	0.118	0.698	0.0006
Compactor	1	6	175	198	0.075	0.069	0.640	0.175	1.419	0.001
Crane	2	8	250	198	0.057	0.053	0.412	0.148	1.467	0.001
Notes:										**Total**

Equipment list, quantity, horsepower, and hours of operation EIF and Bibb
Emission factors from CARB Off-road Mobile Source Emission Factors (2006-2020). (2007 data used).
Values presented are scaled (as needed) to match the HP presented.
PM2.5 emission factors from updated CEIDARS List with PM2.5 fractions.
PM2.5 numbers obtained by multiplying the PM10 values by fraction in CEIDARS list for onroad or offroad diesel vehicles.
All Trucks are assumed to be Off-Highway Trucks.

EMISSION FACTOR FOR ONROAD VEHICLES

Onroad Vehicle	Fuel Type	Vehicle Count	Weight (lbs)	Vehicle Type	EF (lbs/mile) TOC	CO	NOx	PM_{10}	SO_2
Passenger Vehicles	G/D	74	4000	LDA	1.38E-03	1.28E-02	1.36E-03	8.00E-05	9.00E-06

Emission factors from SCAQMD Emission Factors for Onroad Vehicles for 2007 from EMFAC2002 (version 2.2)

EMISSION CALCULATION FOR ONROAD VEHICLES

	Total Op. Hours / Project	Trips or Hours/Day /Unit	Round Trip Distance (miles)	Daily Total VMT	Daily Emissions (lbs) TOC	CO	NOx	PM_{10}	SO_2	PM2.5
Highway Vehicles	**Total Days**									
Passenger Vehicles	220	1	90	6660	9.2	85.4	9.1	0.5	5.99E-02	0.1

Annual Emission Rate (tons/year) TOC	CO	NOx	PM10	SO2	PM2.5
1.01	9.39	1.00	0.06	0.01	0.01

Hourly Emissions (lb/hr)						Daily Emissions (lb/day)						Annual Emissions (ton/yr)					
PM10	**PM2.5**	**CO**	**VOC**	**NOx**	**SOx**	**PM10**	**PM2.5**	**CO**	**VOC**	**NOx**	**SOx**	**PM10**	**PM2.5**	**CO**	**VOC**	**NOx**	**SOx**
0.07	0.07	0.51	0.19	2.00	0.00	0.28	0.26	2.04	0.77	8.00	0.01	0.03	0.03	0.20	0.08	0.79	0.00
0.07	0.07	0.51	0.19	2.00	0.00	0.43	0.39	3.06	1.16	12.00	0.01	0.04	0.04	0.30	0.11	1.19	0.00
0.04	0.04	0.23	0.08	0.44	0.00	0.26	0.24	1.40	0.47	2.62	0.00	0.03	0.02	0.14	0.05	0.26	0.00
0.03	0.03	0.32	0.14	0.28	0.00	0.19	0.17	1.90	0.84	1.70	0.00	0.02	0.02	0.19	0.08	0.17	0.00
0.09	0.08	0.77	0.25	2.52	0.00	0.73	0.67	6.17	2.00	20.12	0.02	0.07	0.07	0.61	0.20	1.99	0.00
0.07	0.07	0.51	0.19	2.00	0.00	0.57	0.52	4.08	1.55	15.99	0.02	0.06	0.05	0.40	0.15	1.58	0.00
0.08	0.07	0.68	0.18	1.39	0.00	0.48	0.44	4.05	1.08	8.34	0.01	0.047	0.043	0.401	0.106	0.825	0.001
0.02	0.02	0.14	0.05	0.22	0.00	0.10	0.09	0.81	0.32	1.32	0.00	0.01	0.01	0.08	0.03	0.13	0.00
0.13	0.12	0.75	0.24	1.40	0.00	0.51	0.47	3.00	0.94	5.58	0.00	0.05	0.05	0.30	0.09	0.55	0.00
0.07	0.07	0.64	0.17	1.42	0.00	0.45	0.41	3.84	1.05	8.52	0.01	0.04	0.04	0.38	0.10	0.84	0.00
0.11	0.11	0.82	0.30	2.93	0.00	0.91	0.84	6.59	2.36	23.46	0.02	0.09	0.08	0.65	0.23	2.32	0.00
0.79	**0.73**	**5.87**	**1.99**	**16.59**	**0.02**	**4.90**	**4.51**	**36.94**	**12.54**	**107.65**	**0.10**	**0.49**	**0.45**	**3.66**	**1.24**	**10.66**	**0.01**

MODEL EMISSION RATE INPUTS

CO 1-HR	CO 8-HR	NOx 1-HR	NOx Annual
5.87	5.87	16.59	2.433

PM10 24-HR	PM10 Annual	PM2.5 24-HR	PM2.5 Annual
0.61	0.111	0.56	0.102

SO2 1-HR	SO2 3-HR	SO2 24-HR	SO2 Annual
0.02	0.02	0.01	2.24E-03

Minor differences between inputs and calculated values are due to rounding differences.

Travel on unpaved road

Activity occurs in months 2 through 10 only.

$F = 2.1 * G/12 * H/30 * (J/3)^{0.7} * (I/4)^{0.5} * (365-K)/365$ SCAQMD Table A9-9-D

Emission factor for vehicle travel on unpaved roads (lb/VMT)

16	G = Surface silt loading (%) (from Table A9-9-D-1 for farm road)	
4	H = Mean vehicle speed (mph)	
5	I = Mean number of wheels on vehicle	(average of equipment listed below)
21.08	J = Mean vehicle weight (ton)	(average of equipment listed below)
46	K = Number of days with >= 0.01 inches of precipitation per year (from Fresno WSO Airport weather station WRCC)	
1.452	PM10 lb/VMT	

Most of the equipment onsite will not be moving on a continuous basis.

Welder assumed to weigh 1000 pounds.

Equipment	Quantity	Hours/Day	Days/year	Miles travelled per hour	Watering Control Efficiency	PM10 Emissions (lb/hr)	PM10 Emissions (lb/day)	PM10 Emissions (tons/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (lb/day)	PM2.5 Emissions (tons/yr)
Service Trucks	1	2	198	1	85%	0.22	0.44	0.04	0.05	0.09	0.01
Service Trucks will operate 2 hours at end of day, not during daily activities											
Water Truck	1	4	198	1	85%	0.22	0.87	0.09	0.05	0.18	0.02
Dump Truck	1	6	198	0.5	85%	0.11	0.65	0.06	0.02	0.14	0.01
Forklift	1	6	198	0.5	85%	0.11	0.65	0.06	0.02	0.14	0.01
Welder	1	6	198	0	85%	0.00	0.00	0.00	0.00	0.00	0.00
Concrete Truck	1	8	198	0.4	85%	0.09	0.70	0.07	0.02	0.15	0.01
Concrete Boom Truck	1	8	198	0	85%	0.00	0.00	0.00	0.00	0.00	0.00
Excavator	1	6	198	0.5	85%	0.11	0.65	0.06	0.02	0.14	0.01
Aerial Lift	2	6	198	0.25	85%	0.11	0.65	0.06	0.02	0.14	0.01
Backhoe	2	4	198	0.3	85%	0.13	0.52	0.05	0.03	0.11	0.01
Crane	2	8	198	0	85%	0.00	0.00	0.00	0.00	0.00	0.00
					Total	**0.9**	**4.7**	**0.5**	**0.2**	**1.0**	**0.1**

Assumed maximum travel speed is 10 mph

Water and Dump Truck weights from SCAQMD Table A9-9-D-3 for Waste Dump trucks

Water efficiency from CEQA Table 11-4 watering 3 times daily or using chemical suppressants

No more than 1 concrete trucks onsite at any one time.

Passenger vehicle travel on paved roads

0.0064 PM10 lb/VMT (from Table A9-9-B-1 for major streets/highways) CEQA Table A9-9-B

Equipment	Monthly Average Number of Employees	Hours/Day	Days/year	Miles travelled per trip	Total miles travelled per year	PM10 Emissions (lb/hr)	PM10 Emissions (lb/day)	PM10 Emissions (tons/yr)	PM2.5 Emissions (lb/hr)	PM2.5 Emissions (lb/day)	PM2.5 Emissions (tons/yr)
All Employee Vehicles	74	2	198	90	1318680	21.312	42.624	4.220	3.60	7.20	0.71

Assumed average distance travelled off site for all employees commuting will be 45 miles times 2 for return trip 90 miles

Employee numbers based on total employees on site (743) for 10 months, based on AFC Data Needs checklist item A45 - Total Workforce

Assumed 1 employees per vehicle

Water efficiency from CEQA Table 11-4 watering 3 times daily or using chemical suppressants

Equipment weight from Caterpillar website (www.cat.com/cda).

Concrete vehicle and Crane weights from various websites.

PM2.5 emission factors from updated CEIDARS List with PM2.5 fractions.

PM2.5 numbers obtained by multiplying the PM10 values by fraction in CEIDARS list for appropriate fugitive dust sources.

MODEL EMISSION RATE INPUTS

PM10 24-H	PM10 Annua	PM2.5 24-H	PM2.5 Annual
0.588	0.106	0.058	0.023

Minor differences between inputs and calculated values are due to rounding differences.

Equipment	Wheels	Weight (tons)
Water Truck	10	13.00
Forklift	4	7.74
Welder	2	0.5
Concrete Truck	10	30
Concrete Boom Truck	10	25
Aerial Lift	8	15.47
Backhoe	8	25.36
Crane		165.00
Dump Truck	10	13.00
Excavator	4	23.00
	62	**295.07**
	5	21.08

Cranes (500 hp)	Weight (tons)
Terex DeMag	79.0
Lieber 1800	105
Lieber 1300	79
Grove GMK5240	67
TOTAL	**330.00**
AVERAGE WT	82.50

Table 3.8-4
CONSTRUCTION EQUIPMENT UTILIZATION – POWER PLANT SITE
Construction Equipment Pieces per Month

CONSTRUCTION EQUIPMENT DESCRIPTION	Hp	1	2	3	4	5	6	7	8	9	10	Piece-Month
Backhoe	120	1	2	2	2	1	1					9
Boom Truck	250		1	1	1	1	1	1	1	1		8
Crane	700				1	1	1					3
Crane	250		1	2	1	1	1	1	1			8
Dump Truck	250	1	2	1	1	1						6
Excavator	175		1	1	1	1						4
Forklift	120		1	1	2	2	2	1				9
Manlift	25			2	2	3	4	4				16
Roller Compactors	175	1	1	1								3
Water Truck	250	1	1	1	1	1	1	1	1	1	1	10
Welding Machine, Portable	50		1	1	1	1	2	2	2	1	1	12
Tracked Dozer	175	1	1									2
Bobcat	75			1								1
Wheeled Loader	250	1	1									2
Total		6	13	14	13	13	13	10	5	3	2	93

EMISSION CALCULATIONS FOR ONROAD HEAVY DUTY VEHICLES

EMISSION FACTOR FOR ONROAD VEHICLES

Onroad Vehicle	Fuel Type	Vehicle Count	Weight (lbs)	Vehicle Type	EF (lbs/VMT) [1]				
					TOC	CO	NOx	PM10	SO2
DEBRIS REMOVAL - Dump Truck	D	1	26000	HHD	1.15E-04	4.23E-04	1.45E-03	6.06E-05	1.24E-06
EARTH TRANSPORT - Dump Truck	D	1	26000	HHD	1.15E-04	4.23E-04	1.45E-03	6.06E-05	1.24E-06
CONCRETE DELIVERIES - Heavy Duty Dump Truck	D	1	60000	HHD	1.15E-04	4.23E-04	1.45E-03	6.06E-05	1.24E-06

1. To obtain the emission factors, EMFAC2007 was run in the "planning inventory" mode for the modeling year of 2007. The Fresno County average fleet information was chosen, and the inventory was run for winter. The emission factor for a given vehicle category was back calculated using the daily emissions and daily VMT for that vehicle category.

EMISSION CALCULATION FOR ONROAD VEHICLES

Onroad Vehicles[1]	Total Days[2]	Total Trips / Activity	Total Trips / Day	Round Trip Distance (mile)	Daily Total VMT	Daily Emissions (lbs)				
						TOC	CO	NOx	PM10	SO2
DEBRIS REMOVAL - Dump Truck	22	15	1	30	20.5	2.36E-03	8.66E-03	2.97E-02	1.24E-03	2.53E-05
EARTH TRANSPORT - Dump Truck	22	400	18	10	181.8	2.10E-02	7.70E-02	2.64E-01	1.10E-02	2.25E-04
CONCRETE DELIVERIES - Heavy Duty Dump Truck	176	400	2	100	227.3	2.62E-02	9.62E-02	3.30E-01	1.38E-02	2.81E-04
Total					**Total**	**0.05 lbs**	**0.18 lbs**	**0.62 lbs**	**0.03 lbs**	**0.00 lbs**

1. Based on equipment usage as given for each respective phase:
Debris Removal - Grading Phase
Earth Transport - Grading Phase
Concrete Deliveries - Building Phase
2. Total Days based on 5 days/week, 22 days/month schedule

FUGITIVE EMISSIONS FROM VEHICLE TRAFFIC ON PAVED ROAD (Continued)

Vehicle Type	Mean Vehicles Speed (mph) [Vehicles Weight (tons)]	Total No. Of Trips / Day	PM10 EF (lbs/VMT) [1]	Round Trip Distance (mile)	Daily Total VMT (all units)	Total No. of Days Operated	VMT/ Project	Daily Emissions (lbs)	Project Emissions (lbs)
DEBRIS REMOVAL - Dump Truck	[13]	1	0.1117	30	20.5	22	450	2.28	50.24
EARTH TRANSPORT - Dump Truck	[13]	18	0.1117	10	181.8	22	4,000	20.30	446.62
CONCRETE DELIVERIES - Heavy Duty Dump Truck	[30]	2	0.3926	100	227.3	176	40,000	89.23	15704.04
Total								**112**	**16,201**

1. EF are calculated using equations in AP-42, Section 13.2.1 Equation 1.
EF calculations are based on the following assumptions:

Silt Loading 0.04 oz/yd^2 1.356 g/m^2 SCAQMD CEQA Table A9-9-C-1.

EMISSION CALCULATION FOR ONROAD VEHICLES (continued)

Project Emissions (lbs)				
TOC	**CO**	**NOx**	**PM10**	**SO2**
5.19E-02	1.90E-01	6.54E-01	2.73E-02	5.56E-04
4.61E-01	1.69E+00	5.81E+00	2.42E-01	4.94E-03
4.61E+00	1.69E+01	5.81E+01	2.42E+00	4.94E-02
5.12 lbs	**18.81 lbs**	**64.60 lbs**	**2.69 lbs**	**0.05 lbs**
0.00	**0.01**	**0.03**	**0.00**	**0.0 tons**

Dump And Delivery Trucks

	HHDT-DSL
Vehicles	12792
VMT/1000	2117
Trips	64732

Total Organic Gas Emissions	
Run Exh	3.31
Idle Exh	0.43
Start Ex	0

Total Ex	3.73
Diurnal	0
Hot Soak	0
Running	0
Resting	0

Total	3.73
EF (lbs/VMT)	**1.15E-04**
Carbon Monoxide Emissions	
Run Exh	12.02
Idle Exh	1.67
Start Ex	0

Total Ex	13.7
EF (lbs/VMT)	**4.23E-04**
Oxides of Nitrogen Emissions	
Run Exh	44.67
Idle Exh	2.37
Start Ex	0

Total Ex	47.04
EF (lbs/VMT)	**1.45E-03**
Carbon Dioxide Emissions (000)	
Run Exh	4.28
Idle Exh	0.14
Start Ex	0

Total Ex	4.42
EF (lbs/VMT)	**1.37E-04**
PM10 Emissions	
Run Exh	1.75
Idle Exh	0.07
Start Ex	0

Total Ex	1.81
TireWear	0.08
BrakeWr	0.07

Total	1.96
EF (lbs/VMT)	**6.06E-05**
Lead	0
SOx	0.04
EF (lbs/VMT)	**1.24E-06**

Fuel Consumption (000 gallons)	
Gasoline	0
Diesel	397.86

Title : Starwood Heavy Duty Trucks
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2007/02/25 16:40:45
Scen Year: 2007 -- All model years in the range 1965 to 2007 selected
Season : Winter
Area : Fresno County
I/M Stat : Enhanced Interim (2005)
Emissions: Tons Per Day

	Light Duty Passenger Cars				Light Duty Trucks				Medium Duty Trucks				Heavy Duty Trucks - Gasoline Trucks				Heavy Duty Trucks - Diesel					
	Non-cat	Cat	Diesel	Total	Non-cat	Cat	Diesel	Total	Non-cat	Cat	Diesel	Total	Non-cat	Cat	Total	Trucks	Trucks	Buses	cycles	Vehicles
Vehicles	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	43.	192.	235.	12792.	13027.	0.	0.	13027.
VMT/1000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	26.	27.	2117.	2144.	0.	0.	2144.
Trips	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1968.	8759.	10728.	64732.	75460.	0.	0.	75460.
Total Organic Gas Emissions																				
Run Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.08	3.31	3.39	0.00	0.00	3.39
Idle Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.43	0.00	0.00	0.43
Start Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.04	0.10	0.00	0.10	0.00	0.00	0.10
Total Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.11	0.18	3.73	3.91	0.00	0.00	3.91
Diurnal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hot Soak	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Running	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.02	0.00	0.00	0.02
Resting	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.12	0.20	3.73	3.93	0.00	0.00	3.93
Carbon Monoxide Emissions																				
Run Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.95	1.37	12.02	13.40	0.00	0.00	13.40
Idle Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	1.67	0.00	0.00	1.67
Start Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.70	1.32	0.00	1.32	0.00	0.00	1.32
Total Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.04	1.65	2.69	13.70	16.39	0.00	0.00	16.39
Oxides of Nitrogen Emissions																				
Run Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.32	0.33	44.67	45.01	0.00	0.00	45.01
Idle Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.37	2.37	0.00	0.00	2.37
Start Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.08	0.00	0.08	0.00	0.00	0.08
Total Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.39	0.42	47.04	47.46	0.00	0.00	47.46
Carbon Dioxide Emissions (000)																				
Run Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	4.28	4.29	0.00	0.00	4.29
Idle Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14	0.00	0.00	0.14
Start Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.02	4.42	4.44	0.00	0.00	4.44
PM10 Emissions																				
Run Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75	1.75	0.00	0.00	1.75
Idle Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.00	0.00	0.07
Start Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81	1.81	0.00	0.00	1.81
TireWear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.08	0.00	0.00	0.08
BrakeWr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.07	0.00	0.00	0.07
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96	1.97	0.00	0.00	1.97
Lead	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	0.00	0.00	0.04
Fuel Consumption (000 gallons)																				
Gasoline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.27	2.05	2.32	0.00	2.32	0.00	0.00	2.32
Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	397.86	397.86	0.00	0.00	397.86

Title : Starwood Heavy Duty Trucks
Version : Emfac2007 V2.3 Nov 1 2006
Run Date : 2007/02/25 16:40:45
Scen Year: 2007 -- All model years in the range 1965 to 2007 selected
Season : Winter
Area : Fresno County
I/M Stat : Enhanced Interim (2005)
Emissions: Tons Per Day

	Light Duty Trucks 1 (T1)				Light Duty Trucks 2 (T2)				Medium Duty Trucks (T3)				Light-Heavy Duty Trucks 1 (T4)				Light-Heavy Duty Trucks 2 (T5)				Medium-Heavy Duty Trucks (T6)				HH Duty	School Buses		Urban Buses	Total
	Non-cat	Cat	Diesel	Total	Non-cat	Cat	Diesel	Total	Non-cat	Cat	Diesel	Total	Non-cat	Cat	Diesel	Total	Non-cat	Cat	Diesel	Total	Non-cat	Cat	Diesel	Total	Diesel Trks	Gas	Diesel	Gas	Diesel	Buses
Vehicles	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.
VMT/1000	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	2117.	0.	0.	0.	0.	0.
Trips	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	64732.	0.	0.	0.	0.	0.
Total Organic Gas Emissions																														
Run Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.31	0.00	0.00	0.00	0.00	0.00	0.00
Idle Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00
Start Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.73	0.00	0.00	0.00	0.00	0.00	0.00
Diurnal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hot Soak	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Running	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Resting	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.73	0.00	0.00	0.00	0.00	0.00	0.00
Carbon Monoxide Emissions																														
Run Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.02	0.00	0.00	0.00	0.00	0.00	0.00
Idle Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.67	0.00	0.00	0.00	0.00	0.00	0.00
Start Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.70	0.00	0.00	0.00	0.00	0.00	0.00
Oxides of Nitrogen Emissions																														
Run Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.67	0.00	0.00	0.00	0.00	0.00	0.00
Idle Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.37	0.00	0.00	0.00	0.00	0.00	0.00
Start Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.04	0.00	0.00	0.00	0.00	0.00	0.00
Carbon Dioxide Emissions (000)																														
Run Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.28	0.00	0.00	0.00	0.00	0.00	0.00
Idle Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00
Start Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.42	0.00	0.00	0.00	0.00	0.00	0.00
PM10 Emissions																														
Run Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.75	0.00	0.00	0.00	0.00	0.00	0.00
Idle Exh	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00
Start Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Ex	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.81	0.00	0.00	0.00	0.00	0.00	0.00
TireWear	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00
BrakeWr	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.96	0.00	0.00	0.00	0.00	0.00	0.00
Lead	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SOx	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
Fuel Consumption (000 gallons)																														
Gasoline	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	397.86	0.00	0.00	0.00	0.00	0.00	0.00

TECHNICAL AREA: AIR QUALITY

Data Request 24: The PM10 modeling was separated into fugitive and combustion emissions modeling runs. However, the location and time of the worst-case impact found for each of these two modeling runs are likely different, so the impact results for these two modeling runs cannot be added. Please remodel with the fugitive and combustion emissions in a single modeling run to properly determine the construction PM10 impacts.

Response: The revised modeling presented in the response to Data Request No. 23 includes simulations to estimate the combined effects of fugitive dust and equipment exhaust sources of PM_{10} and $PM_{.2.5.}$

Technical Area: Air Quality

Data Request 25: The AFC notes that the ozone limiting method (OLM) is used for the 1-hour NO_2 impact determination. However, no NOx_OLM modeling files or simplified OLM method calculations are provided to confirm the results presented for the 1-hour NOx impacts. Please provide the NOx_OLM input/output files, including ozone input files, if NOx_OLM was used. Alternatively, provide the simplified OLM calculations and assumptions if that method was used to determine worst case 1-hour NOx impacts. Please note that other modeling corrections may be necessary based on the other data requests regarding construction emission estimates.

Response: The ozone limiting method was applied to predicted maximum one-hour NOx concentrations during construction. The NOx OLM model could not be used because that model only works properly with point source emission input data, whereas certain construction sources, such as exhaust from moving equipment within the site, are more appropriately represented as volume sources. Accordingly, a simple hand calculation was made to estimate the portion of the maximum predicted 1-hour NO_x concentrations for each modeled construction activity that would be converted to NO_2. The hourly ozone data used for this purpose was the value recorded at the Hanford monitoring station for the same hour of the meteorological input data record that produced the highest NOx concentration in ISCST3. Separate model runs were conducted for several different construction tasks (scenarios) that were selected to ensure that maximum offsite pollutant concentrations would be addressed.

Among the different candidate construction scenarios modeled, the highest predicted hourly NOx concentration (2,032.5 µg/m^3) occurred for Building and Excavation. This value was predicted to occur with the meteorological input data for October 25, 1987. The ozone concentration recorded at Hanford during this hour was 10 parts per billion or 0.01 parts per million (20 µg/m^3). The ozone limiting calculation is:

[NO2]ann = {(0.1) x [NOx]pred} + MIN { (0.9) x [NOx]pred , or (46/48) x [O3]bkgd }

where

[NO2]ann is the predicted annual NO2 concentration
[NOx]pred is the model predicted annual NOx concentration
MIN means the minimum of the two quantities within the brackets
[O3]bkgd is the representative annual average ambient O3 concentration
(46/48) is the molecular weight of NO2 divided by the molecular weight of O3

Substituting the values obtained for October 25, 1987 yields a project NO_2 impact of 223.3 µg/m^3. When this is added to the conservative background NO_2 concentration of 118.4 µg/m^3 (recorded at Parlier) used throughout the modeling analyses, the resulting total concentration is 341.7 µg/m^3**.**

TECHNICAL AREA: AIR QUALITY

Data Request 26: Please provide a copy of the District's correspondence regarding existing and planned cumulative projects located within six miles of the Starwood site. Once this correspondence is provided, then staff will work with the applicant to decide which sources to include in the cumulative analysis required for Data Request 27.

Response: The information provided by SJVAPCD on emissions of cumulative sources for the Panoche Energy Center (PEC) is equally applicable to the Midway project, which is almost immediately adjacent. CEC policy requires that a dispersion modeling analysis be conducted to evaluate the maximum cumulative air quality effects of the Starwood Midway facility along with other new sources within six miles of the Midway site, that are either under construction, newly permitted in 2006 or currently in the permitting process. In addition, CEC has determined that the two existing peaker generation plants adjacent to the Midway facility should be included because of their proximity. These two sites are the existing CalPeak and Wellhead peaker generation facilities. The Panoche Energy Center project, a proposed 400 MW facility should also be included in this analysis.

In order to facilitate the cumulative analysis, the SJVAPCD was contacted to obtain a list of permitted emission sources within six miles from the Midway facility. The list that was provided is included as Attachment A to this response. Note that this list includes all permitted sources within the six-mile radius, i.e., not just new sources. In fact, further communications with SJVAPCD determined that none of these facilities had been commissioned since 2003, although two had obtained permit modifications in 2006. These two facilities include a cotton gin that replaced the cones of its cyclones for particulate control and an almond processor that increased it usage of phostoxin. It was determined by SJVAPCD staff that neither of these modifications had the potential to appreciably increase the criteria pollutant emissions from these facilities. Accordingly, the sources, in addition to the Midway facility, that have been included in the cumulative modeling analysis are:

- The four 100 MW simple-cycle gas turbines of the proposed PEC project;
- The two 30 MW simple-cycle gas turbines of the existing CalPeak Panoche facility, which are exhausted through a single stack; and
- The two 25 MW simple-cycle turbines which are exhausted through a single stack, and the auxiliary natural gas-fired internal combustion engine of the Wellhead peaker plant.

The stack locations of the four power projects included in the cumulative analysis are shown in Attachment B. Stack parameters and criteria pollutant emission rates for the proposed PEC and Midway projects were obtained from their recent AFC impact analyses. Comparable data for the existing CalPeak Panoche and Wellhead facilities were supplied by SJVAPCD. Based on the fact that all of these facilities are peaking power plants, as is the Midway facility, it is possible that a situation could occur in which all four plants may be operating simultaneously at maximum capacity for short periods. Accordingly, the modeling simulations to evaluate cumulative impacts for averaging times up to 24 hour

assumed maximum hourly emission rates for all sources. Model runs to evaluate annual average impacts did take into account permit limitations on the allowable annual emission or hours of operation for the respective facilities. Stack parameters and emission rates for the CalPeak Panoche, PEC, and Wellhead facilities are presented in Tables 1 though 3. Midway emission rates are the same as those presented in the AFC (as modified in the responses to recent data requests). The assumption of concurrent commissioning tests for both Midway units at the same time as maximum normal operational emissions for all the other facilities gives particularly conservative results for short-term NO_2 and CO concentrations.

Table 1
CalPeak Panoche Power Emission Rates and Stack Parameters[1]

Pollutant	Averaging Time	Emission Rate (lb/hr)	Stack Height (m)	Stack Diameter (m)	Exit Temperature (K)	Exit Velocity (m/sec)
CO	1-, 8-hour	10.73	15.24	3.6576	644.11	36.5608
NO_2	1-hour	6.17				
	Annual	0.03				
PM_{10}	24-hour	3.24				
	Annual	3.24				
SO_2	1-hour	1.42				
	3-hour	1.42				
	24-hour	1.42				
	Annual	1.42				

[1] Two combustion turbines emitting from 1 stack. Emissions are max 1-hour values for both units operating at maximum load, except annual numbers are 2004 actual emissions.

Table 2a
Wellhead Power Emission Rates and Stack Parameters - CTGs

Pollutant	Averaging Time	Emission Rate (lb/hr)	Stack Height (m)	Stack Diameter (m)	Exit Temperature (K)	Exit Velocity (m/sec)
CO	1-, 8-hour	24.2	9.14	1.72	727	25.4
NO_x	1-hour[1]	25.0				
	Annual[2]	6.2				
PM_{10}	24-hour	4.45				
	Annual	4.45				
SO_2	1-hour	1.92				
	3-hour	1.92				
	24-hour	1.92				
	Annual	1.92				

[1] Short-term emission rates based on thermal stabilization operating conditions (this is likely a turbine startup condition)
[2] Annual emission value is for non-thermal stabilization operation.

Table 2b
Wellhead Power Emission Rates and Stack Parameters - Natural Gas Fired Engine

Pollutant	Averaging Time	Emission Rate (lb/hr)[1]	Stack Height (m)	Stack Diameter (m)	Exit Temperature (K)	Exit Velocity (m/sec)
CO	1-, 8-hour	4.13	6.1	0.15	888.71	38.29
NO_x	1-hour	0.0521				
	Annual	0.0521				
PM_{10}	24-hour	0.0514				
	Annual	0.0514				
SO_2	1-hour	0.0075				
	3-hour	0.0075				
	24-hour	0.0075				
	Annual	0.0075				

[1] Short-term emission rate is based on allowable emission factors in g/hp-hr times 329 horsepower, i.e., maximum hourly emission rates. Annual emission rates are maximum values allowed by the permit.

Table 3a
PEC CTG Emission Rates and Stack Parameters

Pollutant	Averaging Time	Emission Rate (lb/hr)[1]	Stack Height (m)	Stack Diameter (m)	Exit Temperature (K)	Exit Velocity (m/sec)
CO	1-, 8-hour	11.81	27.43	4.115	692.6	31.535
NO_x	1-hour	8.03				
	Annual	5.53				
PM_{10}	24-hour	6				
	Annual	3.42				
SO_2	1-hour	1.9				
	3-hour	1.9				
	24-hour	1.9				

Table 3b
PEC Firepump Emission Rates and Stack Parameters

Pollutant	Averaging Time	Emission Rate (lb/hr)	Stack Height (m)	Stack Diameter (m)	Exit Temperature (K)	Exit Velocity (m/sec)
CO	1-, 8-hour	0.23	5.182	0.154	739.8	31.298
NO_x	1-hour	1.38				
	Annual	0.0082				
PM_{10}	24-hour	0.0022				
	Annual	3.14E-04				
SO_2	1-hour	0.0023				
	3-hour	0.0023				
	24-hour	0.0023				
	Annual	1.34E-05				

Table 3c
PEC Cooling Tower Emission Rates and Stack Parameters

Pollutant	Averaging Time	Emission Rate (lb/hr)	Stack Height (m)	Stack Diameter (m)	Exit Temperature (K)	Exit Velocity (m/sec)
CO	1-, 8-hour		12.8	6.71	310.9	6.1
NO_x	1-hour					
	Annual					
PM_{10}	24-hour	0.35				
	Annual	0.2				
SO_2	1-hour					
	3-hour					
	24-hour					
	Annual					

DATA REQUEST RESPONSE #26 ATTACHMENT A
PAS LISTING

County: 10 Region: C Facility ID: 213
UTMZ: 10 UTME: 722.59 UTMN: 4063.48 SPHEROID: WGS84 DATUM: NAD83

FacilityName: EAGLE VALLEY GINNING, LLC
Faciliity Type: COTTON GINNING
Facility Name: EAGLE VALLEY GINNING LLC
Address1: 39936 W NORTH AVE
Address2:
City: MENDOTA
State: CA Zip: 93640

Distance To Location (m): 7551.68
Direction To Location(deg): 33.17
Accuracy:

County: 10 Region: C Facility ID: 290
UTMZ: 10 UTME: 712.16 UTMN: 4057.34 SPHEROID: WGS84 DATUM: NAD83

FacilityName: CHEVRON USA, INC. #92316
Faciliity Type: GASOLINE DISPENSING
Facility Name: CHEVRON USA, INC. #92316
Address1: 46330 W PANOCHE RD
Address2:
City: FIREBAUGH
State: CA Zip: 93622

Distance To Location (m): 4568.66
Direction To Location(deg): 205.98
Accuracy:

County: 10 Region: C Facility ID: 911
UTMZ: 10 UTME: 716.06 UTMN: 4063.38 SPHEROID: WGS84 DATUM: NAD83

FacilityName: PANOCHE GINNING CO
Faciliity Type: COTTON GINNING
Facility Name: PANOCHE GINNING CO
Address1: 43890 W NORTH AVE
Address2:
City: FIREBAUGH
State: CA Zip: 93622

Distance To Location (m): 4043.57
Direction To Location(deg): 356.97
Accuracy:

PAS LISTING

County: 10 Region: C Facility ID: 1124
UTMZ: 10 UTME: 713.18 UTMN: 4057.82 SPHEROID: DATUM:

FacilityName: WESTSIDE 76
Faciliity Type: GASOLINE DISPENSING

Facility Name: WESTSIDE 76
Address1: 46370 PANOCHE RD
Address2:
City: FIREBAUGH
State: CA Zip:

Distance To Location (m): 3444.89
Direction To Location(deg): 206.25
Accuracy: found by street

County: 10 Region: C Facility ID: 1256
UTMZ: 10 UTME: 711.78 UTMN: 4057.16 SPHEROID: WGS84 DATUM: NAD83

FacilityName: TRIPLE L LAND CO
Faciliity Type: SAND AND GRAVEL

Facility Name: TRIPLE L LAND CO
Address1: 46924 W PANOCHE RD
Address2:
City: FIREBAUGH
State: CA Zip: 93622

Distance To Location (m): 4993.35
Direction To Location(deg): 205.96
Accuracy:

County: 10 Region: C Facility ID: 1385
UTMZ: 10 UTME: 715.88 UTMN: 4063.38 SPHEROID: WGS84 DATUM: NAD83

FacilityName: ANDERSON CLAYTON CORP/SILVER C
Faciliity Type: COTTON GINNING

Facility Name: ANDERSON CLAYTON CORP/SILVER C
Address1: 43939 NORTH AVE
Address2:
City: FIREBAUGH
State: CA Zip: 93622

Distance To Location (m): 4053.41
Direction To Location(deg): 354.52
Accuracy:

PAS LISTING

County: 10 Region: C Facility ID: 1892

UTMZ: 10 UTME: 712.18 UTMN: 4057.34 SPHEROID: WGS84 DATUM: NAD83

FacilityName: M J EPPLER INC
Faciliity Type: GASOLINE DISPENSING

Facility Name: M J EPPLER INC
Address1: 46331 W PANOCHE RD
Address2:
City: FIREBAUGH
State: CA Zip:

Distance To Location (m): 4556.84
Direction To Location(deg): 206.17
Accuracy:

County: 10 Region: C Facility ID: 2974

UTMZ: 10 UTME: 722.60 UTMN: 4058.57 SPHEROID: DATUM:

FacilityName: DEPARTMENT OF FISH & GAME
Faciliity Type: WILDLIFE MANAGEMENT

Facility Name: DEPARTMENT OF FISH & GAME
Address1: 4333 S SANTA FE GRADE
Address2:
City: MENDOTA
State: CA Zip: 93640

Distance To Location (m): 6377.90
Direction To Location(deg): 96.99
Accuracy: found by zip code

County: 10 Region: C Facility ID: 3374

UTMZ: 10 UTME: 713.59 UTMN: 4058.00 SPHEROID: DATUM:

FacilityName: WEST VALLEY HULLING CO
Faciliity Type: AGRICULTURAL PRODUCTS PROCESSI

Facility Name: WEST VALLEY HULLING CO
Address1: 45475 W PANOCHE RD
Address2:
City: FIREBAUGH
State: CA Zip: 93622

Distance To Location (m): 2999.74
Direction To Location(deg): 206.62
Accuracy:

PAS LISTING

County: 10 Region: C Facility ID: 3811
UTMZ: 10 UTME: 716.27 UTMN: 4059.35 SPHEROID: WGS84 DATUM: NAD83

FacilityName: CAL PEAK POWER - PANOCHE, LLC
Faciliity Type: POWER GENERATION
Distance To Location (m): 0.00
Direction To Location(deg):
Accuracy:

Facility Name: CAL PEAK POWER - PANOCHE, LLC
Address1: 43699 WEST PANOCHE RD
Address2:
City: FIREBAUGH
State: CA Zip: 93622-9720

County: 10 Region: C Facility ID: 3844
UTMZ: 10 UTME: 715.98 UTMN: 4059.40 SPHEROID: WGS84 DATUM: NAD83

FacilityName: WELLHEAD POWER PANOCHE, LLC.
Faciliity Type: POWER GENERATION
Distance To Location (m): 291.02
Direction To Location(deg): 280.67
Accuracy:

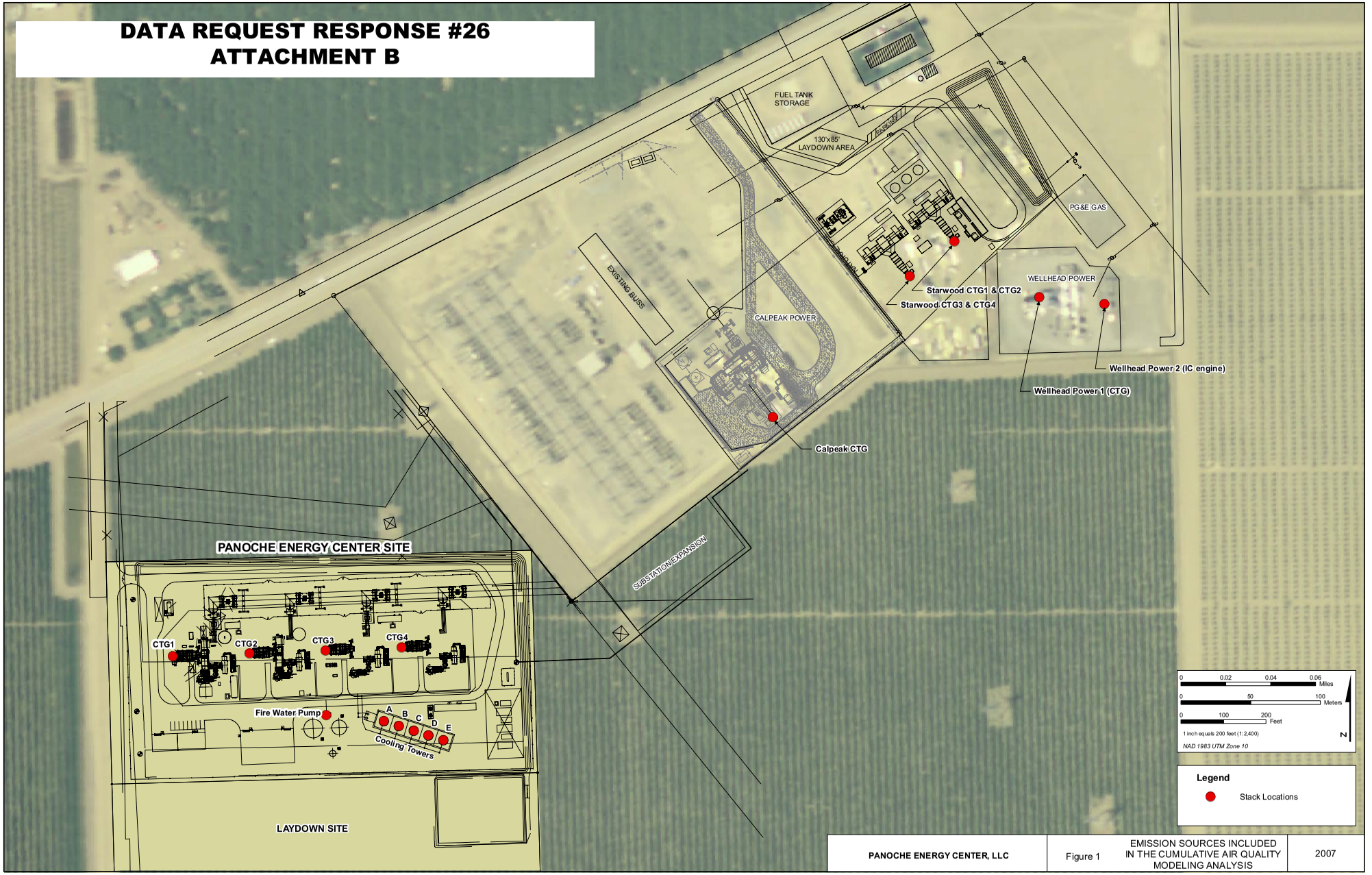
Facility Name: WELLHEAD POWER PANOCHE, LLC.
Address1: 43649 W PANOCHE RD
Address2:
City: FIREBAUGH
State: CA Zip: 93622

County: 10 Region: C Facility ID: 4185
UTMZ: 10 UTME: 712.10 UTMN: 4057.40 SPHEROID: WGS84 DATUM: NAD83

FacilityName: PANOCHE MOBIL
Faciliity Type: GASOLINE DISPENSING
Distance To Location (m): 4602.52
Direction To Location(deg): 204.96
Accuracy:

Facility Name: PANOCHE MOBIL
Address1: 46365 PANOCHE
Address2:
City: FIREBAUGH
State: CA Zip: 93622

DATA REQUEST RESPONSE #26
ATTACHMENT B



PANOCHE ENERGY CENTER, LLC	Figure 1	EMISSION SOURCES INCLUDED IN THE CUMULATIVE AIR QUALITY MODELING ANALYSIS	2007

G:\gis\projects\15772\8696795\mxd\airquality_stack_locations.mxd

TECHNICAL AREA: AIR QUALITY

Data Request 27: Please provide the cumulative modeling analysis, including the nearby, existing CalPeak Panoche and Wellhead Energy peaker facilities as proposed in the modeling protocol, the recently proposed Panoche Energy Center (06-AFC-5), as well as all District identified cumulative sources.

Response: The emissions data presented in the response to Data Request 26 were input to the ISCST3 model to estimate cumulative impacts to air quality. The same five-year record of hourly meteorological input data from the Fresno-Yosemite International Airport that was used in the modeling for the Midway facility alone was also used for the cumulative modeling. Because of the close spatial grouping of the four power projects, the same receptor grid used in the Midway modeling was also used for the cumulative modeling. If maximum predicted concentrations fell into the portion of the receptor grid with 50-meter or 100-meter spacing, then an additional simulation was performed with a smaller 25-meter grid centered on the original point of maximum concentration to ensure that the highest concentrations would be evaluated.

Maximum concentrations due to the combined emissions of the four existing and proposed power generation facilities were calculated and the results were added to conservative background pollutant concentrations reported in the Midway AFC. The results are presented in the table below. As demonstrated by these results, maximum predicted concentrations for all pollutants are below applicable ambient standards, except for PM_{10} and $PM_{2.5}$. For these pollutants, the maximum background concentrations exceed the state and federal standards, but the maximum contributions from the four modeled facilities are very small. Based on these dispersion modeling results it is concluded that the combined off-property pollutant impacts of the Midway facility and other cumulative sources close to the Midway site will be below a level of significance.

ISCST3 CUMULATIVE IMPACT MODELING RESULTS

Pollutant	Averaging Period	Maximum Modeled Impact (μg/m³)	PSD Significant Impact Level (μg/m³)	Background (μg/m³)	Maximum Total Predicted Concentration (μg/m³)	Most Stringent AAQS (μg/m³)	UTM Coordinates	
							East (m)	North (m)
Cumulative Impacts								
CO	1 hour	173.95	2,000	7,705	7,879.0	23,000	716,732	4,058,804
	8 hour	84.38	500	5,156	5,420.4	10,000	716,657	4,048,904
NO_2	1 hour	92.72	NA	169.2	261.9	338.4	715,857	4,058,604
	Annual	0.13	1	42.0	42.1	56.6	707,675	4,057,950
PM_{10}	24 hour	3.02	5	193.0	196.0	50	707,700	4,056,825
	Annual	0.14	1	43.0	43.1	20	716,682	4,058,879
$PM_{2.5}$	24 hour	3.02	NA	110.0	113.0	65	707,700	4,056,825
	Annual	0.14	NA	21.6	21.7	12	716,682	4,058,879
SO_2	1 hour	3.60	NA	23.6	27.2	655	710,850	4,053,500
	3 hour	2.69	25	15.6	18.3	1,300	711,100	4,053,400
	24 hour	0.92	5	10.5	11.4	105	707,700	4,056,825
	Annual	0.023	1	5.3	5.3	80	707,675	4,056,950

Notes:

μg/m³ = micrograms per cubic meter
CO = carbon monoxide
ISCST3 = USEPA Industrial Source Complex model, Version 02035
m = meters
NA = Not applicable
NAAQS = Most stringent ambient air quality standard for the averaging period
NO_2 = nitrogen dioxide
OLM = ozone limiting method
PM_{10} = particulate matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = particulate matter less than or equal to 2.5 microns in diameter. All PM emissions during operation assumed to be $PM_{2.5}$
PSD = Prevention of Significant Deterioration
SO_2 = sulfur dioxide
UTM = Universal Transverse Mercator

TECHNICAL AREA: BIOLOGICAL RESOURCES

Data Request 28: Please provide any supporting documents (letter or record of conversation) that resulted from communication with USFWS and CDFG regarding potential impacts to the state and federally listed San Joaquin kit fox. Please provide contact information for the USFWS and CDFG agency personnel that were contacted.

Response:

- California Department of Fish and Game
  Julie Vance, Habitat Conservation Division
  559-243-4014 x222

  Left message on 3/6/07; we are awaiting a response.

  Additionally, provided as an attachment to this sheet is a Record of Conversation with Julie Vance of the CDFG discussing the Panoche Energy Center project. This is considered relevant as these two projects are very similar in nature and are located nearly adjacent to each other.

  In the conversation, Julie Vance stated URS Biologists would not need to conduct protocol level surveys for San Joaquin kit fox since the habitat at the project site is not suitable for dens; however, Ms. Vance referred URS Biologists to guidelines on avoidance and minimization measures for San Joaquin kit fox foraging habitat found in "Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance" (Sacramento Fish & Wildlife Office, US Fish & Wildlife Service, 6/1999) located on the CDFG Habitat Conservation Planning Branch website (http://www.dfg.ca.gov/hcpb/species/stds_gdl/survmonitr.shtml#MAMMALS).

- U.S. Fish and Wildlife Service
  Susan Jones

  Per conference call consultation with the CEC and USFWS on March 5, 2007, it was suggested by USFWS that the Midway project site is potential habitat for San Joaquin kit fox. To mitigate impacts, mitigation credits at a ratio of 1.1:1 purchased from Kreyenhagen Hills Conservation Bank located in Fresno County as well as a Section 10 federal permitting were recommended. If Section 10 permitting is required, the subsequent steps would be followed: filing a Habitat Conservation Plan (likely a "Low Effect" HCP, per the USFWS), preparation of a Draft Low Effect HCP to be submitted to the USFWS, and coordination with Kreyenhagen Hills to purchase mitigation credits.

DATA REQUEST RESPONSE #28 ATTACHMENT

TELEPHONE CONVERSATION RECORD

URS

COPIES TO:

130 Robin Hill Road, Ste. 100, Santa Barbara,
California 93117
805.964-6010 FAX 805.964.0259

DATE	July 19, 2006	TIME	9 am
TO	Julie Lance	FROM	Johanna LaClaire
COMPANY	California Department of Fish and Game Habitat Conservation Planning Branch		
ADDRESS	1416 Ninth St., Sacramento, CA 95814	PHONE NO.	559-243-4014 x222
PROJ NAME	Panoche AFC	PROJ/TASK NO.	28906795.00030

Spoke with Julie Lance on July 19, 2006. She said we would not need to conduct protocol level surveys for San Joaquin kit fox since the habitat at the project site is not suitable for dens; however, she referred me to guidelines on avoidance and minimization measures for San Joaquin kit fox foraging habitat found in "Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance" (Sacramento Fish & Wildlife Office, US Fish & Wildlife Service, 6/1999) located on the CDFG Habitat Conservation Planning Branch website (http://www.dfg.ca.gov/hcpb/species/stds_gdl /survmonitr.shtml#MAMMALS). These guidelines were followed when preparing the biology section for the AFC (see attached).

U.S. FISH AND WILDLIFE SERVICE
STANDARDIZED RECOMMENDATIONS
FOR PROTECTION OF THE SAN JOAQUIN KIT FOX
PRIOR TO OR DURING GROUND DISTURBANCE

Prepared by the Sacramento Fish and Wildlife Office
June 1999

INTRODUCTION

The following document includes many of the San Joaquin kit fox (*Vulpes macrotis mutica*) protection measures typically recommended by the U. S. Fish and Wildlife Service (Service), prior to and during ground disturbance activities. However, incorporating relevant sections of these guidelines into the proposed project is not the only action required under the Endangered Species Act of 1973, as amended (Act). Project applicants should contact the Service in Sacramento to determine the full range of requirements that apply to your project; the address and telephone number are given at the end of this document. Formal authorization for the project may be required under either section 7 or section 10 of the Act. Implementation of the measures presented in this document may be necessary to avoid violating the provisions of the Act, including the prohibition against "take" (defined as killing, harming, or harassing a listed species, including actions that damage or destroy its habitat). Such protection measures may also be required under the terms of a biological opinion pursuant to section 7 of the Act resulting in incidental take authorization (authorization), or an incidental take permit (permit) pursuant to section 10 of the Act. The specific measures implemented to protect kit fox for any given project shall be determined by the Service based upon the applicant's consultation with the Service.

The purpose of this document is to make information on kit fox protection strategies readily available and to help standardize the methods and definitions currently employed to achieve kit fox protection. The measures outlined in this document are subject to modification or revision at the discretion of the Service.

All surveys, den destructions, and monitoring described in this document must be conducted by a qualified biologist. A qualified biologist (biologist) means any person who has completed at least four years of university training in wildlife biology or a related science and/or has demonstrated field experience in the identification and life history of the San Joaquin kit fox. In addition, biologist(s) must be able to identify coyote, red fox, gray fox, and kit fox tracks, and to have seen a kit fox in the wild, at a zoo, or as a museum mount.

SMALL PROJECTS

Small projects are considered to be those projects with small foot prints such as an individual in-fill oil well, communication tower, or bridge repair. These projects must stand alone and not be part of, or in any way connected to larger projects (i.e., bridge repair or improvement to serve a

future urban development). The Service recommends that on these small projects, the biologist survey the proposed project boundary and a 200-foot area outside of the project footprint to identify habitat features, and make recommendations on situating the project to minimize or avoid impacts. If habitat features cannot be completely avoided, then preconstruction surveys should be conducted.

Preconstruction/preactivity surveys shall be conducted no less than 14 days and no more than 30 days prior to the beginning of ground disturbance and/or construction activities or any project activity likely to impact the San Joaquin kit fox. Surveys should identify kit fox habitat features on the project site and evaluate use by kit fox and, if possible, and assess the potential impacts to the kit fox by the proposed activity. The status of all dens should be determined and mapped (see Survey Protocol).

Written results of preconstruction/preactivity surveys must be received by the Service within five days after survey completion and prior to the start of ground disturbance and/or construction activities. If a natal/pupping den is discovered within the project area or within 200-feet of the project boundary, the Service shall be immediately notified. If the preconstruction/preactivity survey reveals an active natal pupping or new information, the project applicant should contact the Service immediately to obtain the necessary take authorization/permit.

If take authorization/permit has already been issued, then the biologist may proceed with den destruction within the project boundary, except natal/pupping dens (active or inactive). Protective exclusion zones can be placed around all known and potential dens which occur outside the project footprint (conversely, the project boundary can be demarcated, see den destruction section).

OTHER PROJECTS

It is likely that all other projects occurring within kit fox habitat will require a take authorization/permit from the Service. This determination would be made by the Service during the early evaluation process (see Survey Protocol). These other projects would include, but are not limited to: linear projects; projects with large footprints such as urban development; and projects which in themselves may be small but have far reaching impacts (i.e., water storage or conveyance facilities that promote urban growth or agriculture, etc.).

The take authorization/permit issued by the Service may incorporate some or all of the protection measures presented in this document. The take authorization/permit may include measures specific to the needs of the project, and those requirements supersede any requirements found in this document.

EXCLUSION ZONES

The configuration of exclusion zones around the kit fox dens should have a radius measured outward from the entrance or cluster of entrances. The following radii are minimums, and if they cannot be followed the Service must be contacted:

Potential den	50 feet
Known den	100 feet
Natal/pupping den (occupied and unoccupied)	Service must be contacted
Atypical den	50 feet

Known den: To ensure protection, the exclusion zone should be demarcated by fencing that encircles each den at the appropriate distance and does not prevent access to the den by kit foxes. Exclusion zone fencing should be maintained until all construction related or operational disturbances have been terminated. At that time, all fencing shall be removed to avoid attracting subsequent attention to the dens.

Potential and Atypical dens: Placement of 4-5 flagged stakes 50 feet from the den entrance(s) will suffice to identify the den location; fencing will not be required, but the exclusion zone must be observed.

Construction and other project activities should be prohibited or greatly restricted within these exclusion zones. Only essential vehicle operation on existing roads and foot traffic should be permitted. Otherwise, all construction, vehicle operation, material storage, or any other type of surface-disturbing activity should be prohibited within the exclusion zones.

DESTRUCTION OF DENS

Disturbance to all San Joaquin kit fox dens should be avoided to the maximum extent possible. Protection provided by kit fox dens for use as shelter, escape, cover, and reproduction is vital to the survival of the species. Limited destruction of kit fox dens may be allowed, if avoidance is not a reasonable alternative, provided the following procedures are observed. The value to kit foxes of potential, known, and natal/pupping dens differ and therefore, each den type needs a different level of protection. **Destruction of any known or natal/pupping kit fox den requires take authorization/permit from the Service**.

Natal/pupping dens: Natal or pupping dens which are occupied will not be destroyed until the pups and adults have vacated and then only after consultation with the Service. Therefore, project activities at some den sites may have to be postponed.

Known Dens: Known dens occurring within the footprint of the activity must be monitored for three days with tracking medium or an infra-red beam camera to determine the current use. If no kit fox activity is observed during this period, the den should be destroyed immediately to preclude subsequent use. If kit fox activity is observed at the den during this period, the den should be monitored for at least five consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the biologist. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of a biologist, it is temporarily vacant, for example during the animal's normal foraging activities. The Service encourages hand excavation, but realizes that soil conditions may necessitate the use of excavating equipment. However, extreme caution must be exercised.

Destruction of the den should be accomplished by careful excavation until it is certain that no kit foxes are inside. The den should be fully excavated, filled with dirt and compacted to ensure that kit foxes cannot reenter or use the den during the construction period. If at any point during excavation a kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above should be resumed. Destruction of the den may be completed when in the judgement of the biologist, the animal has escaped from the partially destroyed den.

Potential Dens: If a take authorization/permit has been obtained from the Service, den destruction may proceed without monitoring, unless other restrictions were issued with the take authorization/permit. If no take authorization/permit has been issued, then potential dens should be monitored as if they were known dens. If any den was considered to be a potential den, but is later determined during monitoring or destruction to be currently, or previously used by kit fox (e.g., if kit fox sign is found inside), then destruction shall cease and the Service shall be notified immediately.

CONSTRUCTION AND OPERATIONAL REQUIREMENTS

Habitat subject to permanent and temporary construction disturbances and other types of project-related disturbance should be minimized. Project designs should limit or cluster permanent project features to the smallest area possible while still permitting project goals to be achieved. To minimize temporary disturbances, all project-related vehicle traffic should be restricted to established roads, construction areas, and other designated areas. These areas should also be

included in preconstruction surveys and, to the extent possible, should be established in locations disturbed by previous activities to prevent further impacts.

1. Project-related vehicles should observe a 20-mph speed limit in all project areas, except on county roads and State and Federal highways; this is particularly important at night when kit foxes are most active. To the extent possible, night-time construction should be minimized. Off-road traffic outside of designated project areas should be prohibited.

2. To prevent inadvertent entrapment of kit foxes or other animals during the construction phase of a project, all excavated, steep-walled holes or trenches more than 2 feet deep should be covered at the close of each working day by plywood or similar materials, or provided with one or more escape ramps constructed of earth fill or wooden planks. Before such holes or trenches are filled, they should be thoroughly inspected for trapped animals. If at any time a trapped or injured kit fox is discovered, the procedures under number 13 of this section must be followed.

3. Kit foxes are attracted to den-like structures such as pipes and may enter stored pipe becoming trapped or injured. All construction pipes, culverts, or similar structures with a diameter of 4-inches or greater that are stored at a construction site for one or more overnight periods should be thoroughly inspected for kit foxes before the pipe is subsequently buried, capped, or otherwise used or moved in any way. If a kit fox is discovered inside a pipe, that section of pipe should not be moved until the Service has been consulted. If necessary, and under the direct supervision of the biologist, the pipe may be moved once to remove it from the path of construction activity, until the fox has escaped.

4. All food-related trash items such as wrappers, cans, bottles, and food scraps should be disposed of in closed containers and removed at least once a week from a construction or project site.

5. No firearms shall be allowed on the project site.

6. To prevent harassment, mortality of kit foxes or destruction of dens by dogs or cats, no pets should be permitted on project sites.

7. Use of rodenticides and herbicides in project areas should be restricted. This is necessary to prevent primary or secondary poisoning of kit foxes and the depletion of prey populations on which they depend. All uses of such compounds should observe label and other restrictions mandated by the U.S. Environmental Protection Agency, California Department of Food and Agriculture, and other State and Federal legislation, as well as additional project-related restrictions deemed necessary by the Service. If rodent control

must be conducted, zinc phosphide should be used because of proven lower risk to kit fox.

8. A representative shall be appointed by the project proponent who will be the contact source for any employee or contractor who might inadvertently kill or injure a kit fox or who finds a dead, injured or entrapped individual. The representative will be identified during the employee education program. The representative's name and telephone number shall be provided to the Service.

9. An employee education program should be conducted for any project that has expected impacts to kit fox or other endangered species. The program should consist of a brief presentation by persons knowledgeable in kit fox biology and legislative protection to explain endangered species concerns to contractors, their employees, and military and agency personnel involved in the project. The program should include the following: a description of the San Joaquin kit fox and its habitat needs; a report of the occurrence of kit fox in the project area; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of measures being taken to reduce impacts to the species during project construction and implementation. A fact sheet conveying this information should be prepared for distribution to the above-mentioned people and anyone else who may enter the project site.

10. Upon completion of the project, all areas subject to temporary ground disturbances, including storage and staging areas, temporary roads, pipeline corridors, etc. should be re-contoured if necessary, and revegetated to promote restoration of the area to pre-project conditions. An area subject to "temporary" disturbance means any area that is disturbed during the project, but that after project completion will not be subject to further disturbance and has the potential to be revegetated. Appropriate methods and plant species used to revegetate such areas should be determined on a site-specific basis in consultation with the Service, California Department of Fish and Game (CDFG), and revegetation experts.

11. In the case of trapped animals, escape ramps or structures should be installed immediately to allow the animal(s) to escape, or the Service should be contacted for advice.

12. Any contractor, employee, or military or agency personnel who inadvertently kills or injures a San Joaquin kit fox shall immediately report the incident to their representative. This representative shall contact the CDFG immediately in the case of a dead, injured or entrapped kit fox. The CDFG contact for immediate assistance is State Dispatch at (916) 445-0045. They will contact the local warden or biologist.

13. The Sacramento Fish and Wildlife Office and CDFG will be notified in writing within three working days of the accidental death or injury to a San Joaquin kit fox during

project related activities. Notification must include the date, time, and location of the incident or of the finding of a dead or injured animal and any other pertinent information. The Service contact is the Chief of the Division of Endangered Species, at the addresses and telephone numbers given below. The CDFG contact is Mr. Ron Schlorff at 1416 9th Street, Sacramento, California 95814, (916) 654-4262.

Any project-related information required by the Service or questions concerning the above conditions or their implementation may be directed in writing to the U.S. Fish and Wildlife Service at:

Endangered Species Division
2800 Cottage Way, Suite W2605
Sacramento, California 95825-1846
(916) 414-6620

"Take" - Section 9 of the Endangered Species Act of 1973, as amended (Act) prohibits the "take" of any federally listed endangered species by any person (an individual, corporation, partnership, trust, association, etc.) subject to the jurisdiction of the United States. As defined in the Act, take means " . . . to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." Thus, not only is a listed animal protected from activities such as hunting, but also from actions that damage or destroy its habitat.

"Dens" - San Joaquin kit fox dens may be located in areas of low, moderate, or steep topography. Den characteristics are listed below, however, the specific characteristics of individual dens may vary and occupied dens may lack some or all of these features. Therefore, caution must be exercised in determining the status of any den. Typical dens may include the following: (1) one or more entrances that are approximately 5 to 8 inches in diameter; (2) dirt berms adjacent to the entrances; (3) kit fox tracks, scat, or prey remains in the vicinity of the den; (4) matted vegetation adjacent to the den entrances; and (5) manmade features such as culverts, pipes, and canal banks.

"Known den" - Any existing natural den or manmade structure that is used or has been used at any time in the past by a San Joaquin kit fox. Evidence of use may include historical records, past or current radiotelemetry or spotlighting data, kit fox sign such as tracks, scat, and/or prey remains, or other reasonable proof that a given den is being or has been used by a kit fox. The Service discourages use of the terms "active" and "inactive" when referring to any kit fox den because a great percentage of occupied dens show no evidence of use, and because kit foxes change dens often, with the result that the status of a given den may change frequently and abruptly.

"Potential Den" - Any subterranean hole within the species' range that has entrances of appropriate dimensions for which available evidence is insufficient to conclude that it is being used or has been used by a kit fox. Potential dens shall include the following: (1) any suitable subterranean hole; or (2) any den or burrow of another species (e.g., coyote, badger, red fox, or ground squirrel) that otherwise has appropriate characteristics for kit fox use.

"Natal or Pupping Den" - Any den used by kit foxes to whelp and/or rear their pups. Natal/pupping dens may be larger with more numerous entrances than dens occupied exclusively by adults. These dens typically have more kit fox tracks, scat, and prey remains in the vicinity of the den, and may have a broader apron of matted dirt and/or vegetation at one or more entrances. A natal den, defined as a den in which kit fox pups are actually whelped but not necessarily reared, is a more restrictive version of the pupping den. In practice, however, it is difficult to distinguish between the two, therefore, for purposes of this definition either term applies.

"Atypical Den" - Any manmade structure which has been or is being occupied by a San Joaquin kit fox. Atypical dens may include pipes, culverts, and diggings beneath concrete slabs and buildings.

TECHNICAL AREA: BIOLOGICAL RESOURCES

Data Request 29: Please discuss the potential for kit fox and other state and/or federally listed species being found along the 11.4 mile LeGrand-Dairyland 115 kV transmission line route.

Response: PG&E is in the process of revising the Systems Impact Study (March 30, 2006) for the Midway project and upgrades to the 11.4 mile LeGrand-Dairyland transmission line may not be necessary. The results of the revised study will clarify the scope of reconductoring required for the Midway project. Thus, we are unable to provide a proper response to this Data Request at this time.

Additionally, provided as an attachment to this sheet is the California ISO Interconnection System Impact Re-study Plan (January 18, 2007). The Plan evaluates potential transmission system impacts from the Midway project on PG&E's transmission grid. Dates of completion for Draft and Final SIS reports are 3/16/07 and 4/30/07, respectively.

California Independent
System Operator

DATA REQUEST RESPONSE #29 ATTACHMENT

January 19, 2007

Mr. J.J. Fair
CalPeak Power, LLC/Pratt & Whitney Power Systems
7365 Mission Gorge Rd., Suite C
San Diego, CA 92120

Subject: Starwood Power Midway, LLC System Impact Re-Study

Dear J.J. Fair,

Attached please find a Study Plan for the Starwood Power Midway, LLC System Impact Re-Study. Per LGIP Section 7.6, the ISO requires within 10 business days a written notice to continue the study and a $10,000 deposit for the re-study or notification to terminate the study and withdraw the Interconnection Application. A final report will be issued to CalPeak Power, LLC/Pratt & Whitney Power Systems within eighty (80) Calendar Days from receipt of the deposit. CalPeak Power, LLC/Pratt & Whitney Power Systems will be billed for any costs that exceed the deposit, or sent a refund if the re-study costs are less than $10,000.

Please forward the $10,000 deposit made out to the California ISO to:

Ms. Linda Wright
California ISO
151 Blue Ravine Road
Folsom, CA 95630

Don't hesitate to contact me (efishback@caiso.com; 916/608-5836) if you have any questions or require any additional information.

Sincerely,

Ed Fishback
Project Manager

Attachment

cc: J.J. Fair, CalPeak Power, LLC/Pratt & Whitney Power Systems (via email)
Judy Nickel, ISO (via email)
Larry Tobias, ISO (via email)
Linda Wright, ISO (via email)
Chris Gillis, PG&E (via email)
Albert Wong, PG&E (via email)

Interconnection System Impact Re-study Plan

Starwood Power Midway LLC

Panoche Project

January 18, 2007

Table of Contents

1. Project Summary

Starwood Power Midway LLC, an Interconnection Customer (IC), has submitted a re-study request to the California Independent System Operator Corporation (CAISO) for the Panoche Project (the Project). There is no change to the existing two gas turbine generators and the maximum net output of 121 MW to the CAISO Controlled Grid. The Point of Interconnection remains the same at Pacific Gas & Electric Company's (PG&E) Panoche Substation, and the commercial operation date has not changed and is January 2009. This re-study request is based on the Large Generator Interconnection Procedure (LGIP) Section 7.6 due to higher queued generation projects dropping out of the queue. The projects that have dropped out are identified as P0419, P0420, P0430, and P0436.

Since the last system impact study used PG&E's 2004 series power flow base cases, which are now out of date, the current 2006 series base cases will be applied to this re-study.

2. Interconnection System Impact Re-study Scope Summary

Under CAISO's LGIP and due to higher queued generation projects dropping out of the queue, both CAISO and PG&E have agreed that an Interconnection System Impact Re-study (ISIR) is required to re-evaluate the impact of the Project on PG&E's transmission grid. This re-study plan will form the basis for the ISIR Agreement (ISIRA) by defining the scope, content, assumptions, and terms of reference of this ISIR. This ISIR will:

- Identify transmission system impacts caused solely by the Project,
- Identify the system reinforcements, if any, necessary to mitigate the adverse impact of the Project under various system conditions, and
- Provide a non-binding good faith estimate of cost responsibility and a non binding good faith estimated time to construct and estimate of any other financial impacts.

3. Study Fee

CAISO has estimated a study fee of $30,000 for performing the ISIR. The final cost to complete the ISIR will be based on actual cost. According to the LGIP, a $10,000 re-study fee deposit will be needed when the IC returns the signed ISIRA to CAISO.

CAISO will bill the IC the remaining balance if the actual cost is higher than the collected deposit. If the actual cost is less than the collected deposit, CAISO will refund the balance to the IC.

4. Re-study Schedule

The following table shows the milestones/schedules required for the ISIR.

Table 3-1: Study Schedule

Task	Milestone Description	Target Date
1	Establish study commencement date	January 31, 2007
2	Draft report for CAISO review	March 16, 2007
3	Issue SIS report	April 30, 2007

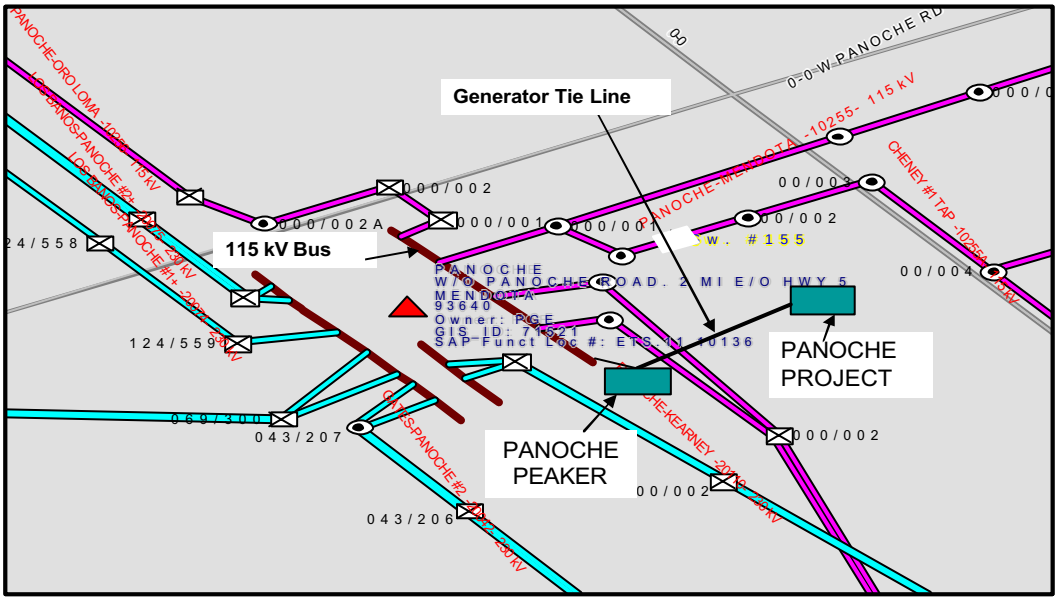
5. Project and Interconnection Information

Table 5-1 provides general information about the Project:

Table 5-1: The Panoche Energy Center General Information

Project Location	43699 West Panoche Road (inside PG&E's Panoche Substation), Firebaugh, CA 93622
PG&E Planning Area	San Joaquin Valley Region
Number and Type of Generators	Two (2) Pratt & Whitney gas turbine generators
Maximum Generator Output	60.94 MW each or 121.88 MW total
Generator Auxiliary Load	1.993 MW
Maximum Net Output to Grid	119.887 MW
Power Factor	0.85 (range: 0.6 Lag to 0.9 Lead)
Step-up Transformer	One three-phase three winding transformer rated at 13.8/13.8/115 kV and 188 MVA
Description Of Interconnection Configuration	Interconnecting to the 115 kV bus at PG&E's Panoche Substation
Connection Voltage	115 kV

Figure 5-1 provides the map for the Project and the transmission facilities in the vicinity area. A conceptual one-line diagram of the Project is shown in Figure 5-2.



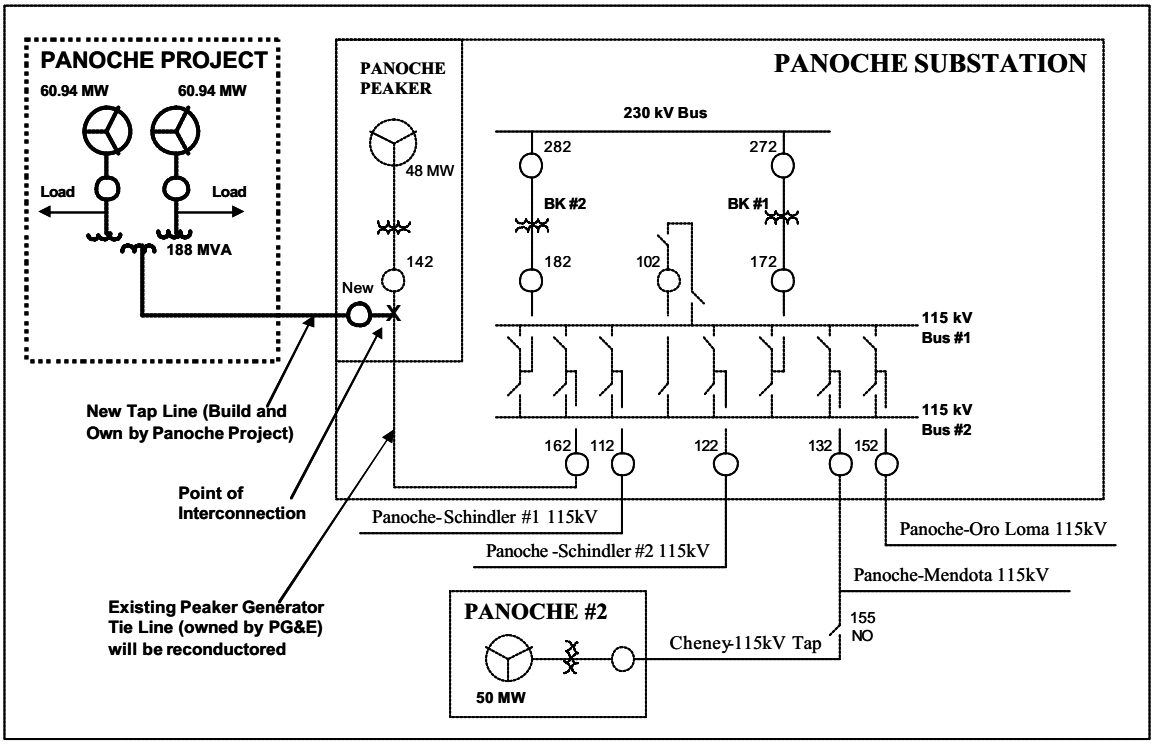


Figure 5-1: Map of the Panoche Energy Center Project

Figure 5-2: Conceptual One-Line Diagram

6. Interconnection System Impact Re-study Assumptions

PG&E will conduct this ISIR using the following assumptions:

1. The maximum total output from the two generators of the Project are 121.88 MW (60.94 MW each) with an expected total plant auxiliary load of 1.99 MW. Therefore, the maximum net output to the grid is 119.89 MW.
2. The expected commercial operation date is January 2009.
3. The Project employs one three-phase three winding step-up transformer. It is rated for 13.8/13.8/115 kV and 112/148/188 MVA (OA/FA/FA) with an impedance of 14% at a 112 MVA base.
4. The IC will engineer, procure, construct, own, and maintain its project facility including a tap line from the Project to the exisitng CalPeak Panoche Peaker at Panoche Substation. The tap line shall be 954 kcmil Al or equivalent size conductor.
5. PG&E will provide the tapping interconnection.
6. The existing interconnection from the CalPeak Panoche Peaker to the 115 kV bus at Panoche Substation will be upgraded by PG&E in order to accommodate both the Project and the CalPeak Panoche Peaker.

7. This study will take into account the planned generating facilities in PG&E's service territory whose schedules are concurrent with or precede the Project's.

7. Power Flow Base Cases

Three power flow base cases will be used to evaluate the transmission system impacts of the Project. While it is impossible to study all combinations of system load and generation levels during all seasons and at all times of the day, these three base cases represent extreme loading and generation conditions for the study area.

PG&E cannot guarantee that the Project can operate at maximum rated output 24 hours a day, year round, without system impacts, nor can PG&E guarantee that the Project will not cause system impacts during the times and seasons not studied in this SIS.

- **2009 Summer Peak Base Case:**

  Power flow analysis will be performed using PG&E's 2009 summer peak base case for the Greater Fresno area (in General Electric Power Flow format). This base case was developed from PG&E's 2006 base case series and has a 1-in-10 year extreme weather load level for the Greater Fresno area.

- **2009 Spring Peak Base Case:**

  Power flow analysis will be performed using the 2009 spring base case for the Greater Fresno area to evaluate the potential congestion on transmission facilities under reduction load and increased generation levels during a typical spring season. Hydro generation will be modeled in a very high level as typical in the spring season.

- **2009 Summer Off-Peak Base Case:**

  Power flow analysis will be performed using the 2009 summer off-peak base case for the Greater Fresno area to evaluate potential congestion on transmission facilities during the off-peak system condition. The summer off-peak load will be modeled at approximately 50 % of 2009 summer peak load level in the Greater Fresno area. Path 15 flows will be around 5,000 MW in a south-to-north direction. Two units at Helms PGP (640 MW total) will be assumed in pumping mode, and the Madera Unit is generating at 28 MW.

These three base cases will model all approved PG&E transmission reliability projects that will be operational by 2009. These three base cases will also model all proposed generation projects that will be operational by 2009. However, some generation projects that are electrically far from the Project will be either turned off or modeled with reduced generation to balance the loads and resources in the power flow model. The major generation projects included are shown in Attachment 1.

8. Detailed Interconnection System Impact Re-study Scope

The ISIR will determine the impact of the Project on PG&E's transmission system. In addition, the ISIR will perform a revised informational assessment, as needed, of other utilities' portions of the CAISO Controlled Grid, as directed by the CAISO in consultation with the potentially impacted utilities. The ISIR will provide a list of facilities on the PG&E portion of the CAISO Controlled Grid, a non-binding good faith estimate of cost responsibility, and a non-binding good faith estimated time to construct.

The specific studies conducted are outlined below:

8.1 Steady State Power Flow Analysis

Power Flow analysis will be performed using the three base cases described in Section 6. The three base cases will be used to simulate the impact of the new facility during normal operating conditions, as well as, single (CAISO Categories "B") and selected multiple (CAISO Categories "C") outages. The study will cover the transmission facilities within PG&E's Greater Fresno areas.

The single (CAISO Category "B") and selected multiple (CAISO Category "C") contingencies include the following outages:

8.1.1 CAISO Category "B"

- All single generator outages within the study area.
- All single (60 - 230 kV) transmission circuit outages within the study area.
- All single transformer outages within the study area.
- Selected overlapping single generator and transmission circuit outages for the transmission lines and generators within the study area.

8.1.2 CAISO Category "C"

- Selected bus (60-230 kV) outages within the study area.
- Selected outages caused by selected breaker failures (excluding bus tie and sectionalizing breakers) at the same above bus section.
- Selected combination of any two-generator/transmission line/transformer outages (except ones included above in Category "B") within the study area
- Selected outages of double circuit tower lines (60-230 kV) within the study area.

8.2 System Protection Analysis

Short circuit studies will be performed to determine the maximum fault currents on various buses in the vicinity of the Project. The ISIR will assess the impact of increased fault duty resulting from the added generation. Equipment that may become overstressed because of the added generation will be identified.

Preliminary system protection requirements will be provided.

8.3 Reactive Power Deficiency Analysis

With the generation project included in the system model, CAISO Category "B" and "C" contingencies will be analyzed to identify any reactive power deficiency:

- If they result in voltage drops of 5% or more from the pre-project levels, or
- If they fail to meet applicable voltage criteria.

A post-transient power flow analysis will be performed, if deemed necessary, after considering the network topology or power transfer paths involved when a significant amount of power transfer occurs.

8.4 Dynamic Stability Analysis

Dynamic stability studies will be conducted using the 2009 summer peak base case, to ensure that the transmission system remains in operating equilibrium through abnormal operating conditions after the new facility begins operation.

Disturbance simulations will be performed for a study period of up to 20 seconds to determine whether the new facility will create any system instability during the following line and generator outages:

8.4.1 CAISO Category "B"

- Full load rejection 119.887 MW of the Project
- A three-phase close-in fault on the Panoche-Schindler #1 115 kV line at the Panoche Substation 115 kV bus with normal clearing time followed by loss of the Panoche-Schindler #1 115 kV line
- A three-phase close-in fault on the Panoche-Oro Loma 115 kV line at the Panoche Substation 115 kV bus with normal clearing time followed by loss of the Panoche-Oro Loma 115 kV line

8.4.2 CAISO Category "C"

- A three-phase fault on Panoche Substation 115 kV bus #1 with normal clearing time
- A three-phase fault on Panoche Substation 115 kV bus #2 with normal clearing time

- A three-phase fault on Panoche Substation 115 kV bus with normal clearing time followed by loss of the Panoche-Schindler #1 and #2 115 kV lines

8.5 Transmission Line Evaluation

PG&E's transmission line evaluation will identify any existing equipment requiring upgrades to mitigate overload or overstress due to the new generation, if any.

8.6 Substation Evaluation

PG&E's substation evaluation will identify any existing equipment requiring upgrades, if any, to mitigate problems caused by overstress or overload due to the Project.

The substation evaluation for the ISIR will not include the work scope and cost estimates of the new equipment at existing PG&E substations needed to accommodate the Project.

8.7 Land Evaluation

For the ISIR, PG&E's Corporate Real Estate Department will not perform an evaluation to determine if any new land rights are necessary to upgrade PG&E facilities that may be impacted by the Project, such as constructing the new generator tie line and re-conductoring of existing PG&E transmission lines, if required.

8.8 Deliverability Assessment

A Deliverability Assessment will be performed which shall determine the Project's ability to deliver its energy to the CAISO Controlled Grid under peak load condition. The Deliverability Assessment results will provide the IC:

- A deliverability level with no Network Upgrades
- The required Network Upgrades to support 100% deliverability

CAISO will provide the Deliverability Assessment.

9. Environmental Evaluation/ Permitting

9.1 CPUC General Order 131-D

Pacific Gas and Electric Company (PG&E) is subject to the jurisdiction of the California Public Utilities Commission (CPUC); and must comply with CPUC General Order 131-D (Order) on the construction, modification, alteration, or addition of all electric transmission facilities (i.e., lines, substations, etc.). This includes facilities to be constructed by others and deeded to PG&E. The Order

exempts PG&E from obtaining a formal permit from the CPUC on facilities over 200 kV provided the planned facilities involve the replacement of existing facilities or supporting structures with equivalent facilities or structures, the minor relocation of existing facilities, the conversion of existing facilities to underground or the placing of new or additional conductors, insulators, or their accessories on or replacement of structures already built. These exemptions do not apply under certain circumstances when significant environmental impacts may be caused by the work. If the project does not qualify for an exemption, PG&E will need to seek formal approval from the CPUC (i.e., Certificate of Public Convenience and Necessity) taking as much as 18 months or more since the CPUC may decide to conduct its own environmental evaluation (i.e., Negative Declaration or Environmental Impact Report).

For cases where PG&E can claim a valid exemption, PG&E would file an Advice Letter with the CPUC and publish public notice of the proposed construction of the facilities. The noticing process takes about 90 days if no protests are filed, but should be done as early as possible so that a protest does not delay construction. PG&E has no control over the time it takes the CPUC to respond when issues arise. If the protest is granted, PG&E will then need to apply for a formal permit to construct the project (i.e., Certificate of Public Convenience and Necessity).

Facilities built or modified under this procedure must also be designed to include electric and magnetic field (EMF) mitigation measures pursuant to PG&E "EMF Design Guidelines of New Electrical Facilities: Transmission, Substation and Distribution".

Please see Section III, B.1(f) in General Order 131-D. This document can be found in the CPUC's web page at:

http://www.cpuc.ca.gov/PUBLISHED/GENERAL_ORDER/589.htm

9.2 CPUC Section 851

Pacific Gas and Electric Company (PG&E) is subject to the jurisdiction of the California Public Utilities Commission (CPUC) and must comply with Public Utilities Code Section 851, which among other things requires CPUC approval of leases and licenses to use PG&E property. This includes rights-of-way granted to third parties for interconnection facilities. Obtaining CPUC approval for a Section 851 application can take several months, and requires compliance with the California Environmental Quality Act (CEQA). PG&E recommends that Section 851 issues be identified as early as possible so that the necessary application can be prepared and processed.

10. Study Updates

This SIS is performed according to the assumptions shown in the Sections titled "Interconnection System Impact Re-study Assumptions" and "Power Flow Base Cases". In the event that these assumptions are changed, a re-study according to the LGIP may be required to re-evaluate the Project's impact on PG&E's

transmission grid. The IC would be responsible for paying for any such updating study.

ATTACMENT 1 GENERATION PROJECTS

PG&E Generation Projects						
PG&E Queue Position	**Applicant Name**	**Project Name**	**Nearest Substation**	**Capacity (MW)**	**Latest Expected On-Line Date**	**Modeled In Study Cases**
1	Mirant	Contra Costa Power Plant Unit 8 Power Project	Contra Costa	590	2008	Yes
2	Midway Power, LLC	Tesla Power Project	Tesla	1156	2009	Yes
3	Duke Energy Morro Bay LLC	Morro Bay Modernization Project	Morro Bay	1200	2008	Yes
5	Federal Power Avenal, LLC	Avenal Energy Project	Gates	620	2009	Yes
6	Sacramento Municipal Utility District	Solano Wind Project	Russell	92	2007	Yes

Non-PG&E Generation Projects to Be Modeled in Base Case per On-line Year						
	Applicant Name	**Project Name**	**Nearest Substation**	**Capacity (MW)**	**Latest Expected On-Line Date**	**Modeled In Study Cases**
SMUD	Sacramento Municipal Utility District	Consumnes Power Plant	Rancho Seco (SMUD)	500	2007	Yes
TID	Turlock Irrigation District	Walnut Energy Center	Walnut (TID)	250	2007	Yes
SVP	Silicon Valley Power	Los Esteros Critical Energy Facility	SSS (SVP)	320	2008	Yes

ATTACMENT 1 GENERATION PROJECTS

PG&E Generation Projects - ISO Generation Interconnection Queue						
Project ID #	**Applicant Name**	**Project Name**	**Nearest Facility**	**Capacity (MW)**	**Latest Expected On-Line Date**	**Modeled In Study Cases**
P0301	Confidential	Confidential	Birds' Landing Switchyard	150	2007	Yes
P0302	Gaviota Energy / Global Renewable	Lompoc Wind Power Project	Cabrillo	120	2009	Yes
P0304	FPL Energy, LLC	High Wind III	New Birds Landing SW STA	38	2008	Yes
P0401	Confidential	Confidential	Birds' Landing Switchyard	150	2007	Yes
P0402	City and County of San Francisco	San Francisco Electric Reliability Power Project	Potrero	145.1	2008	Yes
P0403	Confidential	Confidential	Collector Station at Geysers #17 & Fulton Line	201	2008	Yes
P0404	City and County of San Francisco	San Francisco Airport Electric Reliability Project	San Francisco Airport	48.7	2008	Yes
P0406	Confidential	Confidential	Panoche	49.9	2007	Yes
P0408	Confidential	Confidential	Tesla-Stockton 115 kV Line	99.9	2007	Yes
P0409	D. Milne Associated, LLC	Ripon Generation	Tesla	96.9	2007	Yes
P0411	Confidential	Confidential	Humboldt Power Plant Substation	166	2009	Yes
P0412	Confidential	Confidential	Birds' Landing Switchyard	200	2009	Yes
P0413	Confidential	Confidential	East Shore	118	2009	Yes
P0418	Confidential	Confidential	McCall	300	2008	Yes
P0424	Calpine	Russell City Energy Center	East Shore	361	2009	Yes
P0427	Calpine	East Altamont Energy Center	Tracy Substation	806	2009	Yes
P0429	Confidential	Confidential	Herndon-Kearney 230 kV Line	200	2009	Yes
P0435	Confidential	Confidential	Panoche Substation	401	2008	Yes

TECHNICAL AREA: BIOLOGICAL RESOURCES

Data Request 30: Please identify any sensitive habitats along the LeGrand-Dairyland route by examining aerial photographs, conducting site visits, searching available databases (such as the Natural Diversity Database) and literature searches, etc.

Response: Please see response to Data Request 29.

TECHNICAL AREA: BIOLOGICAL RESOURCES

Data Request 31: Please provide legible mapping depicting biological resources (habitat, nesting, etc.) within 500 feet of the outside edges of the work area.

Response: Please see response to Data Request 29.

TECHNICAL AREA: CULTURAL RESOURCES

Data Request 32: Please provide complete citation data for the following studies:

- Bedwell 1970
- Cabezut-Ortiz 1987
- California Office of Historic Preservation 2004
- Caltrans 1999
- County of Fresno 2006
- Fredrickson 1964
- Fredrickson and Grossman 1977
- Frickstad 1955
- Hartzell 1991
- Hartzell 1992
- Hoover, Rensch, and Rensch 1990
- Latta 1949
- Lortie 1998
- Peak and Crew 1990
- Riddel and Olsen 1969
- Silverstein 1978
- Smith 2004
- Takaki 1998
- Wallace 1978a
- Wallace 1978b
- Warren and McKusick 1959
- Wedel 1941

Response:

Complete citation data for the studies listed above is provided below.

Bedwell, S.F.
Prehistory and Environment of the Pluvial Fork Rock Lake Area of South Central Oregon. Ph.D. dissertation, Department of Anthropology, University of Oregon, Eugene, 1970.

Cabezut-Ortiz, Delores J. *Merced County: the Golden Harvest: an illustrated history*, Windsor Publications, Northridge California, 1987.

California Office of Historic Preservation, 2004. Available at: http://ceres.ca.gov/geo_area/counties/Calaveras/landmarks.html

Caltrans, 1999. *General Guidelines for Identifying and Evaluating Historic Landscapes.* California Department of Transportation, Environmental Program, Sacramento, California.

County of Fresno is actually the following reference:

College of the Sequoias Library – Connie Flynn – Librarian, 2002. History of the San Joaquin Valley. Available at: http://www.cos.edu/library/sanjoaquinvalley.htm

Fredrickson, D.A. 1964. Preliminary Impressions on the Archaeology of Ker-116. Submitted to California Department of Parks and Recreation.

Fredrickson, D.A. and J.W. Grossman. 1977. A San Dieguito Component at Buena Vista Lake, California. The Journal of California Anthropology, 4(2):173-190.

Frickstad, Walter Nettleton. 1955. A Century of California Post Offices: 1848 to 1954. Oakland, California xix, 395p

Hartzell H. 1991. The yew tree. Eugene, OR: Hulogosi Press. 319 p.

Hartzell, L. 1992 Hunter-gatherer Adaptive Strategies and Lacustrine Environments in the Buena Vista Lake Basin, Kern County, California. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Davis.

Hoover, M.B, H.E. Rensch, E.G. Rensch, and W.N. Abelow. 1990. Historic Spots in California. Revised by Douglas E. Kyle. Stanford University Press. Stanford.

Latta, F. Handbook of Yokuts Indians. Oildale, CA: Bear State Books. 1949.

Lortie, F. 1998 Historic Resource Evaluation Report for Rehabilitation of the Bear Creek Bridge (#39-95) and the El Capitan Canal Bridge (#39-97), State Route 140, Merced County, 10-MER-140, Post Mile 32.9 and 34.5. Prepared for Gary Sweeten, Chief, Environmental Branch, Caltrans District 10, Stockton, California.

Peak, A. S., and H. L. Crew. 1990. An archaeological data recovery project at CA-Cal-S-342, Clarks Flat, Calaveras County, California. Cultural Resource Studies, North Fork Stanislaus River Hydroelectric Development Project 2. Roseville: Northern California Power Agency.

Riddell, F. A. and W. Olsen. An Early Man Site in the San Joaquin Valley, California. American Antiquity 34(2):121-130. 1969.

Silverstein, M. 1978. Yokuts: Introduction. In: Handbook of North American Indians, Vol. 8, California. Smithsonian Institution, Washington, D.C.

Smith, W. 2004. Garden of the Sun, A History of the San Joaquin Valley, 1772-1939. Fresno, CA: Linden Publishing.

Takaki, Ronald. 1998 *Strangers From a Different Shore: A History of Asian Americans.* Back Bay Books, Little, Brown and Co. New York.

Wallace, W., 1978.a and b; in *Handbook of North American Indians*, Vol. 8, California. R.F. Heizer, ed.: 462_470. Washington, D.C.: Smithsonian Institution.

Warren, C.N. and M.B. McKusick. 1959. A Burial Complex from the Southern San Joaquin Valley. Archaeological Survey Annual Report 1959:17-26. University of California, Los Angeles.

Wedel, W.R. 1941. Archaeological Investigations at Buena Vista Lake, Kern County, California. Smithsonian Institution, Bureau of American Ethnology Bulletin 130, Washington, D.C.

TECHNICAL AREA: CULTURAL RESOURCES

Data Request 33: Please provide a photocopy of the portion of this map relevant to the Starwood Power Project area and a photocopy of the portion of the map which includes the name, the scale, and the date.

Response: Provided as an attachment to this sheet, is a photocopy of the portion of the Chaney Ranch map relevant to the Starwood Power Project area which includes the map name, scale, and date.

Panoche

Chaney Ranch

BM 405

BM 440

BM 366

BM 319

T. 14 S.
T. 15 S.

R. 12 E. R. 13 E.

A. HOLLISTER CO MI.

1 530 000 YARDS

1 040 000 YARDS

36°37'30"

120°37'30"

32'30"

35'

40'

(Panoche 125000)

ENGRAVED 1922 BY U.S.G.S.

C.H. Birdseye, Chief Topographic Engineer.
Geo. R. Davis, Division Topographic Engineer.
Topography by R.A. Kiger and Adolph Fankhauser.
Control by L.F. Biggs and C.F. Urquhart.
Surveyed in 1920.

SURVEYED IN COOPERATION WITH THE STATE OF CALIFORNIA.

(Panoche 125000)

362

Kiger
Fankhauser

Scale 1/31680

1 Mile
5000 Feet
2 Kilometers

Contour interval 5 feet.

Datum is mean sea level.

APPROXIMATE MEAN DECLINATION, 1920

TRUE NORTH
MAGNETIC NORTH

Polyconic projection. North American datum.
5000 yard grid based upon zone G for P.M.M.

THROUGH ROUTES (STANDARD)
THROUGH ROUTES (NOT STANDARD)
SECONDARY ROUTES

CHANEY RANCH
Edition of 1922.

362

DATA REQUEST RESPONSE #33
ATTACHMENT

TECHNICAL AREA: CULTURAL RESOURCES

Data Request 34: Please identify from where on the proposed site the soils which will be used for fill will be acquired, and how deep the excavations associated with acquiring fill will go below grade.

Response: Site soil used for fill will primarily come from the following locations on the site:

1. Excavation of evaporation/retention pond area;
2. Excavation of all equipment foundation areas; and
3. Grading in the southern/eastern area of the site plot – drainage will be directed toward this direction as dictated by the general lay of the land.

Excavation and cutting will generally be to depths less than 5 feet. Foundation related excavations will all be to depths less than 3 feet. Excavations/cutting to depths greater than 5 feet will be allowed at all locations where soil bearing results are acceptable at depths greater than 5 feet (see Geotechnical Investigation Report, prepared by Kleinfelder on August 9, 2006, and submitted as Appendix L of the Starwood AFC).

TECHNICAL AREA: CULTURAL RESOURCES

Data Request 35: If removed soils will be disposed of off-site and/or new soils brought in, please provide reports of the dates, personnel, methods, and findings from any cultural resources surveys of the disposal and borrow sites, or explain why no surveys are needed. If disposal and borrow sites are not commercial operations and consequently have not been surveyed for cultural resources, please conduct such surveys and provide the personnel qualifications, survey methods, and findings to staff.

Response: The Midway Project would not import or export soils as the grading strategy is to balance soil at the site. The utilization of fill materials dug up for the foundations and pond construction will be applied where needed for fill.

TECHNICAL AREA: CULTURAL RESOURCES

Data Request 36: To verify that they have no concerns regarding cultural resources in the Starwood Power project area, please telephone those Native American individuals or groups who have not yet responded to the informational letters that were sent out and provide summaries of the calls.

Response: The Native American individuals/groups who have not yet responded to the informational letters that were sent on 10/20/06 were contacted and a summary of all correspondence is provided as an attachment to this sheet.

DATA REQUEST RESPONSE #36 ATTACHMENT

Starwood-Midway AFC
Fresno County, California
27656131.00400

Februrary 22, 2007

Native American Sacred Sites Consultation

	Tribe Contact Information	Letters Sent	Response Letter Received	Comments or Concerns	Phone Log	Comments or Concerns
1)	Chaushiha Tribe Jerry Brown 10553 N. Rice Road Fresno, CA 93720 Ph: 559-434-3160	10/20/2006	No	N/A	2/21/07 -Left Message 2/28/07 Left Message	
2)	Dumna Tribal Government Mr. Jim Redmoon, Cultural Resources Representative 535 W. Dayton Fresno, CA 93705 Ph: 559-241-0226	10/20/2006	No	N/A	2/21/07 -Left Message 2/28/07 Left Message	
3)	Santa Rosa RancheriaMr. Clarence Atwell, ChairpersonP.O. Box 8 Lemoore, CA 93245 Ph: 559-924-1275 Fx: 559-924-3583	10/20/2006	No	N/A	2/21/07 - Left message. Told to call back and speak to Lalo, might be able to assist (559) 925-2831 -2/22/07: Spoke with Lalo -emailed 2/22/07 and 2/26/07 requesting info - called 2/28/07, no answer	Area is considered sensitive to the tribe for potential cultural resources as a result of it's proximity to Panoche Creek. Indicated, that while monitoring may not be necessary (depending on level of excavation), the tribe would like to be kept in the loop on activities related to the project. Tribe would like to do Cultural Sensitivity Training to contractor and crew. Contractor shall enter into a Burial Agreement with the Tribe. (Lalo will forward a letter to L. Solis detailing recommendations for consultation)
4)	Traditional Choinumni Tribe Angie Osborne 2787 N. Piedra Road Sanger, CA 93657 Ph: 559-787-2434	10/20/2006	No	N/A	2/21/07- Called - Wrong Number	The number for the Traditional Choinumni Tribe was provided to URS by the Native American Heritage Commission in a letter dated 10/20/06 (the letter is provided as an attachment to this sheet). No other contact information has been made available.

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
e-mail: ds_nahc@pacbell.net

October 20, 2006

Ms. Laurie Solis, M.A.
URS Corporation
915 Wilshire Boulevard, Suite 700
Los Angeles, CA 90017

Sent by FAX to: 213-996-2290
Number of pages: 2

Re: Cultural Resource Identification Study/Sacred Lands File Search for Proposed Cultural Resources Study for the Project West of Intersection of Panoche Road & Fairfax Avenue in Unincorporated area of Fresno County, California

Dear Ms. Solis:

The Native American Heritage Commission was able to perform a record search of its Sacred Lands File (SLF) for the affected project area. The SLF failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the Sacred Lands File does not guarantee the absence of cultural resources in any 'area of potential effect (APE).'

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Enclosed are the nearest tribes that may have knowledge of cultural resources in the project area. A List of Native American contacts are attached to assist you. The Commission makes no recommendation of a single individual or group over another. It is advisable to contact the person listed; if they cannot supply you with specific information about the impact on cultural resources, they may be able to refer you to another tribe or person knowledgeable of the cultural resources in or near the affected project area (APE).

Lack of surface evidence of archeological resources does not preclude the existence of archeological resources. Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 15064.5(f) and Section 15097.98 and Health & Safety Code Section 7050.6 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Discussion of these should be included in your environmental documents, as appropriate.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton, Program Analyst

Attachment: Native American Contact List

PS: Ms. Solis The Santa Rosa Rancheria is the closest Tribe and Mr. Atwell knows the history of the area well !

DS

Native American Contacts
Fresno County
October 20, 2006

Santa Rosa Rancheria
Clarence Atwell, Chairperson
P.O. Box 8
Lemoore , CA 93245

(559) 924-1278

(559) 924-3583 Fax

Tache
Tachi
Yokut

Traditional Choinumni Tribe
Angie Osborne
2787 N Piedra Road
Sanger , CA 93657

(559) 787-2434

Choinumni/Foothill Yokuts

Dumna Tribal Government
Jim Redmoon - Cultural Resources Representative
535 W. Dayton
Fresno , CA 93705

559-241-0226

Dumna/Foothill Yokuts
Choinumni

Chaushiha Tribe
Jerry Brown
10553 N. Rice Road
Fresno , CA 93720

559-434-3160

North Valley Yokuts

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibilitiey as defined in Sec. 7050,5 of the Health & Safety Code, Sec. 5097.94 of the Public Resources Code and Sec. 5097.98 of the Publi Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Panoche Road & Fairfax Avenue; Two Parcels; unincorporated area southwestern Fresno County, California for which a Sacred Lands File search was requested.

Laurie Solis/LosAngeles/URSCorp
03/02/2007 04:14 PM

To Amy Gramlich/SanDiego/URSCorp@URSCorp
cc
bcc
Subject Fw: Starwood-Midway LLC - Sacred Sites Consultation

Please see the tribal message below, to be included in your documentation.

Thanks!

Laurie Solis, M.A.
Cultural Resource Specialist
URS Corporation
915 Wilshire Blvd., Suite 700
Los Angeles, California 90017
V 213.996.2200 x 2258
F 213.996.2290
laurie_solis@urscorp.com

----- Forwarded by Laurie Solis/LosAngeles/URSCorp on 03/02/2007 04:14 PM -----

"Lalo Franco" <historic@tachi-yokut.com>
03/02/2007 04:13 PM

To <Laurie_Solis@URSCorp.com>
cc
Subject RE: Starwood-Midway LLC - Sacred Sites Consultation

February 26, 2007

To: Laurie Solis, M.A.
Cultural Resource Specialist.
URS Corporation

From: Lalo Franco. Cultural Specialist

Re: Starwood-Midway LLC

Dear Laurie

We appreciate the opportunity to able to give comments on the proposed Starwood-Midway project.

After a careful review of the information that you have provided our department we have concluded that there is no immediate concern that any cultural components will be impacted during the course of construction for the Starwood-Midway project.

That is not to say that no cultural components will be encountered during the course of construction.

The proposed project is within in area known to us to have many ancient settlements of our Southern Valley Yokut Ancestors.

We are therefore recommending that we be granted the opportunity to present a Cultural Orientation to those who will be working directly on the project by one of our Cultural Specialist. The purpose of the orientation will be to familiarize contractors and operators with the types of artifacts that they may encounter. Along with a brief history of the area and procedures they must follow in the event of the discovery of burials.

We look forward to working with you Laurie.

Please feel free to call if you may have any further questions.

Sincerely. Lalo Franco. Cultural Specialist
Santa Rosa Rancheria Tachi Yokut Tribe

Office (559) 925-2831 Cell (559) 469-3258

From: Laurie_Solis@URSCorp.com [mailto:Laurie_Solis@URSCorp.com]
Sent: Monday, February 26, 2007 11:18 AM
To: historic@tachi-yokut.com
Subject: Fw: Starwood-Midway LLC - Sacred Sites Consultation

Hi Lalo-

I am just following up with you regarding our conversation last week regarding the Starwood_Midway project. Would it be possible for you to email me the information we discussed by Wednesday (28th)?

I am hoping to include your suggestions and information on the area to our project manager by Thursday the 1st.

Thank you again for all your help.

Best regards,

Laurie Solis, M.A.
Cultural Resource Specialist
URS Corporation
915 Wilshire Blvd., Suite 700
Los Angeles, California 90017
V 213.996.2200 x 2258
F 213.996.2290
laurie_solis@urscorp.com

----- Forwarded by Laurie Solis/LosAngeles/URSCorp on 02/26/2007 11:15 AM -----

Laurie Solis/LosAngeles/URSCorp

02/22/2007 01:30 PM

To historic@tachi-yokut.com
cc
Subject Starwood-Midway LLC - Sacred Sites Consultation

Lalo-

Thank you so much for your input on the proposed project and I look forward to receiving your recommendations for this project with regard to cultural resources.
I have a copy of the project site map for your reference.

Thank you again. I look forward to hearing from you.

Best regards,

Laurie Solis, M.A.
Cultural Resource Specialist
URS Corporation
915 Wilshire Blvd., Suite 700
Los Angeles, California 90017
V 213.996.2200 x 2258
F 213.996.2290
laurie_solis@urscorp.com

Santa Rosa Rancheria Tachi Tribe

Cultural and Historical Preservation Department
P.O Box 8 Lemoore ,CA. 93245

Phone (559) 925-2831
FAX (559) 925-2929

TACHI YOKUT TRIBE

A FEDERALLY RECOGNIZED TRIBE

FAX

To: Laurie Solis From: Lalo Franco

Fax: (213) 996-2290 Pages: 2

Phone: 996-2200 Date: 3/2/07

Re: Starwood - Midway CC:

☐ Urgent ☒ For Review ☐ Please Comment ☐ Please Reply ☐ Please Recycle

COMMENTS Thank You for your patience

Lalo

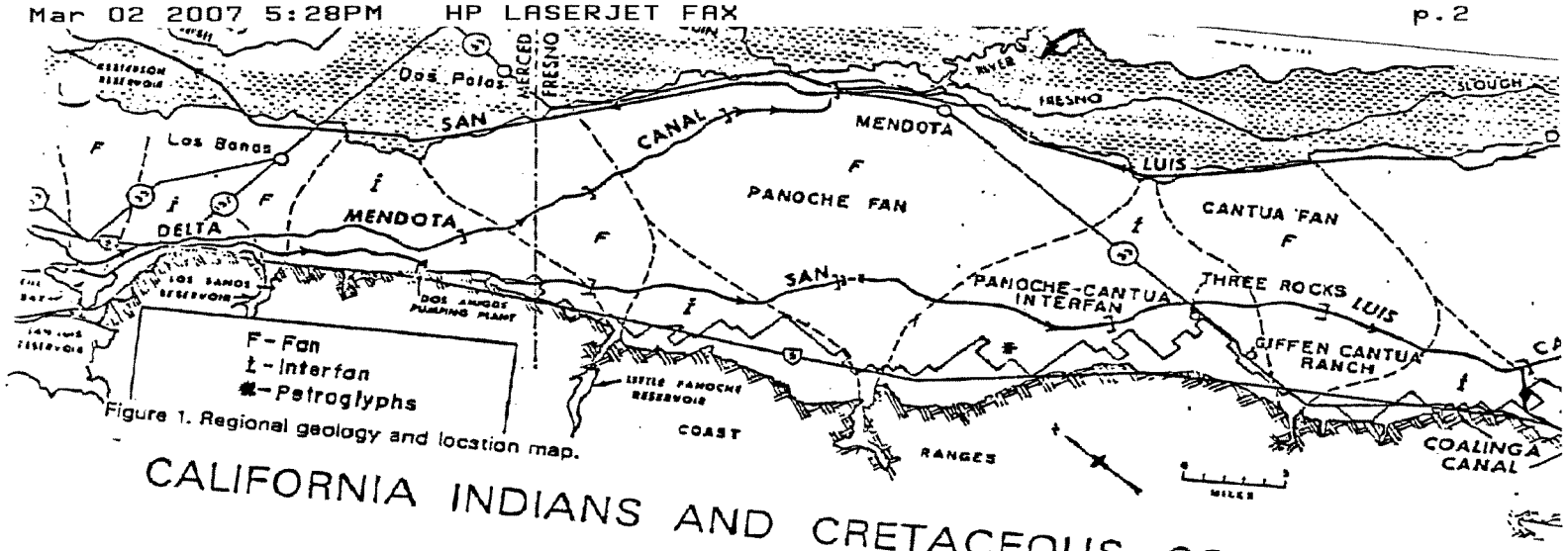


Figure 1. Regional geology and location map.

CALIFORNIA INDIANS AND CRETACEOUS CONCRETIONS

by N. P. PROKOPOVICH, Geologist
U. S. Bureau of Reclamation
Sacramento, California

At first glance the California Indian culture of a few hundred years ago and calcareous concretions in sediments from the 100 million year–old Upper Cretaceous sea, that occupied parts of northern California, do not seem to have any connection. However, a study of Indian usage of these Cretaceous concretions in the San Joaquin Valley could contribute significant data on migration and trade routes of Indian tribes.

Figure 2. Cantua–Los Gatos interfan, looking northeast. This large mudflow from Big Martinez Creek in Blue Hills on the west side of the San Joaquin Valley occurred in March 1969. The diagonal straight line is the east–west section line.

REGIONAL GEOLOGY

The San Joaquin Valley is a large structural trough between the Coast Ranges on the west and the Sierra Nevada on the east. Near–surface deposits in the trough are represented usually by water–laid (alluvial) sediments. Sandy material derived from the Sierra Nevada is dominant in the central and eastern portions of the valley, while uncemented clayey material washed down from the Coast Ranges is typical of the western portion of the valley. Clayey alluvial sediments occur in western Fresno and southwestern Merced Counties in a 2– to 20–mile wide belt of so–called piedmont ("near mountain") West Side or Coast Ranges alluvium (figure 1). The alluvium was deposited as well–defined, large alluvial fans of major ephemeral streams, such as Panoche and Cantua Creeks, or as alluvium between the fans (interfan deposits). Interfans are poorly defined coalescing fans of minor intermittent streams and include colluvium (slope wash) at the edge of the Coast Ranges foothills (figure 1). Mudflows are a common mode of deposition on interfans (figure 2). Fluvial deposits are dominant on major fans. The area of western Fresno and southwestern Merced Counties is an extremely flat semi–arid grassland. At the present time, practically all of the area is farmed (figure 3).

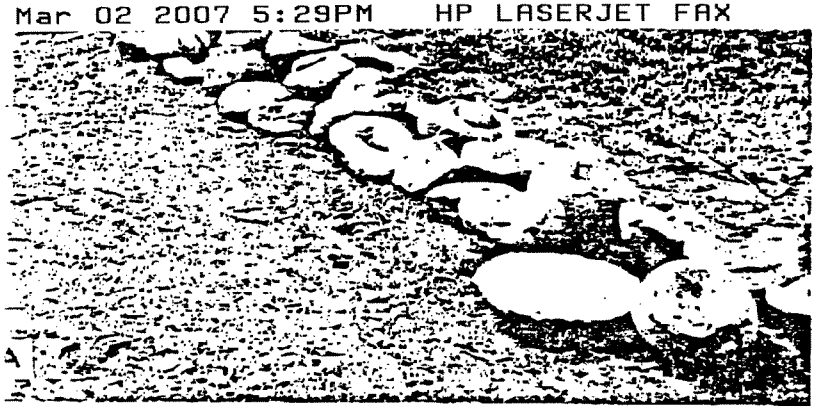
The Upper Cretaceous sea covered most of northern California and left a thick sequence of marine shales, sandstones, and conglomerates, called the Great Valley Sequence. These deposits are usually deeply buried in the Central Valley under a thick blanket of Tertiary and Quaternary deposits but are exposed as an almost continuous belt in the eastern Coast Ranges. Only small local Cretaceous outcrops have been identified in the foothills of the Sierra Nevada.

Generally, geologic formations of the Coast Ranges are composed of soft shale, claystone, and sandstone, with some hard, highly fractured and sheared rock types, such as chert, metagraywacke, and serpentine of the Franciscan Formation. Some relatively massive hard–rock types, such as basalt in the San Luis area and volcanics and intrusives in the Quien Sabe area, occur locally.

Figure 3. A typical farm field on a fan area south of Mendota. *Photo by J.C. Dahlig, 1972.*

CRETACEOUS CONCRETIONS

Hard, calcareous–cemented sandstone concretions, which are common in Cretaceous shale and sandstone, are probably the most widespread homogeneous "hard rocks" in the west central portion of the region. The average diameter of the calcareous concretions ranges from 1 to 1.5 feet. Compared to the surrounding rocks the concretions are relatively hard and resistant to weathering. Periodic mudflows carried concretions into the valley after they had been weathered out of the Cretaceous rocks. They accumulated as residual weathering products in alluvium of different washes and canyons, where they could be picked up easily by Indians.



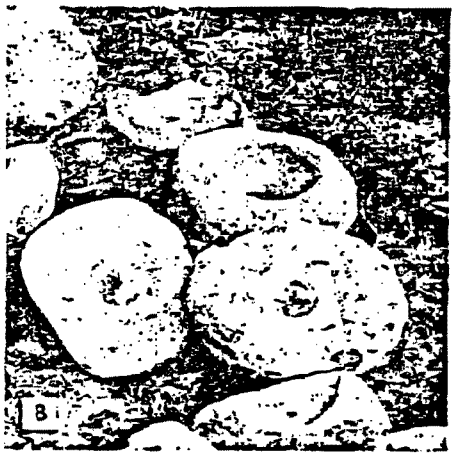


Figure 4. Indian mortars made mostly from calcareous sandstone concretions from marine Cretaceous sediments. General view (A) and closeup (B) of O. Harris collection at Giffen Cantua Ranch on State Highway 33, 18 miles south of Mendota, Fresno County, California. April 1972.

INDIAN ARTIFACTS

Cretaceous Concretion Mortars

Because of their hardness and rounded shape, which makes them more convenient for toting, the concretions were an excellent material for making stone mortars to be used in the neighboring San Joaquin Valley. Other sources of "hard rocks" were rare.

Travelers through the west side of the valley can frequently observe such mortars that have been collected and stored at farmhouses and labor camps. In April 1972, near Mendota a large collection of about 50 mortars made mostly from Cretaceous concretions (figures 1, 4A, 4B) were observed by the writer. The owner of the collection, Mr. O. Harris, was employed at the Giffen Cantua Ranch from 1961 to 1972 and collected the mortars which were uncovered during plowing of fields in the vicinity of Three Rocks (figure 1). The Giffen Cantua Ranch is within the Panoche–Cantua interfan area. Most of the mortars did not occur on the surface but were buried in the uppermost 1 to 2 feet of soil.

Figure 5. Indian mortars in this collection are predominantly of granitic crystalline rock. Closeup view of W. Artie collection, Do Palos Y, Merced County, California. March 1976.

Crystalline Rock Mortars

In March 1976 the writer observed another collection of over 120 Indian mortars, many of them made from basaltic and other crystalline rock (figure 5). Mr. William Artie, owner of the collection, obtained most of the mortars in the vicinity of Dos Palos. A few mortars in the collection were made from calcareous sandstone concretions. The difference in composition of these two collections probably reflects the local abundance of suitable crystalline rock types in the Dos Palos area.

Figure 8. Indian petroglyphs on a slab of gray sandstone. This artifact was found in a rockpile on the Panoche–Cantua interfan. It was not *in situ*. December 1975.

Petroglyphs

Indian mortars are not the only Indian artifacts in the area. In December 1975 the writer found a subrounded sandstone slab carved with petroglyphs. The sandstone slab found in a rockpile on the Panoche–Cantua interfan (figure 6) is about 38 by 28 by 11 centimeters and weighs 13.5 kilograms (kg). composed of medium to fine-grained gray sandstone which reacts with hydrochloric acid. The poorly preserved petroglyphs appear on both sides of the slab in an irregular pattern of branching and intersecting straight lines. The lines are 1–2.7 cm wide and 0.2–0.5 cm deep.

ARCHAEOLOGICAL SIGNIFICANCE

Most of the San Joaquin Valley is now farmed and there is not much opportunity for a new scientifically conducted, well-documented field collection of mortars. The canvassing of existing collections at farmhouses by a "geologically oriented" archaeologist could probably provide sufficient data on distribution of mortars made from Coast Ranges concretions and from other local Coast Ranges material and Sierran granitic rocks. Such a canvass probably could yield some data on migration and east–west and north–south trade routes of Indian tribes and on the use of Coast Ranges and Sierran rocks by the Indians for mortars. An early study is desirable because of the continuing agricultural development in the valley and the possible transfer of artifacts out of the area.

Contributed by Norm Wilson.

TECHNICAL AREA: CULTURAL RESOURCES

Data Request 37: Please provide copies of any additional letters or summaries of any telephone calls received from Native Americans since the AFC was compiled. If the location of archaeological sites may be revealed, please provide the responses under confidential cover.

Response: No additional letters have been sent out since the original mailing on 10/20/06 or since the AFC was compiled. A summary of all correspondence with Native American individuals/groups is provided as an attachment to Data Request 36.

TECHNICAL AREA: CULTURAL RESOURCES

Data Request 38: If the Le Grand-Dairyland 115 kV Line has been investigated for cultural resources, please provide the results. If the line has not been examined, please conduct cultural resource investigations, including background research and an archaeological survey, and provide the results. If cultural resources are identified, address their eligibility for inclusion in the California Register of Historic Resources (CRHR), potential construction-related impacts to any CRHR-eligible resources, and if applicable, recommended mitigation measures.

Response: Please see response to Data Request 29.

TECHNICAL AREA: CULTURAL RESOURCES

Data Request 39: Please identify known cultural resource sites within ½ mile of the route based on a California Historic Resource Information System literature search and contact with the Native American Heritage Commission. This information should be provided as a legible map depicting the cultural sites, and must be submitted under confidential cover.

Response: Please see response to Data Request 29.

TECHNICAL AREA: CULTURAL RESOURCES

Data Request 40: If any portion of the line is more than 45 years old, describe modifications/upgrades, if any, that have been made previously and provide any information indicative of the historic significance of the existing transmission line segment to be reconductored.

Response: Please see response to Data Request 29.

TECHNICAL AREA: CULTURAL RESOURCES

Data Request 41: If an existing substation needs to be modified as a result of the proposed project, and it is more than 45 years old, describe modifications/upgrades, if any, that have been made previously, and provide any information indicative of the historic significance of the existing substation.

Response: The existing PG&E substation will not be modified as a result of the Midway Project. As discussed in the Midway AFC, the Project will interconnect to the 115kV bus at PG&E's Panoche Substation via the existing CalPeak Panoche generator tie line. The tie line connecting the existing CalPeak Panoche Plant to PG&E's system is already sized to carry the output of the Midway plant. Midway will construct a 300 foot generator tap line from Midway to the existing CalPeak Panoche Panoche tie line.

TECHNICAL AREA: GEOLOGY

Data Request 42: Please provide Atterberg limits test results that support the classification of site soils.

Response: Site soils where classified in accordance with ASTM D2488-00 Standard Practice for Description and Identification of Soils (Visual-Manual Procedure). This practice covers procedures for the description of soils for engineering purposes and describes procedures for identifying soils, at the option of the user, based on the classification system described in Test Method D 2487. The identification is based on visual examination and manual tests. Atterberg limits test where not performed on the site samples. Atterberg limits test have been recommenced during site grading so proper moisture conditioning and compaction criteria is met.

TECHNICAL AREA: GEOLOGY

Data Request 43: Please provide test results that support the classification of surface clay soil in Boring 5 and its potential to shrink/swell when subjected to moisture content variation and/or consolidate when loaded.

Response: Similarly to Data Request 42, the near surface clay soil in Boring 5 was classified using ASTM D2488-00 Standard Practice for Description and Identification of Soils. The expansive soils are susceptible to volume changes in soil moisture content. It is Kleinfelder's opinion that the potential for future differential movement resulting from these soils can be reduced do normally tolerable levels by following the moisture conditioning and compaction recommendations presented in the report. Specifically, Section 6.3.2 which states that:

6.3.2 Compaction Criteria
Soils with a Plasticity Index (PI) of less than 9 used for engineered fill should be uniformly moisture conditioned to at, or above, the optimum moisture content, placed in horizontal lifts less than 8 inches in loose thickness and compacted to at least 90 percent relative compaction. Disking and/or blending may be required to uniformly moisture condition soils used for engineered fill.

Soils with a PI of 9 or greater should be uniformly moisture-conditioned to at least 3% above optimum moisture, placed in horizontal lifts less than 8 inches in loose thickness and compacted to at least 90%, but not more than 95%, of the maximum dry density. Disking and or blending may be required to uniformly moisture condition soils used for engineered fill.

Atterberg limits test have been recommenced during site grading so proper moisture conditioning and compaction criteria is met.

TECHNICAL AREA: GEOLOGY

Data Request 44: Please provide additional laboratory test results for the silty sand soils (e.g. Atterberg limits tests) that document minimal collapse potential, or discuss how the potential for collapse of such soils will be mitigated through facility design and construction.

Response: The concern for the potential for collapse or consolidate when loaded of such soils was addressed with lab testing select samples using Collapse Potential lab test (ASTM D 5333). The results can be seen in the Kleinfelder Geotechnical Investigation Report Appendix B-6 - B-9. Collapse/consolidation issues do not exist on this site.

TECHNICAL AREA: HAZARDOUS MATERIALS MANAGEMENT

Data Request 45: Please provide the following information regarding the transportation of aqueous ammonia:

a. the size (capacity) of the delivery tanker trucks,

b. the DOT certification of the vendor's proposed tanker truck, and

c. clarification of the frequency of delivery on an annual basis.

Response:

a. The capacity of the tanker truck for aqueous ammonia transport in Section 8.12 Hazardous Material Management was assumed to be 8,000 gallons. This amount provided a conservative assessment of the health risks associated with a spill during the transfer of ammonia. However, after further analysis, it has been determined that the tanker truck capacity will not exceed 6,000 gallons. This change in capacity will not adversely change the results from the offsite consequence analysis (OCA) performed. The decrease in capacity will likely cause a decreased area of impact than previously predicted.

b. As discussed in the Supplemental Information provided in response to CEC Data Adequacy Request #17, Midway will require all shippers of hazardous wastes be properly licensed by the DTSC and hazardous waste transport vehicles be in compliance with DTSC requirements.

c. As discussed in the response prepared for Data Request 58, a conservative estimate of 3 truck deliveries of aqueous ammonia per year, or 1 truck delivery every four months on average in context to one year of plant operations consumption, is required to keep the on-site ammonia storage tanks at or near full capacity.

TECHNICAL AREA: HAZARDOUS MATERIALS MANAGEMENT

Data Request 46: Please provide the distance to the above-identified facilities and the quantities/identities of hazardous materials stored at those facilities.

Response:

PG&E Substation:

- Distance from the Midway site to the PG&E substation: The Midway site is approximately 80 feet east of the PG&E substation property and approximately 250 feet from substation structures.

- Hazardous Materials quantities/identities: Actual quantities and identities of hazardous materials on-site at the PG&E Substation are unknown. However, due to the type of facility (mainly consisting of transformers/breakers and switching mechanisms), the only hazardous material anticipated to be used at the substation is oil for the transformers and breakers.

Wellhead Peaker Plant:

- Distance from the Midway site to the Wellhead Peaker Plant: The Midway site abuts the Wellhead Peaker facility to the north; however the nearest on-site equipment/storage is approximately 120 feet from the Midway site

- Hazardous Materials quantities/identities: Actual quantities and identities of hazardous materials on-site at the Wellhead Peaker facility are unknown. However, given its similarity in size and design to the CalPeak Panoche facility; similar types and quantities of hazardous materials are expected to be used/stored on-site. A list of quantities and identities of hazardous materials at the CalPeak Panoche facility is provided below.

CalPeak Panoche

- Distance from the Midway site to CalPeak Panoche: The Midway site abuts the CalPeak Panoche site to the east; however the nearest on-site equipment/storage is approximately 270 feet from the Midway site.

- Hazardous Materials quantities/identities:
  - 115 gal / Hydraulic Fluid – Mobile DTE 13M
  - 135 gal / Lubrication Oil – Mobil Jet Oil 254
  - 372 gal / Lube Oil – Mobil DTE Oil Light
  - 5580 gal / Heat transfer Oil Diala Oil A
  - 64,000 lbs average and 96,000 lbs maximum / 19.5% Aqueous Ammonia
  - 216 cf average and 876 cf maximum / Calibration Gas (#1)
  - 216 cf average and 876 cf maximum / Calibration Gas (#2)
  - 216 cf average and 876 cf maximum / Calibration Gas (#3)
  - 1300 gal average; 3500 gal maximum; and annual waste amount 5200 gal / Waste Wash Water Solution (hazardous component: Petroleum Hydrocarbons)

TECHNICAL AREA: LAND USE

Data Request 47: Please provide the following information:

a. A completed copy of the Notice of Nonrenewal, signed by the property owner of record and Fresno County.

b. A completed copy of the cancellation application to Fresno County, signed by the property owner of record and Fresno County.

c. A schedule as to when Fresno County will process the cancellation application and when the Board of Supervisors will hear the cancellation application.

Response:

a. A completed copy of the Notice of Nonrenewal is provided as Attachment A to this sheet. The document is signed by the property owner of record; however, Fresno County does not sign this document. The copy provided is file-stamped as received by the County.

b. A completed copy of the Williamson Act Cancellation Package is provided as Attachment B to this sheet. The document is signed by the property owner of record; however, Fresno County does not sign this document. The copy provided is file-stamped as received by the County.

c. <u>After a petition for cancellation is submitted, the review process would be as follows:</u>

- Once application has been determined to be complete, a request is sent to the Department of Conservation (DOC) for review of petition for cancellation. This is generally a 30 day review period.

- A memo is sent to the Assessor's Office requesting calculation of cancellation fee for the area covered by the legal description provided. The memo is sent out at the same time as the request to the DOC. The Assessor's Office generally tries to provide a cancellation valuation within 30 days of receiving the request. However, this is not a requirement, and in some cases it may take longer than 30 days.

- Cancellation request is then usually brought to Fresno County Agricultural Land Conservation Committee (ALCC) for recommendation. However, per a phone conversation with Fresno County on 2/23/07, Fresno County has found that the project does not require a CEQA review, and will be provided a “Notice of Exemption”.

<u>The current **estimated** timetable is as follows:</u>

1) All Williamson Act documents were distributed internal by the County of Fresno on February 7, 2007
2) Parties have 30 days to respond, ending March 7, 2007
3) Placed on the Land Conservation Committee agenda for April 4, 2007
4) Placed on the Board of Supervisor's agenda for April 24, 2007 to effect the cancellation

DATA REQUEST RESPONSE #47
ATTACHMENT A

Recording requested by
County Board of Supervisors

When recorded, return to
Fresno County
Department of Public Works and
Planning, Development Services
Division, Stop #214

Attention: Policy Planning

ALCC: 367

Space above this line for Recorder's use.

NOTICE OF PARTIAL NONRENEWAL
LAND CONSERVATION CONTRACT

NOTICE IS HEREBY GIVEN BY "OWNER" That the portion of the Land Conservation Contract described in Exhibit "A", attached hereto and incorporated herein by reference, by and between Russell Giffen and Ruth P. Giffen and succeeded to by PAO Investments, LLC and the County of Fresno, recorded February 27, 1969 as Instrument Number 13855, Book 5665, Pages 182 through 185 in the Official Records of Fresno County, California more commonly referred to as **ALCC #367**, IS NOT TO BE RENEWED.

The expiration date for that portion of said contract described in Exhibit "A", is the last day of **December, 2016.**

For PAO Investments, LLC:

Barry Baker, Manager

STATE OF CALIFORNIA)
COUNTY OF FRESNO)

On November 6, 2006 before me Lisa Marie Renwick ,Notary Public personally appeared Barry Baker

Personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that be his/her/their signatures(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

WITNESS my hand and seal.

Signature Lisa Marie Renwick Seal

LISA MARIE RENWICK
Commission # 1494411
Notary Public - California
Fresno County
My Comm. Expires Jul 8, 2008

EXHIBIT "A"

APN 027-060-78s

All that portion of the Northwest Quarter and the Southwest Quarter of Section 5, Township 15 South, Range 13 East, Mount Diablo Base and Meridian, according to the official plat thereof, lying Southerly of Panoche Road, as said Panoche Road existed on October 30, 1972.

EXCEPTING THEREFROM that portion of the Southwest Quarter of Section 5, bounded by a line which begins at a point in the Southwest Quarter of said Section 5 (marked by a 5/8ths inch iron bolt with X scribed on head) from which the Southwest corner (marked by a 2 inch iron monument) of said Section 5 bears South 38°57½' West 1,748.2 feet distant and runs thence North 36°31' West 883.0 feet to a 5/8ths inch iron bolt with X scribed on head in the center line of the county road traversing the Southwest Quarter of said Section 5; thence North 64°26' East, along the centerline of said county road, 1,013.5 feet to a 5/8ths inch iron bolt with X scribed on head; thence South 36°31' East 690.6 feet to a 5/8ths inch iron bolt with X scribed on head; thence continuing South 36°31' East 67.0 feet; thence South 53°29' West 995.0 feet; thence North 36°31' West 67 feet, more or less, to the point of beginning.

ALSO EXCEPTING THEREFROM the following described property: Beginning at a 2 inch by 2 inch hub in the Southwest Quarter of said Section 5, from which the most Easterly corner of that certain 19.50 acre parcel of land as described in the Deed from B.E. Montgomery and wife to Pacific Gas and Electric Company, dated November 17, 1948, and recorded in Book 2689, Page 410 of Official Records, bears South 55°55½ West 530.5 feet distant and running thence North 53°34' East 30.0 feet to a 2 inch by 2 inch hub; thence South 36°26' East 125.0 feet to a 2 inch by 2 inch hub; thence South 53°34' West 30.0 feet to a 2 inch by 2 inch hub; thence North 36°26' West 125.0 feet to the point of beginning.

ALSO EXCEPTING THEREFROM a parcel of land in the Southwest Quarter of said Section 5 described as follows:
Beginning at the Southwest corner of said Section 5; thence (1) along the West boundary of the Southwest Quarter of said Section 5, North 0°0' East 173.0 feet; thence (2) along the North line of the South 173 feet of said Southwest quarter, South 89°51'20" East 80.0 feet; thence (3) South 44°51'29" East 174.0 feet; thence (4) along the East line of the West 202.7 feet, South 0°0' West 50.0 feet to a point in the South line of said Southwest Quarter; thence along last said South line (5) North 89°51'20" West 202.7 feet to the point of beginning; BUT EXCEPTING FROM SAID EXCEPTION, the West 40 feet and the South 40 feet thereof.

ALSO EXCEPTING THEREFROM the following described property: Beginning at a point of intersection of the center line of said Panoche Road with the West boundary of said Section 5, said point bears North 01°34'10" East, 1,804.77 feet from the Southwest corner of said Section 5; thence (1) North 65°59'05" East along the center line of said Panoche Road, 305.31 feet; thence (2) North 65°27' 57" East along said center line, 2,180.9 feet; thence (3) North 65°41'08" East along said center line, 3,374.21 feet to a point on the East boundary of said Section 5, said point bears North 01°35'26" East, 1,747.19 feet from the East Quarter corner of said Section 5; thence (4) South 01°35'26" West along said East boundary, 44.47 feet to a point which is 40 feet Southeast of said center line of Panoche Road (measured at right angles); thence (5) South 65°41'08" West, parallel with said center line, 3,354.70 feet; thence (6) South 65°27'57" West, parallel with said center line, 1,925.89 feet; thence (7) Southwesterly along the arc of a curve concave to the Northwest having a 56,340 foot radius, a radius point which bears North 24°32'03" West and a central angle of 00°31'08' a distance of 510.23 feet; thence (8) South 65°59'05" West, parallel with said center line 69.52 feet to the West boundary of said Section 5; thence (9) North 01°34'10" East along said West boundary, 44.35 feet to the point of beginning.

ALSO EXCEPTING THEREFROM that portion of the Southwest Quarter of said Section 5 described as follows:
Commencing at the Southwest corner of said Section 5; thence North 39°59'27" East (North 38°57'30" East) 1,748.2 feet; thence North 35°29'03" West (North 36°3 1' West), 883 feet to a point on the center line of Panoche Road, said point being the true point of beginning; thence (1) North 65°27'57" East (North 64°26' East) along the center line of said Panoche Road, 1,013.5 feet; thence (2) South 35°29'03" East (South 36°31' East), 40.74 feet to a point which is 40 feet Southeast of the center line of said Panoche Road (measured at right angles); thence (3) South 65°27'57" West (South 64°26" West), parallel with said center line, 1,013.5 feet; thence (4) North 35°29'03" West (North 36°31' West), 40.74 feet to the true point of beginning.

ALSO EXCEPTING FROM THE SOUTHWEST QUARTER, 54% interest in and to all oil, gas and minerals, as heretofore reserved of record.

ALSO EXCEPTING FROM THE SOUTH HALF OF THE NORTHWEST QUARTER, an undivided 56% interest in and to all oil, gas and minerals, as heretofore reserved of record.

ALSO EXCEPTING THEREFROM an undivided one-half of Grantor's right, title and interest in and to all oil, gas and minerals, as reserved in the following Deeds: (1) Deed from Giffen, Inc., dated October 31, 1974, recorded November 20, 1974, in Book 6370, Page 143 of Official Records, Instrument No. 87110; (2) Deed from James W. Telles and Diane Telles, husband and wife, as to an undivided 5.25% interest, recorded December 3, 1975, in Book 6531, Page 705 of Official Records, Instrument No. 100668, and re-recorded January 21, 1976, in

Book 6540, Page 44 of Official Records, Instrument No. 5342; (3) Deed from John Telles, a single person, as to an undivided 1.25% interest, recorded December 3, 1975, in Book 6531, Page 712 of Official Records, Instrument No. 100669, and re-recorded January 21, 1976, in Book 6540, Page 52 of Official Records, Instrument No. 5343; (4) Deed from Jesse P. Telles, III, and Patty Rae Telles, husband and wife, as to an undivided 5.25% interest, recorded December 3, 1975, in Book 6531, Page 719 of Official Records, Instrument No. 100670, and re-recorded January 21, 1976, in Book 6540, Page 36 of Official Records, Instrument No. 5341; (5) Deed from Jolene Vajretti, a single person, as to an undivided 4% interest, recorded January 15, 1976, in Book 6537, Page 516 of Official Records, Instrument No. 3604; (6) Deed from Joseph Vajretti and Marie Vajretti, husband and wife, as to an undivided 8% interest, recorded January 15, 1976, in Book 6537, Page 523 of Official Records, Instrument No. 3605; (7) Deed from Helen B. Telles, dealing with her separate property, as to an undivided 4% interest, recorded January 15, 1976, in Book 6537, Page 530 of Official Records, Instrument No. 3606; and (8) Deed from Manuel A. Souza, Jr. and Cecelia Ann Souza, as to an undivided 4% interest, recorded January 15, 1976, in Book 6537, Page 537 of Official Records, Instrument No. 3607.

DATA REQUEST RESPONSE #47
ATTACHMENT B

Fresno County Department of Public Works and Planning

MAILING ADDRESS:
Department of Public Works and Planning
Development Services Division
2220 Tulare Street, 6th Floor
Fresno, CA 93721

LOCATION:
Southwest corner of Tulare & "M" Streets, Suite A
Street Level
Fresno Phone: (559) 262-4055
Toll Free Phone: 1-800-742-1011

APPLICATION FOR:

- ☐ Amendment Application
- ☐ Amendment to Text
- ☐ Conditional Use Permit
- ☐ Director Review and Approval
- ☐ Site Plan Review/Occupancy Permit
- ☐ Variance/Minor Variance
- ☐ No Shoot/Dog Leash Law Boundary
- ☐ Other _____
- ☒ ALCC/RLCC Williamson Act Cancellation
- ☐ Pre-Application (Check Type)
  - ☐ General Plan Amendment
  - ☐ Specific Plan Amendment
  - ☐ Specific Plan
- ☐ Determination of Merger
- ☐ Agreements

DESCRIPTION OF PROPOSED USE OR REQUEST:
Partial Williamson Act Contract Cancellation on 128-Acre Tract of Land. The Williamson Act Contract will be cancelled on 6.116 Acres.

PLEASE TYPE OR PRINT IN BLACK INK. Answer all questions completely. Attach required site plans, forms, statements and deeds as specified on the Pre-Application Review.

LOCATION OF PROPERTY: South side of West Panoche
between South Brannan Avenue and South FairFax Avenue
Street address 45499 West Panoche Firebaugh CA 93622

APN 027-060-785 Parcel size 128 Acres Sec-Twp / Rg. SW 5 - 15 / 13E

LEGAL DESCRIPTION: (Attach Copy of Deed)

I, _____ (signature), declare that I am the owner, or authorized representative of the owner, of the above described property and that the application and attached documents are in all respects true and correct to the best of my knowledge. The foregoing declaration is made under penalty of perjury.

Owner (Print or Type)	Address	City	Zip	Phone
Pao Investments, LLC	45499 W. Panoche	Firebaugh	CA 93622	(559) 659-3942
Applicant (Print or Type)	**Address**	**City**	**Zip**	**Phone**
Pao Investments, LLC	45499 W. Panoche	Firebaugh	CA 93622	(559) 659-3942
Barry Baker, Manager	45499 W. Panoche	Firebaugh	CA 93622	(559) 659-3942
Representative (Print or Type)	**Address**	**City**	**Zip**	**Phone**

OFFICE USE ONLY

Application Type / No.: RLCC 843 Fee: $3,097 PLU 56
Application Type / No.: _____ Fee: _____ PLU _____
Application Type / No.: _____ Fee: _____ PLU _____
Application Type / No.: _____ Fee: _____ PLU _____
Initial Study No.: _____ Fee: _____ PLU _____
Environmental Review: Fee: _____ PLU _____
Health Department Review: Fee: _____ PLU _____
Received by:
This permit is sought under Ordinance Section: _____
Related applications: _____
Drafting verification: Zone District: _____
APN# _____ - _____ - _____
APN# _____ - _____ - _____
APN# _____ - _____ - _____
Sec. Twp. Rg. _____ - _____ / _____
Parcel Size _____

WHEN VALIDATED
THIS APPLICATION IS YOUR RECEIPT

** ORDER# 0027 **
KP # 1
001 L C C 3097.00
NORA 01/04/2007 15:38 01 097752
01 01/04/2007 15:38 097752 TND
CHECK $3097.00
NORA

GREEN – DEPARTMENT COPY WHITE – APPLICANT COPY CANARY

F-8 (R05-03)

Gilmore
Wood
Vinnard
& Magness

A PROFESSIONAL CORPORATION
ATTORNEYS AT LAW

FORMERLY
THOMAS & SNELL

JAMES O. DEMSEY
ROBERT J. TYLER
DAVID M. GILMORE
RUSSELL O. WOOD
GERALD D. VINNARD
MARCUS D. MAGNESS

OF COUNSEL:
WILLIAM H. LEIFER

HOWARD B. THOMAS
(1912-1993)
T. NEWTON RUSSELL
(1918-2001)

December 27, 2006

Fresno County Department of Public Works & Planning
Development Services Division
2220 Tulare Street, 6th Floor
Fresno, California 93721

Re: Petition for Partial Cancellation of Williamson Act Contract
Contract No. 367
APN: 027-060-78s

Ladies and Gentlemen:

Our firm represents PAO Investments, LLC, a California limited liability company. On behalf of PAO Investments, LLC (the "Company"), we herewith submit the Company's petition for partial cancellation of Williamson Act Contract with respect to the above-referenced parcel. (See enclosures.) This letter constitutes the Company's proposal for the specified alternative use of the property, filed pursuant to Government Code § 51282(e).

Background

The petition is a application for partial cancellation (Gov. Code § 51282) Agricultural Preserve Contract No. 367. Contract 367 applies to several sections of land, now under various ownership. This application relates to a 128 acre (more or less) parcel of land situated in the Southwest Quarter of Section 5, Township 15 South, Range 13 East, Mount Diablo Base & Meridian identified as Assessor Parcel Number 027-060-78s (the "Subject Parcel"). In particular, this application seeks the cancellation of a 6.16 acre portion of this property (the "Site").

The Subject Parcel is designated Agriculture under the Fresno County General Plan, zoned AE-20 (Exclusive Agriculture), and is located southeast of the intersection of W. Panoche Road and Davidson Avenue, approximately 2 miles east of Interstate 5.

Situated in the center of the northern boundary of the Subject Parcel is a Pacific Gas and Electric Company electrical substation. Running

STREET ADDRESS
7108 N. FRESNO ST.
SUITE 410
FRESNO, CALIFORNIA 93720

MAILING ADDRESS
POST OFFICE BOX 28907
FRESNO, CALIFORNIA 93729-8907

EMAIL ADDRESS
MMAGNESS@GWVM.COM

TELEPHONE (559) 448-9800
FACSIMILE (559) 448-9899

under the Subject Parcel are two of the main natural gas pipelines connecting northern and southern California and over the Subject Parcel run two 115 kilovolt transmission lines that tie the PG&E substation to the electrical grid providing electrical power to, among other areas, the County of Fresno.

Due to the growing demand for electrical power in the State of California, Pacific Gas and Electric Company solicited bids from companies who were willing and able to construct the new thermal power plants that are required to provide safe, reliable power to the people of the State of California. Among the successful applicants was Starwood Power-Midway, LLC, who proposes to construct, operate and maintain a 120 megawatt power plant on the Site.

In accordance with the California Energy Commission's ("CEC") Rules of Practice and Procedure and Power Plant Certification, an Application for Certification ("AFC") has been prepared for Starwood Power-Midway. The AFC process is comparable to the California Environmental Quality Act ("CEQA") Environmental Impact Report ("EIR") requirements. The AFC is designed to address the specific environmental impacts that such projects may cause and require mitigation for impacts that power producing facilities create. The regulating body is the CEC, and the AFC is done in lieu of the EIR.

Section 15271(c) of the CEQA Guidelines allows the AFC to be used to address CEQA compliance for a Williamson Act cancellation, provided it adequately addresses the issue. Here, the CEC has required that Starwood Power-Midway evaluate (and if necessary mitigate) any potential environmental impacts that are associated with this proposed Williamson Act cancellation in its AFC.

Specified Alternative Use and Permitting Authorities

(Gov. Code, § 51282(e))

For the past 5 years, the 5.62 acres of the Site has been used for equipment storage (i.e., it has not been in agricultural production during this period). Additionally, .54 (one half) acres of the site has been used for

migrant worker housing. This 5-plex unit was constructed many years ago to support worker living accommodations on behalf of the local farmer. This 5-plex housing unit will no longer be used as residential housing and converted to non-residential use and used by the Starwood Power-Midway power project. The specified alternative use for the Site is as a 120 megawatt thermal power plant. The governmental authority that has permitting authority with respect to the specified alternative use is the California Energy Commission.

Factual Basis Supporting Required Findings

Pursuant to Government Code § 51282(a), in order to approve this application for partial cancellation of Agricultural Preserve Contract No. 367, the Fresno County Board of Supervisors must make one of two alternative findings. The first possible finding is that the cancellation is consistent with the purposes of the Williamson Act. The second possible finding is that the cancellation is in the public interest. Because of the nature of the specified alternative use for the Site, both findings would be supported by the facts.

CANCELLATION IS IN THE PUBLIC INTEREST

Government Code § 51282(c) provides that cancellation is in the public interest where other public concerns substantially outweigh the objectives of the Williamson Act and where there is no proximate non-contracted land that is both available and suitable for the specified alternative use.

Here, the specified alternative use is the construction and operation of a power plant that is required by the people of the State of California in order to meet the growing demand for safe, reliable energy. In periods of peak demand over the past several years, California has suffered a series of rolling blackouts and brownouts because existing power generation capacity is smaller than demand. Peak demand is typically experienced during the hot summer months when people are running their air conditioners. Such interruptions, in addition to affecting the economy, cause public safety problems. The elderly, infirm and young are susceptible to heat stroke and, in

severe cases, death, from the loss of power. This is particularly true for residents of our state that rely on medical devices powered by electricity. While the construction of this project, by itself, will not be sufficient to meet all of the demand for additional power, it will provide an incremental level of safety. These public benefits substantially outweigh any possible loss of 6.16 acres of agricultural production in western Fresno County, California.

Moreover, there is no proximate non-contracted land which is both available and suitable for the specified alternative use. The nearest non-Williamson Act contracted land exists 1.5 miles from the Site, but is not in close proximity to the PG&E substation or the high-volume natural gas lines that are required for the project. Hence, the proximate non-contracted lands are not feasible for the proposed use. Indeed, within a 3-mile radius of the Site, approximately 96% of all land is under Williamson Act contract. This 96% represents approximately 14,380 acres of land (See Figure 5.4-2). In order for an alternate land to be feasible, close proximity to the high power electrical transmission lines and the high-volume natural gas lines is essential.

Finally, development of the Site actually provides more contiguous patterns of urban development than development of proximate non-contracted land. The Site is located adjacent to an existing PG&E electrical substation. Power plants must have a source of energy (in this case, natural gas) and must tie into an electrical substation in order to connect to the electrical grid serving our state. Were a plant to be located on land that was significantly distant from existing infrastructure would require the development of new pipelines and power lines to connect to the grid. It would also result in a patchwork of agricultural and power plant uses which, by definition is not contiguous. Hence, the development of the Site for the specified alternative use provides for more contiguous patterns of development.

CANCELLATION IS CONSISTENT WITH THE WILLIAMSON ACT

In order for the Fresno County Board of Supervisors to find that the cancellation is consistent with the purposes of the Williamson Act, the

Board must make the five (5) findings required under Government Code § 51282(b). Each is addressed below.

1) The cancel lation is for land on which a notice of nonrenewal has been served.

A Notice of Non-Renewal for the Subject Parcel, duly executed by the landowner was submitted to the County of Fresno for recording in the Official Records of Fresno County, California on November 3, 2006.

2) Cancellati on is not likely to result in the removal of adjacent lands from agricultural use.

The Subject Parcel is located within an unincorporated portion of western Fresno County, and does not lie within any other jurisdictions. The 128-acre parcel is bounded by existing agricultural uses in all directions (save and except for the existing PG&E substation). Agriculture is the primary use, encompassing approximately 96% of all land within a 3-mile radius with the same percent representing the amount of land covered under Williamson Act contracts.

The proposed location of the Starwood Power-Midway project is ideal for power generation due to the existing infrastructure installed at the existing Pacific Gas & Electric substation and by the existing high-volume natural gas lines and 115 kilovolt transmission lines located on the Subject Parcel. Indeed, already situated on the Subject Parcel is a power generation facility operated by Wellhead Power and situated within the PG&E substation area is a power plant operated by CalPeak Power. In addition, Panoche Energy Center, LLC has proposed another power generation facility on the Subject Parcel, which proposal has been approved by PG&E and is currently under review by the California Electric Commission. The reason for this concentration of power generation uses is the aforementioned need to build in close proximity to the PG&E substation, the high-volume natural gas lines and the 115 kilovolt electric transmission lines. This existing infrastructure

allows for efficient interconnection, which minimizes impacts, specifically environmental impacts, while providing efficient peaking power for the businesses and residents of California.

Therefore, the approval of this cancellation would not induce further Williamson Act cancellations. The ideal location for a natural gas power generation facility is an aberration within the area, and the concentration of existing and proposed power generation facilities will not preclude or conflict with adjacent agricultural uses.

Spin-off development based on the construction of the Starwood Power-Midway project and the other existing and proposed power generating facilities along W. Panoche Road will not occur. The character of the area, rural and agriculturally based, will not be altered by the presence of the power plants.

3) Cancellati on is for an alternative use that is consistent with the adopted General Plan.

The Subject Parcel is designated Agriculture in the Fresno County General Plan and is zoned for Exclusive Agriculture (AE-20). The General Plan identifies one of its policies of the County to allow certain uses by discretionary permit in areas designated Agriculture. Policy LU-A.3 and Table LU-3 are as follows:

> "The County may allow by discretionary permit in areas designated Agriculture, special agricultural uses and agriculturally-related activities, including value-added processing facilities, and certain non-agricultural uses listed in Table LU-3. Approval of these and similar uses in areas designated Agriculture shall be subject to the following criteria:
>
> a. The use shall provide a needed service to the surrounding agricultural area which cannot be provided more efficiently within urban areas or which requires

location in a non-urban area because of unusual site requirements or operational characteristics;

b. The use should not be sited on productive agricultural lands if less productive land is available in the vicinity;

c. The operational or physical characteristics of the use shall not have a detrimental impact on water resources or the use or management of surrounding properties within at least one-quarter (1/4) mile radius."

The Starwood Power-Midway project will provide necessary energy supplies to the area. The location of a power generation facility within an urban environment has the potential to impact sensitive receptors such as schools and hospitals in addition to greater land use conflicts with residences. Less productive agricultural lands were not available during the site selection investigation. The water resources in the vicinity of the Site will not be detrimentally impacted by the project since water use by the Starwood Power-Midway project will utilize low quality groundwater and/or wastewater, which is not a practical water source for agriculture in the area.

TABLE LU-3 (APPLICABLE POLICY FROM TABLE LU-3)

"Mineral extraction and oil and gas development pursuant to the policies in Section OS-C, Mineral Resources, of the Open Space and Conservation."

The General Plan and zoning code allow for an energy production facility with an unclassified conditional use permit. However, since this project is under the regulating power of the California Energy Commission, a conditional use permit is not necessary for this project.

4) Cancellati on will not result in discontiguous patterns of urban development.

The Subject Parcel is not located near an urban area. Additionally, the development pattern of the power producing facilities has

been concentrated exclusively within the Subject Parcel and the PG&E substation because the proposed location of the Starwood Power-Midway project is ideal for power generation. This is due to the existing infrastructure installed at the existing Pacific Gas & Electric substation and the existing high-volume natural gas and electric transmission lines on the Subject Parcel.

Additionally, the construction of the Starwood Power-Midway project serves the public interest through creating and providing power. Although PG&E is a publicly traded corporation thus making it a private entity, the company is a public utility that provides power service to the public with oversight from the California Public Utilities Commission (CPUC). This relationship makes the company a quasi-public entity that serves a public interest. The CPUC approved PG&E's long-term resource plan in 2004. The CPUC authorized PG&E to "plan for and procure the resources necessary to provide reliable service to their customer loads for the planning period 2005 through 2014." The construction of the Starwood Power-Midway project allows PG&E to fulfill its needs in providing power to the public, thus providing a service that is in the public interest.

5) That there is no proximate noncontracted land which is both available and suitable for the use to which it is proposed the contracted land be put, or, that development of the contracted land would provide more contiguous patterns of urban development than development of proximate noncontracted land.

The facts supporting this finding were set forth under the heading "Cancellation is in the Public Interest" above and are incorporated herein by this reference.

Conclusion

For the foregoing reasons, PAO Investments, LLC respectfully requests that the Fresno County Board of Supervisors approve its application and cancel Agricultural Preserve Contract No. 367 as it applies to the Site.

Very truly yours,

Marcus D. Magness

Enclosures

cc: PAO Investments, LLC
Starwood Power-Midway, LLC

Fresno County Department of Public Works and Planning

MAILING ADDRESS:
Department of Public Works and Planning
Development Services Division
2220 Tulare Street, 6th Floor
Fresno, CA 93721

LOCATION:
Southwest corner of Tulare & "M" Streets, Suite A
Street Level
Fresno Phone: (559) 262-4055
Toll Free Phone: 1-800-742-1011

APPLICATION FOR:

- ☐ Amendment Application
- ☐ Amendment to Text
- ☐ Conditional Use Permit
- ☐ Director Review and Approval
- ☐ Site Plan Review/Occupancy Permit
- ☐ Variance/Minor Variance
- ☐ No Shoot/Dog Leash Law Boundary
- ☐ Other _____
- ☒ ALCC/RLCC WILLIAMSON ACT CANCELLATION
- ☐ Pre-Application (Check Type)
  - ☐ General Plan Amendment
  - ☐ Specific Plan Amendment
  - ☐ Specific Plan
- ☐ Determination of Merger
- ☐ Agreements

DESCRIPTION OF PROPOSED USE OR REQUEST:
PARTIAL WILLIAMSON ACT CONTRACT CANCELLATION ON 128-ACRE TRACT OF LAND. THE WILLIAMSON ACT CONTRACT WILL BE CANCELLED ON 6.16 ACRES.

PLEASE TYPE OR PRINT IN BLACK INK. Answer all questions completely. Attach required site plans, forms, statements and deeds as specified on the Pre-Application Review.

LOCATION OF PROPERTY: SOUTH side of WEST PANOCHE
between SOUTH BRANNAN AVENUE and SOUTH FAIRFAX AVENUE
Street address 45499 WEST PANOCHE FIREBAUGH CA 93622

APN 027-060-78S Parcel size 128 ACRES Sec-Twp / Rg. SW 5 - 15 / 13E

LEGAL DESCRIPTION: (Attach Copy of Deed)

I, _____ (signature), declare that I am the owner, or authorized representative of the owner, of the above described property and that the application and attached documents are in all respects true and correct to the best of my knowledge. The foregoing declaration is made under penalty of perjury.

Owner (Print or Type)	Address	City	Zip	Phone
Pao Investments, LLC	45499 W. Panoche	CA	93622	(559) 659-3942
Applicant (Print or Type)	**Address**	**City**	**Zip**	**Phone**
PAO Investments, LLC	45499 W. Panoche	CA	93622	(559) 659-3942
Representative (Print or Type)	**Address**	**City**	**Zip**	**Phone**
Barry Baker, Manager	45499 W. Panoche	CA	93622	(559) 659-3942

OFFICE USE ONLY

Application Type / No.: _____ Fee: _____ PLU _____
Application Type / No.: _____ Fee: _____ PLU _____
Application Type / No.: _____ Fee: _____ PLU _____
Application Type / No.: _____ Fee: _____ PLU _____
Initial Study No.: _____ Fee: _____ PLU _____
Environmental Review: Fee: _____ PLU _____
Health Department Review: Fee: _____ PLU _____
Received by: _____
This permit is sought under Ordinance Section: _____
Related applications: _____
Drafting verification; Zone District: _____
APN# _____ - _____ - _____
APN# _____ - _____ - _____
APN# _____ - _____ - _____
Sec. Twp. Rg. _____ - _____ / _____
Parcel Size _____

WHEN VALIDATED THIS APPLICATION IS YOUR RECEIPT

GREEN – DEPARTMENT COPY WHITE – APPLICANT COPY CANARY

F-8 (R05-03)

Fresno County Department of Public Works and Planning
Mailing Address:
Department of Public Works & Planning
Development Services Division
2220 Tulare Street, 6th Floor, Fresno, CA 93721
Location:
Southwest corner of Tulare & "M" Street, Suite B
Courtyard Level
Fresno Phone: (559) 262-4022

WILLIAMSON ACT APPLICATION

Ag Contract: 367

APN: 027-060-78S APN: _____

APN: _____ APN: _____

_____ Nonrenewal (check below if Partial) _____ Declaration for Building Permits

__X__ Partial Nonrenewal

Location of Property: Street Address 45499 WEST PANOCHE, FIREBAUGH CA 93622

SOUTH side of WEST PANOCHE

between SOUTH BRAHMAN AVENUE and SOUTH FAIRFAX AVENUE

*Owner(s) (Print or Type)	Address	City	Zip	Phone
PAO Investments, LLC	45499 W. Panoche	CA	93622	(559) 659-3942

Representative (Print or Type)	Address	City	Zip	Phone
Barry Baker, Manager	45499 W. Panoche	CA	93622	(559) 659-3942

Please attach the following:

__X__ A copy of your grant deed or current ownership documentation.
__X__ A complete legal description with the areas which will be affected.
_____ A notarized Statement of Intended Use if applying for a Declaration for Building Permit
_____ *A list of Trustees w/ individual names and titles if applicable.

I/We, Barry Baker (print), declare that I/we own, or represent the owner, of the above described property and that the application and attached documents are in all respects true and correct to the best of my knowledge.

Signature 12/18/06 Date

OFFICE USE ONLY

Date Received: _____ Received by: _____

_____ Deed or current ownership information _____ Legal Description (current) _____ Statement of Intent

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EXHIBIT "A"

Property Description

Being a portion of the Southwest Quarter of Section 5, Township 15 South, Range 13 East; Mount Diablo Base and Meridian, in the County of Fresno, State of California, lying south of the southerly right-of-way line of Panoche Road and east of that certain parcel of land described in the deed from B.E. Montgomery and wife to Pacific Gas and Electric Company dated November 17, 1948 and recorded in Book 2689 at Page 410, Official Records Fresno County, being more particularly described as follows:

Commencing at the Southwest Corner of said Section 5; thence North 00°21'06" East along the west line of said Section 5 a distance of 1760.25 feet to a point on the said southerly right-of-way line of Panoche Road (80 feet wide); thence North 64°43'53" East along said southerly right-of-way line a distance of 69.62 feet to the beginning of a curve concave to the northwest having a radius of 56,540.00 feet; thence northeasterly 509.96 feet along said curve and southerly right-of-way line through a central angle of 00°31'07" to the beginning of a tangent line; thence North 64°13'59" East along said southerly right-of-way line a distance of 1077.76 feet to the northeasterly corner of said land as described per deed to Pacific Gas and Electric Company; said point also being the TRUE POINT OF BEGINNING; thence the following courses:

1) North 64°13'59" East continuing along said southerly right-of-way line a distance of 65.30 feet;
2) South 26°27'26" East leaving said southerly right-of-way line a distance of 150.79 feet;
3) North 64°17'53" East a distance of 199.83 feet;
4) South 26°09'22" East a distance of 57.00 feet;
5) North 64°13'59" East a distance of 341.73 feet;
6) South 25°46'01" East a distance of 358.02 feet;
7) South 50°21'56" West a distance of 187.78 feet;
8) South 46°38'42" West a distance of 304.95 feet to the southeasterly corner of said land as described per deed to Pacific Gas and Electric Company;
9) North 36°43'05" West along the easterly line of said land as described per deed to Pacific Gas and Electric Company a distance of 716.22 feet to the Northeasterly corner of said deed to Pacific Gas and Electric Company and TRUE POINT OF BEGINNING

Said Parcel contains 5.62 acres more or less.

Basis of Bearings:
The centerline of Panoche Road between found Fresno County Brass Cap Monuments at stations 173 + 63.18 and 192 + 89.15 feet located in the Southwest Quarter of Section 5, T.15S., R.13E., taken as North 64°13'59" East per Book 34 of Record of Surveys at Pages 99-101, Fresno County Records.

Date: April 26, 2006

By: _____
Cris H. Robles, P.L.S.

EXHIBIT "A"

Property Description

Being a portion of the Southwest Quarter of Section 5, Township 15 South, Range 13 East; Mount Diablo Base and Meridian, in the County of Fresno, State of California, lying south of the southerly right-of-way line of Panoche Road and east of that certain parcel of land described in the deed from B.E. Montgomery and wife to Pacific Gas and Electric Company dated November 17, 1948 and recorded in Book 2689 at Page 410, Official Records Fresno County, being more particularly described as follows:

Commencing at the Southwest Corner of said Section 5; thence North 00°21'06" East along the west line of said Section 5 a distance of 1760.25 feet to a point on the said southerly right-of-way line of Panoche Road (80 feet wide); thence North 64°43'53" East along said southerly right-of-way line a distance of 69.62 feet to the beginning of a curve concave to the northwest having a radius of 56,540.00 feet; thence northeasterly 509.96 feet along said curve and southerly right-of-way line through a central angle of 00°31'07" to the beginning of a tangent line; thence North 64°13'59" East along said southerly right-of-way line a distance of 1077.76 feet to the northeasterly corner of said land as described per deed to Pacific Gas and Electric Company; thence North 64°13'59" East continuing along said southerly right-of-way line a distance of 324.08 feet to the TRUE POINT OF BEGINNING; thence the following courses:

1) North 64°13'59" East continuing along said southerly right-of-way line a distance of 182.00 feet;
2) South 25°46'01" East leaving said southerly right-of-way line a distance of 129.00 feet;
3) South 64°13'59" West parallel with the said southerly right-of-way line a distance of 182.00 feet;
4) North 25°46'01" West a distance of 129.00 feet to a point on the said southerly right-of-way line and TRUE POINT OF BEGINNING.

Said Parcel contains 0.539 acres more or less.

Basis of Bearings:
The centerline of Panoche Road between found Fresno County Brass Cap Monuments at stations 173 + 63.18 and 192 + 89.15 feet located in the Southwest Quarter of Section 5, T.15S., R.13E., taken as North 64°13'59" East per Book 34 of Record of Surveys at Pages 99-101, Fresno County Records.

Date: December 22, 2006

By: _____
Cris H. Robles, P.L.S.

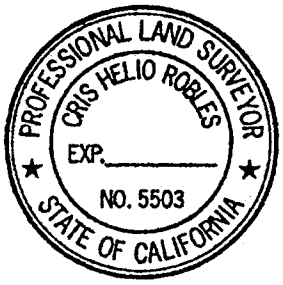
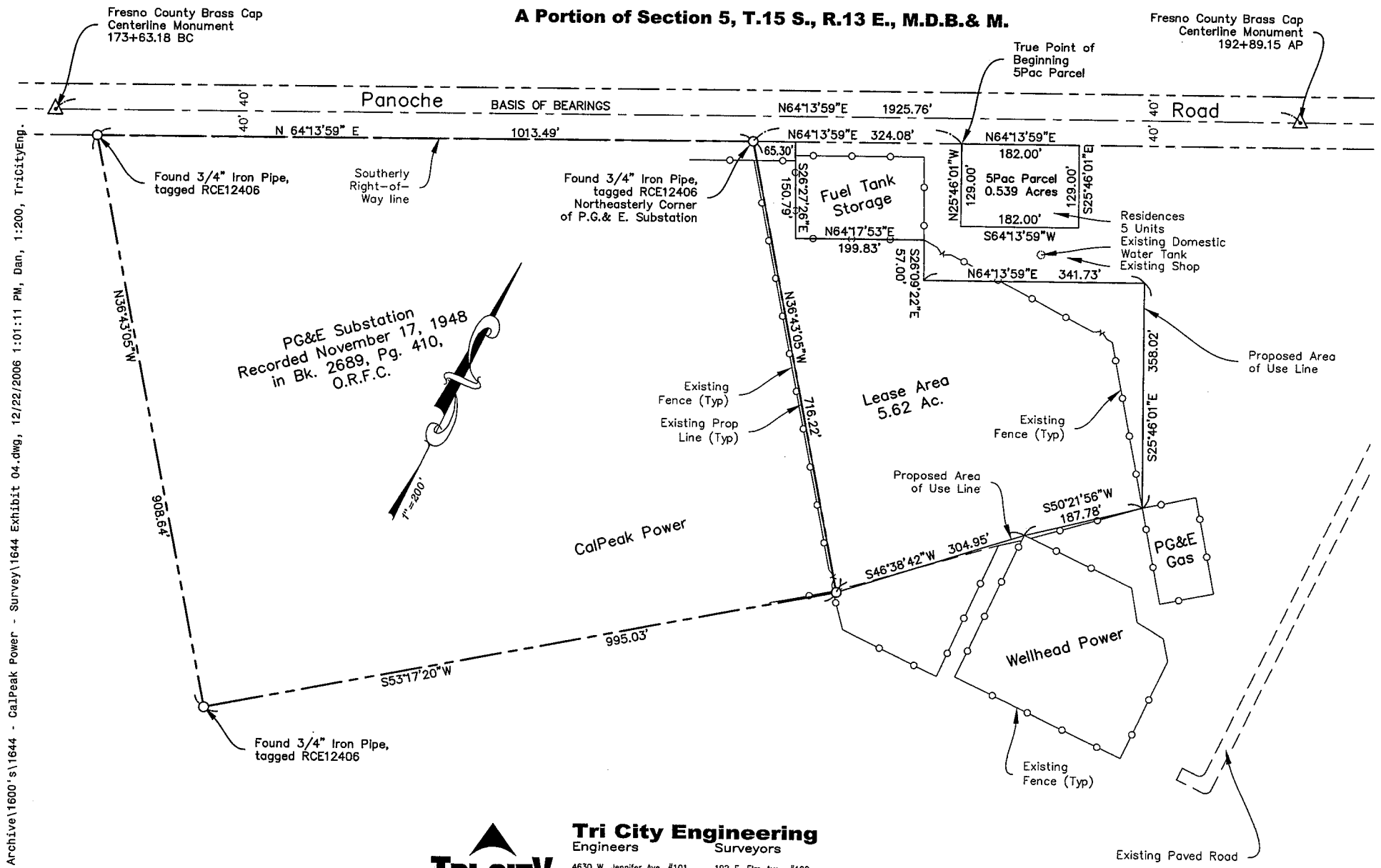


Exhibit 'B'

A Portion of Section 5, T.15 S., R.13 E., M.D.B.& M.



Tri City Engineering
Engineers Surveyors

4630 W. Jennifer Ave. #101
Fresno, CA 93722-6415
PH: 559-447-9075
FAX 559-447-9074
www.TriCityEngineering.com

192 E. Elm Ave., #102
Coalinga, CA 93210
PH: 559-935-6051
FAX: 559-935-6051

Revised 12/18/06

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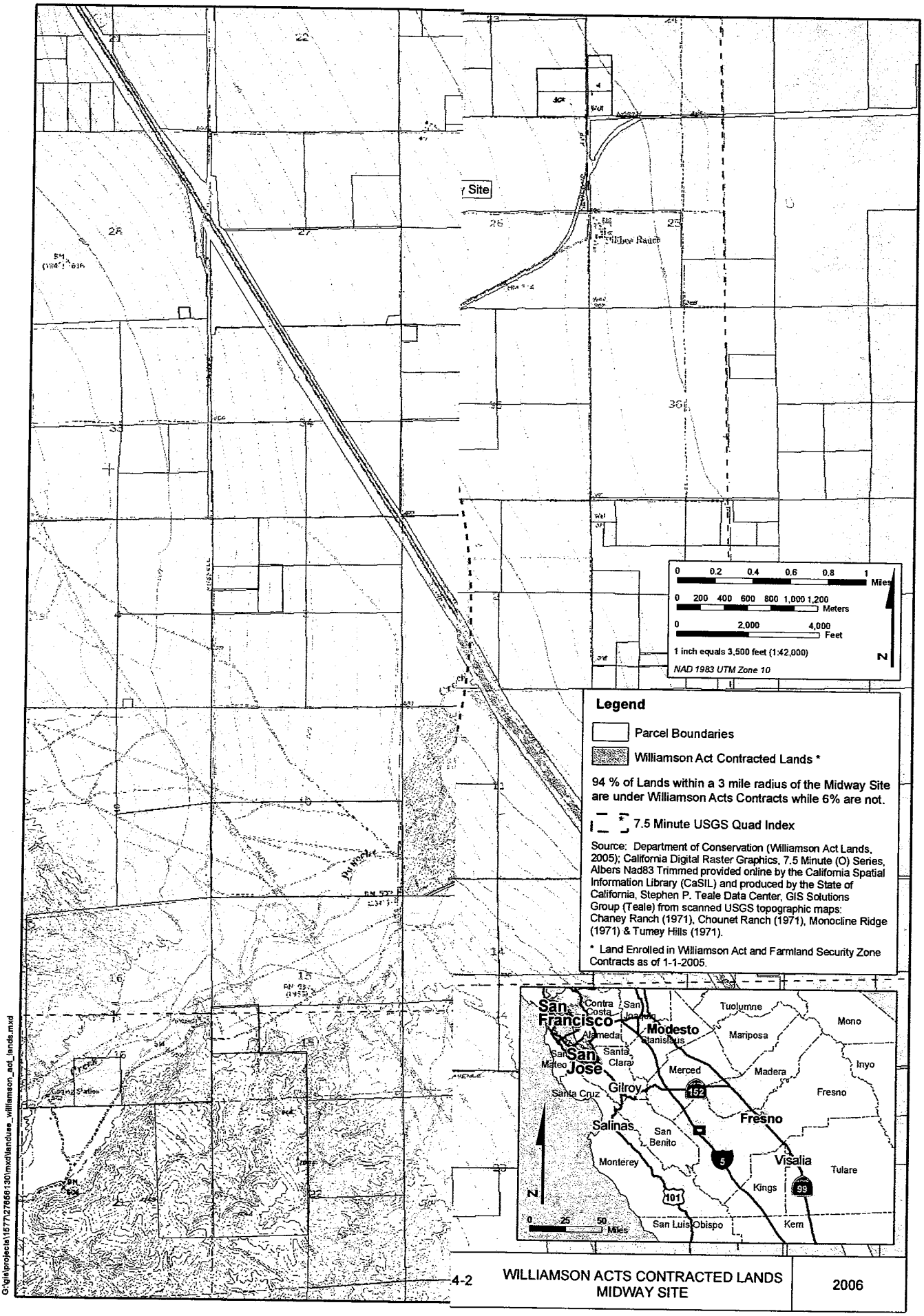

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4-2

WILLIAMSON ACTS CONTRACTED LANDS
MIDWAY SITE

2006

6

RECORDING REQUESTED BY AND WHEN RECORDED RETURN TO:
Marcus D. Magness, Esq.
Gilmore, Wood, Vinnard & Magness
P.O. Box 28907
Fresno, California 93729-8907

MAIL TAX STATEMENTS TO:

PAO Investments, LLC
45499 W. Panoche Rd.
Firebaugh, CA 93622

FRESNO County Recorder
Robert C. Werner
DOC- 2006-0061258
Check Number 22743
Friday, MAR 24, 2006 13:39:56
Ttl Pd $587.40 Nbr-0002133324
JZG/R3/1-6

SPACE ABOVE THE LINE FOR RECORDER'S USE ONLY

The undersigned declares that the documentary transfer tax is ~~$565.36~~ $545.40 and
__X__ Is computed on the full value of the interest or property conveyed, or is
_____ Is computed on the full value less the value of liens or encumbrances remaining thereon at the time of sale.
_____ that this conveyance is exempt from the California documentary transfer tax pursuant to Revenue and Taxation Code

The land, tenement, or realty is located in the City of _____, or in the __X__ unincorporated area of the County of Fresno, State of California.

GRANT DEED
AND
CERTIFICATION OF TRUST

BARRY BAKER and BYRON BAKER, as Co-trustees of the SHARLA M. BAKER TRUST utd June 13, 1978, hereby GRANT to PAO INVESTMENTS, LLC, a California limited liability company, the real property situated in the County of Fresno, State of California, described as follows:

All that portion of the Northwest Quarter and the Southwest Quarter of Section 5, Township 15 South, Range 13 East, Mount Diablo Base and Meridian, according to the official plat thereof, lying Southerly of Panoche Road, as said Panoche Road existed on October 30, 1972.

EXCEPTING THEREFROM that portion of the Southwest Quarter of Section 5, bounded by a line which begins at a point in the Southwest Quarter of said Section 5 (marked by a 5/8^{ths} inch iron bolt with X scribed on head) from which the Southwest corner (marked by a 2 inch iron monument) of said Section 5 bears South 38°57½' West 1,748.2 feet distant and runs thence North 36°31' West 883.0 feet to a 5/8^{ths} inch iron bolt with X scribed on head in the center line of the county road traversing the Southwest Quarter of said Section 5; thence North 64°26' East, along the centerline of said county road, 1,013.5 feet to a 5/8^{ths} inch iron bolt with X scribed on head; thence South 36°31' East 690.6 feet to a 5/8^{ths} inch iron

bolt with X scribed on head; thence continuing South 36°31' East 67.0 feet; thence South 53°29' West 995.0 feet; thence North 36°31' West 67 feet, more or less, to the point of beginning.

ALSO EXCEPTING THEREFROM the following described property: Beginning at a 2 inch by 2 inch hub in the Southwest Quarter of said Section 5, from which the most Easterly corner of that certain 19.50 acre parcel of land as described in the Deed from B.E. Montgomery and wife to Pacific Gas and Electric Company, dated November 17, 1948, and recorded in Book 2689, Page 410 of Official Records, bears South 55°55½' West 530.5 feet distant and running thence North 53°34' East 30.0 feet to a 2 inch by 2 inch hub; thence South 36°26' East 125.0 feet to a 2 inch by 2 inch hub; thence South 53°34' West 30.0 feet to a 2 inch by 2 inch hub; thence North 36°26' West 125.0 feet to the point of beginning.

ALSO EXCEPTING THEREFROM a parcel of land in the Southwest Quarter of said Section 5 described as follows: Beginning at the Southwest corner of said Section 5; thence (1) along the West boundary of the Southwest Quarter of said Section 5, North 0°0' East 173.0 feet; thence (2) along the North line of the South 173 feet of said Southwest quarter, South 89°51'20" East 80.0 feet; thence (3) South 44°51'29" East 174.0 feet; thence (4) along the East line of the West 202.7 feet, South 0°0' West 50.0 feet to a point in the South line of said Southwest Quarter; thence along last said South line (5) North 89°51'20" West 202.7 feet to the point of beginning; BUT EXCEPTING FROM SAID EXCEPTION, the West 40 feet and the South 40 feet thereof.

ALSO EXCEPTING THEREFROM the following described property: Beginning at a point of intersection of the center line of said Panoche Road with the West boundary of said Section 5, said point bears North 01°34'10" East, 1,804.77 feet from the Southwest corner of said Section 5; thence (1) North 65°59'05" East along the center line of said Panoche Road, 305.31 feet; thence (2) North 65°27'57" East along said center line, 2.180.9 feet; thence (3) North 65°41'08" East along said center line, 3,374.21 feet to a point

on the East boundary of said Section 5, said point bears North 01°35'26" East, 1,747.19 feet from the East Quarter corner of said Section 5; thence (4) South 01°35'26" West along said East boundary, 44.47 feet to a point which is 40 feet Southeast of said center line of Panoche Road (measured at right angles); thence (5) South 65°41'08" West, parallel with said center line, 3,354.70 feet; thence (6) South 65°27'57" West, parallel with said center line, 1,925.89 feet; thence (7) Southwesterly along the arc of a curve concave to the Northwest having a 56,340 foot radius, a radius point which bears North 24°32'03" West and a central angle of 00°31'08' a distance of 510.23 feet; thence (8) South 65°59'05" West, parallel with said center line 69.52 feet to the West boundary of said Section 5; thence (9) North 01°34'10" East along said West boundary, 44.35 feet to the point of beginning.

ALSO EXCEPTING THEREFROM that portion of the Southwest Quarter of said Section 5 described as follows: Commencing at the Southwest corner of said Section 5; thence North 39°59'27" East (North 38°57'30" East) 1,748.2 feet; thence North 35°29'03" West (North 36°31' West), 883 feet to a point on the center line of Panoche Road, said point being the true point of beginning; thence (1) North 65°27'57" East (North 64°26' East) along the center line of said Panoche Road, 1,013.5 feet; thence (2) South 35°29'03" East (South 36°31' East), 40.74 feet to a point which is 40 feet Southeast of the center line of said Panoche Road (measured at right angles); thence (3) South 65°27'57" West (South 64°26" West), parallel with said center line, 1,013.5 feet; thence (4) North 35°29'03" West (North 36°31' West), 40.74 feet to the true point of beginning.

ALSO EXCEPTING FROM THE SOUTHWEST QUARTER, 54% interest in and to all oil, gas and minerals, as heretofore reserved of record.

ALSO EXCEPTING FROM THE SOUTH HALF OF THE NORTHWEST QUARTER, an undivided 56% interest in and to all oil, gas and minerals, as heretofore reserved of record.

ALSO EXCEPTING THEREFROM an undivided one-half of Grantor's right, title and interest in and to all oil, gas and minerals, as reserved in the following Deeds: (1) Deed from

Giffen, Inc., dated October 31, 1974, recorded November 20, 1974, in Book 6370, Page 143 of Official Records, Instrument No. 87110; (2) Deed from James W. Telles and Diane Telles, husband and wife, as to an undivided 5.25% interest, recorded December 3, 1975, in Book 6531, Page 705 of Official Records, Instrument No. 100668, and re-recorded January 21, 1976, in Book 6540, Page 44 of Official Records, Instrument No. 5342; (3) Deed from John Telles, a single person, as to an undivided 1.25% interest, recorded December 3, 1975, in Book 6531, Page 712 of Official Records, Instrument No. 100669, and re-recorded January 21, 1976, in Book 6540, Page 52 of Official Records, Instrument No. 5343; (4) Deed from Jesse P. Telles, III, and Patty Rae Telles, husband and wife, as to an undivided 5.25% interest, recorded December 3, 1975, in Book 6531, Page 719 of Official Records, Instrument No. 100670, and re-recorded January 21, 1976, in Book 6540, Page 36 of Official Records, Instrument No. 5341; (5) Deed from Jolene Vajretti, a single person, as to an undivided 4% interest, recorded January 15, 1976, in Book 6537, Page 516 of Official Records, Instrument No. 3604; (6) Deed from Joseph Vajretti and Marie Vajretti, husband and wife, as to an undivided 8% interest, recorded January 15, 1976, in Book 6537, Page 523 of Official Records, Instrument No. 3605; (7) Deed from Helen B. Telles, dealing with her separate property, as to an undivided 4% interest, recorded January 15, 1976, in Book 6537, Page 530 of Official Records, Instrument No. 3606; and (8) Deed from Manuel A. Souza, Jr. and Cecelia Ann Souza, as to an undivided 4% interest, recorded January 15, 1976, in Book 6537, Page 537 of Official Records, Instrument No. 3607.

APN: 027-060-78S

In order to ensure that no cloud exists on title to the above-described real property, BARRY BAKER and BYRON BAKER, declare as follows:

1. They are the duly nominated, qualified and serving Co-Trustees of the SHARLA M. BAKER TRUST, created by that certain Trust Agreement dated June 13, 1978 (the "Trust Agreement").

2. The Settlors of the SHARLA M. BAKER TRUST were MARSHALL B. BAKER and JUDITH BAKER.

3. The initial Trustee of the SHARLA M. BAKER TRUST was WM. C. CROSSLAND. He resigned on June 15, 1982 and ROBERT HANSEN was appointed as successor Trustee.

4. ROBERT HANSEN resigned as successor Trustee of the SHARLA M. BAKER TRUST on August 1, 1992 and BARRY BAKER and BYRON BAKER were appointed as successor Co-Trustees.

5. The SHARLA M. BAKER TRUST is a valid trust and the Trust Agreement has not been revoked, modified, or amended in any manner which would cause the representations contained in the certification of trust to be incorrect.

6. This declaration is being signed by the currently acting Co-Trustees of the SHARLA M. BAKER TRUST.

7. The undersigned have personal knowledge of all facts stated herein and can testify as to those facts if called upon to do so.

The undersigned declare under penalty of perjury under the laws of the State of California and under the laws of the United States that the foregoing is true and correct. Executed this 24th day of March, 2006 at Fresno, California.

SHARLA M. BAKER TRUST utd June 13, 1978

By: _____
BARRY BAKER, Co-Trustee

_____
BARRY BAKER

By: _____
BYRON BAKER, Co-Trustee

_____
BYRON BAKER

STATE OF CALIFORNIA)
) ss.
COUNTY OF FRESNO)

On March 24, 2006, before me, LISA MARIE RENWICK, Notary Public, personally appeared BARRY BAKER, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

Witness my hand and official seal.

Lisa Marie Renwick
Notary Public

LISA MARIE RENWICK
Commission # 1494411
Notary Public - California
Fresno County
My Comm. Expires Jul 8, 2008

STATE OF CALIFORNIA)
) ss.
COUNTY OF FRESNO)

On March 24, 2006, before me, LISA MARIE RENWICK, Notary Public, personally appeared BYRON BAKER, personally known to me (or proved to me on the basis of satisfactory evidence) to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

Witness my hand and official seal.

Lisa Marie Renwick
Notary Public

LISA MARIE RENWICK
Commission # 1494411
Notary Public - California
Fresno County
My Comm. Expires Jul 8, 2008

TECHNICAL AREA: LAND USE

Data Request 48: To conform to the requirements of Section 66412.2 of the Subdivision Map Act, please provide a plot plan that demonstrates the project's conformance with Section 816.5 (Property Development Standards) of the Fresno County Zoning Ordinance.

Response: Starwood will submit a Site Plan Review to Fresno County Department of Public Works and Planning - Development Services Division in lieu of proceeding with County provisions pursuant to the Subdivision Map Act, Section 66412.2. The Site Plan Review was submitted on February 1, 2007. A final review by the County is expected by March 6, 2007.

This submittal consists of the following:

Cover letter
Site Plan
Operational Statement
Grading and Drainage Plan
Check for submittal Fee

The principal contact at the Department of Public Works and Planning, Development Services Division is:

Mr. Robin Tani
(559) 262-4215
(800) 742-1011, ext. 24215
rtani@co.fresno.ca.us

TECHNICAL AREA: LAND USE

Data Request 49: Please provide a legible map(s) showing existing land uses within 500 feet of the outside edges of the right of way, including identification of any school, hospital, daycare center, other sensitive receptors, and residential and commercial areas.

Response: Please see response to Data Request 29.

TECHNICAL AREA: NOISE

Data Request 50: Please provide a list of possible on-site mitigation measures that the Applicant would consider in order to achieve LORS compliance at ML1.

Response: If after the construction and commissioning of the proposed power plant the owner wishes to re-evaluate the noise impact at this location, this may be accomplished by conducting actual operational noise measurements and re-evaluating the significance and severity of actual noise impacts against established thresholds. If actual operational noise levels (or changes in noise levels) are determined to be significantly less than those predicted, a variety of possible noise mitigation options may be revisited. These noise control options may include noise barriers, acoustical enclosures (full or partial), upgraded exhaust stack or air inlet silencers, building sound insulation treatments (in conjunction with others methods), power plant operational controls, or some combination of these.

TECHNICAL AREA: PROJECT DESCRIPTION

Data Request 51: Please provide mapping and a complete description of the scope of work required to accomplish the proposed reconductoring. The applicant should also provide a work plan for accomplishing the necessary ground surveys for cultural and biological resources, as well as considering potential impacts to these and other resources (e.g., land use and visual). More specifically please provide the following information:

a. Identify any potentially significant impact to the environment that may occur as the result of the reconductoring, construction technologies that are available to mitigate an impact, and mitigation measures that would reduce the impact to a less than significant level, including the standard environmental mitigation measures developed generically by the transmission owner and/or the California Public Utilities Commission (CPUC) for reconductoring projects.

b. Provide facts to support conclusions about the potential for impacts and feasible mitigation, including impact avoidance measures.

c. Identify agencies with jurisdiction or permit approval authority over any part of the reconductoring project.

d. Recent aerial photographs (less than 5 years old) and topographic maps of the applicable line segments (i.e., the segments that would be replaced) with the transmission towers plotted on the photographs.

e. How access to the line and towers would be accomplished, including identifying any existing or needed access road for reaching pull sites and staging areas.

f. If known, the location of any tower that would need to be modified or replaced, a basic description of the work that would be done to the tower, and a description of the potential impacts of that work.

g. The location, rating and age of the line.

h. A basic, layperson's discussion of the reconductoring process for the line, identifying the techniques used, equipment required, vehicles (land and air), personnel required, any potential ground-disturbing activities, parking and staging areas needed, and time needed to complete the reconductoring. This shall include:

- Construction and/or replacement of transmission line structures.
- Candidate locations (if available) and average acreage needed for tension and pulling stations, or, alternatively, the approximate number of pulling and tension sites and the average acreage per site.
- Alteration/enlargement of any access roads
- Stringing method (slack or tension).

- Need for reel or other storage near the lines.
- Method and access (cherry picker, climbing tower, etc) to unclip the old conductor, install sheaves, and clip in the new conductor and "tension" lines.
- General methodology for any needed tree trimming and brush clearing.

Response: Please see response to Data Request 29.

TECHNICAL AREA: SOCIOECONOMICS

Data Request 52: a. Please provide full quantitative economic impacts (direct and secondary-indirect and induced) during the construction and operation phases of the project. Utilize and indicate the economic impact model (e.g., IMPLAN, REMI or another) you used to estimate quantitatively at least the local (Fresno County) employment and income multipliers/secondary impacts. Staff recommends Type II or Type III employment and income multipliers since they show the full secondary economic impacts.

b. Please provide the year for the economic impact analysis estimates.

Response:

a. IMPLAN Professional Version 2.0.1025 was used to create an input/output model assessing the secondary economic impacts (indirect and induced impacts) resulting from the construction and operation of the Midway facility. *Indirect effects* represent the impacts (e.g. change in employment) caused by the iteration of industries purchasing from industries resulting from direct final demand changes. *Induced effects* represent the impacts (e.g. change in employment) on all industries caused by the expenditures of new household income generated by the direct and indirect effects of direct final demand changes. The IMPLAN modeling results are provided as an attachment to this sheet and are summarized below.

Construction Impacts

Construction activity would result in secondary economic and employment impacts (indirect and induced impacts) that would occur within Fresno County. The affected area, Fresno County, was determined based on 1) confirmation with the *Building and Construction Trades Council of Fresno, Madera, Tulare, and Kings County* that an adequate and available labor force exists in Fresno County to supply the construction needs of the project, and 2) goods and services that are expected to be purchased locally are available and will be purchased within Fresno County.

Indirect and induced income and spending effects occur due to purchase of goods and services by firms involved with construction. Indirect employment effects and induced employment result from construction workers spending their income in their local area, and typically lag behind direct effects by 6 to 12 months. The modeling input was based on estimated initial capital cost of $11 million for project construction, estimated expenditures of $2.75 million for locally (Fresno County) purchased materials, and an average of 74 construction workers with a combined payroll of $6.5 million. The resulting indirect and induced effects of construction occurring within Fresno County would be an additional 72 jobs, approximately $2.5 million in labor income, and approximately $7.3 million in output. IMPLAN Pro Sector 41[1] (Other New Construction, Power Plants) was used for this analysis, and economic estimates were based on 2005 dollars.

[1] Sector 41, Other New Construction, Power Plants, is considered the most appropriate modeling matrix, based on consultation with the Minnesota IMPLAN Group (MIG), Inc.

Operational Impacts

Similarly, Midway operation would result in indirect and induced economic impacts occurring within project region. In modeling for Midway operation, it was determined that while the permanent workers are expected to be hired from within Fresno County, normal operation and maintenance (O&M) expenditures may be made within Fresno, Madera, Tulare, and Kings Counties. As result, the economic modeling was based upon a region consisting of these counties. Also, unlike construction indirect and induced impacts, operational indirect and induced impacts represent *permanent* increases in area jobs, income, and spending. Similar to the construction impacts however, these impacts would lag behind direct effects by 6 to 12 months.

The modeling input was based on estimated annual O&M budget of approximately $2.6 million, $100,000 for locally purchased materials, and the employment of 1 permanent employee averaging approximately $85,000 per year. The resulting indirect and induced effects of the Midway operation occurring in Fresno County would be an additional job (1), and approximately $34,506 in labor income and approximately $104,239 in output within the four county areas. Fuel costs were not included in the IMPLAN modeling, since natural gas prices are variable and unknown, and the effects of the purchase would not likely occur within the Fresno, Madera, Tulare, and Kings County areas. IMPLAN Pro Sector 30 (Power Generation and Supply) was used for this analysis, and economic estimates were based on 2005 dollars.

b. The economic estimates provided in Section 5.10 Socioeconomics, of the Midway Application for Certification appear in 2005 U.S. dollars.

DATA REQUEST RESPONSE #52
ATTACHMENT

Midway (Starwood) IMPLAN Input Spreadsheet Construction	IMPLAN Sector 41: other maintenance and repair construction (includes power plants, trans, pipelines)				For project in total	For Fresno, Madera, Kings, & Tulare Counties portion
	Direct			Unadju.	Adjusted for this proje	Local only:
Cost	11,000,000	Emp Comp	111.622	6.50	6.50
Labor portion of construction cost	6,500,000	Proprietary Inc	35.496	1.27	1.07
Labor Income Staying in Fresno/Madera/Kings/Tulare Counties	6,500,000	Other property income	24.901	0.89	0.75
Non-labor portion of construction cost	$ 4,500,000	IBT	1.485	0.05	0.04
Value of Supplies/Materials Purchased in four county area	$ 2,750,000	Jobs	2982	74.30	74.30
Jobs	74	Output (value added+ n	307.589	11.00	11.11
Workers Originating from Fresno/Madera/Kings/Tulare Counties	74				
Income	$ 6,500,000				
Unadjusted Output per worker	$ 103,149				
Unadjusted Earnings per worker	$ 49,335				
Adjusted Output per worker	$ 148,048				
Adjusted Earnings per worker	$ 104,568				
Local only adjusted output per worker	$ 149,542				
Local only adjusted earnings per worker	$ 101,850				

Results:	Direct	Indirect	Induced	Total	Multiplier
Employment	73	16	56	146	1.99
Labor Income	$ 7,569,999	$ 637,675	$ 1,836,203	$ 10,043,877	1.33
Output	$ 11,109,998	$ 1,625,212	$ 5,687,592	$ 18,422,801	1.66

MIDWAY
Construction Employment

Employment Impact

February 28, 2007

IMPACT NAME: Midway Construct Effects MULTIPLIER: Type SAM
MidwayConstruction 4County 022807.iap

Industry	Direct*	Indirect*	Induced*	Total*	
1 Oilseed farming	0.0	0.0	0.0	0.0	#
2 Grain farming	0.0	0.0	0.0	0.0	#
3 Vegetable and melon farming	0.0	0.0	0.0	0.0	#
4 Tree nut farming	0.0	0.0	0.0	0.0	#
5 Fruit farming	0.0	0.0	0.1	0.1	
6 Greenhouse and nursery production	0.0	0.0	0.0	0.0	#
8 Cotton farming	0.0	0.0	0.0	0.0	#
9 Sugarcane and sugar beet farming	0.0	0.0	0.0	0.0	#
10 All other crop farming	0.0	0.0	0.0	0.1	
11 Cattle ranching and farming	0.0	0.0	0.4	0.4	
12 Poultry and egg production	0.0	0.0	0.0	0.0	#
13 Animal production- except cattle and	0.0	0.0	0.1	0.1	
14 Logging	0.0	0.0	0.0	0.0	#
15 Forest nurseries- forest products- and	0.0	0.0	0.0	0.0	#
17 Hunting and trapping	0.0	0.0	0.0	0.0	#
18 Agriculture and forestry support activ	0.0	0.0	0.2	0.3	
19 Oil and gas extraction	0.0	0.0	0.0	0.0	#
24 Stone mining and quarrying	0.0	0.0	0.0	0.0	#
25 Sand- gravel- clay- and refractory mi	0.0	0.0	0.0	0.0	#
27 Drilling oil and gas wells	0.0	0.0	0.0	0.0	#
28 Support activities for oil and gas ope	0.0	0.0	0.0	0.0	#
30 Power generation and supply	0.0	0.0	0.1	0.1	
31 Natural gas distribution	0.0	0.0	0.0	0.0	#
32 Water- sewage and other systems	0.0	0.0	0.0	0.0	#
41 Other new construction	73.1	0.0	0.0	73.1	
42 Maintenance and repair of farm and r	0.0	0.0	0.1	0.1	
43 Maintenance and repair of nonresider	0.0	0.1	0.2	0.3	
45 Other maintenance and repair constr	0.0	0.0	0.1	0.1	
46 Dog and cat food manufacturing	0.0	0.0	0.0	0.0	#
47 Other animal food manufacturing	0.0	0.0	0.0	0.0	#
48 Flour milling	0.0	0.0	0.0	0.0	#
53 Other oilseed processing	0.0	0.0	0.0	0.0	#
54 Fats and oils refining and blending	0.0	0.0	0.0	0.0	#
56 Sugar manufacturing	0.0	0.0	0.0	0.0	#
58 Confectionery manufacturing from pr	0.0	0.0	0.0	0.0	#
59 Nonchocolate confectionery manufac	0.0	0.0	0.0	0.0	#
60 Frozen food manufacturing	0.0	0.0	0.0	0.0	#
61 Fruit and vegetable canning and dryi	0.0	0.0	0.0	0.0	#
62 Fluid milk manufacturing	0.0	0.0	0.0	0.0	#
64 Cheese manufacturing	0.0	0.0	0.0	0.0	#
65 Dry- condensed- and evaporated dair	0.0	0.0	0.0	0.0	#
66 Ice cream and frozen dessert manufac	0.0	0.0	0.0	0.0	#
67 Animal- except poultry- slaughtering	0.0	0.0	0.1	0.1	
68 Meat processed from carcasses	0.0	0.0	0.0	0.0	#
69 Rendering and meat byproduct proce	0.0	0.0	0.0	0.0	#
70 Poultry processing	0.0	0.0	0.2	0.2	
72 Frozen cakes and other pastries manu	0.0	0.0	0.0	0.0	#
73 Bread and bakery product- except fro	0.0	0.0	0.2	0.2	
74 Cookie and cracker manufacturing	0.0	0.0	0.0	0.0	#
76 Dry pasta manufacturing	0.0	0.0	0.0	0.0	#
77 Tortilla manufacturing	0.0	0.0	0.0	0.0	#
78 Roasted nuts and peanut butter manu	0.0	0.0	0.0	0.0	#
79 Other snack food manufacturing	0.0	0.0	0.0	0.0	#
82 Mayonnaise- dressing- and sauce ma	0.0	0.0	0.0	0.0	#
83 Spice and extract manufacturing	0.0	0.0	0.0	0.0	#
84 All other food manufacturing	0.0	0.0	0.0	0.0	#
85 Soft drink and ice manufacturing	0.0	0.0	0.0	0.0	#
86 Breweries	0.0	0.0	0.0	0.0	#
87 Wineries	0.0	0.0	0.0	0.0	#
92 Fiber- yarn- and thread mills	0.0	0.0	0.0	0.0	#
93 Broadwoven fabric mills	0.0	0.0	0.0	0.0	#
95 Nonwoven fabric mills	0.0	0.0	0.0	0.0	#

*Dollars
Version2 0.1025

Industry	Direct*	Indirect*	Induced*	Total*	
97 Textile and fabric finishing mills	0.0	0.0	0.0	0.0	#
99 Carpet and rug mills	0.0	0.0	0.0	0.0	#
100 Curtain and linen mills	0.0	0.0	0.0	0.0	#
101 Textile bag and canvas mills	0.0	0.0	0.0	0.0	#
103 Other miscellaneous textile product n	0.0	0.0	0.0	0.0	#
107 Cut and sew apparel manufacturing	0.0	0.0	0.0	0.0	#
108 Accessories and other apparel manuf	0.0	0.0	0.0	0.0	#
109 Leather and hide tanning and finishin	0.0	0.0	0.0	0.0	#
111 Other leather product manufacturing	0.0	0.0	0.0	0.0	#
112 Sawmills	0.0	0.0	0.0	0.0	#
113 Wood preservation	0.0	0.0	0.0	0.0	#
116 Engineered wood member and truss r	0.0	0.0	0.0	0.0	#
117 Wood windows and door manufactur	0.0	0.1	0.0	0.1	
118 Cut stock- resawing lumber- and plar	0.0	0.0	0.0	0.0	#
119 Other millwork- including flooring	0.0	0.0	0.0	0.0	#
120 Wood container and pallet manufactu	0.0	0.0	0.0	0.0	#
122 Prefabricated wood building manufac	0.0	0.0	0.0	0.0	#
123 Miscellaneous wood product manufa	0.0	0.0	0.0	0.0	#
125 Paper and paperboard mills	0.0	0.0	0.0	0.0	#
126 Paperboard container manufacturing	0.0	0.0	0.0	0.0	#
129 Coated and laminated paper and pack	0.0	0.0	0.0	0.0	#
130 Coated and uncoated paper bag manu	0.0	0.0	0.0	0.0	#
135 All other converted paper product ma	0.0	0.0	0.0	0.0	#
136 Manifold business forms printing	0.0	0.0	0.0	0.0	#
137 Books printing	0.0	0.0	0.0	0.0	#
139 Commercial printing	0.0	0.0	0.1	0.1	
140 Tradebinding and related work	0.0	0.0	0.0	0.0	#
141 Prepress services	0.0	0.0	0.0	0.0	#
142 Petroleum refineries	0.0	0.0	0.0	0.0	#
143 Asphalt paving mixture and block ma	0.0	0.0	0.0	0.0	#
144 Asphalt shingle and coating materials	0.0	0.0	0.0	0.0	#
148 Industrial gas manufacturing	0.0	0.0	0.0	0.0	#
149 Synthetic dye and pigment manufactu	0.0	0.0	0.0	0.0	#
151 Other basic organic chemical manufa	0.0	0.0	0.0	0.0	#
152 Plastics material and resin manufactu	0.0	0.0	0.0	0.0	#
153 Synthetic rubber manufacturing	0.0	0.0	0.0	0.0	#
156 Nitrogenous fertilizer manufacturing	0.0	0.0	0.0	0.0	#
157 Phosphatic fertilizer manufacturing	0.0	0.0	0.0	0.0	#
158 Fertilizer- mixing only- manufacturin	0.0	0.0	0.0	0.0	#
159 Pesticide and other agricultural chem	0.0	0.0	0.0	0.0	#
160 Pharmaceutical and medicine manufa	0.0	0.0	0.0	0.0	#
161 Paint and coating manufacturing	0.0	0.0	0.0	0.0	#
162 Adhesive manufacturing	0.0	0.0	0.0	0.0	#
166 Toilet preparation manufacturing	0.0	0.0	0.0	0.0	#
167 Printing ink manufacturing	0.0	0.0	0.0	0.0	#
171 Other miscellaneous chemical produc	0.0	0.0	0.0	0.0	#
172 Plastics packaging materials- film an	0.0	0.0	0.0	0.0	#
173 Plastics pipe- fittings- and profile sha	0.0	0.1	0.0	0.1	
177 Plastics plumbing fixtures and all oth	0.0	0.1	0.0	0.1	
178 Foam product manufacturing	0.0	0.0	0.0	0.1	
179 Tire manufacturing	0.0	0.0	0.0	0.0	#
180 Rubber and plastics hose and belting	0.0	0.0	0.0	0.0	#
183 Vitreous china and earthenware articl	0.0	0.0	0.0	0.0	#
188 Clay refractory and other structural cl	0.0	0.0	0.0	0.0	#
189 Glass container manufacturing	0.0	0.0	0.0	0.0	#
190 Glass and glass products- except glas	0.0	0.0	0.0	0.0	#
192 Ready-mix concrete manufacturing	0.0	0.0	0.0	0.0	#
193 Concrete block and brick manufactur	0.0	0.0	0.0	0.0	#
194 Concrete pipe manufacturing	0.0	0.0	0.0	0.0	#
195 Other concrete product manufacturin	0.0	0.0	0.0	0.0	#
197 Gypsum product manufacturing	0.0	0.0	0.0	0.0	#

Industry	Direct*	Indirect*	Induced*	Total*	
199 Cut stone and stone product manufac	0.0	0.0	0.0	0.0	#
201 Mineral wool manufacturing	0.0	0.0	0.0	0.0	#
203 Iron and steel mills	0.0	0.0	0.0	0.0	#
206 Rolled steel shape manufacturing	0.0	0.0	0.0	0.0	#
211 Aluminum sheet- plate- and foil mani	0.0	0.0	0.0	0.0	#
212 Aluminum extruded product manufac	0.0	0.0	0.0	0.0	#
213 Other aluminum rolling and drawing	0.0	0.0	0.0	0.0	#
217 Copper wire- except mechanical- dra	0.0	0.0	0.0	0.0	#
219 Nonferrous metal- except copper and	0.0	0.0	0.0	0.0	#
221 Ferrous metal foundaries	0.0	0.0	0.0	0.0	#
222 Aluminum foundries	0.0	0.0	0.0	0.0	#
223 Nonferrous foundries- except alumini	0.0	0.0	0.0	0.0	#
226 Custom roll forming	0.0	0.0	0.0	0.0	#
227 All other forging and stamping	0.0	0.0	0.0	0.0	#
228 Cutlery and flatware- except precious	0.0	0.0	0.0	0.0	#
229 Hand and edge tool manufacturing	0.0	0.0	0.0	0.0	#
232 Prefabricated metal buildings and cor	0.0	0.0	0.0	0.0	#
233 Fabricated structural metal manufacti	0.0	0.0	0.0	0.0	#
234 Plate work manufacturing	0.0	0.0	0.0	0.0	#
235 Metal window and door manufacturii	0.0	0.0	0.0	0.0	#
236 Sheet metal work manufacturing	0.0	0.0	0.0	0.0	#
237 Ornamental and architectural metal w	0.0	0.0	0.0	0.0	#
239 Metal tank- heavy gauge- manufactui	0.0	0.0	0.0	0.0	#
240 Metal can- box- and other container r	0.0	0.0	0.0	0.0	#
241 Hardware manufacturing	0.0	0.0	0.0	0.0	#
242 Spring and wire product manufacturi	0.0	0.0	0.0	0.0	#
243 Machine shops	0.0	0.0	0.0	0.0	#
244 Turned product and screw- nut- and b	0.0	0.0	0.0	0.0	#
246 Metal coating and nonprecious engra	0.0	0.0	0.0	0.0	#
247 Electroplating- anodizing- and colori	0.0	0.0	0.0	0.0	#
248 Metal valve manufacturing	0.0	0.0	0.0	0.0	#
249 Ball and roller bearing manufacturing	0.0	0.0	0.0	0.0	#
252 Fabricated pipe and pipe fitting manu	0.0	0.0	0.0	0.0	#
255 Miscellaneous fabricated metal produ	0.0	0.0	0.0	0.0	#
257 Farm machinery and equipment manu	0.0	0.0	0.0	0.0	#
258 Lawn and garden equipment manufac	0.0	0.0	0.0	0.0	#
259 Construction machinery manufacturii	0.0	0.0	0.0	0.0	#
264 Paper industry machinery manufactui	0.0	0.0	0.0	0.0	#
267 Food product machinery manufacturi	0.0	0.0	0.0	0.0	#
273 Other commercial and service industi	0.0	0.2	0.0	0.2	
274 Automatic vending- commercial laun	0.0	0.0	0.0	0.0	#
275 Air purification equipment manufacti	0.0	0.0	0.0	0.0	#
277 Heating equipment- except warm air	0.0	0.0	0.0	0.0	#
278 AC- refrigeration- and forced air heat	0.0	0.0	0.0	0.0	#
279 Industrial mold manufacturing	0.0	0.0	0.0	0.0	#
280 Metal cutting machine tool manufact	0.0	0.0	0.0	0.0	#
282 Special tool- die- jig- and fixture mar	0.0	0.0	0.0	0.0	#
286 Other engine equipment manufacturii	0.0	0.0	0.0	0.0	#
288 Pump and pumping equipment manu	0.0	0.0	0.0	0.0	#
292 Conveyor and conveying equipment r	0.0	0.0	0.0	0.0	#
293 Overhead cranes- hoists- and monora	0.0	0.0	0.0	0.0	#
294 Industrial truck- trailer- and stacker n	0.0	0.0	0.0	0.0	#
295 Power-driven handtool manufacturin	0.0	0.0	0.0	0.0	#
296 Welding and soldering equipment ma	0.0	0.0	0.0	0.0	#
297 Packaging machinery manufacturing	0.0	0.0	0.0	0.0	#
299 Fluid power cylinder and actuator ma	0.0	0.0	0.0	0.0	#
300 Fluid power pump and motor manufa	0.0	0.0	0.0	0.0	#
301 Scales- balances- and miscellaneous g	0.0	0.0	0.0	0.0	#
305 Other computer peripheral equipmen	0.0	0.0	0.0	0.0	#
307 Broadcast and wireless communicatic	0.0	0.0	0.0	0.0	#
309 Audio and video equipment manufac	0.0	0.0	0.0	0.0	#
311 Semiconductors and related device m	0.0	0.0	0.0	0.0	#

Industry	Direct*	Indirect*	Induced*	Total*	
312 All other electronic component manu	0.0	0.0	0.0	0.0	#
314 Search- detection- and navigation ins	0.0	0.0	0.0	0.0	#
316 Industrial process variable instrumen	0.0	0.0	0.0	0.0	#
317 Totalizing fluid meters and counting	0.0	0.0	0.0	0.0	#
320 Irradiation apparatus manufacturing	0.0	0.0	0.0	0.0	#
321 Watch- clock- and other measuring a	0.0	0.0	0.0	0.0	#
322 Software reproducing	0.0	0.0	0.0	0.0	#
324 Magnetic and optical recording medi	0.0	0.0	0.0	0.0	#
326 Lighting fixture manufacturing	0.0	0.0	0.0	0.0	#
329 Household cooking appliance manuf	0.0	0.0	0.0	0.0	#
333 Electric power and specialty transfor	0.0	0.0	0.0	0.0	#
334 Motor and generator manufacturing	0.0	0.0	0.0	0.0	#
335 Switchgear and switchboard apparatu	0.0	0.0	0.0	0.0	#
336 Relay and industrial control manufac	0.0	0.0	0.0	0.0	#
341 Wiring device manufacturing	0.0	0.0	0.0	0.0	#
343 Miscellaneous electrical equipment n	0.0	0.0	0.0	0.0	#
345 Heavy duty truck manufacturing	0.0	0.0	0.0	0.0	#
346 Motor vehicle body manufacturing	0.0	0.0	0.0	0.0	#
347 Truck trailer manufacturing	0.0	0.0	0.0	0.0	#
349 Travel trailer and camper manufactur	0.0	0.0	0.0	0.0	#
350 Motor vehicle parts manufacturing	0.0	0.0	0.0	0.0	#
351 Aircraft manufacturing	0.0	0.0	0.0	0.0	#
352 Aircraft engine and engine parts man	0.0	0.0	0.0	0.0	#
354 Guided missile and space vehicle ma	0.0	0.0	0.0	0.0	#
358 Boat building	0.0	0.0	0.0	0.0	#
361 All other transportation equipment m	0.0	0.0	0.0	0.0	#
362 Wood kitchen cabinet and countertop	0.0	0.0	0.0	0.0	#
363 Upholstered household furniture man	0.0	0.0	0.0	0.0	#
364 Nonupholstered wood household furr	0.0	0.0	0.0	0.0	#
366 Institutional furniture manufacturing	0.0	0.0	0.0	0.0	#
369 Custom architectural woodwork and	0.0	0.0	0.0	0.0	#
370 Office furniture- except wood- manu	0.0	0.0	0.0	0.0	#
371 Showcases- partitions- shelving- and	0.0	0.0	0.0	0.0	#
372 Mattress manufacturing	0.0	0.0	0.0	0.0	#
373 Blind and shade manufacturing	0.0	0.0	0.0	0.0	#
376 Surgical appliance and supplies manu	0.0	0.0	0.0	0.0	#
377 Dental equipment and supplies manu	0.0	0.0	0.0	0.0	#
378 Ophthalmic goods manufacturing	0.0	0.0	0.0	0.0	#
379 Dental laboratories	0.0	0.0	0.0	0.0	#
380 Jewelry and silverware manufacturin	0.0	0.0	0.0	0.0	#
381 Sporting and athletic goods manufact	0.0	0.0	0.0	0.0	#
382 Doll- toy- and game manufacturing	0.0	0.0	0.0	0.0	#
383 Office supplies- except paper- manuf	0.0	0.0	0.0	0.0	#
384 Sign manufacturing	0.0	0.0	0.0	0.0	#
387 Broom- brush- and mop manufacturi	0.0	0.0	0.0	0.0	#
388 Burial casket manufacturing	0.0	0.0	0.0	0.0	#
389 Buttons- pins- and all other miscellan	0.0	0.0	0.0	0.0	#
390 Wholesale trade	0.0	0.7	1.8	2.5	
391 Air transportation	0.0	0.0	0.1	0.1	
392 Rail transportation	0.0	0.0	0.0	0.0	#
393 Water transportation	0.0	0.0	0.0	0.0	#
394 Truck transportation	0.0	0.3	0.5	0.8	
395 Transit and ground passenger transpo	0.0	0.0	0.2	0.2	
396 Pipeline transportation	0.0	0.0	0.0	0.0	#
397 Scenic and sightseeing transportation	0.0	0.1	0.1	0.1	
398 Postal service	0.0	0.1	0.3	0.5	
399 Couriers and messengers	0.0	0.2	0.3	0.5	
400 Warehousing and storage	0.0	0.0	0.1	0.2	
401 Motor vehicle and parts dealers	0.0	0.2	1.4	1.6	
402 Furniture and home furnishings store	0.0	0.1	0.4	0.4	
403 Electronics and appliance stores	0.0	0.1	0.3	0.4	

Industry	Direct*	Indirect*	Induced*	Total*	
404 Building material and garden supply	0.0	0.2	0.8	1.0	
405 Food and beverage stores	0.0	0.3	1.6	1.9	
406 Health and personal care stores	0.0	0.2	0.6	0.8	
407 Gasoline stations	0.0	0.1	0.3	0.4	
408 Clothing and clothing accessories sto	0.0	0.2	0.8	1.0	
409 Sporting goods- hobby- book and mu	0.0	0.0	0.5	0.5	
410 General merchandise stores	0.0	0.5	1.8	2.3	
411 Miscellaneous store retailers	0.0	0.1	1.0	1.1	
412 Nonstore retailers	0.0	0.5	0.9	1.4	
413 Newpaper publishers	0.0	0.0	0.1	0.2	
414 Periodical publishers	0.0	0.0	0.0	0.0	#
415 Book publishers	0.0	0.0	0.0	0.0	#
416 Database- directory- and other publis	0.0	0.0	0.0	0.0	#
417 Software publishers	0.0	0.0	0.0	0.0	#
418 Motion picture and video industries	0.0	0.0	0.1	0.1	
419 Sound recording industries	0.0	0.0	0.0	0.0	#
420 Radio and television broadcasting	0.0	0.1	0.2	0.2	
421 Cable networks and program distribu	0.0	0.0	0.0	0.0	#
422 Telecommunications	0.0	0.1	0.3	0.4	
423 Information services	0.0	0.0	0.0	0.0	#
424 Data processing services	0.0	0.0	0.0	0.0	#
425 Nondepository credit intermediation :	0.0	0.1	0.2	0.3	
426 Securities- commodity contracts- inv	0.0	0.1	0.4	0.5	
427 Insurance carriers	0.0	0.2	0.8	1.0	
428 Insurance agencies- brokerages- and	0.0	0.1	0.4	0.5	
429 Funds- trusts- and other financial veh	0.0	0.0	0.0	0.0	#
430 Monetary authorities and depository	0.0	0.1	0.8	0.9	
431 Real estate	0.0	0.3	1.7	2.0	
432 Automotive equipment rental and lea	0.0	0.1	0.1	0.2	
433 Video tape and disc rental	0.0	0.0	0.2	0.2	
434 Machinery and equipment rental and	0.0	0.3	0.0	0.3	
435 General and consumer goods rental e:	0.0	0.1	0.1	0.2	
436 Lessors of nonfinancial intangible ass	0.0	0.0	0.0	0.0	#
437 Legal services	0.0	0.1	0.7	0.8	
438 Accounting and bookkeeping service	0.0	0.3	0.5	0.8	
439 Architectural and engineering service	0.0	4.2	0.2	4.4	
440 Specialized design services	0.0	0.0	0.0	0.1	
441 Custom computer programming servi	0.0	0.0	0.0	0.0	#
442 Computer systems design services	0.0	0.0	0.0	0.0	#
443 Other computer related services- incl	0.0	0.0	0.0	0.0	#
444 Management consulting services	0.0	0.1	0.2	0.3	
445 Environmental and other technical co	0.0	0.1	0.0	0.2	
446 Scientific research and development :	0.0	0.0	0.0	0.0	#
447 Advertising and related services	0.0	0.1	0.1	0.2	
448 Photographic services	0.0	0.0	0.1	0.1	
449 Veterinary services	0.0	0.0	0.1	0.1	
450 All other miscellaneous professional :	0.0	0.0	0.0	0.1	
451 Management of companies and enter	0.0	0.2	0.4	0.6	
452 Office administrative services	0.0	0.2	0.1	0.3	
453 Facilities support services	0.0	0.0	0.0	0.0	#
454 Employment services	0.0	2.0	1.1	3.1	
455 Business support services	0.0	0.1	0.3	0.4	
456 Travel arrangement and reservation s	0.0	0.0	0.1	0.1	
457 Investigation and security services	0.0	0.2	0.2	0.5	
458 Services to buildings and dwellings	0.0	0.5	0.7	1.2	
459 Other support services	0.0	0.0	0.1	0.1	
460 Waste management and remediation :	0.0	0.0	0.1	0.1	
461 Elementary and secondary schools	0.0	0.0	0.3	0.3	
462 Colleges- universities- and junior coll	0.0	0.0	0.4	0.5	
463 Other educational services	0.0	0.0	0.6	0.6	
464 Home health care services	0.0	0.0	0.2	0.2	
465 Offices of physicians- dentists- and o	0.0	0.0	3.4	3.4	

Industry	Direct*	Indirect*	Induced*	Total*	
466 Other ambulatory health care service:	0.0	0.0	0.7	0.7	
467 Hospitals	0.0	0.0	2.7	2.7	
468 Nursing and residential care facilities	0.0	0.0	2.2	2.2	
469 Child day care services	0.0	0.0	0.9	0.9	
470 Social assistance- except child day ca	0.0	0.0	2.1	2.1	
471 Performing arts companies	0.0	0.0	0.1	0.1	
472 Spectator sports	0.0	0.0	0.3	0.3	
473 Independent artists- writers- and perf	0.0	0.0	0.0	0.0	#
474 Promoters of performing arts and spo	0.0	0.0	0.0	0.0	#
475 Museums- historical sites- zoos- and	0.0	0.0	0.0	0.0	#
476 Fitness and recreational sports center:	0.0	0.0	0.3	0.3	
477 Bowling centers	0.0	0.0	0.0	0.0	#
478 Other amusement- gambling- and rec	0.0	0.0	0.4	0.4	
479 Hotels and motels- including casino h	0.0	0.1	0.3	0.4	
480 Other accommodations	0.0	0.0	0.1	0.1	
481 Food services and drinking places	0.0	0.3	7.2	7.5	
482 Car washes	0.0	0.0	0.1	0.2	
483 Automotive repair and maintenance-	0.0	0.3	1.4	1.7	
484 Electronic equipment repair and mair	0.0	0.1	0.0	0.1	
485 Commercial machinery repair and ma	0.0	0.3	0.1	0.4	
486 Household goods repair and maintena	0.0	0.0	0.1	0.1	
487 Personal care services	0.0	0.0	0.5	0.5	
488 Death care services	0.0	0.0	0.2	0.2	
489 Drycleaning and laundry services	0.0	0.0	0.3	0.3	
490 Other personal services	0.0	0.0	0.1	0.1	
491 Religious organizations	0.0	0.0	0.4	0.4	
492 Grantmaking and giving and social a	0.0	0.0	0.5	0.5	
493 Civic- social- professional and simila	0.0	0.3	0.9	1.1	
494 Private households	0.0	0.0	1.9	1.9	
496 Other Federal Government enterprise	0.0	0.0	0.1	0.1	
497 State and local government passenger	0.0	0.0	0.1	0.1	
498 State and local government electric u	0.0	0.0	0.0	0.0	#
499 Other State and local government ent	0.0	0.1	0.4	0.5	
	73.1	16.4	56.4	145.8	

MIDWAY
Construction Labor Income

Labor Income Impact

MidwayConstruction 4County 022807.iap

IMPACT NAME: Midway Construct Effects MULTIPLIER: Type SAM

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1 Oilseed farming	0	0	1	1	1.01
2 Grain farming	0	1	139	141	1.01
3 Vegetable and melon farming	0	21	4,438	4,458	1.01
4 Tree nut farming	0	3	1,043	1,045	1.01
5 Fruit farming	0	7	2,833	2,841	1.01
6 Greenhouse and nursery production	0	218	1,560	1,778	1.01
8 Cotton farming	0	1	423	425	1.01
9 Sugarcane and sugar beet farming	0	0	25	26	1.01
10 All other crop farming	0	1,210	2,750	3,959	1.01
11 Cattle ranching and farming	0	30	3,442	3,472	1.01
12 Poultry and egg production	0	29	3,956	3,985	1.01
13 Animal production- except cattle and	0	3	312	315	1.01
14 Logging	0	143	44	187	1.05
15 Forest nurseries- forest products- and	0	0	0	0	1.02
17 Hunting and trapping	0	0	74	74	1.02
18 Agriculture and forestry support activ	0	330	5,247	5,577	1.02
19 Oil and gas extraction	0	316	1,021	1,337	1.05
24 Stone mining and quarrying	0	15	2	17	1.02
25 Sand- gravel- clay- and refractory mi	0	9	1	9	1.02
27 Drilling oil and gas wells	0	0	0	0	1.01
28 Support activities for oil and gas ope	0	5	17	23	1.01
30 Power generation and supply	0	2,178	13,852	16,030	1.02
31 Natural gas distribution	0	369	3,830	4,199	1.02
32 Water- sewage and other systems	0	97	1,079	1,175	1.04
41 Other new construction	7,569,999	0	0	7,569,999	1.02
42 Maintenance and repair of farm and r	0	122	4,787	4,909	1.02
43 Maintenance and repair of nonresider	0	4,560	8,060	12,621	1.02
45 Other maintenance and repair constr	0	734	4,194	4,928	1.02
46 Dog and cat food manufacturing	0	0	9	9	1.03
47 Other animal food manufacturing	0	0	47	47	1.03
48 Flour milling	0	0	153	153	1.04
53 Other oilseed processing	0	0	2	2	1.04
54 Fats and oils refining and blending	0	0	13	13	1.04
56 Sugar manufacturing	0	0	28	28	1.02
58 Confectionery manufacturing from pı	0	0	4	4	1.02
59 Nonchocolate confectionery manufac	0	0	15	15	1.02
60 Frozen food manufacturing	0	4	383	387	1.03
61 Fruit and vegetable canning and dryi	0	3	722	725	1.03
62 Fluid milk manufacturing	0	19	2,243	2,262	1.01
64 Cheese manufacturing	0	22	1,904	1,926	1.01
65 Dry- condensed- and evaporated dair	0	4	510	514	1.01
66 Ice cream and frozen dessert manufac	0	12	543	556	1.01
67 Animal- except poultry- slaughtering	0	33	4,049	4,082	1.02
68 Meat processed from carcasses	0	8	656	664	1.02
69 Rendering and meat byproduct proce	0	6	55	61	1.02
70 Poultry processing	0	54	6,956	7,010	1.02
72 Frozen cakes and other pastries manu	0	0	32	32	1.03
73 Bread and bakery product- except fro	0	114	7,385	7,499	1.03
74 Cookie and cracker manufacturing	0	3	917	920	1.03
76 Dry pasta manufacturing	0	1	238	238	1.03
77 Tortilla manufacturing	0	5	521	526	1.03
78 Roasted nuts and peanut butter manu	0	0	105	105	1.02
79 Other snack food manufacturing	0	15	1,184	1,199	1.02
82 Mayonnaise- dressing- and sauce ma	0	0	1	1	1.02

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
83 Spice and extract manufacturing	0	0	3	3	1.02
84 All other food manufacturing	0	2	635	637	1.02
85 Soft drink and ice manufacturing	0	5	431	436	1.02
86 Breweries	0	0	8	8	1.02
87 Wineries	0	2	174	176	1.02
92 Fiber- yarn- and thread mills	0	0	6	6	1.02
93 Broadwoven fabric mills	0	1	30	32	1.02
95 Nonwoven fabric mills	0	11	13	24	1.02
97 Textile and fabric finishing mills	0	1	17	18	1.02
99 Carpet and rug mills	0	0	0	0	1.02
100 Curtain and linen mills	0	0	7	7	1.02
101 Textile bag and canvas mills	0	1	26	27	1.02
103 Other miscellaneous textile product n	0	0	1	1	1.02
107 Cut and sew apparel manufacturing	0	1	693	694	1.02
108 Accessories and other apparel manuf	0	0	125	125	1.02
109 Leather and hide tanning and finishin	0	0	1	1	1.03
111 Other leather product manufacturing	0	8	281	289	1.02
112 Sawmills	0	296	109	406	1.03
113 Wood preservation	0	164	15	179	1.03
116 Engineered wood member and truss r	0	1,293	269	1,563	1.02
117 Wood windows and door manufactur	0	2,559	665	3,224	1.02
118 Cut stock- resawing lumber- and plar	0	17	6	22	1.02
119 Other millwork- including flooring	0	411	93	504	1.02
120 Wood container and pallet manufactu	0	154	451	606	1.02
122 Prefabricated wood building manufac	0	2	0	3	1.02
123 Miscellaneous wood product manufa	0	46	75	121	1.02
125 Paper and paperboard mills	0	0	1	1	1.03
126 Paperboard container manufacturing	0	145	97	242	1.03
129 Coated and laminated paper and pack	0	1	1	2	1.03
130 Coated and uncoated paper bag manu	0	20	37	57	1.03
135 All other converted paper product ma	0	0	0	0	1.03
136 Manifold business forms printing	0	26	64	90	1.02
137 Books printing	0	15	80	95	1.02
139 Commercial printing	0	1,122	3,187	4,309	1.02
140 Tradebinding and related work	0	0	1	1	1.02
141 Prepress services	0	54	48	103	1.02
142 Petroleum refineries	0	914	720	1,634	1.02
143 Asphalt paving mixture and block ma	0	147	12	159	1.02
144 Asphalt shingle and coating materials	0	467	258	725	1.02
148 Industrial gas manufacturing	0	9	121	130	1.03
149 Synthetic dye and pigment manufactu	0	20	48	67	1.03
151 Other basic organic chemical manufa	0	2	5	7	1.03
152 Plastics material and resin manufactu	0	1	2	3	1.03
153 Synthetic rubber manufacturing	0	0	0	1	1.03
156 Nitrogenous fertilizer manufacturing	0	71	86	157	1.03
157 Phosphatic fertilizer manufacturing	0	4	2	6	1.03
158 Fertilizer- mixing only- manufacturin	0	207	68	274	1.03
159 Pesticide and other agricultural chem	0	23	139	162	1.03
160 Pharmaceutical and medicine manufa	0	0	465	466	1.03
161 Paint and coating manufacturing	0	1	0	2	1.02
162 Adhesive manufacturing	0	64	22	86	1.02
166 Toilet preparation manufacturing	0	0	74	74	1.02
167 Printing ink manufacturing	0	6	18	25	1.03
171 Other miscellaneous chemical produc	0	336	401	736	1.03

*2005 Dollars - if results are deflated and aggregated. then deflators displayed are set to 1.0 (results have been deflated)

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
172 Plastics packaging materials- film an	0	35	60	94	1.02
173 Plastics pipe- fittings- and profile sha	0	2,999	583	3,582	1.02
177 Plastics plumbing fixtures and all oth	0	3,473	1,441	4,913	1.02
178 Foam product manufacturing	0	1,029	1,090	2,119	1.02
179 Tire manufacturing	0	1	1	3	1.02
180 Rubber and plastics hose and belting	0	5	2	7	1.02
183 Vitreous china and earthenware articl	0	0	25	25	1.02
188 Clay refractory and other structural cl	0	0	0	0	1.02
189 Glass container manufacturing	0	4	130	135	1.03
190 Glass and glass products- except glas	0	873	1,052	1,925	1.03
192 Ready-mix concrete manufacturing	0	29	2	31	1.01
193 Concrete block and brick manufactur	0	0	0	1	1.01
194 Concrete pipe manufacturing	0	6	0	6	1.01
195 Other concrete product manufacturin	0	1	1	2	1.01
197 Gypsum product manufacturing	0	0	0	0	1.02
199 Cut stone and stone product manufac	0	17	19	36	1.02
201 Mineral wool manufacturing	0	20	22	42	1.02
203 Iron and steel mills	0	38	5	42	1.03
206 Rolled steel shape manufacturing	0	1	0	1	1.02
211 Aluminum sheet- plate- and foil mani	0	4	3	7	1.02
212 Aluminum extruded product manufac	0	2	0	2	1.02
213 Other aluminum rolling and drawing	0	14	2	16	1.02
217 Copper wire- except mechanical- dra	0	16	0	16	1.04
219 Nonferrous metal- except copper and	0	5	0	5	1.04
221 Ferrous metal foundaries	0	1	0	1	1.03
222 Aluminum foundries	0	1	0	1	1.03
223 Nonferrous foundries- except alumini	0	2	1	3	1.03
226 Custom roll forming	0	20	1	21	1.03
227 All other forging and stamping	0	16	19	35	1.03
228 Cutlery and flatware- except precious	0	0	3	3	1.03
229 Hand and edge tool manufacturing	0	10	43	53	1.03
232 Prefabricated metal buildings and cor	0	1,048	4	1,051	1.02
233 Fabricated structural metal manufacti	0	420	5	425	1.02
234 Plate work manufacturing	0	8	4	11	1.02
235 Metal window and door manufacturi	0	259	47	306	1.02
236 Sheet metal work manufacturing	0	18	5	23	1.02
237 Ornamental and architectural metal w	0	79	4	83	1.02
239 Metal tank- heavy gauge- manufactu	0	3	1	4	1.02
240 Metal can- box- and other container r	0	10	35	45	1.02
241 Hardware manufacturing	0	26	6	32	1.02
242 Spring and wire product manufacturi	0	228	59	288	1.02
243 Machine shops	0	575	239	814	1.02
244 Turned product and screw- nut- and b	0	31	5	37	1.02
246 Metal coating and nonprecious engra	0	85	17	103	1.02
247 Electroplating- anodizing- and colori	0	188	41	229	1.02
248 Metal valve manufacturing	0	312	22	334	1.03
249 Ball and roller bearing manufacturing	0	3	2	5	1.03
252 Fabricated pipe and pipe fitting manu	0	40	11	51	1.03
255 Miscellaneous fabricated metal produ	0	1	0	2	1.03
257 Farm machinery and equipment manu	0	36	119	155	1.03
258 Lawn and garden equipment manufac	0	2	26	28	1.03
259 Construction machinery manufacturi	0	24	2	26	1.03
264 Paper industry machinery manufactu	0	5	8	13	1.03
267 Food product machinery manufacturi	0	1,378	115	1,493	1.03

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
273 Other commercial and service industi	0	9,875	25	9,901	1.02
274 Automatic vending- commercial laun	0	36	47	84	1.02
275 Air purification equipment manufacti	0	4	1	5	1.02
277 Heating equipment- except warm air	0	0	0	0	1.02
278 AC- refrigeration- and forced air heat	0	0	0	0	1.02
279 Industrial mold manufacturing	0	3	1	4	1.03
280 Metal cutting machine tool manufact	0	0	1	1	1.03
282 Special tool- die- jig- and fixture mar	0	10	6	16	1.03
286 Other engine equipment manufacturi	0	4	8	12	1.03
288 Pump and pumping equipment manu	0	53	13	66	1.02
292 Conveyor and conveying equipment i	0	3	2	5	1.02
293 Overhead cranes- hoists- and monora	0	175	4	178	1.02
294 Industrial truck- trailer- and stacker n	0	0	0	0	1.02
295 Power-driven handtool manufacturin	0	53	39	92	1.02
296 Welding and soldering equipment ma	0	5	1	6	1.02
297 Packaging machinery manufacturing	0	40	17	57	1.02
299 Fluid power cylinder and actuator ma	0	18	1	19	1.02
300 Fluid power pump and motor manufa	0	0	0	0	1.02
301 Scales- balances- and miscellaneous	0	420	66	487	1.02
305 Other computer peripheral equipment	0	2	29	31	0.97
307 Broadcast and wireless communicati	0	78	278	356	0.98
309 Audio and video equipment manufac	0	1	76	77	0.99
311 Semiconductors and related device m	0	0	0	1	0.97
312 All other electronic component manu	0	148	232	379	0.97
314 Search- detection- and navigation ins	0	0	0	0	1.02
316 Industrial process variable instrument	0	4	9	13	1.02
317 Totalizing fluid meters and counting	0	7	10	17	1.02
320 Irradiation apparatus manufacturing	0	1	56	57	1.02
321 Watch- clock- and other measuring a	0	3	18	20	1.02
322 Software reproducing	0	2	2	4	1.01
324 Magnetic and optical recording medi	0	23	50	73	1.01
326 Lighting fixture manufacturing	0	2	0	2	1.03
329 Household cooking appliance manuf	0	0	1	1	1.02
333 Electric power and specialty transfor	0	27	22	49	1.02
334 Motor and generator manufacturing	0	48	10	58	1.02
335 Switchgear and switchboard apparatu	0	831	29	859	1.02
336 Relay and industrial control manufac	0	2	1	3	1.02
341 Wiring device manufacturing	0	20	2	22	1.02
343 Miscellaneous electrical equipment n	0	3	4	7	1.02
345 Heavy duty truck manufacturing	0	0	17	17	1.03
346 Motor vehicle body manufacturing	0	25	194	219	1.02
347 Truck trailer manufacturing	0	1	8	9	1.02
349 Travel trailer and camper manufactur	0	0	508	508	1.02
350 Motor vehicle parts manufacturing	0	417	492	909	1.03
351 Aircraft manufacturing	0	0	0	0	1.03
352 Aircraft engine and engine parts man	0	0	2	2	1.03
354 Guided missile and space vehicle ma	0	4	1	5	1.03
358 Boat building	0	0	5	5	1.02
361 All other transportation equipment m	0	1	2	3	1.02
362 Wood kitchen cabinet and countertop	0	371	1,148	1,518	1.02
363 Upholstered household furniture man	0	0	80	80	1.02
364 Nonupholstered wood household furr	0	4	168	172	1.02
366 Institutional furniture manufacturing	0	0	1	1	1.02
369 Custom architectural woodwork and	0	1	16	17	1.03

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
370 Office furniture- except wood- manuf	0	0	0	0	1.03
371 Showcases- partitions- shelving- and	0	6	11	17	1.03
372 Mattress manufacturing	0	0	545	545	1.02
373 Blind and shade manufacturing	0	0	87	87	1.02
376 Surgical appliance and supplies manu	0	19	2,673	2,692	1.02
377 Dental equipment and supplies manu	0	0	356	356	1.02
378 Ophthalmic goods manufacturing	0	63	514	578	1.02
379 Dental laboratories	0	0	1,469	1,469	1.02
380 Jewelry and silverware manufacturing	0	2	320	322	1.02
381 Sporting and athletic goods manufact	0	0	24	25	1.02
382 Doll- toy- and game manufacturing	0	1	2,393	2,394	1.02
383 Office supplies- except paper- manuf	0	11	81	92	1.02
384 Sign manufacturing	0	102	256	358	1.02
387 Broom- brush- and mop manufacturi	0	2	2	3	1.02
388 Burial casket manufacturing	0	0	3	3	1.02
389 Buttons- pins- and all other miscellan	0	29	46	75	1.02
390 Wholesale trade	0	36,375	94,613	130,988	1.02
391 Air transportation	0	839	4,528	5,367	1.02
392 Rail transportation	0	1,022	2,208	3,230	1.03
393 Water transportation	0	107	873	980	1.02
394 Truck transportation	0	10,968	19,680	30,648	1.01
395 Transit and ground passenger transpo	0	218	3,318	3,536	1.03
396 Pipeline transportation	0	96	431	527	1.03
397 Scenic and sightseeing transportation	0	7,289	5,552	12,841	1.02
398 Postal service	0	5,976	16,156	22,131	1.03
399 Couriers and messengers	0	3,394	4,349	7,743	1.01
400 Warehousing and storage	0	1,524	4,697	6,220	1.01
401 Motor vehicle and parts dealers	0	11,238	67,416	78,654	1.03
402 Furniture and home furnishings store	0	2,943	12,733	15,676	1.03
403 Electronics and appliance stores	0	2,570	9,375	11,945	1.03
404 Building material and garden supply	0	6,649	27,955	34,604	1.03
405 Food and beverage stores	0	9,802	52,446	62,249	1.03
406 Health and personal care stores	0	6,527	21,662	28,189	1.03
407 Gasoline stations	0	3,688	14,999	18,686	1.03
408 Clothing and clothing accessories sto	0	4,051	16,005	20,055	1.03
409 Sporting goods- hobby- book and mu	0	918	9,850	10,768	1.03
410 General merchandise stores	0	10,930	41,812	52,742	1.03
411 Miscellaneous store retailers	0	2,811	19,662	22,474	1.03
412 Nonstore retailers	0	4,111	7,752	11,864	1.03
413 Newpaper publishers	0	1,629	5,016	6,644	1.03
414 Periodical publishers	0	83	530	612	1.03
415 Book publishers	0	2	150	153	1.03
416 Database- directory- and other publis	0	234	867	1,100	1.02
417 Software publishers	0	2	229	231	1.00
418 Motion picture and video industries	0	200	1,483	1,683	1.04
419 Sound recording industries	0	2	58	60	1.04
420 Radio and television broadcasting	0	3,882	11,475	15,356	1.03
421 Cable networks and program distribu	0	1	18	18	1.02
422 Telecommunications	0	9,932	22,812	32,744	1.02
423 Information services	0	369	530	899	1.02
424 Data processing services	0	218	349	567	1.02
425 Nondepository credit intermediation :	0	7,359	15,787	23,147	1.02
426 Securities- commodity contracts- inv	0	4,529	19,147	23,676	1.03
427 Insurance carriers	0	9,902	41,684	51,586	1.03

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Labor Income Impact

MidwayConstruction 4County 022807.iap

IMPACT NAME: Midway Construct Effects MULTIPLIER: Type SAM

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
428 Insurance agencies- brokerages- and	0	4,651	19,620	24,271	1.02
429 Funds- trusts- and other financial veh	0	73	2,284	2,357	1.02
430 Monetary authorities and depository	0	6,195	34,616	40,811	1.02
431 Real estate	0	9,317	50,569	59,886	1.02
432 Automotive equipment rental and lea	0	2,531	4,798	7,328	1.03
433 Video tape and disc rental	0	5	2,821	2,826	1.02
434 Machinery and equipment rental and	0	14,629	1,631	16,260	1.02
435 General and consumer goods rental e	0	1,975	5,584	7,559	1.02
436 Lessors of nonfinancial intangible ass	0	229	483	712	1.02
437 Legal services	0	4,829	37,343	42,172	1.03
438 Accounting and bookkeeping service	0	11,363	16,081	27,445	1.03
439 Architectural and engineering service	0	216,461	8,537	224,998	1.02
440 Specialized design services	0	944	1,471	2,416	1.02
441 Custom computer programming servi	0	642	404	1,046	1.02
442 Computer systems design services	0	684	1,088	1,772	1.02
443 Other computer related services- incl	0	378	422	800	1.02
444 Management consulting services	0	4,686	6,734	11,420	1.02
445 Environmental and other technical co	0	6,145	1,640	7,785	1.02
446 Scientific research and development	0	192	1,591	1,783	1.02
447 Advertising and related services	0	2,408	5,967	8,375	1.03
448 Photographic services	0	20	1,913	1,933	1.02
449 Veterinary services	0	61	2,459	2,519	1.02
450 All other miscellaneous professional	0	865	965	1,830	1.02
451 Management of companies and enter	0	8,469	21,615	30,084	1.04
452 Office administrative services	0	9,021	5,039	14,060	1.02
453 Facilities support services	0	43	22	64	1.02
454 Employment services	0	46,481	24,281	70,762	1.03
455 Business support services	0	2,451	6,495	8,946	1.02
456 Travel arrangement and reservation s	0	245	1,953	2,198	1.03
457 Investigation and security services	0	4,682	5,604	10,286	1.02
458 Services to buildings and dwellings	0	11,879	14,409	26,288	1.02
459 Other support services	0	666	1,173	1,839	1.02
460 Waste management and remediation	0	1,174	3,935	5,109	1.01
461 Elementary and secondary schools	0	0	6,243	6,243	1.03
462 Colleges- universities- and junior coll	0	295	9,046	9,341	1.03
463 Other educational services	0	83	10,870	10,952	1.03
464 Home health care services	0	0	6,930	6,930	1.03
465 Offices of physicians- dentists- and o	0	0	221,966	221,966	1.04
466 Other ambulatory health care service	0	14	32,070	32,083	1.03
467 Hospitals	0	0	156,422	156,422	1.04
468 Nursing and residential care facilities	0	0	57,296	57,296	1.02
469 Child day care services	0	0	9,122	9,122	1.02
470 Social assistance- except child day ca	0	2	31,763	31,764	1.05
471 Performing arts companies	0	80	1,006	1,087	1.02
472 Spectator sports	0	383	2,994	3,377	1.02
473 Independent artists- writers- and perf	0	182	362	545	1.02
474 Promoters of performing arts and spo	0	43	421	464	1.02
475 Museums- historical sites- zoos- and	0	0	1,881	1,881	1.02
476 Fitness and recreational sports center	0	491	4,801	5,292	1.02
477 Bowling centers	0	0	322	322	1.02
478 Other amusement- gambling- and rec	0	16	9,055	9,071	1.02
479 Hotels and motels- including casino h	0	1,142	6,998	8,140	1.03
480 Other accommodations	0	22	1,586	1,608	1.02
481 Food services and drinking places	0	4,232	108,383	112,615	1.02

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

Labor Income Impact

MidwayConstruction 4County 022807.iap

IMPACT NAME: Midway Construct Effects MULTIPLIER: Type SAM

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
482 Car washes	0	232	2,329	2,561	1.02
483 Automotive repair and maintenance-	0	10,352	41,248	51,600	1.02
484 Electronic equipment repair and mair	0	1,952	822	2,773	1.02
485 Commercial machinery repair and ma	0	13,094	2,847	15,942	1.05
486 Household goods repair and maintena	0	1,105	1,769	2,874	1.02
487 Personal care services	0	0	7,339	7,339	1.02
488 Death care services	0	0	4,750	4,750	1.03
489 Drycleaning and laundry services	0	239	7,753	7,992	1.03
490 Other personal services	0	46	2,299	2,345	1.03
491 Religious organizations	0	0	6,777	6,777	1.02
492 Grantmaking and giving and social a	0	0	12,336	12,336	1.02
493 Civic- social- professional and simila	0	6,099	21,556	27,655	1.01
494 Private households	0	0	13,159	13,159	1.01
496 Other Federal Government enterprise	0	304	1,756	2,060	1.04
497 State and local government passenger	0	561	8,557	9,118	1.04
498 State and local government electric u	0	228	1,393	1,621	1.05
499 Other State and local government ent	0	3,999	28,559	32,558	1.03
Total	7,569,999	637,675	1,836,203	10,043,877	

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

MIDWAY
Construction Output

Output Impact

MidwayConstruction 4County 022807.iap

IMPACT NAME: Midway Construct Effects MULTIPLIER: Type SAM

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1 Oilseed farming	0	0	5	5	1.01
2 Grain farming	0	6	577	582	1.01
3 Vegetable and melon farming	0	54	11,668	11,722	1.01
4 Tree nut farming	0	8	3,013	3,021	1.01
5 Fruit farming	0	22	8,337	8,359	1.01
6 Greenhouse and nursery production	0	390	2,800	3,190	1.01
8 Cotton farming	0	5	1,847	1,852	1.01
9 Sugarcane and sugar beet farming	0	1	97	97	1.01
10 All other crop farming	0	4,252	9,666	13,918	1.01
11 Cattle ranching and farming	0	477	54,660	55,137	1.01
12 Poultry and egg production	0	160	21,770	21,930	1.01
13 Animal production- except cattle and	0	33	3,492	3,525	1.01
14 Logging	0	1,148	356	1,503	1.05
15 Forest nurseries- forest products- and	0	2	1	2	1.02
17 Hunting and trapping	0	0	1,649	1,649	1.02
18 Agriculture and forestry support activ	0	500	7,955	8,455	1.02
19 Oil and gas extraction	0	1,524	4,926	6,450	1.05
24 Stone mining and quarrying	0	71	8	79	1.02
25 Sand- gravel- clay- and refractory mi	0	23	2	25	1.02
27 Drilling oil and gas wells	0	0	0	0	1.01
28 Support activities for oil and gas ope	0	15	49	65	1.01
30 Power generation and supply	0	10,000	63,614	73,614	1.02
31 Natural gas distribution	0	2,979	30,960	33,940	1.02
32 Water- sewage and other systems	0	231	2,583	2,815	1.04
41 Other new construction	11,109,998	0	0	11,109,998	1.02
42 Maintenance and repair of farm and r	0	341	13,345	13,686	1.02
43 Maintenance and repair of nonreside	0	10,317	18,235	28,552	1.02
45 Other maintenance and repair constr	0	1,222	6,985	8,207	1.02
46 Dog and cat food manufacturing	0	1	119	120	1.03
47 Other animal food manufacturing	0	5	519	524	1.03
48 Flour milling	0	5	2,123	2,128	1.04
53 Other oilseed processing	0	1	65	66	1.04
54 Fats and oils refining and blending	0	3	355	358	1.04
56 Sugar manufacturing	0	2	323	324	1.02
58 Confectionery manufacturing from pr	0	0	36	36	1.02
59 Nonchocolate confectionery manufac	0	1	105	105	1.02
60 Frozen food manufacturing	0	27	2,603	2,630	1.03
61 Fruit and vegetable canning and dryi	0	31	7,043	7,074	1.03
62 Fluid milk manufacturing	0	159	18,795	18,954	1.01
64 Cheese manufacturing	0	272	23,391	23,664	1.01
65 Dry- condensed- and evaporated dair	0	46	6,088	6,135	1.01
66 Ice cream and frozen dessert manufac	0	108	4,757	4,865	1.01
67 Animal- except poultry- slaughtering	0	314	39,007	39,321	1.02
68 Meat processed from carcasses	0	90	7,527	7,617	1.02
69 Rendering and meat byproduct proce	0	54	512	566	1.02
70 Poultry processing	0	302	38,770	39,072	1.02
72 Frozen cakes and other pastries manu	0	0	75	75	1.03
73 Bread and bakery product- except fro	0	367	23,839	24,206	1.03
74 Cookie and cracker manufacturing	0	20	6,480	6,500	1.03
76 Dry pasta manufacturing	0	5	1,953	1,958	1.03
77 Tortilla manufacturing	0	21	2,323	2,344	1.03
78 Roasted nuts and peanut butter manu	0	5	1,456	1,461	1.02
79 Other snack food manufacturing	0	186	14,231	14,417	1.02
82 Mayonnaise- dressing- and sauce ma	0	0	13	13	1.02

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Industry	Direct*	Indirect*	Induced*	Total*	Deflator
83 Spice and extract manufacturing	0	0	32	32	1.02
84 All other food manufacturing	0	12	4,870	4,882	1.02
85 Soft drink and ice manufacturing	0	37	3,109	3,146	1.02
86 Breweries	0	0	86	87	1.02
87 Wineries	0	10	977	987	1.02
92 Fiber- yarn- and thread mills	0	3	56	60	1.02
93 Broadwoven fabric mills	0	8	185	193	1.02
95 Nonwoven fabric mills	0	75	95	169	1.02
97 Textile and fabric finishing mills	0	10	119	129	1.02
99 Carpet and rug mills	0	0	1	2	1.02
100 Curtain and linen mills	0	0	76	76	1.02
101 Textile bag and canvas mills	0	4	113	117	1.02
103 Other miscellaneous textile product n	0	1	6	7	1.02
107 Cut and sew apparel manufacturing	0	5	3,565	3,570	1.02
108 Accessories and other apparel manuf	0	1	404	405	1.02
109 Leather and hide tanning and finishin	0	0	4	4	1.03
111 Other leather product manufacturing	0	29	954	983	1.02
112 Sawmills	0	1,724	637	2,361	1.03
113 Wood preservation	0	4,358	393	4,752	1.03
116 Engineered wood member and truss r	0	5,435	1,131	6,566	1.02
117 Wood windows and door manufactur	0	10,209	2,651	12,860	1.02
118 Cut stock- resawing lumber- and plar	0	56	20	77	1.02
119 Other millwork- including flooring	0	1,673	379	2,052	1.02
120 Wood container and pallet manufactu	0	524	1,531	2,054	1.02
122 Prefabricated wood building manufac	0	7	1	9	1.02
123 Miscellaneous wood product manufac	0	173	279	453	1.02
125 Paper and paperboard mills	0	2	7	10	1.03
126 Paperboard container manufacturing	0	633	425	1,058	1.03
129 Coated and laminated paper and pack	0	7	10	17	1.03
130 Coated and uncoated paper bag manu	0	96	183	279	1.03
135 All other converted paper product ma	0	0	0	0	1.03
136 Manifold business forms printing	0	86	217	303	1.02
137 Books printing	0	42	230	273	1.02
139 Commercial printing	0	2,104	5,975	8,080	1.02
140 Tradebinding and related work	0	0	2	2	1.02
141 Prepress services	0	110	98	208	1.02
142 Petroleum refineries	0	3,736	2,942	6,678	1.02
143 Asphalt paving mixture and block ma	0	971	80	1,051	1.02
144 Asphalt shingle and coating materials	0	3,890	2,151	6,041	1.02
148 Industrial gas manufacturing	0	94	1,313	1,407	1.03
149 Synthetic dye and pigment manufactu	0	158	382	540	1.03
151 Other basic organic chemical manufa	0	22	48	70	1.03
152 Plastics material and resin manufactu	0	17	34	51	1.03
153 Synthetic rubber manufacturing	0	2	3	5	1.03
156 Nitrogenous fertilizer manufacturing	0	1,483	1,795	3,278	1.03
157 Phosphatic fertilizer manufacturing	0	21	8	29	1.03
158 Fertilizer- mixing only- manufacturin	0	1,304	427	1,731	1.03
159 Pesticide and other agricultural chem	0	379	2,251	2,631	1.03
160 Pharmaceutical and medicine manufa	0	1	2,913	2,914	1.03
161 Paint and coating manufacturing	0	13	4	18	1.02
162 Adhesive manufacturing	0	358	122	480	1.02
166 Toilet preparation manufacturing	0	2	632	633	1.02
167 Printing ink manufacturing	0	38	112	150	1.03
171 Other miscellaneous chemical produc	0	2,063	2,460	4,524	1.03

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

Output Impact

MidwayConstruction 4County 022807.iap

IMPACT NAME: Midway Construct Effects MULTIPLIER: Type SAM

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
172 Plastics packaging materials- film an	0	221	382	603	1.02
173 Plastics pipe- fittings- and profile sha	0	17,194	3,341	20,535	1.02
177 Plastics plumbing fixtures and all oth	0	15,337	6,362	21,698	1.02
178 Foam product manufacturing	0	5,929	6,283	12,212	1.02
179 Tire manufacturing	0	10	12	21	1.02
180 Rubber and plastics hose and belting	0	27	10	36	1.02
183 Vitreous china and earthenware articl	0	0	70	70	1.02
188 Clay refractory and other structural cl	0	0	0	0	1.02
189 Glass container manufacturing	0	16	521	537	1.03
190 Glass and glass products- except glas	0	3,435	4,137	7,571	1.03
192 Ready-mix concrete manufacturing	0	120	8	128	1.01
193 Concrete block and brick manufactur	0	2	0	2	1.01
194 Concrete pipe manufacturing	0	23	2	25	1.01
195 Other concrete product manufacturin	0	3	2	5	1.01
197 Gypsum product manufacturing	0	0	0	0	1.02
199 Cut stone and stone product manufac	0	58	64	122	1.02
201 Mineral wool manufacturing	0	103	115	218	1.02
203 Iron and steel mills	0	532	65	597	1.03
206 Rolled steel shape manufacturing	0	9	1	10	1.02
211 Aluminum sheet- plate- and foil mani	0	47	36	82	1.02
212 Aluminum extruded product manufac	0	9	1	10	1.02
213 Other aluminum rolling and drawing	0	143	26	169	1.02
217 Copper wire- except mechanical- dra	0	247	7	254	1.04
219 Nonferrous metal- except copper and	0	42	1	43	1.04
221 Ferrous metal foundaries	0	3	0	3	1.03
222 Aluminum foundries	0	3	1	4	1.03
223 Nonferrous foundries- except alumini	0	6	2	9	1.03
226 Custom roll forming	0	110	5	115	1.03
227 All other forging and stamping	0	56	64	120	1.03
228 Cutlery and flatware- except precious	0	1	17	18	1.03
229 Hand and edge tool manufacturing	0	49	202	251	1.03
232 Prefabricated metal buildings and cor	0	4,013	14	4,027	1.02
233 Fabricated structural metal manufacti	0	1,768	23	1,791	1.02
234 Plate work manufacturing	0	34	17	51	1.02
235 Metal window and door manufacturi	0	938	171	1,109	1.02
236 Sheet metal work manufacturing	0	60	17	78	1.02
237 Ornamental and architectural metal w	0	320	16	336	1.02
239 Metal tank- heavy gauge- manufactur	0	10	2	12	1.02
240 Metal can- box- and other container r	0	66	236	303	1.02
241 Hardware manufacturing	0	138	30	168	1.02
242 Spring and wire product manufacturi	0	917	238	1,155	1.02
243 Machine shops	0	1,609	668	2,277	1.02
244 Turned product and screw- nut- and b	0	120	20	140	1.02
246 Metal coating and nonprecious engra	0	362	74	436	1.02
247 Electroplating- anodizing- and colori	0	703	155	858	1.02
248 Metal valve manufacturing	0	1,240	86	1,326	1.03
249 Ball and roller bearing manufacturing	0	15	12	28	1.03
252 Fabricated pipe and pipe fitting manu	0	194	53	247	1.03
255 Miscellaneous fabricated metal produ	0	7	2	8	1.03
257 Farm machinery and equipment manu	0	258	847	1,105	1.03
258 Lawn and garden equipment manufac	0	22	335	357	1.03
259 Construction machinery manufacturi	0	351	25	376	1.03
264 Paper industry machinery manufactur	0	12	22	34	1.03
267 Food product machinery manufacturi	0	3,843	322	4,165	1.03

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
273 Other commercial and service industı	0	42,006	108	42,114	1.02
274 Automatic vending- commercial laun	0	209	272	480	1.02
275 Air purification equipment manufacti	0	15	4	19	1.02
277 Heating equipment- except warm air	0	0	0	0	1.02
278 AC- refrigeration- and forced air heat	0	0	0	0	1.02
279 Industrial mold manufacturing	0	8	3	11	1.03
280 Metal cutting machine tool manufact	0	2	5	7	1.03
282 Special tool- die- jig- and fixture mar	0	26	17	43	1.03
286 Other engine equipment manufacturi	0	45	96	142	1.03
288 Pump and pumping equipment manu	0	274	66	340	1.02
292 Conveyor and conveying equipment ı	0	17	11	29	1.02
293 Overhead cranes- hoists- and monora	0	806	17	823	1.02
294 Industrial truck- trailer- and stacker n	0	0	2	2	1.02
295 Power-driven handtool manufacturin	0	160	116	276	1.02
296 Welding and soldering equipment ma	0	36	4	40	1.02
297 Packaging machinery manufacturing	0	124	54	178	1.02
299 Fluid power cylinder and actuator ma	0	66	4	70	1.02
300 Fluid power pump and motor manufa	0	1	0	1	1.02
301 Scales- balances- and miscellaneous ı	0	1,746	275	2,022	1.02
305 Other computer peripheral equipment	0	10	135	145	0.97
307 Broadcast and wireless communicatic	0	552	1,965	2,516	0.98
309 Audio and video equipment manufac	0	6	659	665	0.99
311 Semiconductors and related device m	0	3	6	9	0.97
312 All other electronic component manu	0	599	941	1,540	0.97
314 Search- detection- and navigation ins	0	2	0	2	1.02
316 Industrial process variable instrument	0	16	38	53	1.02
317 Totalizing fluid meters and counting	0	55	71	126	1.02
320 Irradiation apparatus manufacturing	0	2	190	192	1.02
321 Watch- clock- and other measuring a	0	12	82	94	1.02
322 Software reproducing	0	12	18	30	1.01
324 Magnetic and optical recording medi	0	83	185	268	1.01
326 Lighting fixture manufacturing	0	7	1	8	1.03
329 Household cooking appliance manuf	0	1	8	9	1.02
333 Electric power and specialty transfor	0	126	104	230	1.02
334 Motor and generator manufacturing	0	249	53	303	1.02
335 Switchgear and switchboard apparatu	0	3,646	126	3,772	1.02
336 Relay and industrial control manufac	0	21	8	29	1.02
341 Wiring device manufacturing	0	87	8	94	1.02
343 Miscellaneous electrical equipment n	0	10	13	23	1.02
345 Heavy duty truck manufacturing	0	0	275	275	1.03
346 Motor vehicle body manufacturing	0	142	1,098	1,241	1.02
347 Truck trailer manufacturing	0	5	36	41	1.02
349 Travel trailer and camper manufactur	0	0	1,904	1,905	1.02
350 Motor vehicle parts manufacturing	0	2,759	3,253	6,012	1.03
351 Aircraft manufacturing	0	0	1	2	1.03
352 Aircraft engine and engine parts man	0	2	10	12	1.03
354 Guided missile and space vehicle mai	0	7	1	8	1.03
358 Boat building	0	0	35	36	1.02
361 All other transportation equipment m	0	14	34	48	1.02
362 Wood kitchen cabinet and countertop	0	1,240	3,840	5,079	1.02
363 Upholstered household furniture man	0	0	355	355	1.02
364 Nonupholstered wood household furr	0	20	800	819	1.02
366 Institutional furniture manufacturing	0	1	4	5	1.02
369 Custom architectural woodwork and ı	0	3	41	44	1.03

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
370 Office furniture- except wood- manuf	0	0	0	0	1.03
371 Showcases- partitions- shelving- and	0	27	49	76	1.03
372 Mattress manufacturing	0	0	3,819	3,819	1.02
373 Blind and shade manufacturing	0	0	377	377	1.02
376 Surgical appliance and supplies manu	0	68	9,531	9,598	1.02
377 Dental equipment and supplies manu	0	0	1,243	1,244	1.02
378 Ophthalmic goods manufacturing	0	199	1,619	1,818	1.02
379 Dental laboratories	0	0	2,502	2,502	1.02
380 Jewelry and silverware manufacturing	0	12	1,633	1,645	1.02
381 Sporting and athletic goods manufact	0	0	81	81	1.02
382 Doll- toy- and game manufacturing	0	4	7,789	7,792	1.02
383 Office supplies- except paper- manuf	0	40	290	329	1.02
384 Sign manufacturing	0	208	522	731	1.02
387 Broom- brush- and mop manufacturi	0	5	5	9	1.02
388 Burial casket manufacturing	0	0	9	9	1.02
389 Buttons- pins- and all other miscellan	0	59	96	156	1.02
390 Wholesale trade	0	96,768	251,701	348,469	1.02
391 Air transportation	0	3,320	17,927	21,247	1.02
392 Rail transportation	0	3,053	6,597	9,650	1.03
393 Water transportation	0	413	3,359	3,772	1.02
394 Truck transportation	0	32,441	58,206	90,647	1.01
395 Transit and ground passenger transpo	0	514	7,836	8,350	1.03
396 Pipeline transportation	0	606	2,728	3,334	1.03
397 Scenic and sightseeing transportation	0	9,856	7,507	17,363	1.02
398 Postal service	0	7,840	21,198	29,039	1.03
399 Couriers and messengers	0	9,314	11,936	21,249	1.01
400 Warehousing and storage	0	2,529	7,794	10,323	1.01
401 Motor vehicle and parts dealers	0	24,787	148,698	173,485	1.03
402 Furniture and home furnishings store	0	8,099	35,040	43,139	1.03
403 Electronics and appliance stores	0	4,510	16,456	20,967	1.03
404 Building material and garden supply	0	17,501	73,585	91,087	1.03
405 Food and beverage stores	0	21,729	116,257	137,986	1.03
406 Health and personal care stores	0	13,830	45,896	59,726	1.03
407 Gasoline stations	0	11,805	48,013	59,818	1.03
408 Clothing and clothing accessories sto	0	12,670	50,060	62,730	1.03
409 Sporting goods- hobby- book and mu	0	2,165	23,235	25,401	1.03
410 General merchandise stores	0	26,344	100,773	127,117	1.03
411 Miscellaneous store retailers	0	5,573	38,974	44,547	1.03
412 Nonstore retailers	0	19,351	36,491	55,842	1.03
413 Newpaper publishers	0	4,092	12,602	16,694	1.03
414 Periodical publishers	0	378	2,422	2,800	1.03
415 Book publishers	0	16	1,021	1,037	1.03
416 Database- directory- and other publis	0	1,086	4,029	5,115	1.02
417 Software publishers	0	6	756	762	1.00
418 Motion picture and video industries	0	1,593	11,792	13,385	1.04
419 Sound recording industries	0	14	350	363	1.04
420 Radio and television broadcasting	0	10,403	30,753	41,156	1.03
421 Cable networks and program distribu	0	33	1,047	1,080	1.02
422 Telecommunications	0	47,900	110,014	157,914	1.02
423 Information services	0	1,392	1,995	3,387	1.02
424 Data processing services	0	652	1,046	1,698	1.02
425 Nondepository credit intermediation :	0	17,560	37,671	55,230	1.02
426 Securities- commodity contracts- inv	0	9,471	40,044	49,515	1.03
427 Insurance carriers	0	41,700	175,545	217,245	1.03

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Industry	Direct*	Indirect*	Induced*	Total*	Deflator
428 Insurance agencies- brokerages- and	0	10,832	45,691	56,523	1.02
429 Funds- trusts- and other financial veh	0	352	10,957	11,309	1.02
430 Monetary authorities and depository	0	25,713	143,692	169,405	1.02
431 Real estate	0	53,717	291,555	345,272	1.02
432 Automotive equipment rental and lea	0	11,199	21,230	32,430	1.03
433 Video tape and disc rental	0	16	8,798	8,814	1.02
434 Machinery and equipment rental and	0	75,800	8,449	84,249	1.02
435 General and consumer goods rental e	0	3,336	9,431	12,767	1.02
436 Lessors of nonfinancial intangible ass	0	2,595	5,474	8,069	1.02
437 Legal services	0	9,293	71,865	81,158	1.03
438 Accounting and bookkeeping service	0	24,371	34,489	58,860	1.03
439 Architectural and engineering service	0	413,661	16,314	429,975	1.02
440 Specialized design services	0	2,630	4,097	6,728	1.02
441 Custom computer programming servi	0	672	423	1,095	1.02
442 Computer systems design services	0	711	1,131	1,842	1.02
443 Other computer related services- incl	0	1,061	1,182	2,244	1.02
444 Management consulting services	0	10,821	15,550	26,370	1.02
445 Environmental and other technical co	0	17,568	4,687	22,255	1.02
446 Scientific research and development	0	350	2,900	3,250	1.02
447 Advertising and related services	0	6,265	15,525	21,790	1.03
448 Photographic services	0	70	6,588	6,658	1.02
449 Veterinary services	0	135	5,487	5,622	1.02
450 All other miscellaneous professional	0	11,805	13,174	24,978	1.02
451 Management of companies and enter	0	21,985	56,110	78,095	1.04
452 Office administrative services	0	28,643	16,001	44,644	1.02
453 Facilities support services	0	75	38	114	1.02
454 Employment services	0	53,383	27,886	81,269	1.03
455 Business support services	0	5,404	14,316	19,720	1.02
456 Travel arrangement and reservation s	0	994	7,942	8,936	1.03
457 Investigation and security services	0	7,232	8,655	15,887	1.02
458 Services to buildings and dwellings	0	28,248	34,263	62,510	1.02
459 Other support services	0	2,547	4,485	7,032	1.02
460 Waste management and remediation	0	4,286	14,366	18,651	1.01
461 Elementary and secondary schools	0	0	9,063	9,063	1.03
462 Colleges- universities- and junior coll	0	677	20,758	21,435	1.03
463 Other educational services	0	205	26,857	27,062	1.03
464 Home health care services	0	0	11,239	11,239	1.03
465 Offices of physicians- dentists- and o	0	0	362,260	362,260	1.04
466 Other ambulatory health care service	0	38	88,094	88,132	1.03
467 Hospitals	0	0	311,048	311,048	1.04
468 Nursing and residential care facilities	0	0	95,455	95,455	1.02
469 Child day care services	0	0	23,556	23,556	1.02
470 Social assistance- except child day ca	0	3	63,008	63,011	1.05
471 Performing arts companies	0	174	2,178	2,352	1.02
472 Spectator sports	0	746	5,837	6,583	1.02
473 Independent artists- writers- and perf	0	683	1,356	2,040	1.02
474 Promoters of performing arts and spo	0	123	1,200	1,323	1.02
475 Museums- historical sites- zoos- and	0	0	2,577	2,577	1.02
476 Fitness and recreational sports center	0	930	9,095	10,025	1.02
477 Bowling centers	0	0	977	977	1.02
478 Other amusement- gambling- and rec	0	48	26,776	26,824	1.02
479 Hotels and motels- including casino h	0	3,148	19,296	22,445	1.03
480 Other accommodations	0	92	6,676	6,768	1.02
481 Food services and drinking places	0	12,978	332,406	345,384	1.02

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

Output Impact

MidwayConstruction 4County 022807.iap

IMPACT NAME: Midway Construct Effects MULTIPLIER: Type SAM

February 28, 2007

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
482 Car washes	0	705	7,063	7,768	1.02
483 Automotive repair and maintenance-	0	27,236	108,519	135,755	1.02
484 Electronic equipment repair and mair	0	6,036	2,541	8,577	1.02
485 Commercial machinery repair and ma	0	39,856	8,667	48,522	1.05
486 Household goods repair and maintena	0	6,950	11,125	18,075	1.02
487 Personal care services	0	0	19,941	19,941	1.02
488 Death care services	0	0	9,833	9,833	1.03
489 Drycleaning and laundry services	0	442	14,330	14,772	1.03
490 Other personal services	0	373	18,759	19,131	1.03
491 Religious organizations	0	0	36,305	36,305	1.02
492 Grantmaking and giving and social a	0	0	16,231	16,231	1.02
493 Civic- social- professional and simila	0	6,933	24,505	31,438	1.01
494 Private households	0	0	13,159	13,159	1.01
496 Other Federal Government enterprise	0	298	1,717	2,014	1.04
497 State and local government passenger	0	587	8,944	9,531	1.04
498 State and local government electric ut	0	1,010	6,165	7,175	1.05
499 Other State and local government ent	0	13,474	96,225	109,699	1.03
509 Owner-occupied dwellings	0	0	790,093	790,093	0.98
Total	11,109,998	1,625,212	5,687,592	18,422,801	

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

MIDWAY
Operation Employment

Employment Impact

February 28, 2007

IMPACT NAME: Midway Operation Effects MULTIPLIER: Type SAM
MidwayOperation 4County 022807.iap

Industry	Direct*	Indirect*	Induced*	Total*	
1 Oilseed farming	0.0	0.0	0.0	0.0	#
2 Grain farming	0.0	0.0	0.0	0.0	#
3 Vegetable and melon farming	0.0	0.0	0.0	0.0	#
4 Tree nut farming	0.0	0.0	0.0	0.0	#
5 Fruit farming	0.0	0.0	0.0	0.0	#
6 Greenhouse and nursery production	0.0	0.0	0.0	0.0	#
8 Cotton farming	0.0	0.0	0.0	0.0	#
9 Sugarcane and sugar beet farming	0.0	0.0	0.0	0.0	#
10 All other crop farming	0.0	0.0	0.0	0.0	#
11 Cattle ranching and farming	0.0	0.0	0.0	0.0	#
12 Poultry and egg production	0.0	0.0	0.0	0.0	#
13 Animal production- except cattle and	0.0	0.0	0.0	0.0	#
14 Logging	0.0	0.0	0.0	0.0	#
15 Forest nurseries- forest products- and	0.0	0.0	0.0	0.0	#
17 Hunting and trapping	0.0	0.0	0.0	0.0	#
18 Agriculture and forestry support activ	0.0	0.0	0.0	0.0	#
19 Oil and gas extraction	0.0	0.0	0.0	0.0	#
24 Stone mining and quarrying	0.0	0.0	0.0	0.0	#
25 Sand- gravel- clay- and refractory mi	0.0	0.0	0.0	0.0	#
27 Drilling oil and gas wells	0.0	0.0	0.0	0.0	#
28 Support activities for oil and gas ope	0.0	0.0	0.0	0.0	#
30 Power generation and supply	1.0	0.0	0.0	1.0	
31 Natural gas distribution	0.0	0.0	0.0	0.0	#
32 Water- sewage and other systems	0.0	0.0	0.0	0.0	#
42 Maintenance and repair of farm and r	0.0	0.0	0.0	0.0	#
43 Maintenance and repair of nonresider	0.0	0.0	0.0	0.0	#
45 Other maintenance and repair constr	0.0	0.0	0.0	0.0	#
46 Dog and cat food manufacturing	0.0	0.0	0.0	0.0	#
47 Other animal food manufacturing	0.0	0.0	0.0	0.0	#
48 Flour milling	0.0	0.0	0.0	0.0	#
53 Other oilseed processing	0.0	0.0	0.0	0.0	#
54 Fats and oils refining and blending	0.0	0.0	0.0	0.0	#
56 Sugar manufacturing	0.0	0.0	0.0	0.0	#
58 Confectionery manufacturing from pı	0.0	0.0	0.0	0.0	#
59 Nonchocolate confectionery manufac	0.0	0.0	0.0	0.0	#
60 Frozen food manufacturing	0.0	0.0	0.0	0.0	#
61 Fruit and vegetable canning and dryi	0.0	0.0	0.0	0.0	#
62 Fluid milk manufacturing	0.0	0.0	0.0	0.0	#
64 Cheese manufacturing	0.0	0.0	0.0	0.0	#
65 Dry- condensed- and evaporated dair	0.0	0.0	0.0	0.0	#
66 Ice cream and frozen dessert manufac	0.0	0.0	0.0	0.0	#
67 Animal- except poultry- slaughtering	0.0	0.0	0.0	0.0	#
68 Meat processed from carcasses	0.0	0.0	0.0	0.0	#
69 Rendering and meat byproduct proce	0.0	0.0	0.0	0.0	#
70 Poultry processing	0.0	0.0	0.0	0.0	#
72 Frozen cakes and other pastries manu	0.0	0.0	0.0	0.0	#
73 Bread and bakery product- except fro	0.0	0.0	0.0	0.0	#
74 Cookie and cracker manufacturing	0.0	0.0	0.0	0.0	#
76 Dry pasta manufacturing	0.0	0.0	0.0	0.0	#
77 Tortilla manufacturing	0.0	0.0	0.0	0.0	#
78 Roasted nuts and peanut butter manu	0.0	0.0	0.0	0.0	#
79 Other snack food manufacturing	0.0	0.0	0.0	0.0	#
82 Mayonnaise- dressing- and sauce mai	0.0	0.0	0.0	0.0	#
83 Spice and extract manufacturing	0.0	0.0	0.0	0.0	#
84 All other food manufacturing	0.0	0.0	0.0	0.0	#
85 Soft drink and ice manufacturing	0.0	0.0	0.0	0.0	#
86 Breweries	0.0	0.0	0.0	0.0	#
87 Wineries	0.0	0.0	0.0	0.0	#
92 Fiber- yarn- and thread mills	0.0	0.0	0.0	0.0	#
93 Broadwoven fabric mills	0.0	0.0	0.0	0.0	#
95 Nonwoven fabric mills	0.0	0.0	0.0	0.0	#
97 Textile and fabric finishing mills	0.0	0.0	0.0	0.0	#

*Dollars

Industry	Direct*	Indirect*	Induced*	Total*	
99 Carpet and rug mills	0.0	0.0	0.0	0.0	#
100 Curtain and linen mills	0.0	0.0	0.0	0.0	#
101 Textile bag and canvas mills	0.0	0.0	0.0	0.0	#
103 Other miscellaneous textile product n	0.0	0.0	0.0	0.0	#
107 Cut and sew apparel manufacturing	0.0	0.0	0.0	0.0	#
108 Accessories and other apparel manufa	0.0	0.0	0.0	0.0	#
109 Leather and hide tanning and finishin	0.0	0.0	0.0	0.0	#
111 Other leather product manufacturing	0.0	0.0	0.0	0.0	#
112 Sawmills	0.0	0.0	0.0	0.0	#
113 Wood preservation	0.0	0.0	0.0	0.0	#
116 Engineered wood member and truss r	0.0	0.0	0.0	0.0	#
117 Wood windows and door manufactur	0.0	0.0	0.0	0.0	#
118 Cut stock- resawing lumber- and plar	0.0	0.0	0.0	0.0	#
119 Other millwork- including flooring	0.0	0.0	0.0	0.0	#
120 Wood container and pallet manufactu	0.0	0.0	0.0	0.0	#
122 Prefabricated wood building manufac	0.0	0.0	0.0	0.0	#
123 Miscellaneous wood product manufa	0.0	0.0	0.0	0.0	#
125 Paper and paperboard mills	0.0	0.0	0.0	0.0	#
126 Paperboard container manufacturing	0.0	0.0	0.0	0.0	#
129 Coated and laminated paper and pack	0.0	0.0	0.0	0.0	#
130 Coated and uncoated paper bag manu	0.0	0.0	0.0	0.0	#
135 All other converted paper product ma	0.0	0.0	0.0	0.0	#
136 Manifold business forms printing	0.0	0.0	0.0	0.0	#
137 Books printing	0.0	0.0	0.0	0.0	#
139 Commercial printing	0.0	0.0	0.0	0.0	#
140 Tradebinding and related work	0.0	0.0	0.0	0.0	#
141 Prepress services	0.0	0.0	0.0	0.0	#
142 Petroleum refineries	0.0	0.0	0.0	0.0	#
143 Asphalt paving mixture and block ma	0.0	0.0	0.0	0.0	#
144 Asphalt shingle and coating materials	0.0	0.0	0.0	0.0	#
148 Industrial gas manufacturing	0.0	0.0	0.0	0.0	#
149 Synthetic dye and pigment manufactu	0.0	0.0	0.0	0.0	#
151 Other basic organic chemical manufa	0.0	0.0	0.0	0.0	#
152 Plastics material and resin manufactu	0.0	0.0	0.0	0.0	#
153 Synthetic rubber manufacturing	0.0	0.0	0.0	0.0	#
156 Nitrogenous fertilizer manufacturing	0.0	0.0	0.0	0.0	#
157 Phosphatic fertilizer manufacturing	0.0	0.0	0.0	0.0	#
158 Fertilizer- mixing only- manufacturin	0.0	0.0	0.0	0.0	#
159 Pesticide and other agricultural chem	0.0	0.0	0.0	0.0	#
160 Pharmaceutical and medicine manufa	0.0	0.0	0.0	0.0	#
161 Paint and coating manufacturing	0.0	0.0	0.0	0.0	#
162 Adhesive manufacturing	0.0	0.0	0.0	0.0	#
166 Toilet preparation manufacturing	0.0	0.0	0.0	0.0	#
167 Printing ink manufacturing	0.0	0.0	0.0	0.0	#
171 Other miscellaneous chemical produc	0.0	0.0	0.0	0.0	#
172 Plastics packaging materials- film an	0.0	0.0	0.0	0.0	#
173 Plastics pipe- fittings- and profile sha	0.0	0.0	0.0	0.0	#
177 Plastics plumbing fixtures and all oth	0.0	0.0	0.0	0.0	#
178 Foam product manufacturing	0.0	0.0	0.0	0.0	#
179 Tire manufacturing	0.0	0.0	0.0	0.0	#
180 Rubber and plastics hose and belting	0.0	0.0	0.0	0.0	#
183 Vitreous china and earthenware articl	0.0	0.0	0.0	0.0	#
188 Clay refractory and other structural cl	0.0	0.0	0.0	0.0	#
189 Glass container manufacturing	0.0	0.0	0.0	0.0	#
190 Glass and glass products- except glas	0.0	0.0	0.0	0.0	#
192 Ready-mix concrete manufacturing	0.0	0.0	0.0	0.0	#
193 Concrete block and brick manufactur	0.0	0.0	0.0	0.0	#
194 Concrete pipe manufacturing	0.0	0.0	0.0	0.0	#
195 Other concrete product manufacturin	0.0	0.0	0.0	0.0	#
197 Gypsum product manufacturing	0.0	0.0	0.0	0.0	#
199 Cut stone and stone product manufac	0.0	0.0	0.0	0.0	#

Employment Impact

February 28, 2007

IMPACT NAME: Midway Operation Effects MULTIPLIER: Type SAM
MidwayOperation 4County 022807.iap

Industry	Direct*	Indirect*	Induced*	Total*	
201 Mineral wool manufacturing	0.0	0.0	0.0	0.0	#
203 Iron and steel mills	0.0	0.0	0.0	0.0	#
206 Rolled steel shape manufacturing	0.0	0.0	0.0	0.0	#
211 Aluminum sheet- plate- and foil mani	0.0	0.0	0.0	0.0	#
212 Aluminum extruded product manufac	0.0	0.0	0.0	0.0	#
213 Other aluminum rolling and drawing	0.0	0.0	0.0	0.0	#
217 Copper wire- except mechanical- dra	0.0	0.0	0.0	0.0	#
219 Nonferrous metal- except copper and	0.0	0.0	0.0	0.0	#
221 Ferrous metal foundaries	0.0	0.0	0.0	0.0	#
222 Aluminum foundries	0.0	0.0	0.0	0.0	#
223 Nonferrous foundries- except alumin	0.0	0.0	0.0	0.0	#
226 Custom roll forming	0.0	0.0	0.0	0.0	#
227 All other forging and stamping	0.0	0.0	0.0	0.0	#
228 Cutlery and flatware- except precious	0.0	0.0	0.0	0.0	#
229 Hand and edge tool manufacturing	0.0	0.0	0.0	0.0	#
232 Prefabricated metal buildings and cor	0.0	0.0	0.0	0.0	#
233 Fabricated structural metal manufacti	0.0	0.0	0.0	0.0	#
234 Plate work manufacturing	0.0	0.0	0.0	0.0	#
235 Metal window and door manufacturi	0.0	0.0	0.0	0.0	#
236 Sheet metal work manufacturing	0.0	0.0	0.0	0.0	#
237 Ornamental and architectural metal w	0.0	0.0	0.0	0.0	#
239 Metal tank- heavy gauge- manufactu	0.0	0.0	0.0	0.0	#
240 Metal can- box- and other container r	0.0	0.0	0.0	0.0	#
241 Hardware manufacturing	0.0	0.0	0.0	0.0	#
242 Spring and wire product manufacturi	0.0	0.0	0.0	0.0	#
243 Machine shops	0.0	0.0	0.0	0.0	#
244 Turned product and screw- nut- and b	0.0	0.0	0.0	0.0	#
246 Metal coating and nonprecious engra	0.0	0.0	0.0	0.0	#
247 Electroplating- anodizing- and colori	0.0	0.0	0.0	0.0	#
248 Metal valve manufacturing	0.0	0.0	0.0	0.0	#
249 Ball and roller bearing manufacturing	0.0	0.0	0.0	0.0	#
252 Fabricated pipe and pipe fitting manu	0.0	0.0	0.0	0.0	#
255 Miscellaneous fabricated metal prodi	0.0	0.0	0.0	0.0	#
257 Farm machinery and equipment manu	0.0	0.0	0.0	0.0	#
258 Lawn and garden equipment manufac	0.0	0.0	0.0	0.0	#
259 Construction machinery manufacturi	0.0	0.0	0.0	0.0	#
264 Paper industry machinery manufactu	0.0	0.0	0.0	0.0	#
267 Food product machinery manufacturi	0.0	0.0	0.0	0.0	#
273 Other commercial and service industi	0.0	0.0	0.0	0.0	#
274 Automatic vending- commercial laun	0.0	0.0	0.0	0.0	#
275 Air purification equipment manufacti	0.0	0.0	0.0	0.0	#
277 Heating equipment- except warm air	0.0	0.0	0.0	0.0	#
278 AC- refrigeration- and forced air heat	0.0	0.0	0.0	0.0	#
279 Industrial mold manufacturing	0.0	0.0	0.0	0.0	#
280 Metal cutting machine tool manufact	0.0	0.0	0.0	0.0	#
282 Special tool- die- jig- and fixture mar	0.0	0.0	0.0	0.0	#
286 Other engine equipment manufacturi	0.0	0.0	0.0	0.0	#
288 Pump and pumping equipment manu	0.0	0.0	0.0	0.0	#
292 Conveyor and conveying equipment r	0.0	0.0	0.0	0.0	#
293 Overhead cranes- hoists- and monora	0.0	0.0	0.0	0.0	#
294 Industrial truck- trailer- and stacker n	0.0	0.0	0.0	0.0	#
295 Power-driven handtool manufacturin	0.0	0.0	0.0	0.0	#
296 Welding and soldering equipment ma	0.0	0.0	0.0	0.0	#
297 Packaging machinery manufacturing	0.0	0.0	0.0	0.0	#
299 Fluid power cylinder and actuator ma	0.0	0.0	0.0	0.0	#
300 Fluid power pump and motor manufa	0.0	0.0	0.0	0.0	#
301 Scales- balances- and miscellaneous g	0.0	0.0	0.0	0.0	#
305 Other computer peripheral equipmen	0.0	0.0	0.0	0.0	#
307 Broadcast and wireless communicati	0.0	0.0	0.0	0.0	#
309 Audio and video equipment manufac	0.0	0.0	0.0	0.0	#
311 Semiconductors and related device m	0.0	0.0	0.0	0.0	#
312 All other electronic component manu	0.0	0.0	0.0	0.0	#

*Dollars

Employment Impact

February 28, 2007

IMPACT NAME: Midway Operation Effects MULTIPLIER: Type SAM
MidwayOperation 4County 022807.iap

Industry	Direct*	Indirect*	Induced*	Total*	
314 Search- detection- and navigation ins	0.0	0.0	0.0	0.0	#
316 Industrial process variable instrumen	0.0	0.0	0.0	0.0	#
317 Totalizing fluid meters and counting	0.0	0.0	0.0	0.0	#
320 Irradiation apparatus manufacturing	0.0	0.0	0.0	0.0	#
321 Watch- clock- and other measuring a	0.0	0.0	0.0	0.0	#
322 Software reproducing	0.0	0.0	0.0	0.0	#
324 Magnetic and optical recording medi	0.0	0.0	0.0	0.0	#
326 Lighting fixture manufacturing	0.0	0.0	0.0	0.0	#
329 Household cooking appliance manuf	0.0	0.0	0.0	0.0	#
333 Electric power and specialty transfor	0.0	0.0	0.0	0.0	#
334 Motor and generator manufacturing	0.0	0.0	0.0	0.0	#
335 Switchgear and switchboard apparatu	0.0	0.0	0.0	0.0	#
336 Relay and industrial control manufac	0.0	0.0	0.0	0.0	#
341 Wiring device manufacturing	0.0	0.0	0.0	0.0	#
343 Miscellaneous electrical equipment n	0.0	0.0	0.0	0.0	#
345 Heavy duty truck manufacturing	0.0	0.0	0.0	0.0	#
346 Motor vehicle body manufacturing	0.0	0.0	0.0	0.0	#
347 Truck trailer manufacturing	0.0	0.0	0.0	0.0	#
349 Travel trailer and camper manufactur	0.0	0.0	0.0	0.0	#
350 Motor vehicle parts manufacturing	0.0	0.0	0.0	0.0	#
351 Aircraft manufacturing	0.0	0.0	0.0	0.0	#
352 Aircraft engine and engine parts man	0.0	0.0	0.0	0.0	#
354 Guided missile and space vehicle ma	0.0	0.0	0.0	0.0	#
358 Boat building	0.0	0.0	0.0	0.0	#
361 All other transportation equipment m	0.0	0.0	0.0	0.0	#
362 Wood kitchen cabinet and countertop	0.0	0.0	0.0	0.0	#
363 Upholstered household furniture man	0.0	0.0	0.0	0.0	#
364 Nonupholstered wood household furr	0.0	0.0	0.0	0.0	#
366 Institutional furniture manufacturing	0.0	0.0	0.0	0.0	#
369 Custom architectural woodwork and	0.0	0.0	0.0	0.0	#
370 Office furniture- except wood- manuf	0.0	0.0	0.0	0.0	#
371 Showcases- partitions- shelving- and	0.0	0.0	0.0	0.0	#
372 Mattress manufacturing	0.0	0.0	0.0	0.0	#
373 Blind and shade manufacturing	0.0	0.0	0.0	0.0	#
376 Surgical appliance and supplies manu	0.0	0.0	0.0	0.0	#
377 Dental equipment and supplies manu	0.0	0.0	0.0	0.0	#
378 Ophthalmic goods manufacturing	0.0	0.0	0.0	0.0	#
379 Dental laboratories	0.0	0.0	0.0	0.0	#
380 Jewelry and silverware manufacturin	0.0	0.0	0.0	0.0	#
381 Sporting and athletic goods manufact	0.0	0.0	0.0	0.0	#
382 Doll- toy- and game manufacturing	0.0	0.0	0.0	0.0	#
383 Office supplies- except paper- manuf	0.0	0.0	0.0	0.0	#
384 Sign manufacturing	0.0	0.0	0.0	0.0	#
387 Broom- brush- and mop manufacturi	0.0	0.0	0.0	0.0	#
388 Burial casket manufacturing	0.0	0.0	0.0	0.0	#
389 Buttons- pins- and all other miscellan	0.0	0.0	0.0	0.0	#
390 Wholesale trade	0.0	0.0	0.0	0.0	#
391 Air transportation	0.0	0.0	0.0	0.0	#
392 Rail transportation	0.0	0.0	0.0	0.0	#
393 Water transportation	0.0	0.0	0.0	0.0	#
394 Truck transportation	0.0	0.0	0.0	0.0	#
395 Transit and ground passenger transpo	0.0	0.0	0.0	0.0	#
396 Pipeline transportation	0.0	0.0	0.0	0.0	#
397 Scenic and sightseeing transportation	0.0	0.0	0.0	0.0	#
398 Postal service	0.0	0.0	0.0	0.0	#
399 Couriers and messengers	0.0	0.0	0.0	0.0	#
400 Warehousing and storage	0.0	0.0	0.0	0.0	#
401 Motor vehicle and parts dealers	0.0	0.0	0.0	0.0	#
402 Furniture and home furnishings store	0.0	0.0	0.0	0.0	#
403 Electronics and appliance stores	0.0	0.0	0.0	0.0	#
404 Building material and garden supply	0.0	0.0	0.0	0.0	#

*Dollars

Industry	Direct*	Indirect*	Induced*	Total*	
405 Food and beverage stores	0.0	0.0	0.0	0.0	#
406 Health and personal care stores	0.0	0.0	0.0	0.0	#
407 Gasoline stations	0.0	0.0	0.0	0.0	#
408 Clothing and clothing accessories sto	0.0	0.0	0.0	0.0	#
409 Sporting goods- hobby- book and mu	0.0	0.0	0.0	0.0	#
410 General merchandise stores	0.0	0.0	0.0	0.0	#
411 Miscellaneous store retailers	0.0	0.0	0.0	0.0	#
412 Nonstore retailers	0.0	0.0	0.0	0.0	#
413 Newpaper publishers	0.0	0.0	0.0	0.0	#
414 Periodical publishers	0.0	0.0	0.0	0.0	#
415 Book publishers	0.0	0.0	0.0	0.0	#
416 Database- directory- and other publis	0.0	0.0	0.0	0.0	#
417 Software publishers	0.0	0.0	0.0	0.0	#
418 Motion picture and video industries	0.0	0.0	0.0	0.0	#
419 Sound recording industries	0.0	0.0	0.0	0.0	#
420 Radio and television broadcasting	0.0	0.0	0.0	0.0	#
421 Cable networks and program distribu	0.0	0.0	0.0	0.0	#
422 Telecommunications	0.0	0.0	0.0	0.0	#
423 Information services	0.0	0.0	0.0	0.0	#
424 Data processing services	0.0	0.0	0.0	0.0	#
425 Nondepository credit intermediation :	0.0	0.0	0.0	0.0	#
426 Securities- commodity contracts- inv	0.0	0.0	0.0	0.0	#
427 Insurance carriers	0.0	0.0	0.0	0.0	#
428 Insurance agencies- brokerages- and	0.0	0.0	0.0	0.0	#
429 Funds- trusts- and other financial veh	0.0	0.0	0.0	0.0	#
430 Monetary authorities and depository	0.0	0.0	0.0	0.0	#
431 Real estate	0.0	0.0	0.0	0.0	#
432 Automotive equipment rental and lea	0.0	0.0	0.0	0.0	#
433 Video tape and disc rental	0.0	0.0	0.0	0.0	#
434 Machinery and equipment rental and	0.0	0.0	0.0	0.0	#
435 General and consumer goods rental e:	0.0	0.0	0.0	0.0	#
436 Lessors of nonfinancial intangible ass	0.0	0.0	0.0	0.0	#
437 Legal services	0.0	0.0	0.0	0.0	#
438 Accounting and bookkeeping service	0.0	0.0	0.0	0.0	#
439 Architectural and engineering service	0.0	0.0	0.0	0.0	#
440 Specialized design services	0.0	0.0	0.0	0.0	#
441 Custom computer programming servi	0.0	0.0	0.0	0.0	#
442 Computer systems design services	0.0	0.0	0.0	0.0	#
443 Other computer related services- incl	0.0	0.0	0.0	0.0	#
444 Management consulting services	0.0	0.0	0.0	0.0	#
445 Environmental and other technical co	0.0	0.0	0.0	0.0	#
446 Scientific research and development :	0.0	0.0	0.0	0.0	#
447 Advertising and related services	0.0	0.0	0.0	0.0	#
448 Photographic services	0.0	0.0	0.0	0.0	#
449 Veterinary services	0.0	0.0	0.0	0.0	#
450 All other miscellaneous professional :	0.0	0.0	0.0	0.0	#
451 Management of companies and enter	0.0	0.0	0.0	0.0	#
452 Office administrative services	0.0	0.0	0.0	0.0	#
453 Facilities support services	0.0	0.0	0.0	0.0	#
454 Employment services	0.0	0.0	0.0	0.0	#
455 Business support services	0.0	0.0	0.0	0.0	#
456 Travel arrangement and reservation s	0.0	0.0	0.0	0.0	#
457 Investigation and security services	0.0	0.0	0.0	0.0	#
458 Services to buildings and dwellings	0.0	0.0	0.0	0.0	#
459 Other support services	0.0	0.0	0.0	0.0	#
460 Waste management and remediation :	0.0	0.0	0.0	0.0	#
461 Elementary and secondary schools	0.0	0.0	0.0	0.0	#
462 Colleges- universities- and junior coll	0.0	0.0	0.0	0.0	#
463 Other educational services	0.0	0.0	0.0	0.0	#
464 Home health care services	0.0	0.0	0.0	0.0	#
465 Offices of physicians- dentists- and o	0.0	0.0	0.0	0.0	#
466 Other ambulatory health care services	0.0	0.0	0.0	0.0	#

Employment Impact

February 28, 2007

IMPACT NAME: Midway Operation Effects MULTIPLIER: Type SAM
MidwayOperation 4County 022807.iap

Industry	Direct*	Indirect*	Induced*	Total*	
467 Hospitals	0.0	0.0	0.0	0.0	#
468 Nursing and residential care facilities	0.0	0.0	0.0	0.0	#
469 Child day care services	0.0	0.0	0.0	0.0	#
470 Social assistance- except child day ca	0.0	0.0	0.0	0.0	#
471 Performing arts companies	0.0	0.0	0.0	0.0	#
472 Spectator sports	0.0	0.0	0.0	0.0	#
473 Independent artists- writers- and perf	0.0	0.0	0.0	0.0	#
474 Promoters of performing arts and spo	0.0	0.0	0.0	0.0	#
475 Museums- historical sites- zoos- and	0.0	0.0	0.0	0.0	#
476 Fitness and recreational sports center	0.0	0.0	0.0	0.0	#
477 Bowling centers	0.0	0.0	0.0	0.0	#
478 Other amusement- gambling- and rec	0.0	0.0	0.0	0.0	#
479 Hotels and motels- including casino h	0.0	0.0	0.0	0.0	#
480 Other accommodations	0.0	0.0	0.0	0.0	#
481 Food services and drinking places	0.0	0.0	0.1	0.1	
482 Car washes	0.0	0.0	0.0	0.0	#
483 Automotive repair and maintenance-	0.0	0.0	0.0	0.0	#
484 Electronic equipment repair and mair	0.0	0.0	0.0	0.0	#
485 Commercial machinery repair and ma	0.0	0.0	0.0	0.0	#
486 Household goods repair and maintena	0.0	0.0	0.0	0.0	#
487 Personal care services	0.0	0.0	0.0	0.0	#
488 Death care services	0.0	0.0	0.0	0.0	#
489 Drycleaning and laundry services	0.0	0.0	0.0	0.0	#
490 Other personal services	0.0	0.0	0.0	0.0	#
491 Religious organizations	0.0	0.0	0.0	0.0	#
492 Grantmaking and giving and social a	0.0	0.0	0.0	0.0	#
493 Civic- social- professional and simila	0.0	0.0	0.0	0.0	#
494 Private households	0.0	0.0	0.0	0.0	#
496 Other Federal Government enterprise	0.0	0.0	0.0	0.0	#
497 State and local government passenger	0.0	0.0	0.0	0.0	#
498 State and local government electric u	0.0	0.0	0.0	0.0	#
499 Other State and local government ent	0.0	0.0	0.0	0.0	#
	1.0	0.3	0.7	2.0	

*Dollars
Version2.01025

MIDWAY
Operation Labor Income

Labor Income Impact

February 28, 2007

MidwayOperation 4County 022807.iap

IMPACT NAME: Midway Operation Effects MULTIPLIER: Type SAM

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1 Oilseed farming	0	0	0	0	1.01
2 Grain farming	0	0	2	2	1.01
3 Vegetable and melon farming	0	2	54	56	1.01
4 Tree nut farming	0	0	13	13	1.01
5 Fruit farming	0	0	35	35	1.01
6 Greenhouse and nursery production	0	2	19	21	1.01
8 Cotton farming	0	0	5	5	1.01
9 Sugarcane and sugar beet farming	0	0	0	0	1.01
10 All other crop farming	0	3	34	37	1.01
11 Cattle ranching and farming	0	3	42	45	1.01
12 Poultry and egg production	0	3	48	51	1.01
13 Animal production- except cattle and	0	0	4	4	1.01
14 Logging	0	2	1	3	1.05
15 Forest nurseries- forest products- and	0	0	0	0	1.02
17 Hunting and trapping	0	0	1	1	1.02
18 Agriculture and forestry support activ	0	5	64	69	1.02
19 Oil and gas extraction	0	1,060	11	1,071	1.05
24 Stone mining and quarrying	0	0	0	0	1.02
25 Sand- gravel- clay- and refractory mi	0	0	0	0	1.02
27 Drilling oil and gas wells	0	0	0	0	1.01
28 Support activities for oil and gas ope	0	18	0	18	1.01
30 Power generation and supply	90,000	0	0	90,000	1.02
31 Natural gas distribution	0	25	47	72	1.02
32 Water- sewage and other systems	0	5	13	18	1.04
42 Maintenance and repair of farm and r	0	3	58	61	1.02
43 Maintenance and repair of nonresider	0	63	98	161	1.02
45 Other maintenance and repair constr	0	2,427	48	2,475	1.02
46 Dog and cat food manufacturing	0	0	0	0	1.03
47 Other animal food manufacturing	0	0	1	1	1.03
48 Flour milling	0	0	2	2	1.04
53 Other oilseed processing	0	0	0	0	1.04
54 Fats and oils refining and blending	0	0	0	0	1.04
56 Sugar manufacturing	0	0	0	0	1.02
58 Confectionery manufacturing from pr	0	0	0	0	1.02
59 Nonchocolate confectionery manufac	0	0	0	0	1.02
60 Frozen food manufacturing	0	0	5	5	1.03
61 Fruit and vegetable canning and dryi	0	0	9	9	1.03
62 Fluid milk manufacturing	0	2	27	29	1.01
64 Cheese manufacturing	0	2	23	26	1.01
65 Dry- condensed- and evaporated dair	0	0	6	7	1.01
66 Ice cream and frozen dessert manufac	0	1	7	8	1.01
67 Animal- except poultry- slaughtering	0	3	49	53	1.02
68 Meat processed from carcasses	0	1	8	9	1.02
69 Rendering and meat byproduct proce	0	0	1	1	1.02
70 Poultry processing	0	6	85	91	1.02
72 Frozen cakes and other pastries manu	0	0	0	0	1.03
73 Bread and bakery product- except fro	0	10	90	100	1.03
74 Cookie and cracker manufacturing	0	0	11	11	1.03
76 Dry pasta manufacturing	0	0	3	3	1.03
77 Tortilla manufacturing	0	0	6	7	1.03
78 Roasted nuts and peanut butter manu	0	0	1	1	1.02
79 Other snack food manufacturing	0	2	14	16	1.02
82 Mayonnaise- dressing- and sauce ma	0	0	0	0	1.02
83 Spice and extract manufacturing	0	0	0	0	1.02

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
84 All other food manufacturing	0	0	8	8	1.02
85 Soft drink and ice manufacturing	0	1	5	6	1.02
86 Breweries	0	0	0	0	1.02
87 Wineries	0	0	2	2	1.02
92 Fiber- yarn- and thread mills	0	0	0	0	1.02
93 Broadwoven fabric mills	0	0	0	0	1.02
95 Nonwoven fabric mills	0	0	0	0	1.02
97 Textile and fabric finishing mills	0	0	0	0	1.02
99 Carpet and rug mills	0	0	0	0	1.02
100 Curtain and linen mills	0	0	0	0	1.02
101 Textile bag and canvas mills	0	0	0	0	1.02
103 Other miscellaneous textile product n	0	0	0	0	1.02
107 Cut and sew apparel manufacturing	0	0	8	8	1.02
108 Accessories and other apparel manuf	0	0	2	2	1.02
109 Leather and hide tanning and finishin	0	0	0	0	1.03
111 Other leather product manufacturing	0	0	3	4	1.02
112 Sawmills	0	4	1	5	1.03
113 Wood preservation	0	3	0	3	1.03
116 Engineered wood member and truss r	0	27	3	30	1.02
117 Wood windows and door manufactur	0	2	8	10	1.02
118 Cut stock- resawing lumber- and plar	0	0	0	0	1.02
119 Other millwork- including flooring	0	0	1	1	1.02
120 Wood container and pallet manufactu	0	2	5	8	1.02
122 Prefabricated wood building manufac	0	0	0	0	1.02
123 Miscellaneous wood product manufa	0	0	1	1	1.02
125 Paper and paperboard mills	0	0	0	0	1.03
126 Paperboard container manufacturing	0	0	1	2	1.03
129 Coated and laminated paper and pack	0	0	0	0	1.03
130 Coated and uncoated paper bag manu	0	0	0	1	1.03
135 All other converted paper product ma	0	0	0	0	1.03
136 Manifold business forms printing	0	1	1	2	1.02
137 Books printing	0	0	1	1	1.02
139 Commercial printing	0	53	39	92	1.02
140 Tradebinding and related work	0	0	0	0	1.02
141 Prepress services	0	1	1	1	1.02
142 Petroleum refineries	0	29	9	38	1.02
143 Asphalt paving mixture and block ma	0	1	0	1	1.02
144 Asphalt shingle and coating materials	0	17	3	20	1.02
148 Industrial gas manufacturing	0	1	1	3	1.03
149 Synthetic dye and pigment manufactu	0	0	1	1	1.03
151 Other basic organic chemical manufa	0	0	0	0	1.03
152 Plastics material and resin manufactu	0	0	0	0	1.03
153 Synthetic rubber manufacturing	0	0	0	0	1.03
156 Nitrogenous fertilizer manufacturing	0	0	1	2	1.03
157 Phosphatic fertilizer manufacturing	0	0	0	0	1.03
158 Fertilizer- mixing only- manufacturin	0	0	1	1	1.03
159 Pesticide and other agricultural chem	0	1	2	2	1.03
160 Pharmaceutical and medicine manufa	0	0	6	6	1.03
161 Paint and coating manufacturing	0	0	0	0	1.02
162 Adhesive manufacturing	0	1	0	2	1.02
166 Toilet preparation manufacturing	0	0	1	1	1.02
167 Printing ink manufacturing	0	0	0	0	1.03
171 Other miscellaneous chemical produc	0	6	5	10	1.03
172 Plastics packaging materials- film an	0	0	1	1	1.02

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Labor Income Impact

MidwayOperation 4County 022807.iap

IMPACT NAME: Midway Operation Effects MULTIPLIER: Type SAM

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
173 Plastics pipe- fittings- and profile sha	0	45	7	52	1.02
177 Plastics plumbing fixtures and all oth	0	9	17	26	1.02
178 Foam product manufacturing	0	4	13	17	1.02
179 Tire manufacturing	0	0	0	0	1.02
180 Rubber and plastics hose and belting	0	0	0	0	1.02
183 Vitreous china and earthenware articl	0	0	0	0	1.02
188 Clay refractory and other structural cl	0	0	0	0	1.02
189 Glass container manufacturing	0	0	2	2	1.03
190 Glass and glass products- except glas	0	5	13	18	1.03
192 Ready-mix concrete manufacturing	0	0	0	0	1.01
193 Concrete block and brick manufactur	0	0	0	0	1.01
194 Concrete pipe manufacturing	0	0	0	0	1.01
195 Other concrete product manufacturin	0	0	0	0	1.01
197 Gypsum product manufacturing	0	0	0	0	1.02
199 Cut stone and stone product manufac	0	0	0	0	1.02
201 Mineral wool manufacturing	0	0	0	0	1.02
203 Iron and steel mills	0	0	0	0	1.03
206 Rolled steel shape manufacturing	0	0	0	0	1.02
211 Aluminum sheet- plate- and foil mani	0	0	0	0	1.02
212 Aluminum extruded product manufac	0	0	0	0	1.02
213 Other aluminum rolling and drawing	0	0	0	0	1.02
217 Copper wire- except mechanical- dra	0	0	0	0	1.04
219 Nonferrous metal- except copper and	0	0	0	0	1.04
221 Ferrous metal foundaries	0	0	0	0	1.03
222 Aluminum foundries	0	0	0	0	1.03
223 Nonferrous foundries- except alumin	0	0	0	0	1.03
226 Custom roll forming	0	0	0	0	1.03
227 All other forging and stamping	0	0	0	1	1.03
228 Cutlery and flatware- except precious	0	0	0	0	1.03
229 Hand and edge tool manufacturing	0	0	1	1	1.03
232 Prefabricated metal buildings and cor	0	0	0	1	1.02
233 Fabricated structural metal manufacti	0	1	0	1	1.02
234 Plate work manufacturing	0	0	0	0	1.02
235 Metal window and door manufacturir	0	1	1	2	1.02
236 Sheet metal work manufacturing	0	0	0	0	1.02
237 Ornamental and architectural metal w	0	0	0	0	1.02
239 Metal tank- heavy gauge- manufactu	0	0	0	0	1.02
240 Metal can- box- and other container r	0	0	0	1	1.02
241 Hardware manufacturing	0	0	0	0	1.02
242 Spring and wire product manufacturi	0	3	1	3	1.02
243 Machine shops	0	28	3	31	1.02
244 Turned product and screw- nut- and b	0	1	0	1	1.02
246 Metal coating and nonprecious engra	0	4	0	4	1.02
247 Electroplating- anodizing- and colori	0	10	0	11	1.02
248 Metal valve manufacturing	0	1	0	1	1.03
249 Ball and roller bearing manufacturing	0	0	0	0	1.03
252 Fabricated pipe and pipe fitting manu	0	0	0	0	1.03
255 Miscellaneous fabricated metal produ	0	0	0	0	1.03
257 Farm machinery and equipment manu	0	0	1	2	1.03
258 Lawn and garden equipment manufac	0	0	0	0	1.03
259 Construction machinery manufacturi	0	0	0	0	1.03
264 Paper industry machinery manufactu	0	0	0	0	1.03
267 Food product machinery manufacturi	0	1	1	2	1.03
273 Other commercial and service industr	0	1	0	1	1.02

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Labor Income Impact

MidwayOperation 4County 022807.iap

IMPACT NAME: Midway Operation Effects MULTIPLIER: Type SAM

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
274 Automatic vending- commercial laun	0	0	1	1	1.02
275 Air purification equipment manufacti	0	0	0	0	1.02
277 Heating equipment- except warm air	0	0	0	0	1.02
278 AC- refrigeration- and forced air heat	0	0	0	0	1.02
279 Industrial mold manufacturing	0	0	0	0	1.03
280 Metal cutting machine tool manufact	0	0	0	0	1.03
282 Special tool- die- jig- and fixture mar	0	0	0	0	1.03
286 Other engine equipment manufacturi	0	0	0	0	1.03
288 Pump and pumping equipment manu	0	0	0	0	1.02
292 Conveyor and conveying equipment r	0	0	0	0	1.02
293 Overhead cranes- hoists- and monora	0	1	0	1	1.02
294 Industrial truck- trailer- and stacker n	0	0	0	0	1.02
295 Power-driven handtool manufacturin	0	0	0	1	1.02
296 Welding and soldering equipment ma	0	0	0	0	1.02
297 Packaging machinery manufacturing	0	0	0	1	1.02
299 Fluid power cylinder and actuator ma	0	0	0	0	1.02
300 Fluid power pump and motor manufa	0	0	0	0	1.02
301 Scales- balances- and miscellaneous g	0	2	1	3	1.02
305 Other computer peripheral equipment	0	0	0	0	0.97
307 Broadcast and wireless communicati	0	0	3	4	0.98
309 Audio and video equipment manufac	0	0	1	1	0.99
311 Semiconductors and related device m	0	0	0	0	0.97
312 All other electronic component manu	0	1	3	4	0.97
314 Search- detection- and navigation ins	0	0	0	0	1.02
316 Industrial process variable instrument	0	1	0	2	1.02
317 Totalizing fluid meters and counting	0	1	0	1	1.02
320 Irradiation apparatus manufacturing	0	0	1	1	1.02
321 Watch- clock- and other measuring a	0	0	0	0	1.02
322 Software reproducing	0	0	0	0	1.01
324 Magnetic and optical recording medi	0	0	1	1	1.01
326 Lighting fixture manufacturing	0	0	0	0	1.03
329 Household cooking appliance manuf	0	0	0	0	1.02
333 Electric power and specialty transfor	0	0	0	1	1.02
334 Motor and generator manufacturing	0	1	0	1	1.02
335 Switchgear and switchboard apparatu	0	16	0	16	1.02
336 Relay and industrial control manufac	0	0	0	0	1.02
341 Wiring device manufacturing	0	0	0	0	1.02
343 Miscellaneous electrical equipment n	0	0	0	0	1.02
345 Heavy duty truck manufacturing	0	0	0	0	1.03
346 Motor vehicle body manufacturing	0	0	2	2	1.02
347 Truck trailer manufacturing	0	0	0	0	1.02
349 Travel trailer and camper manufactur	0	0	6	6	1.02
350 Motor vehicle parts manufacturing	0	2	6	8	1.03
351 Aircraft manufacturing	0	0	0	0	1.03
352 Aircraft engine and engine parts man	0	7	0	7	1.03
354 Guided missile and space vehicle ma	0	0	0	0	1.03
358 Boat building	0	0	0	0	1.02
361 All other transportation equipment m	0	0	0	0	1.02
362 Wood kitchen cabinet and countertop	0	29	14	43	1.02
363 Upholstered household furniture man	0	0	1	1	1.02
364 Nonupholstered wood household furr	0	0	2	2	1.02
366 Institutional furniture manufacturing	0	0	0	0	1.02
369 Custom architectural woodwork and	0	0	0	0	1.03
370 Office furniture- except wood- manuf	0	0	0	0	1.03

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
371 Showcases- partitions- shelving- and	0	0	0	0	1.03
372 Mattress manufacturing	0	0	7	7	1.02
373 Blind and shade manufacturing	0	0	1	1	1.02
376 Surgical appliance and supplies manu	0	0	33	33	1.02
377 Dental equipment and supplies manu	0	0	4	4	1.02
378 Ophthalmic goods manufacturing	0	0	6	7	1.02
379 Dental laboratories	0	0	18	18	1.02
380 Jewelry and silverware manufacturing	0	0	4	4	1.02
381 Sporting and athletic goods manufact	0	0	0	0	1.02
382 Doll- toy- and game manufacturing	0	0	29	29	1.02
383 Office supplies- except paper- manuf	0	0	1	1	1.02
384 Sign manufacturing	0	5	3	9	1.02
387 Broom- brush- and mop manufacturi	0	0	0	0	1.02
388 Burial casket manufacturing	0	0	0	0	1.02
389 Buttons- pins- and all other miscellan	0	0	1	1	1.02
390 Wholesale trade	0	487	1,151	1,637	1.02
391 Air transportation	0	12	55	67	1.02
392 Rail transportation	0	925	26	951	1.03
393 Water transportation	0	27	11	38	1.02
394 Truck transportation	0	235	239	474	1.01
395 Transit and ground passenger transpo	0	5	40	45	1.03
396 Pipeline transportation	0	425	5	429	1.03
397 Scenic and sightseeing transportation	0	190	67	258	1.02
398 Postal service	0	264	196	460	1.03
399 Couriers and messengers	0	148	53	201	1.01
400 Warehousing and storage	0	26	57	84	1.01
401 Motor vehicle and parts dealers	0	29	822	851	1.03
402 Furniture and home furnishings store	0	7	155	162	1.03
403 Electronics and appliance stores	0	7	114	120	1.03
404 Building material and garden supply	0	17	341	358	1.03
405 Food and beverage stores	0	25	639	664	1.03
406 Health and personal care stores	0	17	264	281	1.03
407 Gasoline stations	0	9	183	192	1.03
408 Clothing and clothing accessories sto	0	10	195	205	1.03
409 Sporting goods- hobby- book and mu	0	2	120	122	1.03
410 General merchandise stores	0	28	508	536	1.03
411 Miscellaneous store retailers	0	7	239	246	1.03
412 Nonstore retailers	0	10	94	104	1.03
413 Newpaper publishers	0	86	61	147	1.03
414 Periodical publishers	0	4	6	10	1.03
415 Book publishers	0	0	2	2	1.03
416 Database- directory- and other publis	0	12	11	23	1.02
417 Software publishers	0	0	3	3	1.00
418 Motion picture and video industries	0	9	18	27	1.04
419 Sound recording industries	0	0	1	1	1.04
420 Radio and television broadcasting	0	205	139	345	1.03
421 Cable networks and program distribu	0	0	0	0	1.02
422 Telecommunications	0	83	278	361	1.02
423 Information services	0	7	6	13	1.02
424 Data processing services	0	9	4	13	1.02
425 Nondepository credit intermediation	0	157	192	349	1.02
426 Securities- commodity contracts- inv	0	114	233	347	1.03
427 Insurance carriers	0	77	507	584	1.03
428 Insurance agencies- brokerages- and	0	36	238	275	1.02

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Industry	Direct*	Indirect*	Induced*	Total*	Deflator
429 Funds- trusts- and other financial veh	0	1	28	28	1.02
430 Monetary authorities and depository (	0	242	422	663	1.02
431 Real estate	0	235	616	851	1.02
432 Automotive equipment rental and lea	0	11	58	69	1.03
433 Video tape and disc rental	0	0	34	34	1.02
434 Machinery and equipment rental and	0	47	20	67	1.02
435 General and consumer goods rental e:	0	10	68	78	1.02
436 Lessors of nonfinancial intangible ass	0	24	6	30	1.02
437 Legal services	0	960	456	1,416	1.03
438 Accounting and bookkeeping service	0	252	195	447	1.03
439 Architectural and engineering service	0	249	96	346	1.02
440 Specialized design services	0	15	18	33	1.02
441 Custom computer programming servi	0	23	5	28	1.02
442 Computer systems design services	0	36	13	49	1.02
443 Other computer related services- incl	0	35	5	41	1.02
444 Management consulting services	0	200	82	281	1.02
445 Environmental and other technical co	0	63	20	83	1.02
446 Scientific research and development s	0	14	19	33	1.02
447 Advertising and related services	0	126	72	199	1.03
448 Photographic services	0	0	23	24	1.02
449 Veterinary services	0	1	30	31	1.02
450 All other miscellaneous professional :	0	92	12	104	1.02
451 Management of companies and enter	0	125	263	388	1.04
452 Office administrative services	0	47	61	108	1.02
453 Facilities support services	0	0	0	0	1.02
454 Employment services	0	475	295	770	1.03
455 Business support services	0	105	79	184	1.02
456 Travel arrangement and reservation s	0	10	24	33	1.03
457 Investigation and security services	0	63	68	132	1.02
458 Services to buildings and dwellings	0	105	175	281	1.02
459 Other support services	0	34	14	48	1.02
460 Waste management and remediation :	0	64	48	112	1.01
461 Elementary and secondary schools	0	0	76	76	1.03
462 Colleges- universities- and junior coll	0	104	110	215	1.03
463 Other educational services	0	4	133	137	1.03
464 Home health care services	0	0	85	85	1.03
465 Offices of physicians- dentists- and o	0	0	2,707	2,707	1.04
466 Other ambulatory health care service:	0	0	391	391	1.03
467 Hospitals	0	0	1,908	1,908	1.04
468 Nursing and residential care facilities	0	0	699	699	1.02
469 Child day care services	0	0	111	111	1.02
470 Social assistance- except child day ca	0	0	387	387	1.05
471 Performing arts companies	0	1	12	13	1.02
472 Spectator sports	0	17	36	53	1.02
473 Independent artists- writers- and perf	0	4	4	8	1.02
474 Promoters of performing arts and spo	0	1	5	6	1.02
475 Museums- historical sites- zoos- and	0	0	23	23	1.02
476 Fitness and recreational sports center:	0	8	59	66	1.02
477 Bowling centers	0	0	4	4	1.02
478 Other amusement- gambling- and rec	0	0	110	111	1.02
479 Hotels and motels- including casino h	0	18	85	104	1.03
480 Other accommodations	0	1	19	20	1.02
481 Food services and drinking places	0	468	1,322	1,789	1.02
482 Car washes	0	2	28	31	1.02

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Labor Income Impact

MidwayOperation 4County 022807.iap

IMPACT NAME: Midway Operation Effects MULTIPLIER: Type SAM

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
483 Automotive repair and maintenance-	0	31	503	534	1.02
484 Electronic equipment repair and mair	0	8	10	18	1.02
485 Commercial machinery repair and ma	0	29	35	64	1.05
486 Household goods repair and maintena	0	9	21	30	1.02
487 Personal care services	0	0	89	89	1.02
488 Death care services	0	0	58	58	1.03
489 Drycleaning and laundry services	0	62	94	156	1.03
490 Other personal services	0	1	28	29	1.03
491 Religious organizations	0	0	83	83	1.02
492 Grantmaking and giving and social a	0	0	150	150	1.02
493 Civic- social- professional and simila	0	64	262	326	1.01
494 Private households	0	0	160	160	1.01
496 Other Federal Government enterprise	0	6	21	27	1.04
497 State and local government passenger	0	12	104	116	1.04
498 State and local government electric u	0	2	16	19	1.05
499 Other State and local government ent	0	96	350	446	1.03
Total	90,000	12,321	22,185	124,507	

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

MIDWAY
Operation Output

Output Impact

MidwayOperation 4County 022807.iap

IMPACT NAME: Midway Operation Effects MULTIPLIER: Type SAM

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
1 Oilseed farming	0	0	0	0	1.01
2 Grain farming	0	1	7	8	1.01
3 Vegetable and melon farming	0	6	142	148	1.01
4 Tree nut farming	0	0	37	37	1.01
5 Fruit farming	0	1	102	102	1.01
6 Greenhouse and nursery production	0	4	34	38	1.01
8 Cotton farming	0	0	23	23	1.01
9 Sugarcane and sugar beet farming	0	0	1	1	1.01
10 All other crop farming	0	12	118	130	1.01
11 Cattle ranching and farming	0	49	667	715	1.01
12 Poultry and egg production	0	17	265	282	1.01
13 Animal production- except cattle and	0	3	43	46	1.01
14 Logging	0	16	4	21	1.05
15 Forest nurseries- forest products- and	0	0	0	0	1.02
17 Hunting and trapping	0	0	20	20	1.02
18 Agriculture and forestry support activ	0	8	97	105	1.02
19 Oil and gas extraction	0	5,113	55	5,168	1.05
24 Stone mining and quarrying	0	0	0	1	1.02
25 Sand- gravel- clay- and refractory mi	0	0	0	0	1.02
27 Drilling oil and gas wells	0	0	0	0	1.01
28 Support activities for oil and gas oper	0	51	1	52	1.01
30 Power generation and supply	270,000	0	0	270,000	1.02
31 Natural gas distribution	0	203	377	580	1.02
32 Water- sewage and other systems	0	12	32	44	1.04
42 Maintenance and repair of farm and r	0	8	163	171	1.02
43 Maintenance and repair of nonresider	0	143	222	365	1.02
45 Other maintenance and repair constru	0	4,042	80	4,122	1.02
46 Dog and cat food manufacturing	0	0	1	1	1.03
47 Other animal food manufacturing	0	0	6	7	1.03
48 Flour milling	0	0	26	26	1.04
53 Other oilseed processing	0	0	1	1	1.04
54 Fats and oils refining and blending	0	0	4	5	1.04
56 Sugar manufacturing	0	0	4	4	1.02
58 Confectionery manufacturing from pu	0	0	0	0	1.02
59 Nonchocolate confectionery manufac	0	0	1	1	1.02
60 Frozen food manufacturing	0	3	32	35	1.03
61 Fruit and vegetable canning and dryi	0	3	86	89	1.03
62 Fluid milk manufacturing	0	17	229	246	1.01
64 Cheese manufacturing	0	29	285	314	1.01
65 Dry- condensed- and evaporated dair	0	5	74	79	1.01
66 Ice cream and frozen dessert manufac	0	12	58	70	1.01
67 Animal- except poultry- slaughtering	0	33	476	509	1.02
68 Meat processed from carcasses	0	10	92	101	1.02
69 Rendering and meat byproduct proce	0	2	6	8	1.02
70 Poultry processing	0	32	473	505	1.02
72 Frozen cakes and other pastries manu	0	0	1	1	1.03
73 Bread and bakery product- except fro	0	32	291	323	1.03
74 Cookie and cracker manufacturing	0	2	79	81	1.03
76 Dry pasta manufacturing	0	0	24	24	1.03
77 Tortilla manufacturing	0	2	28	31	1.03
78 Roasted nuts and peanut butter manu	0	1	18	18	1.02
79 Other snack food manufacturing	0	20	174	194	1.02
82 Mayonnaise- dressing- and sauce mar	0	0	0	0	1.02
83 Spice and extract manufacturing	0	0	0	0	1.02

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
84 All other food manufacturing	0	1	59	61	1.02
85 Soft drink and ice manufacturing	0	4	38	42	1.02
86 Breweries	0	0	1	1	1.02
87 Wineries	0	1	12	13	1.02
92 Fiber- yarn- and thread mills	0	0	1	1	1.02
93 Broadwoven fabric mills	0	0	2	2	1.02
95 Nonwoven fabric mills	0	0	1	1	1.02
97 Textile and fabric finishing mills	0	0	1	2	1.02
99 Carpet and rug mills	0	0	0	0	1.02
100 Curtain and linen mills	0	0	1	1	1.02
101 Textile bag and canvas mills	0	0	1	1	1.02
103 Other miscellaneous textile product n	0	0	0	0	1.02
107 Cut and sew apparel manufacturing	0	0	43	44	1.02
108 Accessories and other apparel manuf	0	0	5	5	1.02
109 Leather and hide tanning and finishin	0	0	0	0	1.03
111 Other leather product manufacturing	0	1	12	12	1.02
112 Sawmills	0	21	8	29	1.03
113 Wood preservation	0	78	5	83	1.03
116 Engineered wood member and truss r	0	111	13	125	1.02
117 Wood windows and door manufactur	0	6	32	39	1.02
118 Cut stock- resawing lumber- and plar	0	0	0	1	1.02
119 Other millwork- including flooring	0	1	5	6	1.02
120 Wood container and pallet manufactu	0	8	19	27	1.02
122 Prefabricated wood building manufac	0	0	0	0	1.02
123 Miscellaneous wood product manufa	0	1	3	5	1.02
125 Paper and paperboard mills	0	0	0	0	1.03
126 Paperboard container manufacturing	0	2	5	7	1.03
129 Coated and laminated paper and pack	0	0	0	0	1.03
130 Coated and uncoated paper bag manu	0	0	2	3	1.03
135 All other converted paper product ma	0	0	0	0	1.03
136 Manifold business forms printing	0	3	3	6	1.02
137 Books printing	0	1	3	4	1.02
139 Commercial printing	0	100	73	172	1.02
140 Tradebinding and related work	0	0	0	0	1.02
141 Prepress services	0	2	1	3	1.02
142 Petroleum refineries	0	118	35	154	1.02
143 Asphalt paving mixture and block ma	0	9	1	10	1.02
144 Asphalt shingle and coating materials	0	143	26	169	1.02
148 Industrial gas manufacturing	0	14	16	30	1.03
149 Synthetic dye and pigment manufactu	0	2	5	7	1.03
151 Other basic organic chemical manufa	0	1	1	1	1.03
152 Plastics material and resin manufactu	0	1	0	1	1.03
153 Synthetic rubber manufacturing	0	0	0	0	1.03
156 Nitrogenous fertilizer manufacturing	0	10	22	32	1.03
157 Phosphatic fertilizer manufacturing	0	0	0	0	1.03
158 Fertilizer- mixing only- manufacturin	0	1	5	6	1.03
159 Pesticide and other agricultural chem	0	8	27	36	1.03
160 Pharmaceutical and medicine manufa	0	0	36	36	1.03
161 Paint and coating manufacturing	0	0	0	0	1.02
162 Adhesive manufacturing	0	7	1	8	1.02
166 Toilet preparation manufacturing	0	0	8	8	1.02
167 Printing ink manufacturing	0	1	1	3	1.03
171 Other miscellaneous chemical produc	0	34	30	64	1.03
172 Plastics packaging materials- film an	0	1	5	5	1.02

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
173 Plastics pipe- fittings- and profile sha	0	261	40	301	1.02
177 Plastics plumbing fixtures and all oth	0	39	77	115	1.02
178 Foam product manufacturing	0	22	77	99	1.02
179 Tire manufacturing	0	0	0	0	1.02
180 Rubber and plastics hose and belting	0	0	0	1	1.02
183 Vitreous china and earthenware articl	0	0	1	1	1.02
188 Clay refractory and other structural cl	0	0	0	0	1.02
189 Glass container manufacturing	0	0	6	7	1.03
190 Glass and glass products- except glas	0	22	50	72	1.03
192 Ready-mix concrete manufacturing	0	1	0	1	1.01
193 Concrete block and brick manufactur	0	0	0	0	1.01
194 Concrete pipe manufacturing	0	0	0	0	1.01
195 Other concrete product manufacturin	0	0	0	0	1.01
197 Gypsum product manufacturing	0	0	0	0	1.02
199 Cut stone and stone product manufac	0	0	1	1	1.02
201 Mineral wool manufacturing	0	0	1	2	1.02
203 Iron and steel mills	0	6	1	7	1.03
206 Rolled steel shape manufacturing	0	0	0	0	1.02
211 Aluminum sheet- plate- and foil mani	0	0	0	1	1.02
212 Aluminum extruded product manufac	0	0	0	0	1.02
213 Other aluminum rolling and drawing	0	2	0	2	1.02
217 Copper wire- except mechanical- dra	0	2	0	2	1.04
219 Nonferrous metal- except copper and	0	0	0	0	1.04
221 Ferrous metal foundaries	0	0	0	0	1.03
222 Aluminum foundries	0	0	0	0	1.03
223 Nonferrous foundries- except alumini	0	0	0	0	1.03
226 Custom roll forming	0	0	0	0	1.03
227 All other forging and stamping	0	2	1	2	1.03
228 Cutlery and flatware- except precious	0	0	0	0	1.03
229 Hand and edge tool manufacturing	0	2	2	4	1.03
232 Prefabricated metal buildings and cor	0	2	0	2	1.02
233 Fabricated structural metal manufacti	0	3	0	3	1.02
234 Plate work manufacturing	0	1	0	1	1.02
235 Metal window and door manufacturi	0	4	2	6	1.02
236 Sheet metal work manufacturing	0	0	0	1	1.02
237 Ornamental and architectural metal w	0	2	0	2	1.02
239 Metal tank- heavy gauge- manufactui	0	0	0	0	1.02
240 Metal can- box- and other container r	0	1	3	3	1.02
241 Hardware manufacturing	0	0	0	1	1.02
242 Spring and wire product manufacturi	0	10	3	13	1.02
243 Machine shops	0	78	8	86	1.02
244 Turned product and screw- nut- and b	0	4	0	5	1.02
246 Metal coating and nonprecious engra	0	16	1	17	1.02
247 Electroplating- anodizing- and colori	0	39	2	40	1.02
248 Metal valve manufacturing	0	2	1	3	1.03
249 Ball and roller bearing manufacturing	0	1	0	1	1.03
252 Fabricated pipe and pipe fitting manu	0	0	1	1	1.03
255 Miscellaneous fabricated metal produ	0	0	0	0	1.03
257 Farm machinery and equipment manu	0	2	10	13	1.03
258 Lawn and garden equipment manufac	0	0	4	4	1.03
259 Construction machinery manufacturi	0	4	0	5	1.03
264 Paper industry machinery manufactui	0	0	0	1	1.03
267 Food product machinery manufacturi	0	2	4	6	1.03
273 Other commercial and service industi	0	2	1	3	1.02

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Industry	Direct*	Indirect*	Induced*	Total*	Deflator
274 Automatic vending- commercial laun	0	1	3	4	1.02
275 Air purification equipment manufacti	0	0	0	0	1.02
277 Heating equipment- except warm air	0	0	0	0	1.02
278 AC- refrigeration- and forced air heat	0	0	0	0	1.02
279 Industrial mold manufacturing	0	0	0	0	1.03
280 Metal cutting machine tool manufact	0	0	0	0	1.03
282 Special tool- die- jig- and fixture mar	0	0	0	0	1.03
286 Other engine equipment manufacturi	0	2	1	3	1.03
288 Pump and pumping equipment manu	0	1	1	2	1.02
292 Conveyor and conveying equipment i	0	2	0	2	1.02
293 Overhead cranes- hoists- and monora	0	5	0	5	1.02
294 Industrial truck- trailer- and stacker n	0	0	0	0	1.02
295 Power-driven handtool manufacturin	0	1	1	3	1.02
296 Welding and soldering equipment ma	0	1	0	1	1.02
297 Packaging machinery manufacturing	0	2	1	2	1.02
299 Fluid power cylinder and actuator ma	0	0	0	0	1.02
300 Fluid power pump and motor manufa	0	0	0	0	1.02
301 Scales- balances- and miscellaneous g	0	9	3	12	1.02
305 Other computer peripheral equipment	0	0	2	2	0.97
307 Broadcast and wireless communicatic	0	2	24	26	0.98
309 Audio and video equipment manufac	0	0	8	8	0.99
311 Semiconductors and related device m	0	0	0	0	0.97
312 All other electronic component manu	0	3	11	15	0.97
314 Search- detection- and navigation ins	0	0	0	0	1.02
316 Industrial process variable instrument	0	6	0	6	1.02
317 Totalizing fluid meters and counting	0	4	1	5	1.02
320 Irradiation apparatus manufacturing	0	0	2	2	1.02
321 Watch- clock- and other measuring a	0	0	1	1	1.02
322 Software reproducing	0	0	0	1	1.01
324 Magnetic and optical recording medi	0	2	2	4	1.01
326 Lighting fixture manufacturing	0	0	0	0	1.03
329 Household cooking appliance manufa	0	0	0	0	1.02
333 Electric power and specialty transfor	0	1	1	3	1.02
334 Motor and generator manufacturing	0	5	1	6	1.02
335 Switchgear and switchboard apparatu	0	70	1	71	1.02
336 Relay and industrial control manufac	0	1	0	1	1.02
341 Wiring device manufacturing	0	2	0	2	1.02
343 Miscellaneous electrical equipment n	0	0	0	0	1.02
345 Heavy duty truck manufacturing	0	0	3	3	1.03
346 Motor vehicle body manufacturing	0	1	13	14	1.02
347 Truck trailer manufacturing	0	0	0	0	1.02
349 Travel trailer and camper manufactur	0	0	23	23	1.02
350 Motor vehicle parts manufacturing	0	13	40	53	1.03
351 Aircraft manufacturing	0	0	0	0	1.03
352 Aircraft engine and engine parts man	0	38	0	38	1.03
354 Guided missile and space vehicle ma	0	0	0	0	1.03
358 Boat building	0	0	0	0	1.02
361 All other transportation equipment m	0	0	0	1	1.02
362 Wood kitchen cabinet and countertop	0	97	47	143	1.02
363 Upholstered household furniture man	0	0	4	4	1.02
364 Nonupholstered wood household furr	0	1	10	11	1.02
366 Institutional furniture manufacturing	0	0	0	0	1.02
369 Custom architectural woodwork and i	0	0	1	1	1.03
370 Office furniture- except wood- manuf	0	0	0	0	1.03

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
371 Showcases- partitions- shelving- and	0	0	1	1	1.03
372 Mattress manufacturing	0	0	47	47	1.02
373 Blind and shade manufacturing	0	0	5	5	1.02
376 Surgical appliance and supplies manu	0	1	116	117	1.02
377 Dental equipment and supplies manu	0	0	15	15	1.02
378 Ophthalmic goods manufacturing	0	1	20	21	1.02
379 Dental laboratories	0	0	31	31	1.02
380 Jewelry and silverware manufacturin	0	0	20	20	1.02
381 Sporting and athletic goods manufact	0	0	1	1	1.02
382 Doll- toy- and game manufacturing	0	0	95	95	1.02
383 Office supplies- except paper- manuf	0	1	4	4	1.02
384 Sign manufacturing	0	11	6	17	1.02
387 Broom- brush- and mop manufacturi	0	0	0	0	1.02
388 Burial casket manufacturing	0	0	0	0	1.02
389 Buttons- pins- and all other miscellan	0	0	1	2	1.02
390 Wholesale trade	0	1,295	3,061	4,356	1.02
391 Air transportation	0	47	218	265	1.02
392 Rail transportation	0	2,764	77	2,841	1.03
393 Water transportation	0	105	41	146	1.02
394 Truck transportation	0	694	708	1,402	1.01
395 Transit and ground passenger transpo	0	11	96	107	1.03
396 Pipeline transportation	0	2,686	31	2,717	1.03
397 Scenic and sightseeing transportation	0	257	91	349	1.02
398 Postal service	0	346	257	603	1.03
399 Couriers and messengers	0	406	144	550	1.01
400 Warehousing and storage	0	44	95	139	1.01
401 Motor vehicle and parts dealers	0	63	1,813	1,876	1.03
402 Furniture and home furnishings store	0	21	426	447	1.03
403 Electronics and appliance stores	0	11	200	211	1.03
404 Building material and garden supply	0	45	897	942	1.03
405 Food and beverage stores	0	55	1,417	1,473	1.03
406 Health and personal care stores	0	35	560	595	1.03
407 Gasoline stations	0	30	585	615	1.03
408 Clothing and clothing accessories sto	0	32	608	641	1.03
409 Sporting goods- hobby- book and mu	0	6	283	288	1.03
410 General merchandise stores	0	67	1,225	1,292	1.03
411 Miscellaneous store retailers	0	14	474	489	1.03
412 Nonstore retailers	0	49	442	491	1.03
413 Newpaper publishers	0	217	153	370	1.03
414 Periodical publishers	0	18	29	47	1.03
415 Book publishers	0	1	12	13	1.03
416 Database- directory- and other publis	0	57	49	106	1.02
417 Software publishers	0	0	9	9	1.00
418 Motion picture and video industries	0	73	144	217	1.04
419 Sound recording industries	0	0	4	5	1.04
420 Radio and television broadcasting	0	550	373	923	1.03
421 Cable networks and program distribu	0	1	13	14	1.02
422 Telecommunications	0	400	1,340	1,740	1.02
423 Information services	0	26	24	51	1.02
424 Data processing services	0	27	13	39	1.02
425 Nondepository credit intermediation :	0	375	458	833	1.02
426 Securities- commodity contracts- inv	0	239	487	727	1.03
427 Insurance carriers	0	325	2,134	2,459	1.03
428 Insurance agencies- brokerages- and	0	84	555	640	1.02

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
429 Funds- trusts- and other financial veh	0	3	133	136	1.02
430 Monetary authorities and depository	0	1,004	1,750	2,754	1.02
431 Real estate	0	1,353	3,553	4,906	1.02
432 Automotive equipment rental and lea	0	49	258	307	1.03
433 Video tape and disc rental	0	0	107	107	1.02
434 Machinery and equipment rental and	0	246	103	348	1.02
435 General and consumer goods rental e:	0	17	115	132	1.02
436 Lessors of nonfinancial intangible ass	0	270	66	336	1.02
437 Legal services	0	1,848	877	2,725	1.03
438 Accounting and bookkeeping service	0	540	419	959	1.03
439 Architectural and engineering service	0	476	184	661	1.02
440 Specialized design services	0	43	50	92	1.02
441 Custom computer programming servi	0	24	5	29	1.02
442 Computer systems design services	0	37	14	51	1.02
443 Other computer related services- incl	0	100	14	114	1.02
444 Management consulting services	0	461	189	649	1.02
445 Environmental and other technical co	0	181	56	237	1.02
446 Scientific research and development s	0	26	35	61	1.02
447 Advertising and related services	0	328	188	517	1.03
448 Photographic services	0	1	80	82	1.02
449 Veterinary services	0	1	67	68	1.02
450 All other miscellaneous professional	0	1,258	157	1,415	1.02
451 Management of companies and enter	0	325	683	1,008	1.04
452 Office administrative services	0	150	193	343	1.02
453 Facilities support services	0	0	0	1	1.02
454 Employment services	0	546	338	884	1.03
455 Business support services	0	231	174	405	1.02
456 Travel arrangement and reservation s	0	39	97	136	1.03
457 Investigation and security services	0	98	105	203	1.02
458 Services to buildings and dwellings	0	250	417	667	1.02
459 Other support services	0	130	55	184	1.02
460 Waste management and remediation	0	235	175	409	1.01
461 Elementary and secondary schools	0	0	110	110	1.03
462 Colleges- universities- and junior coll	0	240	253	493	1.03
463 Other educational services	0	10	327	338	1.03
464 Home health care services	0	0	137	137	1.03
465 Offices of physicians- dentists- and o	0	0	4,418	4,418	1.04
466 Other ambulatory health care services	0	1	1,074	1,075	1.03
467 Hospitals	0	0	3,794	3,794	1.04
468 Nursing and residential care facilities	0	0	1,164	1,164	1.02
469 Child day care services	0	0	287	287	1.02
470 Social assistance- except child day ca	0	0	768	768	1.05
471 Performing arts companies	0	3	27	29	1.02
472 Spectator sports	0	32	71	103	1.02
473 Independent artists- writers- and perf	0	14	16	31	1.02
474 Promoters of performing arts and spo	0	4	15	18	1.02
475 Museums- historical sites- zoos- and	0	0	31	31	1.02
476 Fitness and recreational sports center	0	15	111	125	1.02
477 Bowling centers	0	0	12	12	1.02
478 Other amusement- gambling- and rec	0	1	326	327	1.02
479 Hotels and motels- including casino h	0	51	235	286	1.03
480 Other accommodations	0	2	81	84	1.02
481 Food services and drinking places	0	1,434	4,054	5,488	1.02
482 Car washes	0	7	86	93	1.02

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

Industry	Direct*	Indirect*	Induced*	Total*	Deflator
483 Automotive repair and maintenance-	0	83	1,323	1,405	1.02
484 Electronic equipment repair and mair	0	24	31	55	1.02
485 Commercial machinery repair and ma	0	88	105	194	1.05
486 Household goods repair and maintena	0	54	135	189	1.02
487 Personal care services	0	0	243	243	1.02
488 Death care services	0	0	120	120	1.03
489 Drycleaning and laundry services	0	114	174	288	1.03
490 Other personal services	0	5	229	233	1.03
491 Religious organizations	0	0	443	443	1.02
492 Grantmaking and giving and social a	0	0	198	198	1.02
493 Civic- social- professional and simila	0	73	298	371	1.01
494 Private households	0	0	160	160	1.01
496 Other Federal Government enterprise	0	6	21	27	1.04
497 State and local government passenger	0	13	109	122	1.04
498 State and local government electric ut	0	10	73	83	1.05
499 Other State and local government ent	0	323	1,180	1,503	1.03
509 Owner-occupied dwellings	0	0	9,631	9,631	0.98
Total	270,000	35,762	68,477	374,240	

*2005 Dollars - if results are deflated and aggregated, then deflators displayed are set to 1.0 (results have been deflated)

TECHNICAL AREA: SOCIOECONOMICS

Data Request 53: Please indicate the year for all economic estimates (e.g., construction and operation sales tax, quantitative secondary economic impacts etc.).

Response: The economic estimates provided in Section 5.10 Socioeconomics, of the Midway Application for Certification appear in 2005 U.S. dollars.

TECHNICAL AREA: SOCIOECONOMICS

Data Request 54: Please provide an estimate of the number and percentage of the construction workforce that would be local, from Fresno County, and non-local.

Response: Based on current projected labor and employment data from the California Employment Development Department, 2006, and Building and Construction Trades Council of Fresno, Madera, Tulare, and Kings County, 2006, the Midway project expects that construction labor requirements will be met with workers from Fresno, Madera, Tulare, and Kings Counties.

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TECHNICAL AREA: TRAFFIC AND TRANSPORTATION

Data Request 55: Please provide a discussion of existing aerial spraying of pesticides on the adjacent pomegranate orchards, and whether this practice has been altered or restricted since the construction and operation of the existing transmission lines and power plants.

Response: In a phone discussion between a Baker Farms manager, Juan Calderon, and Dave Jenkins on January 24, 2007, Mr. Calderon stated that the Bakers have not historically practiced or otherwise relied on aerial spraying of agricultural materials on the adjacent pomegranate orchards. Rather, he stated that land-based vehicular methods are employed for these applications. He did not know of any aerial applications prior to the Baker's ownership and management of this parcel and orchards.

TECHNICAL AREA: TRAFFIC AND TRANSPORTATION

Data Request 56: Please discuss potential impacts on aerial spraying from the proposed Starwood power plant, reconductored transmission line, and visible and thermal plumes.

Response: In the same phone conversation described in DR #55 above, Mr. Calderon stated that the Bakers do not plan on changing their land-based agricultural materials application methods. As such, physical effects related to the Midway Project are of no consequence regarding aerial application of agricultural materials.

TECHNICAL AREA: TRAFFIC AND TRANSPORTATION

Data Request 57: Please provide the average number of trucks and equipment deliveries expected during the construction of the project.

Response: Table 5.11-5, below, was provided on page 5.11-9 of the Starwood AFC (06-AFC-10) to show Peak construction trip generation of the Midway project. The table has been amended to show Average project construction trip generation.

Table 5.11-5
Average Project Construction Trip Generation

	Daily Trips	AM Peak Hour Trips		PM Peak Hour Trips	
		In	Out	In	Out
Peak Midway Construction Workers [1]	150	75	0	0	75
Equipment Deliveries[2]	10	3	3	2	2
Construction Trucks[3]	20	5	0 (5)[5]	0 (5)[5]	5
Concrete Deliveries [6]	80	20	20	20	20
Total Trips					

1 Based on Table 3.8-3 which shows that an average of ~ 75 construction workers are required on any given day during the 10 month construction period.
2 Average equipment movement during 10 month Construction period.
3 Based on Table 3.8-4 which shows that an average of ~ 10 construction trucks are required on site for any given day during the 10 month construction period. This does not include concrete truckload deliveries.
5 Trips in parenthesis occurring during off peak hours
6 Based on 400 truckloads of concrete required for entire 10 month construction period. This averages to 40 truck loads per month.

TECHNICAL AREA: TRAFFIC AND TRANSPORTATION

Data Request 58: Please provide the estimated number of hazardous materials and equipment deliveries on an annual basis during operation of the power plant.

Response: In response to CEC's request to quantify the Aqueous Ammonia truck trips during project operations we have developed the following truck trip estimates:

Assumptions

- Aqueous Ammonia (annual usage as permitted) = 175 lb/hr x 400 hr / 7.7 lbs/gal x 2 units = 18,182 gal
- Caltrans Certified Ammonia Tanker Truck Transport Capacity = 6,000 gallons

Conclusion

As shown, the total aqueous ammonia demand for 400 annual hours of operation is 18,182 gallons. The project provides for 24,000 gallons of aqueous ammonia storage on-site (two 12,000 gallon tanks equivalent to 4 full tanker truck (6,000 gallon) transport capacity). As such, there is sufficient capacity to supply the Midway facility for an entire year (24,000 gallon capacity - 18,182 gallon annual usage = 5,818 reserve) even without re-supply. However, to provide a conservative estimate, keeping the tanks at or near full capacity would require 3 truck deliveries of aqueous ammonia per year or 1 truck delivery every four months on average in context to one year of plant operations consumption.

Further, for Air Quality and Water resources the Midway facility is required to be permitted to 4,000 hours of annual operation. Therefore, for analysis purposes, approximately 181,819 gallons and 30 truck loads of aqueous ammonia per year would be required.

TECHNICAL AREA: TRAFFIC AND TRANSPORTATION

Data Request 59: a. Please identify the school bus stop locations in the vicinity of the project, and when the bus picks up and drops off students from those locations.

b. Please discuss how potential safety impacts for school children getting on or off busses or walking along the route would be eliminated.

Response:

a. The school bus pick-up and drop-off point is located 500-600 feet east of the existing substation (and Midway project site) on the south side of Panoche Road fronting some residential apartments. Morning pick-up time is 7:00 AM going eastbound towards Mendota and afternoon drop-off is 4:00 PM going westbound from Mendota.

b. According to Mr. Meza (2-26-07 phone conversation with Noel Casil - URS), if the 5-plex is acquired by Starwood Power - Midway, LLC and converted to non-residential use, and if the three homes on the north side of Panoche Road (north of the proposed PEC project) are acquired by other parties, there is no reason for the school bus to stop at this location. There are no other sources of students around the vicinity of the Midway project site that would contribute additional students. Therefore, the school bus stop would be eliminated from the route. Mr. Meza's contact information is provided below.

Mendota Unified School District Transportation Dept – 559-655-3433
1200 Belmont Ave, Mendota CA
Ralph Meza – Cell 559-351-0686
Transportation Director

If both of the two statements above are not achieved, the following strategies would be implemented:

Currently the school buses are equipped with the "eight-light system" (school bus warning light configuration provides 4 flashing lights located in front and to the rear of school bus) for greater visibility during pick-up and drop-off and includes a STOP shield that is deployed on the side of the bus towards the centerline. These built-in school bus safety measures could be supplement with following strategies:

1. Minimize construction related traffic during the above specified school bus hours.

2. The project proponent/contractor to coordinate with County staff for the potential placement of supplemental warning signs ahead of the school bus stop on a temporary basis during construction.

3. The project proponent/contractor to coordinate with County/School District staff for potentially funding (proponent/contractor's expense) the services of a paid school crossing guard on a temporary basis during construction. Note: The State of California Department of Transportation (Caltrans) has established warrants for school crossing guards based on number of students, vehicles, traffic controls and traffic accident records.

TECHNICAL AREA: TRANSMISSION SYSTEM ENGINEERING

Data Request 60: Figure 2-2 on Page 3 of the SIS, dated March 30, 2006, and Figure 2-2 on page 3 of the FSR, dated November 3, 2006 selected two different project locations and two different generation tie line locations. Please identify the correct generation facility and tie line locations.

Response: Figure 2-2 on page 3 of the FSR, dated November 3, 2006 depicts the correct generation facility and tie line locations. The figure provided in the SIS is from an earlier version that was then modified.

TECHNICAL AREA: TRANSMISSION SYSTEM ENGINEERING

Data Request 61: Please verify the length of the generation tie line: 300 ft. as indicated in the AFC or 1000 ft. as indicated in the SIS and FSR.

Response: The length of the generation tie line is 300 ft. as indicated in the AFC. The AFC was prepared with updated information after the SIS and FSR were prepared.

TECHNICAL AREA: TRANSMISSION SYSTEM ENGINEERING

Data Request 62: Provide a detail drawing of the reconductoring of the transmission line from the Le Grand 115 kV Substation to the Dairyland 115 kV Substation. Information should include the number of poles required (new or existing), pole configuration, conductor type, size, and length.

Response: Please see response to Data Request 29.

TECHNICAL AREA: TRANSMISSION SYSTEM ENGINEERING

Data Request 63: Provide electronic copies of *.sav PSLF files used for the SIS (including N-0, N-1, and N-2).

Response: This information was requested from PG&E on 2/20/07. PG&E responded that the requested materials are confidential property of PG&E and are not shared with third parties. The correspondence is provided as Attachments A and B to this sheet.

DATA REQUEST RESPONSE #63
ATTACHMENT A

rweiss@houston.rr.com
02/21/2007 05:38 PM

To angela_leiba@urscorp.com, amy_gramlich@urscorp.com
cc
bcc
Subject Fwd: RE: Midway CEC Data Request

See attached response from PG&E.
Rich

----- Message from "Gillis, Chris (ET)" <CxGl@pge.com> on Wed, 21 Feb 2007 09:51:47 -0800 -----

To: rweiss@houston.rr.com

Subject: RE: Midway CEC Data Request

Rich,

Please see the attached letter for the CEC.

Chris

-----Original Message-----
From: Rich Weiss [mailto:rweiss@houston.rr.com]
Sent: Tuesday, February 20, 2007 12:27 PM
To: Wong, Albert (ET); Gillis, Chris (ET)
Cc: Angela Leiba; Amy Gramlich
Subject: RE: Midway CEC Data Request

Chris,
The CEC has requested information from the PG&E March 30, 2006 Midway SIS as
follows:
CEC Data Request #62 - Provide electronic copies of *.sav PSLF files used for the SIS (including N-0, N-1, and N-2).
CEC Data Request #63 - Provide electronic copies of the *.drw files as listed in Appendix D of the SIS.
Can you provide these electronic files?
Thanks,
Rich

Richard H. Weiss
Starwood Power-Midway LLC
2737 Arbuckle St. Suite L
Houston, TX 77005
713-662-3688
713-828-1810 cell

-----Original Message-----
From: Gillis, Chris (ET) [mailto:CxGl@pge.com]
Sent: Tuesday, February 20, 2007 12:40 PM
To: rweiss@houston.rr.com
Subject: RE: Midway Re-Study

Rich,

I have contacted Transmission Planning and they are reviewing the invoice. I am hoping to have some information for you by the end of the

day.

Chris

-----Original Message-----
From: Rich Weiss [mailto:rweiss@houston.rr.com]
Sent: Monday, February 19, 2007 12:00 PM
To: Gillis, Chris (ET); Wong, Albert (ET)
Subject: Midway Re-Study

Albert, Chris,
How is the Midway re-study going? We have received the second round of CEC questions and about 25% of the questions relate to the network upgrade impact analysis. Need to answer the questions if the network upgrade remains in our scope. Appreciate your feedback.
Also received the Facility Study invoice, $28k over the deposit of $25k. Can you help me understand why the difference? Seems as if PG&E tends to budget enough to cover the work. Last two SIS reports had budgeted monies returned. Why was this task so expensive?
Thanks,
Rich

Richard H. Weiss
Starwood Power-Midway LLC
2737 Arbuckle St. Suite L
Houston, TX 77005
713-662-3688
713-828-1810 cell

Starwood CEC Base Case Letter.pdf

DATA REQUEST RESPONSE #63
ATTACHMENT B

Pacific Gas and Electric Company

Generation
Interconnection Services
Mail Code N7L
P. O. Box 770000
San Francisco, CA 94177

February 21, 2007

Mr. Richard H. Weiss
Partner
Starwood Power-Midway LLC
2737 Arbuckle St. Suite L
Houston, TX 77005

Subject: Electric Base Cases - CEC Data Adequacy – Starwood Power Panoche Project

Dear Mr. Weiss:

You have recently requested that PG&E provide you with certain electric transmission system impact "base case" data for your use in responding to a data request propounded to you by the California Energy Commission.

This letter is to advise you that PG&E's base case data are confidential property of PG&E and are generally not shared with third parties.

Please contact me if you have any questions.

Sincerely,

Christopher Gillis
Sr. Project Manager
Pacific Gas & Electric Co.
Generation Interconnection Services

TECHNICAL AREA: TRANSMISSION SYSTEM ENGINEERING

Data Request 64: Provide electronic copies of the *.drw files as listed in Appendix D of the SIS.

Response: Please see response to Data Request 63.

TECHNICAL AREA: WASTE MANAGEMENT

Data Request 65: Using the Interim Guidance for Sampling Agricultural Fields for School Sites (Second Revision August 26, 2002) sponsored by the California Department of Toxic Substances Control (DTSC) California Environmental Protection Agency, please identify agricultural chemicals that would have been on the site, chemicals of potential concern, and metals of potential concern. Please sample the project site for concentrations of arsenic and selenium. A minimum of eight composite samples should also be taken on half-acre centers.

Response: Soil samples were collected to confirm the presence of agricultural chemicals, concentrations of arsenic and selenium, as well as other chemicals and metals of potential concern. The results of the requested soil sampling are discussed in a letter from Kleinfelder, dated 2/28/07, which is provided as an attachment to this sheet.

DATA REQUEST RESPONSE #65
ATTACHMENT

February 28, 2007
Project No. 73384

Mr. Steve Zaminski
Starwood Power-Midway, LLC
591 West Putnam Avenue
Greenwich, CT 06830

SUBJECT: Limited Soil Sampling and Analysis
CalPeak Substation Facility
Panoche Road
Fresno County, California

Dear Mr. Zaminski:

Kleinfelder is pleased to provide the results of our Limited Soil Sampling and Analysis conducted at the CalPeak Facility located at West Panoche Road in western Fresno County, California (site). The Limited Soil Sampling and Analysis consisted of the collection and analysis of shallow soil samples at twelve locations throughout the site. The Limited Soil Sampling and Analysis activities were conducted in accordance with the scope of work requested by Starwood Power-Midway, LLC as documented within Kleinfelder's proposal 21-YP8-191, dated February 20, 2007.

WORK SCOPE

The scope of work requested by Starwood Power – Midway LLC included the collection and analysis of soil samples for the presence of arsenic and selenium. The work was conducted in accordance with our authorized proposal and the California Department of Toxic Substances Control (DTSC) "Interim Guidance for Sampling Agricultural Fields for School Sites (Second Revision, August 26, 2002). Our scope of services for assessment at the site was limited to the following task:

Limited Soil Sampling and Analysis

The limited soil sampling included the collection of eight shallow soil samples from throughout the site. The site dimensions were measured, and the site was divided into eight roughly similar areas. Soil samples were collected from the approximate center of each of the eight grids (Soil Samples SS-1 to SS-8). The soil samples were collected within shallow soils, at depths ranging from approximately one to three inches below grade.

Background soil samples (SS-BK-1 to SS-BK-4) were collected from an approximate depth of three feet below surface grade at four locations along the boundary of the site facility. The locations of soil samples collected are indicated on Plate 1 in Appendix A.

In accordance with the scope of work requested, the twelve soil samples collected from the site were analyzed for the presence and concentration of total arsenic and total selenium by EPA Method 6010B by Enviro-Chem Laboratories of Pasadena, California. Enviro-chem Laboratories is a State Certified analytical laboratory. The soil samples were analyzed on a rush 24-hour turn-around.

FINDINGS

Site Conditions Noted During Soil Sampling Activities

The soils at the site noted at the time of Kleinfelder's soil sampling activities were moist. A significant amount of steel framing, power equipment components, and miscellaneous parts were observed throughout the site. A majority of the site was enclosed by chain-link fencing. Surface soils appeared to have been leveled in the past.

Surface soils consisted of tan-brown, loose sandy clay. A silty fine to medium sand was encountered at depths of approximately three feet below grade within soil borings advanced for the collection of background soil samples.

Laboratory Analysis

Table 1 summarizes the results of analysis for arsenic and selenium. Copies of the Chain-of-Custody and analytical reports for the soil samples analyzed are provided in Appendix B.

Table 1
Concentrations of Arsenic and Selenium in Soil Samples
CalPeak Facility
West Panoche Road
Fresno County, California
Sample Date: February 23, 2007
(Concentrations are expressed in milligrams per kilogram [mg/kg])

Sample No.	Sample Location	Concentration of Arsenic	Concentration of Selenium
SS-1	Southeast portion	3.59	<1.0
SS -2	South east central	4.55	<1.0
SS -3	Southwest central	4.28	<1.0
SS -4	Southwest portion	3.97	<1.0
SS-5	Northwest portion	4.4	<1.0
SS-6	Northwest central	4.68	<1.0
SS-7	Northeast central	4.37	<1.0
SS-8	Northeast portion	4.52	<1.0
Background Soil Samples			
SS-BK-1	North boundary (south of fuel storage tanks)	3.81	<1.0
SS-BK-2	West boundary	3.35	<1.0
SS-BK-3	South boundary	3.12	<1.0
SS-BK-4	East boundary	4.71	<1.0
TTLC value		500	100
CHHSL for industrial property use		0.24	4,800

NA = Not applicable
ND = None detected at the laboratory reporting limit.
TTLC = Total Threshold Limit concentration, criteria for management and disposal of hazardous wastes
CHHSL = California Human Health Screening Levels, for contaminated site screening activities (not a regulatory clean-up level, used for site screening purposes only)

DISCUSSION

Laboratory results for soil samples analyzed indicated concentrations of arsenic in surface soil samples ranging from 3.59 to 4.68 milligrams per kilogram (mg/kg). Concentrations of arsenic noted within background soil samples ranged from 3.12 to 4.71 mg/kg. Concentrations of arsenic noted within surface soil samples were comparable to background soil samples, and were well below the applicable Total Threshold Limit Concentration (TTLC) for arsenic of 500 mg/kg. The concentrations of arsenic noted in both surface soils and background soil samples exceeded the California Human Health Screening Level (CHHSL) for industrial uses of a property, at 0.24 mg/kg (as promulgated by the California Department of Toxic Substances Control, [DTSC]). The concentrations of arsenic in the soil samples collected from the site were within the range of concentrations considered to be background based on arsenic data from Preliminary Endangerment Assessment sites throughout California (DTSC 2005, Thomas F. Booze, PhD, DTSC toxicologist, personal communication).

The concentrations of arsenic are anticipated to represent naturally occurring arsenic levels, and not a site specific point source for contamination.

The presence of selenium was not detected at concentrations above the laboratory detection limit of 1.0 mg/kg. Concentrations of selenium were less than the applicable TTLC value for selenium of 100 mg/kg, and the CHHSL of 4,800 mg/kg.

LIMITATIONS

Limited soil sampling events are non-comprehensive by nature and are unlikely to identify all environmental problems or eliminate all risk. The attached letter report is a qualitative assessment. Kleinfelder offers a range of investigative and engineering services to suit the needs of our clients, including more quantitative investigations. Although risk can never be eliminated, more detailed and extensive investigations yield more information, which may help you understand and better manage your risks. Since such detailed services involve greater expense, we ask our clients to participate in identifying the level of service that will provide them with an acceptable level of risk.

Please contact the signatories of this report if you would like to discuss this issue of risk further.

Kleinfelder performed this environmental assessment in general accordance with the guidelines set forth in the California DTSC "Interim Guidance for Sampling Agricultural Fields for School Sites (Second Revision, August 26, 2002), as requested by you as our client. No warranty, either express or implied, is made. Environmental issues not specifically addressed in the report were beyond the scope of our work and not included in our evaluation.

Land use, site conditions (both on-site and off-site) and other factors will change over time. Since site activities and regulations beyond our control could change at any time after the completion of this report, our observations, findings and opinions can be considered valid only as of the date of the soil collection.

If you have any questions regarding the information presented herein, or if we can be of further assistance, please contact the undersigned at (559) 486-0750.

Respectfully Submitted,
KLEINFELDER, INC.

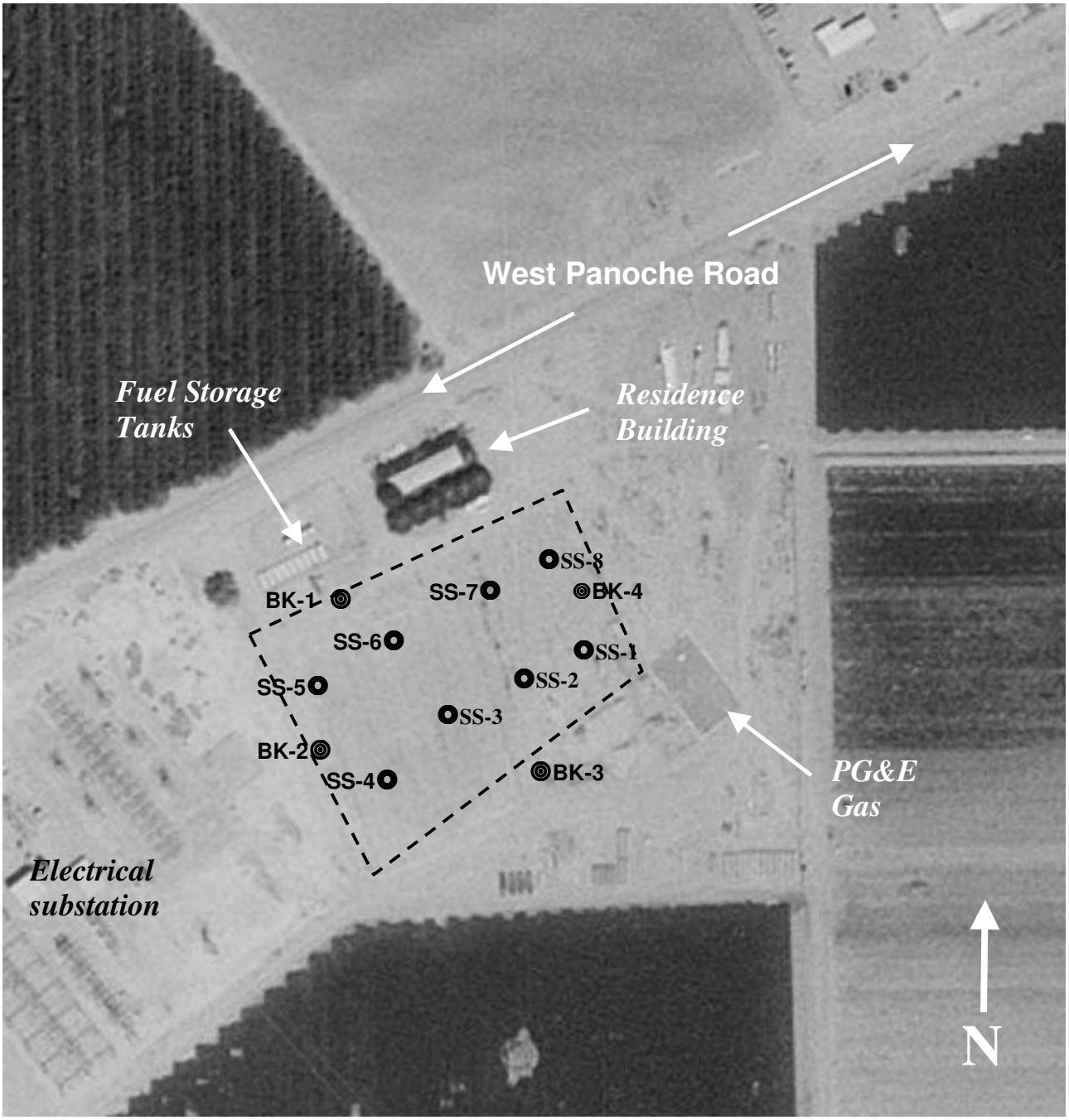
Lorin Sutton, REA
Project Manager

Chris Skelton, PG 7414
Environmental Group Manager

Appendix A
Plate 1 – Site Plan, with Soil Sample Locations

Appendix B
Laboratory Reports of Analysis (Enviro-chem Laboratories)

Sample location map based upon 1998 aerial photograph from TerraServer, via internet web page.



Approximate Project Site Boundaries

SS-1 = Surface soil sample location and number

BK-1 = Background soil sample locations and number

KLEINFELDER

PROJECT NO. 62739	DATE: 11-8-05

SOIL SAMPLE LOCATIONS
CALPEAK FACILITY
WEST PANOCHE ROAD.
FRESNO CO., CALIFORNIA

PLATE
1

Enviro – Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Date: February 27, 2007

Mr. Lorin Sutton
Kleinfelder
1410 F Street
Fresno, CA 93706
Tel(559)486-0750 Fax(559)442-5081

Project: **Cal Peak - Panoche**
Project #: **73384**
Lab I.D.: **070226-9 through -20**

Dear Mr. Sutton:

The **analytical results** for the soil samples, received by our lab on February 26, 2007, (via California Overnight), are attached. All samples were received chilled, intact and accompanying chain of custody.

Enviro-Chem appreciates the opportunity to provide you and your company this and other services. Please do not hesitate to call us if you have any questions.

Sincerely,

Curtis Desilets
Vice President/Program Manager

Jesse Tu, Ph.D.
Laboratory Manager

Enviro – Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

LABORATORY REPORT

CUSTOMER: **Kleinfelder**
1410 F Street
Fresno, CA 93706
Tel(559)486-0750 Fax(559)442-5081

PROJECT: **Cal Peak - Panoche**
PROJECT #: **73384**
MATRIX: SOIL
DATE SAMPLED: 02/23/07
REPORT TO: Mr. LORIN SUTTON
DATE RECEIVED: 02/26/07
DATE ANALYZED: 02/26/07
DATE REPORTED: 02/27/07

EPA 6010B FOR TTLC-ARSENIC/SELENIUM
UNITS: MG/KG = MILLIGRAM PER KILOGRAM = PPM

SAMPLE I.D.	LAB I.D.	TTLC-ARSENIC	DF	TTLC-SELENIUM	DF
SS-1	070226-9	3.59	1	ND	1
SS-2	070226-10	4.55	1	ND	1
SS-3	070226-11	4.28	1	ND	1
SS-4	070226-12	3.97	1	ND	1
SS-5	070226-13	4.40	1	ND	1
SS-6	070226-14	4.68	1	ND	1
SS-7	070226-15	4.37	1	ND	1
SS-8	070226-16	4.52	1	ND	1
SS-BK-1	070226-17	3.81	1	ND	1
SS-BK-2	070226-18	3.35	1	ND	1
SS-BK-3	070226-19	3.12	1	ND	1
SS-BK-4	070226-20	4.71	1	ND	1
Method Blank	---	ND	1	ND	1
	PQL	0.30		1.00	

COMMENTS:
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = DF X PQL
ND = Non-Detected or below the Actual Detection Limit
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
STLC Limit for Arsenic = 5 PPM
STLC Limit for Selenium = 1 PPM

Data Reviewed and Approved by: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

KLEINFELDER

PROJECT NO.	PROJECT NAME					RECEIVING LAB:
73384	Cal Peak - Panoche	RUSH				ENVIROCHEM
L.P. NO. (PO. NO.) LS 1860	SAMPLERS: (Signature/Number)					INSTRUCTIONS/REMARKS: 24-hour TAT

	DATE MM/DD/YY	SAMPLE I.D. TIME HH-MM-SS	SAMPLE I.D.	MATRIX	NO. OF CONTAINERS	TYPE OF CONTAINERS 40Z	ANALYSIS SE	AS											
1	2-23-07		SS -1	soil	1	Jar	X	X											070226-9
2			SS -2		1		X	X											-10
3			SS -3		1		X	X											-11
4			SS -4		1		X	X											-12
5			SS -5		1		X	X											-13
6			SS -6		1		X	X											-14
7			SS -7		1		X	X											-15
8			SS -8		1		X	X											-16
9			SS-BK-1		1		X	X											-17
10			SS-BK-2		1		X	X											-18
11			SS-BK-3		1		X	X											-19
12	↓		SS-BK-4	↓	1	↓	X	X											-20
13																			
14																			
15																			
16																			
17																			
18																			
19																			
20																			

Relinquished by: (Signature)	Date/Time	Received by: (Signature)
	2-23-07	WP 2/23/07 10:00
Relinquished by: (Signature)	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)

Instructions/Remarks: RUSH please

Send Results To:
KLEINFELDER
1410 F STREET
FRESNO, CA 93706-1608
(559) 486-0750
Attn: LORIN SUTTON

M-60 White – Sampler Canary – Return Copy To Shipper Pink – Lab Copy

CHAIN OF CUSTODY NO. 3944

TECHNICAL AREA: WORKER SAFETY/FIRE PREVENTION

Data Request 66: Please provide specific information on any fire suppression systems that will utilize water, including deluge systems, sprinkler systems, and hydrants, planned for the project's construction phase and operational phase. This will include information on the size (if any) of water storage tanks for use in fire suppression and the presence (if any) of fire water system pressure-maintaining pumps.

Response: The California Fire department regional office has been contacted and has indicated that a Fire hydrant with a minimum flow of 1500 Gallons a minute which is accessible to them is all that is required for this site. They also stated that a hydrant on the Westland Water District System is adequate to meet these requirements with out a fire pump or internal fire system other than the systems previously described in the AFC. We have contacted the Westland Water District and all that is required to have this Hydrant installed is application and payment for the installation.

TECHNICAL AREA: WORKER SAFETY/FIRE PREVENTION

Data Request 67:

a. Please provide information regarding the existing CalPeak Panoche facility's hazardous materials response team including the name of the company, their responsibilities, their capabilities, their location, and their response time to a spill at the facility or on the highway between I-5 and the power plant (if under their purview).

b. Please discuss whether the CalPeak Panoche facility's hazardous materials response team addressed in 67a. above, will also be serving the Starwood facility.

Response:

a. Information regarding the existing CalPeak Panoche facility's hazardous materials response team is provided as the following attachments to this sheet:

   Attachment A: Emergency Notification Phone Roster
   Attachment B: Emergency Equipment List

b. The CalPeak Panoche facility's hazardous materials response team will also be serving the Midway facility.

DATA REQUEST RESPONSE #67
ATTACHMENT A

EMERGENCY NOTIFICATION PHONE ROSTER

ORGANIZATION	PHONE	24-HOUR	RESPONSE TIME
Emergency Coordinator: Shift Supervisor 7365 Mission Gorge Road, Suite C San Diego, CA 92120 Actual response by Local Operations Technician **Alternate:** John Bryant Plant Manager 7365 Mission Gorge Road, Suite C San Diego, CA 92120	(619) 229-7617 (619) 229-3770	(619) 726-2410 (619) 726-2348	Immediate to 1 hour Onsite or 30 miles away.
Spill Response: CalPeak Power Local Emergency Response Team	(619) 229-7617	(619) 726-2410	Immediate to 1 hour Onsite or 30 miles away
Mendota Fire Department: 101 McCabe Avenue Mendota, CA 93640	911 or (559) 485-7500	911	28 minutes (15 miles)
Fresno County Sheriff's Department: 2200 Fresno Street Fresno, CA 93721	911 or (559) 455-3271	911	1 hour, 24 minutes (47 miles)
Hospital: Community Medical Center 2823 Fresno Street Fresno, CA 93721	911 or (559) 459-6000	911	1 hour, 25 minutes (48 miles)
Paramedic and/or Ambulance Service: Fresno Medical Transportation 3204 N Marks Ave Fresno, CA 93722	911 or (559) 266-1111	911	1 hour, 22 minutes (47 miles)
County Environmental Health Division (CUPA): 1221 Fulton Mall, Third Floor Fresno, CA 93721	(559) 445-3271	(599) 488-3111	1 hour, 24 minutes (46 miles)
California Office of Emergency Services: County Department of Community Health 1221 Fulton Mall Fresno, CA 93721	1-800-852-7550 or (599) 455-3391	1-800-852-7550 or (599) 488-3791	1 hour, 24 minutes (46 miles)
Fresno County Department of Public Works: 2220 Tulare St, 6th Floor Fresno, CA 93721	(559) 262-4078	Sheriff's Dept. (599) 488-5111	1 hour, 25 minutes (47 miles)
Pacific Gas and Electric	(209) 726-7633	(209) 726-7611	--

DATA REQUEST RESPONSE #67
ATTACHMENT B

CALPEAK POWER - PANOCHE, LLC
EMERGENCY EQUIPMENT

LOCATION	PERSONNEL PROTECTIVE AND SAFETY EQUIPMENT	EMERGENCY RESPONSE SPILL EQUIPMENT	COMMUNICATIONS EQUIPMENT	STRUCTURAL EQUIPMENT	INSPECTION FREQUENCY
Ammonia Unloading Station, Pumps, piping	Boots, Faceshields, Gloves, Impervious Suit (Jacket and Pants), Respirators	Ammonia Sensors, Push Button Alarm, Level Gauge	Telephone, Verbal, Visual and Audible Alarms	Secondary Containment, Berm, Floating Polyballs	Semiannually and/or After Each Use
Various	--	Fire Extinguishers, Fire Suppression Systems, Alarms	Telephone, Verbal, Visual and Audible Alarms	Berms, Sump, Oily Water Separator	Semiannually and/or After Each Use
Hazardous Materials Storage Unit	--	--	--	Secondary Containment	Semiannually

31765-0060/Panoche Rev 3 (4/17/02/mc)

URS

1615 Murray Canyon Road, Suite 1000
San Diego, CA 92108
Phone: (619) 294-9400
Fax: (619) 293-7920

LETTER OF TRANSMITTAL

TO:
California Energy Commission
Docket Unit MS #15
1516 Ninth Street
Sacramento, CA 95814

DATE: March 9, 2007

SUBJECT: Starwood Responses to Data Requests (#1-67)

Enclosed/Attached please find the following:

- Starwood Responses to Data Requests (#1-67) Starwood-Midway Project (06-AFC-10)

For: ☒ Review and Approval

☐ Signature and Return

☐ Appropriate Action

☐ As Requested

☒ For Your Information

Remarks:

Provided is the Starwood Responses to Data Requests (#1-67) including 75 hard copies and 50 CD copies. If you have any questions or need any further information, please feel free to call. Thank you!!

Kindly,

Amy Gramlich
Visual Resource Specialist