Reservoir Area Recreation Appraisal Level Equipment and Fuel Consumption Estimates

Description	Equipment Hours	Total Diesel Consumption (gal)	Total Gas Consumption (gal)
10 KW Generator Set (Gas)	211	0	117
250 CFM Diesel Compressor	366	1,118	0
Subtotal:	577	1,118	117
Hoisting Equipment			
60 Ton Hydraulic Crane (Grove)	12	28	0
75 Ton Crawler Crane (Linkbelt 138)	9	25	0
Subtotal:	21	54	0
Foundation & Marine Equipment			
125 Hsp Marina Workboat	1	0	14
700 Hsp Marine Inland Tugboat	79	3,065	0
Hydraulic Hoe Ram	101	0	0
Truck Mounted Post Hole Auger	54	60	0
Subtotal:	235	3,125	14
Service & Maintenance Equipment			
1/2 Ton Pickup Truck 4x4	1,102	0	1,748
10 Ton Boomtruck	3	8	0
15 Ton Pitman Boom Truck	12	36	0
20 Ton (10 CY) Tandem Truck	2,984	20,420	0
24 Ton (12 CY) Tandem Truck	171	1,171	0
3/4 Ton Crew Cab Truck 4x4	13	0	30
3/4 Ton Pickup Truck 2x2	141	0	261
3000 Gallon Watertruck	196	870	0
32 Ton (16 CY) Triaxle Truck-Operated	275	1,943	0
5 Ton Flat Bed Truck	506	1,544	0
500 Ton Marine Barge	79	0	0
80 Ton Lowboy	9	72	0
8000 Gallon Watertanker	6	34	0
Dozer Winch (American)	79	0	0
Helicopter 5000lbs (Aviation Fuel)	19	0	1,632
Subtotal:	5,596	26,098	3,671
Total:	**17,983**	**72,374**	**3,802**
Grading/Dozing/Scraper	1,568		

Reservoir Area Utilities Appraisal Level Equipment and Fuel Consumption Estimates

Description	Equipment Hours	Total Diesel Consumption (gal)	Total Gas Consumption (gal)
Earthmoving Equipment			
1.0 CY Backhoe Loader (Case 580)	304	583	0
1.5 CY Backhoe (Cat 225)	226	615	0
1.5 CY Backhoe (Cat 325)	21	58	0
1.7 CY Backhoe Loader (Case 680)	1	3	0
10 Ton Compactor 12 hsp (Cyn CA25)	1	4	0
125 Hsp Grader (Cat 120)	7	49	0
150 Hsp Grapple (Cat 527)	0	0	0
2.0 CY Backhoe (Cat 330)	3	23	0
2.3 CY Backhoe (Cat 235)	114	1,074	0
2.6 CY Backhoe (Cat 350)	2	24	0
2.7 CY Loader (JD644)	9	33	0
22" Smooth Drum Manual (Bomag 55)	3	3	0
3.0 CY Track Loader (Cat 963)	3	14	0
3.5 CY Loader (Cat 950)	336	1,482	0
5 Ft Wheel Mounted Chain Trencher	44	153	0
6.5 CY Loader (Cat 980)	2	15	0
80 LB Jackhammer	5	0	0
90 Kg Plate Tamper	10	0	3
Cat TK723 Feller Buncher	0	0	0
DT-320 Tree Mulcher	0	1	0
Hoe Hammer 4X	2	0	0
Tree Stumper	0	0	0
Subtotal:	1,091	4,134	3
Pipeline Equipment			
Acetylene Cutting Torch	3	0	0
Subtotal:	3	0	0
Concrete Equipment			
Grout Pump	45	0	25
Subtotal:	45	0	25
Utility Equipment			
10 KW Generator Set (Gas)	1	0	1
250 CFM Diesel Compressor	4	11	0
Subtotal:	5	11	1
Foundation & Marine Equipment			

Reservoir Area Utilities Appraisal Level Equipment and Fuel Consumption Estimates

Description	Equipment Hours	Total Diesel Consumption (gal)	Total Gas Consumption (gal)
Hydraulic Hoe Ram	3	0	0
Truck-Mounted Direct Rotary Drill Rig	10	24	0
Subtotal:	12	24	0
Service & Maintenance Equipment			
1/2 Ton Pickup Truck 4x4	6	0	10
10 Ton Boomtruck	275	823	0
20 Ton (10 CY) Tandem Truck	24	162	0
24 Ton (12 CY) Tandem Truck	2	16	0
3/4 Ton Pickup Truck 2x2	404	0	746
32 Ton (16 CY) Triaxle Truck-Operated	6	42	0
5 Ton Flatbed Truck	70	213	0
Electrical Service truck	375	0	594
Tractor & Trailer	255	708	0
Subtotal:	1,416	1,964	1,350
Total:	**2,573**	**6,133**	**1,379**

Grading/Dozing/Scraper 7

Kerckhoff Project Decommissioning Appraisal Level Equipment and Fuel Estimates

Description	Equipment Hours	Total Diesel Consumption (gal)	Total Gas Consumption (gal)
Earthmoving Equipment			
110 Hsp Bulldozer (Cat D5)	10	40	0
170 Hsp Bulldozer (Cat D6)	115	639	0
3.5 CY Loader (Cat 950)	91	354	0
6.5 CY Loader (Cat 980)	10	64	0
3.0 CY Track Loader (Cat 963)	162	988	0
1300LB Skid Steer Loader (Bobcat 743)	10	13	0
125 Hsp Grader (Cat 120)	10	40	0
275 Hsp Grader (Cat 16G)	41	320	0
1.5 CY Backhoe (Cat 225)	26	146	0
1.5 CY Backhoe (Cat 325)	38	266	0
2.0 CY Backhoe (Cat 330)	48	403	0
2.6 CY Backhoe (Cat 350)	72	759	0
2.7 CY Backhoe (Cat 345 BL)	368	3,676	0
20 Ton (10 CY) Tandem Truck	232	1,610	0
15 Ton Compactor 84" (Cat 563)	41	235	0
23 Ton Compactor 220 hsp (Cat 815)	19	214	0
Subtotal:	1,294	9,768	0
Pipeline Equipment			
300 Amp Gas Welder	29	21	0
350 Amp Diesel Welder	58	48	0
Subtotal:	86	69	0
Concrete Equipment			
124 YPH Trailer Mounted Concrete Pump	182	1,265	0
Concrete Saw 10"	29	0	8
Subtotal:	211	1,265	8
Utility Equipment			
10 KW Generator Set (Gas)	1,681	0	933
60 KW Diesel Generator Set	115	288	0
100 KW Diesel Generator Set	634	2,353	0
Tower 6-Lights 16 Hsp	304	202	0
2" Diesel Water Pump 8,000 gph	67	36	0
250 CFM Diesel Compressor	259	790	0
750 CFM Diesel Compressor	29	248	0
Subtotal:	3,088	3,916	933

Kerckhoff Project Decommissioning Appraisal Level Equipment and Fuel Estimates

Description	Equipment Hours	Total Diesel Consumption (gal)	Total Gas Consumption (gal)
Hoisting Equipment			
20 Ton Truck Crane	10	30	0
40 Ton Truck Crane	130	453	0
100 Ton Truck Crane (Linkbelt 218)	624	2,037	0
125 Ton Truck Crane (Linkbelt 228)	19	91	0
150 Ton Crawler Crane (American 9260)	163	632	0
250 Ton Crawler Crane (American 9320)	622	2,949	0
30 Ton Hydraulic Crane (Grove500)	1,053	2,234	0
40 Ton Hydraulic Crane (Grove700)	106	250	0
50 Ton Hydraulic Crane (Grove)	134	336	0
60 Ton Hydraulic Crane (Grove)	38	120	0
2 Tonne Forklift (JCB-5500lb)	24	47	0
6 Tonne Forklift(12,000lb)	466	1,808	0
Motorized Manlift 30 Ft	58	80	0
Knuckleboom Manlift 36 Ft	173	288	0
Motorized Manlift 120FT (JLG 120FXJ)	38	122	0
Swing Stage	302	503	0
Subtotal:	3,959	11,979	0
Foundation & Marine Equipment			
Concrete Crusher	368	1,838	0
Subtotal:	368	1,838	0

Kerckhoff Project Decommissioning Appraisal Level Equipment and Fuel Estimates

Description	Equipment Hours	Total Diesel Consumption (gal)	Total Gas Consumption (gal)
Service & Maintenance Equipment			
Sedan Car 4-Door	144	0	160
1/2 Ton Pickup Truck 4x4	285	0	451
3/4 Ton Pickup Truck 2x2	4,412	0	8,160
3/4 Ton Pickup Truck 4x4	29	0	57
1-Ton Crew Cab	60	0	143
5 Ton Flat Bed Truck	654	1,996	0
1- Ton Mechanic Truck	29	96	0
2-Ton Mechanic Truck	144	639	0
Electrical Service truck	749	3,324	0
Fuel Truck (Single Axle)	67	242	0
1000 Gallon Watertruck	144	439	0
5 Ton Boomtruck	19	38	0
15 Ton Pitman Boom Truck	19	58	0
Tractor & Trailer	1,164	7,107	0
20 Ton Lowboy	158	439	0
40 Ton Lowboy	10	40	0
Chain Saw	38	0	10
Subtotal:	8,126	14,419	8,981
Subcontract Equipment Est			
Subcontract Equipment Est	0	38,987	0
Subtotal:	0	38,987	0
Total:	**17,133**	**82,240**	**9,922**
Grading/Dozing/Scraper	176		

Reservoir Clearing Appraisal Level Equipment and Fuel Estimates

Description	Equipment Hours	Total Diesel Consumption (gal)	Total Gas Consumption (gal)
Earthmoving Equipment			
305 Hsp Bulldozer (Cat D8)	5,670	56,699	
2.0 CY Backhoe (Cat 330)	4,501	36,007	
140 Hsp Wheel Skidder (Cat 515)	31,000	180,185	
160 Hsp Wheel Skidder (Cat 525)	1,600	10,568	
200 Hsp Wheel Skidder (Cat 545)	1,169	9,352	
210 Hsp Harvester (Cat 580)	800	5,715	
Cat TK723 Feller Buncher	16,469	164,701	
Cat 330 LC Log Loader	16,469	143,587	
Chipper - clearing	16,500	188,584	
DT-320 Tree Mulcher	15,300	428,400	
Subtotal:	109,478	1,223,797	0
Pipeline Equipment			
250 Amp Diesel Welder	6,667	3,329	
350 Amp Diesel Welder	6,667	5,548	
Subtotal:	13,333	8,877	0
Utility Equipment			
Tower 6-Lights 16 Hsp	41,600	83,200	
185 CFM Diesel Compressor	6,667	18,494	
2000 PSI Pressure Washer	6,667	1,849	
Subtotal:	54,933	103,543	0
Service & Maintenance Equipment			
3/4 Ton Pickup Truck 4x4	372		737
3/4 Ton Crew Cab Truck 4x4	22,761		45,522
2-Ton Mechanic Truck	13,333		37,054
Lube Truck	16,000	59,181	
Fuel Truck (Tandem Axle 20000 litres)	8,000	28,000	
5000 Gallon Watertanker	3,332	11,662	
Survey Total Station	1,760		
Chain Saw	49,900		24,950
Subtotal:	115,458	98,843	108,263
Total:	**293,203**	**1,435,060**	**108,263**

Grading/Dozing/Scraper 5,670

* AERMOD (12060): C:\USERS\DIMITRI.ANTONIOU\DESKTOP\AERMOD_PROJECTS\SJ_DAM\SJ_DAM\SJ_DPM 4/12/2014
* MODELING OPTIONS USED: 3:38:32 PM
* RegDFAULT CONC ELEV FLGPOL
* PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL
* FOR A TOTAL OF 130 RECEPTORS.
* FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)

Risk Factor
0

	X	Y	AVE CONC (Option A)	AVE CONC (Option B)	AVE CONC (Option C)	ZELEV	ZHILL	ZFLAG	AVE	GRP	NUM HRS	NET ID	Option A Cancer Risk/Receptor	Option B Cancer Risk/Receptor	Option C Cancer Risk/Receptor
1	263667.08000	4104281.66000	1920.8	3691.3	2755.7	363.43	561	1.8	PERIOD	ALL	43776		1	2	1
2	263867.36000	4104177.33000	2253.0	3817.1	3200.2	338.6	561	1.8	PERIOD	ALL	43776		1	2	1
3	263945.60000	4104193.16000	2363.4	3796.6	3352.8	328.72	561	1.8	PERIOD	ALL	43776		1	2	1
4	264008.95000	4104193.16000	2443.8	3788.7	3478.1	323.73	561	1.8	PERIOD	ALL	43776		1	2	1
5	264119.01000	4104003.27000	2824.3	4276.8	4138.5	315.52	561	1.8	PERIOD	ALL	43776		1	2	2
6	264159.06000	4103978.12000	2903.3	4299.2	4256.8	314.73	561	1.8	PERIOD	ALL	43776		1	2	2
7	264244.76000	4103951.11000	4158.7	5344.3	6355.8	291.71	561	1.8	PERIOD	ALL	43776		2	2	3
8	264352.82000	4104077.79000	3386.2	4070.5	5038.9	296.86	561	1.8	PERIOD	ALL	43776		1	2	2
9	264442.24000	4104129.96000	2749.6	3222.0	3945.0	304.17	561	1.8	PERIOD	ALL	43776		1	1	2
10	264477.64000	4104088.97000	3021.0	3504.5	4405.0	299.2	561	1.8	PERIOD	ALL	43776		1	1	2
11	263908.48000	4103802.99000	4184.7	5954.5	6785.1	276.22	561	1.8	PERIOD	ALL	43776		2	2	3
12	263886.12000	4103742.44000	4361.5	6165.8	6806.2	281.62	561	1.8	PERIOD	ALL	43776		2	3	3
13	264038.89000	4103865.40000	4413.5	6160.0	6830.6	286.88	561	1.8	PERIOD	ALL	43776		2	3	3
14	264012.81000	4103758.28000	4324.6	6161.3	7172.5	271.8	561	1.8	PERIOD	ALL	43776		2	3	3
15	264166.51000	4103906.39000	4198.6	5691.5	6433.6	291.4	561	1.8	PERIOD	ALL	43776		2	2	3
16	264385.42000	4103840.25000	4292.0	5252.0	11608.5	241.56	561	1.8	PERIOD	ALL	43776		2	2	5
17	264320.21000	4103702.39000	4650.5	5982.9	16547.2	228.16	561	1.8	PERIOD	ALL	43776		2	2	7
18	264636.00000	4104010.72000	3670.7	4234.7	5833.7	278.57	561	1.8	PERIOD	ALL	43776		2	2	2
19	264556.82000	4103941.79000	4139.6	4742.4	6670.9	276.84	561	1.8	PERIOD	ALL	43776		2	2	3
20	264603.40000	4103829.08000	4575.0	5284.7	6858.0	292.01	561	1.8	PERIOD	ALL	43776		2	2	3
21	264445.97000	4103619.48000	5223.3	6255.0	17957.2	226.33	607	1.8	PERIOD	ALL	43776		2	3	7
22	264347.23000	4103572.91000	5230.0	6653.6	14181.9	236.45	561	1.8	PERIOD	ALL	43776		2	3	6
23	264311.83000	4103567.32000	5161.2	6722.6	14129.4	236.18	561	1.8	PERIOD	ALL	43776		2	3	6
24	264470.19000	4103444.36000	5837.2	7031.4	17424.3	190.14	607	1.8	PERIOD	ALL	43776		2	3	7
25	263969.09000	4103533.60000	3999.5	5994.0	14375.6	228.24	561	1.8	PERIOD	ALL	43776		2	2	6
26	264091.03000	4103558.15000	4435.6	6424.4	16791.5	210.6	561	1.8	PERIOD	ALL	43776		2	3	7
27	264304.81000	4103496.39000	5332.6	7056.1	15780.1	231.66	561	1.8	PERIOD	ALL	43776		2	3	7
28	264556.61000	4103685.63000	5242.9	6028.8	9506.0	259.09	561	1.8	PERIOD	ALL	43776		2	2	4
29	264733.46000	4103841.52000	3796.6	4561.5	5572.0	296.89	561	1.8	PERIOD	ALL	43776		2	2	2
30	264704.58000	4103794.01000	3639.6	4438.5	5248.0	305.84	561	1.8	PERIOD	ALL	43776		2	2	2
31	264769.79000	4103731.60000	3911.9	4752.5	5598.1	305.37	561	1.8	PERIOD	ALL	43776		2	2	2
32	264863.87000	4103685.02000	5342.6	6136.0	7857.5	289	561	1.8	PERIOD	ALL	43776		2	3	3
33	264017.11000	4103214.60000	3686.6	6298.3	12241.7	188.12	561	1.8	PERIOD	ALL	43776		2	3	5
34	263973.33000	4103272.35000	3592.5	6087.3	12112.9	181.35	561	1.8	PERIOD	ALL	43776		1	3	5
35	264060.89000	4103136.35000	3750.9	6565.2	11914.1	187.81	561	1.8	PERIOD	ALL	43776		2	3	5
36	264085.11000	4103215.53000	3951.5	6492.3	12988.7	193.09	561	1.8	PERIOD	ALL	43776		2	3	5
37	264076.73000	4103250.00000	3976.7	6431.5	13491.8	196.55	561	1.8	PERIOD	ALL	43776		2	3	6
38	263955.63000	4103312.41000	3580.4	5987.5	12284.2	181.65	561	1.8	PERIOD	ALL	43776		1	2	5
39	264294.08000	4103389.93000	5445.1	7410.6	17514.2	223.52	561	1.8	PERIOD	ALL	43776		2	3	7
40	264039.67000	4103322.62000	3964.3	6272.0	14784.9	207.43	561	1.8	PERIOD	ALL	43776		2	3	6
41	264851.85000	4103917.40000	3818.7	4412.0	5701.5	286.68	561	1.8	PERIOD	ALL	43776		2	2	2
42	264317.28000	4102176.96000	3025.1	16261.8	9376.7	217.13	561	1.8	PERIOD	ALL	43776		1	7	4
43	264116.61000	4102223.43000	2762.0	17458.5	8318.2	185.88	561	1.8	PERIOD	ALL	43776		1	7	3
44	264078.06000	4102185.94000	2529.6	18878.5	7936.5	189.06	561	1.8	PERIOD	ALL	43776		1	8	3
45	264148.30000	4102069.23000	2140.0	22510.6	6844.1	186.98	561	1.8	PERIOD	ALL	43776		1	9	3
46	264111.33000	4102037.02000	1948.0	23734.3	6476.6	186.95	561	1.8	PERIOD	ALL	43776		1	10	3
47	264061.69000	4101972.06000	1641.2	25287.8	5986.1	191.45	561	1.8	PERIOD	ALL	43776		1	10	2
48	264149.88000	4101905.00000	1570.2	28570.5	6379.6	214.27	561	1.8	PERIOD	ALL	43776		1	12	3
49	264066.40000	4101839.18000	1283.8	28718.5	5477.5	200.02	561	1.8	PERIOD	ALL	43776		1	12	2
50	264040.81000	4101853.99000	1292.2	27797.5	5394.5	196.51	561	1.8	PERIOD	ALL	43776		1	12	2
51	264038.57000	4101932.99000	1498.7	25899.0	6113.8	203.29	561	1.8	PERIOD	ALL	43776		1	11	3
52	264012.98000	4101940.17000	1489.3	25321.0	6190.9	205.47	561	1.8	PERIOD	ALL	43776		1	10	3
53	264004.45000	4101916.38000	1413.6	25705.8	6038.3	206.09	561	1.8	PERIOD	ALL	43776		1	11	3
54	264019.71000	4101896.18000	1375.1	26424.1	5761.1	200.92	561	1.8	PERIOD	ALL	43776		1	11	2
55	263944.75000	4101945.56000	1418.2	24088.4	5609.0	191.58	561	1.8	PERIOD	ALL	43776		1	10	2

Risk Factor
0

* AERMOD (12060): C:\USERS\DIMITRI.ANTONIOU\DESKTOP\AERMOD_PROJECTS\SJ_DAM\SJ_DAM\SJ_DPM 4/12/2014
* MODELING OPTIONS USED: 3:38:32 PM
* RegDFAULT CONC ELEV FLGPOL
* PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL
* FOR A TOTAL OF 130 RECEPTORS.
* FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)

	X	Y	AVE CONC (Option A)	AVE CONC (Option B)	AVE CONC (Option C)	ZELEV	ZHILL	ZFLAG	AVE	GRP	NUM HRS	NET ID	Option A Cancer Risk/Receptor	Option B Cancer Risk/Receptor	Option C Cancer Risk/Receptor
56	263965.40000	4101883.17000	1277.8	25627.5	5175.8	188.14	561	1.8	PERIOD	ALL	43776		1	11	2
57	264022.41000	4101803.27000	1163.9	28433.6	5120.3	196.94	561	1.8	PERIOD	ALL	43776		0	12	2
58	264061.46000	4101766.91000	1122.7	30258.3	5305.1	207.32	561	1.8	PERIOD	ALL	43776		0	13	2
59	263911.53000	4101810.90000	1086.9	25601.1	4954.3	195	561	1.8	PERIOD	ALL	43776		0	11	2
60	264016.57000	4101748.50000	1061.9	29369.5	5242.4	210.93	561	1.8	PERIOD	ALL	43776		0	12	2
61	264071.33000	4101729.65000	1062.5	31395.2	5198.7	214.49	561	1.8	PERIOD	ALL	43776		0	13	2
62	264049.79000	4101674.89000	974.2	31890.3	4923.6	216.39	561	1.8	PERIOD	ALL	43776		0	13	2
63	264029.59000	4101682.52000	971.3	31045.8	4945.3	216.77	561	1.8	PERIOD	ALL	43776		0	13	2
64	264011.18000	4101688.35000	968.6	30324.9	4962.5	216.85	561	1.8	PERIOD	ALL	43776		0	13	2
65	263968.09000	4101733.24000	1011.8	28246.2	5139.0	217.95	561	1.8	PERIOD	ALL	43776		0	12	2
66	263849.59000	4101721.57000	911.7	25023.7	4492.8	193.48	561	1.8	PERIOD	ALL	43776		0	10	2
67	263996.37000	4101631.79000	896.5	30707.2	4394.1	198.28	561	1.8	PERIOD	ALL	43776		0	13	2
68	264026.90000	4101577.03000	903.3	32639.2	4033.4	189.66	561	1.8	PERIOD	ALL	43776		0	14	2
69	264100.51000	4101561.32000	997.3	36121.1	4537.4	222.14	561	1.8	PERIOD	ALL	43776		0	15	2
70	264084.35000	4101514.64000	1000.1	35931.1	4318.4	225.03	561	1.8	PERIOD	ALL	43776		0	15	2
71	264087.49000	4101471.54000	1020.1	36465.5	4135.1	227.23	561	1.8	PERIOD	ALL	43776		0	15	2
72	264145.40000	4101461.22000	1087.9	39682.8	3571.4	235.1	476	1.8	PERIOD	ALL	43776		0	16	1
73	263965.85000	4101451.79000	903.2	31291.1	4250.7	220.35	561	1.8	PERIOD	ALL	43776		0	13	2
74	263878.32000	4101442.82000	820.6	28227.5	3762.0	192.38	561	1.8	PERIOD	ALL	43776		0	12	2
75	263937.12000	4101384.01000	891.8	30941.5	3876.8	198.08	561	1.8	PERIOD	ALL	43776		0	13	2
76	263993.68000	4101324.31000	929.8	33834.6	3770.4	195.65	561	1.8	PERIOD	ALL	43776		0	14	2
77	264099.16000	4101349.00000	1006.8	38640.7	3737.1	186.75	561	1.8	PERIOD	ALL	43776		0	16	2
78	264107.27000	4101321.76000	993.6	39115.5	3639.4	182.65	561	1.8	PERIOD	ALL	43776		0	16	2
79	264101.88000	4101295.27000	970.4	38786.4	3658.9	187.96	561	1.8	PERIOD	ALL	43776		0	16	2
80	264114.45000	4101275.97000	957.5	39363.6	3684.4	190.84	561	1.8	PERIOD	ALL	43776		0	16	2
81	264121.18000	4101245.89000	927.8	39617.7	3653.8	192.03	561	1.8	PERIOD	ALL	43776		0	16	2
82	264054.17000	4101176.28000	837.8	35960.1	3313.1	181.97	561	1.8	PERIOD	ALL	43776		0	15	1
83	263899.55000	4101138.88000	768.0	30104.8	3141.9	182.98	561	1.8	PERIOD	ALL	43776		0	12	1
84	263883.39000	4101121.37000	750.3	29663.4	3149.2	186.68	561	1.8	PERIOD	ALL	43776		0	12	1
85	263867.68000	4101108.35000	736.1	29222.8	3115.6	186.56	561	1.8	PERIOD	ALL	43776		0	12	1
86	263826.83000	4101065.70000	693.8	28051.9	3022.6	186.64	561	1.8	PERIOD	ALL	43776		0	12	1
87	263811.11000	4101046.40000	675.4	27573.5	2930.6	182.3	561	1.8	PERIOD	ALL	43776		0	11	1
88	263877.11000	4101026.65000	680.0	29350.6	3354.0	204.88	476	1.8	PERIOD	ALL	43776		0	12	1
89	263906.74000	4101018.12000	686.1	30152.9	3458.9	216.93	476	1.8	PERIOD	ALL	43776		0	12	1
90	263968.24000	4101070.64000	739.3	32451.6	3249.6	228.5	476	1.8	PERIOD	ALL	43776		0	13	1
91	263921.10000	4101080.97000	729.8	30925.7	3540.7	210.25	476	1.8	PERIOD	ALL	43776		0	13	1
92	263832.21000	4100935.52000	620.6	27419.7	2870.9	185.07	561	1.8	PERIOD	ALL	43776		0	11	1
93	263983.95000	4100927.88000	694.1	31403.1	1834.0	250.28	476	1.8	PERIOD	ALL	43776		0	13	1
94	263992.66000	4100984.36000	711.4	32439.4	1939.7	248.33	476	1.8	PERIOD	ALL	43776		0	13	1
95	263998.94000	4101008.60000	722.5	32958.2	1970.0	247.98	476	1.8	PERIOD	ALL	43776		0	14	1
96	263964.38000	4101017.58000	710.3	31926.9	2638.1	236.96	476	1.8	PERIOD	ALL	43776		0	13	1
97	263968.87000	4101035.99000	720.8	32252.0	2717.3	236.09	476	1.8	PERIOD	ALL	43776		0	13	1
98	264097.71000	4100933.18000	820.1	35315.4	1280.0	290.77	476	1.8	PERIOD	ALL	43776		0	15	1
99	264058.20000	4100945.75000	833.6	34167.9	1402.4	277.51	476	1.8	PERIOD	ALL	43776		0	14	1
100	263487.39000	4098583.33000	97.0	2194.9	1637.6	198.81	470	1.8	PERIOD	ALL	43776		0	1	1
101	263362.50000	4098885.31000	167.0	2976.1	1865.3	198.26	470	1.8	PERIOD	ALL	43776		0	1	1
102	262759.32000	4098185.92000	143.3	2001.7	1098.6	242.3	256	1.8	PERIOD	ALL	43776		0	1	0
103	261613.47000	4097713.62000	142.0	1740.3	1381.6	194.78	269	1.8	PERIOD	ALL	43776		0	1	1
104	261730.06000	4097739.17000	136.0	1746.7	1469.5	207.03	269	1.8	PERIOD	ALL	43776		0	1	1
105	261714.70000	4097551.61000	118.6	1581.1	1277.6	189.3	269	1.8	PERIOD	ALL	43776		0	1	1
106	261701.80000	4097534.42000	117.7	1568.6	1258.5	187.48	269	1.8	PERIOD	ALL	43776		0	1	1
107	261690.63000	4097519.81000	117.1	1558.1	1242.6	185.92	269	1.8	PERIOD	ALL	43776		0	1	1
108	261717.27000	4097421.81000	108.6	1488.1	1209.7	185.09	269	1.8	PERIOD	ALL	43776		0	1	1
109	261617.63000	4097269.91000	102.2	1392.9	1192.3	188.4	269	1.8	PERIOD	ALL	43776		0	1	0
110	261579.62000	4097192.31000	98.7	1347.5	1163.2	187.36	269	1.8	PERIOD	ALL	43776		0	1	0

* AERMOD (12060): C:\USERS\DIMITRI.ANTONIOU\DESKTOP\AERMOD_PROJECTS\SJ_DAM\SJ_DAM\SJ_DPM 4/12/2014
* MODELING OPTIONS USED: 3:38:32 PM
* RegDFAULT CONC ELEV FLGPOL
* PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL
* FOR A TOTAL OF 130 RECEPTORS.
* FORMAT: (3(1X,F13.5),3(1X,F8.2),2X,A6,2X,A8,2X,I8.8,2X,A8)

Risk Factor
0

	X	Y	AVE CONC (Option A)	AVE CONC (Option B)	AVE CONC (Option C)	ZELEV	ZHILL	ZFLAG	AVE	GRP	NUM HRS	NET ID	Option A Cancer Risk/Receptor	Option B Cancer Risk/Receptor	Option C Cancer Risk/Receptor
111	261829.85000	4097098.34000	97.3	1259.9	1129.1	192.37	269	1.8	PERIOD	ALL	43776		0	1	0
112	261874.19000	4097011.24000	95.8	1179.7	1103.1	194.41	269	1.8	PERIOD	ALL	43776		0	0	0
113	261566.42000	4097108.37000	95.1	1301.0	1188.6	194.68	194.68	1.8	PERIOD	ALL	43776		0	1	0
114	261499.38000	4097041.33000	92.9	1266.4	1171.9	194.73	194.73	1.8	PERIOD	ALL	43776		0	1	0
115	261616.04000	4096982.73000	91.2	1231.4	1109.7	191.27	194	1.8	PERIOD	ALL	43776		0	1	0
116	261619.22000	4096733.53000	87.3	1081.6	976.6	184.04	184.04	1.8	PERIOD	ALL	43776		0	0	0
117	261692.29000	4096634.68000	86.3	987.1	954.2	183.65	183.65	1.8	PERIOD	ALL	43776		0	0	0
118	261892.54000	4096541.54000	78.1	920.4	1001.9	187.13	187.13	1.8	PERIOD	ALL	43776		0	0	0
119	260446.82000	4097011.34000	147.0	1237.5	1243.4	202	202	1.8	PERIOD	ALL	43776		0	1	1
120	260423.61000	4097064.64000	150.2	1234.5	1234.9	199.8	203	1.8	PERIOD	ALL	43776		0	1	1
121	260421.89000	4097123.10000	152.9	1235.4	1246.6	201.86	206	1.8	PERIOD	ALL	43776		0	1	1
122	260409.00000	4097177.25000	154.9	1226.9	1254.8	205.01	205.01	1.8	PERIOD	ALL	43776		0	1	1
123	260371.21000	4097326.53000	156.7	1178.6	1233.7	206.92	208	1.8	PERIOD	ALL	43776		0	0	1
124	260322.99000	4097382.79000	154.5	1140.6	1184.8	200.2	208	1.8	PERIOD	ALL	43776		0	0	0
125	260186.35000	4097375.49000	148.8	1079.5	1157.2	204.41	208	1.8	PERIOD	ALL	43776		0	0	0
126	260032.90000	4097329.45000	142.0	1025.2	1093.6	198.77	202	1.8	PERIOD	ALL	43776		0	0	0
127	259984.67000	4097659.00000	133.3	1114.1	1039.3	196.34	202	1.8	PERIOD	ALL	43776		0	0	0
128	259935.72000	4097869.44000	114.3	1244.8	880.4	176.39	202	1.8	PERIOD	ALL	43776		0	1	0
129	266965.57000	4099087.11000	363.3	16388.3	478.2	351.97	530	1.8	PERIOD	ALL	43776		0	7	0
130	267087.03000	4099646.58000	501.5	9682.3	689.7	400.37	530	1.8	PERIOD	ALL	43776		0	4	0
												MAX	2	16	7

**MODELOPTs: RegDFAULT CONC
ELEV FLGPOL

*** MODEL SETUP
OPTIONS SUMMARY ***
- -
- -

**Model Is Setup For Calculation of Average CONCentration
Values.

-- DEPOSITION LOGIC --
**NO GAS DEPOSITION Data Provided.
**NO PARTICLE DEPOSITION Data Provided.
**Model Uses NO DRY DEPLETION. DRYDPLT = F
**Model Uses NO WET DEPLETION. WETDPLT = F

**Model Uses RURAL Dispersion Only.

**Model Uses Regulatory DEFAULT Options:
1. Stack-tip Downwash.
2. Model Accounts for ELEVated Terrain Effects.
3. Use Calms Processing Routine.
4. Use Missing Data Processing Routine.
5. No Exponential Decay.

**Model Accepts FLAGPOLE Receptor Heights.

**Model Calculates 1 Short Term Average(s) of: 1-HR

**This Run Includes: 1843 Source(s); 12 Source Group(s);
and 130 Receptor(s)

**The Model Assumes A Pollutant Type of: PM_10

**Model Set To Continue RUNning After the Setup Testing.

**Output Options Selected:
Model Outputs Tables of Highest Short Term Values by
Receptor (RECTABLE Keyword)
Model Outputs External File(s) of High Values for
Plotting (PLOTFILE Keyword)
Model Outputs Separate Summary File of High Ranked
Values (SUMMFILE Keyword)

```
 **NOTE:  The Following Flags May Appear Following CONC Values:
c for Calm Hours

m for Missing Hours

b for Both Calm and Missing Hours

 **Misc. Inputs:  Base Elev. for Pot. Temp. Profile (m MSL) =
0.00 ;  Decay Coef. =    0.000     ;  Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC
;  Emission Rate Unit Factor =   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =      6.1 MB of
RAM.

 **Detailed Error/Message File:   DPM RUN.ERR
 **File for Summary of Results:   DPM RUN.SUM
```

```
 *** AERMOD - VERSION  12060 ***   *** C:\USERS\DIMITRI.ANTONIOU
\DESKTOP\AERMOD_PROJECTS\SJ_DAM\SJ_DAM\SJ_D ***        04/13/14
                                                  ***
***         16:47:34

PAGE   2
 **MODELOPTs:  RegDFAULT CONC
ELEV      FLGPOL


                                                     *** METEOROLOGICAL
DAYS SELECTED FOR PROCESSING ***
                                                                     (1
=YES; 0=NO)

             1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
1 1 1 1 1    1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
             1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
1 1 1 1 1    1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
             1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
1 1 1 1 1    1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
             1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
1 1 1 1 1    1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
             1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
1 1 1 1 1    1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
             1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
1 1 1 1 1    1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
             1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1
1 1 1 1 1    1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
             1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1

                 NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED
WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.


                                            *** UPPER BOUND OF FIRST
THROUGH FIFTH WIND SPEED CATEGORIES ***

(METERS/SEC)

                                                          1.54,   3.09,
5.14,   8.23,  10.80,
```

**MODELOPTs: RegDFAULT CONC
ELEV FLGPOL

*** UP TO THE FIRST 24 HOURS
OF METEOROLOGICAL DATA ***

Surface file: T:\PROJECTS\13010007_01
_UPPERSANJOAQUINRIVERBASIN\HEALTHRISKMODELING\MODELINGDAT Met
Version: 06341
Profile file: T:\PROJECTS\13010007_01
_UPPERSANJOAQUINRIVERBASIN\HEALTHRISKMODELING\MODELINGDAT
Surface format: FREE
Profile format: FREE
Surface station no.: 93193 Upper air
station no.: 23230
Name: FRESNO/AIR_TERMINAL
Name: OAKLAND/WSO_AP
Year: 2005
Year: 2005

First 24 hours of scalar data

YR	MO	DY	JDY	HR	H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS	WD	HT	REF TA	HT
05	01	01	1	01	-19.8	0.231	-9.000	-9.000	-999.	255.	56.2	0.02	2.06	1.00	4.10	141.	10.0	280.9	2.0
05	01	01	1	02	-15.8	0.278	-9.000	-9.000	-999.	337.	122.9	0.02	2.06	1.00	4.60	138.	10.0	280.9	2.0
05	01	01	1	03	-26.0	0.303	-9.000	-9.000	-999.	384.	96.8	0.02	2.06	1.00	5.10	144.	10.0	280.9	2.0
05	01	01	1	04	-17.8	0.312	-9.000	-9.000	-999.	401.	154.6	0.02	2.06	1.00	5.10	143.	10.0	280.4	2.0
05	01	01	1	05	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.02	2.06	1.00	0.00	0.	10.0	280.4	2.0
05	01	01	1	06	-999.0	-9.000	-9.000	-9.000	-999.	-999.	-99999.0	0.02	2.06	1.00	0.00	0.	10.0	280.4	2.0
05	01	01	1	07	-2.3	0.048	-9.000	-9.000	-999.	24.	4.4	0.02	2.06	1.00	1.50	145.	10.0	280.4	2.0
05	01	01	1	08	-1.8	0.048	-9.000	-9.000	-999.	24.	5.6	0.02	2.06	0.63	1.50	143.	10.0	280.9	2.0
05	01	01	1	09	23.6	0.158	0.417	0.005	111.	145.	-15.2	0.02	2.06	0.35	2.10	157.	10.0	282.0	2.0
05	01	01	1	10	74.6	0.263	0.945	0.005	409.	311.	-22.1	0.02	2.06	0.25	3.60	111.	10.0	284.2	2.0

```
 05 01 01   1 11  111.3  0.240  1.319  0.005  746.  271.    -11.2
0.02   2.06   0.22    3.10  114.   10.0  285.4    2.0
 05 01 01   1 12  130.5  0.333  1.569  0.005 1071.  442.    -25.6
0.02   2.06   0.21    4.60  116.   10.0  285.9    2.0
 05 01 01   1 13  131.7  0.333  1.666  0.005 1270.  442.    -25.4
0.02   2.06   0.21    4.60  113.   10.0  287.0    2.0
 05 01 01   1 14  114.1  0.397  1.628  0.005 1370.  574.    -49.4
0.02   2.06   0.22    5.70  119.   10.0  287.0    2.0
 05 01 01   1 15   78.6  0.390  1.462  0.005 1441.  561.    -68.4
0.02   2.06   0.25    5.70  132.   10.0  285.9    2.0
 05 01 01   1 16   29.2  0.311  1.069  0.009 1513.  402.    -93.2
0.02   2.06   0.34    4.60  154.   10.0  285.9    2.0
 05 01 01   1 17  -11.1  0.162 -9.000 -9.000 -999.  164.     34.5
0.02   2.06   0.59    3.10  141.   10.0  285.4    2.0
 05 01 01   1 18   -2.3  0.048 -9.000 -9.000 -999.   41.      4.5
0.02   2.06   1.00    1.50  117.   10.0  284.2    2.0
 05 01 01   1 19   -2.3  0.048 -9.000 -9.000 -999.   24.      4.5
0.02   2.06   1.00    1.50  114.   10.0  284.2    2.0
 05 01 01   1 20   -2.3  0.048 -9.000 -9.000 -999.   24.      4.5
0.02   2.06   1.00    1.50  157.   10.0  283.1    2.0
 05 01 01   1 21   -2.3  0.048 -9.000 -9.000 -999.   24.      4.5
0.02   2.06   1.00    1.50  140.   10.0  282.5    2.0
 05 01 01   1 22  -12.7  0.148 -9.000 -9.000 -999.  131.     23.3
0.02   2.06   1.00    3.10   92.   10.0  282.0    2.0
 05 01 01   1 23  -12.7  0.148 -9.000 -9.000 -999.  131.     23.1
0.02   2.06   1.00    3.10  100.   10.0  280.9    2.0
 05 01 01   1 24  -12.7  0.148 -9.000 -9.000 -999.  131.     23.1
0.02   2.06   1.00    3.10  100.   10.0  280.9    2.0


 First hour of profile data
 YR MO DY HR HEIGHT F  WDIR    WSPD AMB_TMP sigmaA  sigmaW
sigmaV
 05 01 01 01   10.0 1  141.    4.10   281.0   99.0  -99.00  -
99.00

 F indicates top of profile (=1) or below (=0)
```

**MODELOPTs: RegDFAULT CONC
ELEV FLGPOL

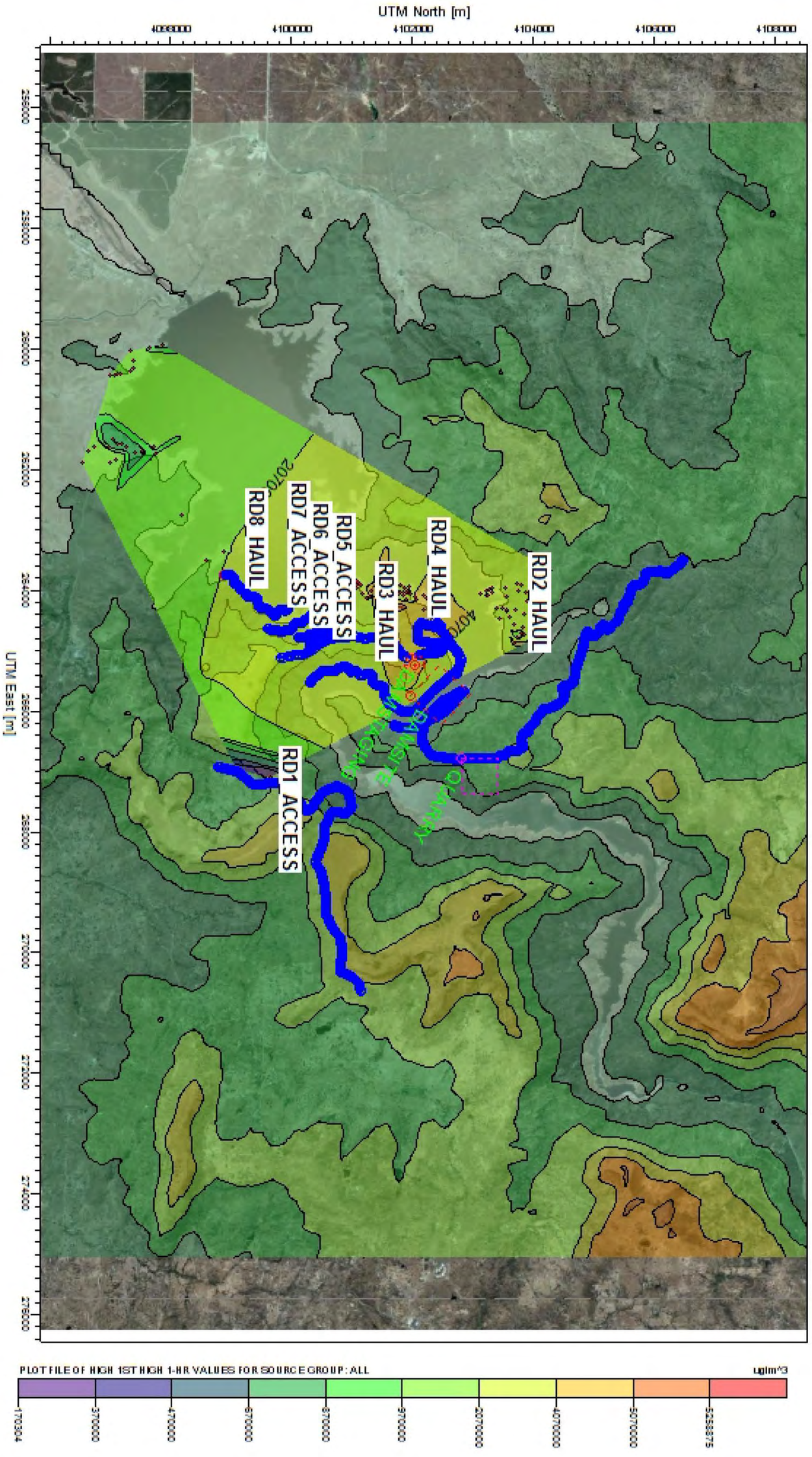
*** THE SUMMARY
OF HIGHEST 1-HR RESULTS ***

** CONC OF PM_10 IN
MICROGRAMS/M**3 **

NETWORK GROUP ID	RECEPTOR (XR, YR, ZELEV, ZHILL, ZFLAG)	AVERAGE CONC OF TYPE	DATE (YYMMDDHH) GRID-ID
DAMSITE HIGH	1ST HIGH VALUE IS 4694111.19551		ON 07011808: AT
	(264317.28, 4102176.96, 217.13, 561.00, 1.80)	DC	
DAMSTAGI HIGH	1ST HIGH VALUE IS 1033573.54799		ON 08011808: AT
	(264317.28, 4102176.96, 217.13, 561.00, 1.80)	DC	
QUARRY HIGH	1ST HIGH VALUE IS 1074188.43644		ON 07122708: AT
	(264145.40, 4101461.22, 235.10, 476.00, 1.80)	DC	
RD1_ACCE HIGH	1ST HIGH VALUE IS 0.01889		ON 07013008: AT
	(266965.57, 4099087.11, 351.97, 530.00, 1.80)	DC	
RD2_HAUL HIGH	1ST HIGH VALUE IS 0.06185		ON 08011508: AT
	(264470.19, 4103444.36, 190.14, 607.00, 1.80)	DC	
RD3_HAUL HIGH	1ST HIGH VALUE IS 0.20776		ON 07120108: AT
	(264317.28, 4102176.96, 217.13, 561.00, 1.80)	DC	
RD4_HAUL HIGH	1ST HIGH VALUE IS 1.59595		ON 06021108: AT
	(264148.30, 4102069.23, 186.98, 561.00, 1.80)	DC	
RD5_ACCE HIGH	1ST HIGH VALUE IS 0.01214		ON 07122708: AT
	(264114.45, 4101275.97, 190.84, 561.00, 1.80)	DC	
RD6_ACCE HIGH	1ST HIGH VALUE IS 0.03495		ON 06120108: AT
	(264097.71, 4100933.18, 290.77, 476.00, 1.80)	DC	
RD7_ACCE HIGH	1ST HIGH VALUE IS 0.03791		ON 05121208: AT

```
(  263832.21,  4100935.52,   185.07,   561.00,    1.80)  DC

RD8_HAUL HIGH   1ST HIGH VALUE IS       0.25023  ON 07013008: AT
(  261829.85,  4097098.34,   192.37,   269.00,    1.80)  DC

ALL      HIGH   1ST HIGH VALUE IS 5258874.85784  ON 07122708: AT
(  264145.40,  4101461.22,   235.10,   476.00,    1.80)  DC


 *** RECEPTOR TYPES:  GC = GRIDCART
                      GP = GRIDPOLR
                      DC = DISCCART
                      DP = DISCPOLR
```

```
 *** AERMOD - VERSION  12060 ***   *** C:\USERS\DIMITRI.ANTONIOU
\DESKTOP\AERMOD_PROJECTS\SJ_DAM\SJ_DAM\SJ_D ***        04/13/14
                                      ***
***        16:47:34

PAGE   5
 **MODELOPTs:  RegDFAULT CONC
ELEV      FLGPOL


 *** Message Summary : AERMOD Model Execution ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            1 Warning Message(s)
 A Total of        13641 Informational Message(s)

 A Total of        43776 Hours Were Processed

 A Total of        13335 Calm Hours Identified

 A Total of          306 Missing Hours Identified (  0.70
Percent)


    ******** FATAL ERROR MESSAGES ********
                ***  NONE  ***


    ********   WARNING MESSAGES   ********
 ME W396   26711 MEOPEN:Met data from outdated version of AERMET,
version:        06341
```


UTM North [m]
UTM East [m]
RD8_HAUL
RD7_ACCESS
RD6_ACCESS
RD5_ACCESS
RD4_HAUL
RD3_HAUL
RD2_HAUL
RD1_ACCESS
2070'
4070'
CRUSHING
BLASTS
QUARRY
PLOT FILE OF HIGH 1ST HIGH 1-HR VALUES FOR SOURCE GROUP: ALL
ug/m^3
170364
370000
470000
570000
670000
770000
870000
970000
1070000
1170000
1258975

Land Use	Sub-Category	CO2 accumulation/ acre (MT)	Acreage Loss	CO2 sequestration loss (MT/yr)
Forest Land	scrub	14.3	0.4	6
	trees	111	0.00	-
Cropland	-	6.2	0	-
Grassland	-	4.3	4192.6	18,028
				18,033.90

Note The default annual CO2 is calculated by multiplying total biomass (MT dry matter/acre) from IPCC data by the carbon fraction in plant material (0.47), then using the ratio of molecular weights (44/12) to convert from MT of carbon (C) to MT of carbon dioxide (CO2).

Source: CCAR 2007 and CAR Forest Sector Protocol Version 2.1 as referenced in CalEEMod 2013 (July). Appendix A: Calculation Details for CalEEMod. Section 10 Vegetation. Version 2013.2. Perpared by ENVIRON International Corporation. San Francisco, CA. July 2013

Vegetation Type

Vegetation types are defined by IPCC as follows:

(i) Forest Land

This category includes all land with woody vegetation consistent with thresholds used to define Forest Land in the national greenhouse gas inventory. It also includes systems with a vegetation structure that currently fall below, but in situ could potentially reach the threshold values used by a country to define the Forest Land category.

(ii) Cropland

This category includes cropped land, including rice fields, and agro-forestry systems where the vegetation structure falls below the thresholds used for the Forest Land category.

(iii) Grassland

This category includes rangelands and pasture land that are not considered Cropland. It also includes systems with woody vegetation and other non-grass vegetation such as herbs and brushes that fall below the threshold values used in the Forest Land category. The category also includes all grassland from wild lands to recreational areas as well as agricultural and silvi-pastural systems, consistent with national definitions.

(iv) Wetlands

This category includes areas of peat extraction and land that is covered or saturated by water for all or part of the year (e.g., peatlands) and that does not fall into the Forest Land, Cropland, Grassland or Settlements categories. It includes reservoirs as a managed sub-division and natural rivers and lakes as unmanaged sub-divisions.

Temperance Flat

Habitat	Complete Removal (acres)	Overstory Removal (acres)		
Buckbrush chaparral	79.3	793	grassland	
Foothill pine oak woodland	-	4.7	grassland	
Foothill pine woodland	252	2,420.70	grassland	
Mixed Riparian	-	21.8	grassland	

Project Area

Habitat	Complete Removal (acres)	Veg Type
Blue oak woodland	155	grassland
Bush Lupine Scrub	0.4	scrub
Foothill pine oak woodland	445	grassland
Live Oak Woodland	6	grassland
Mixed Riparian	8.6	grassland
Sycamore Woodland	3.9	grassland
Willow Woodland	2.6	grassland

Veg Type Totals (Acres)

grassland	4,192.60
scrub	0.4

Operational Visitation Trips

1. Assumptions

Alt	Increase in Visitation Days		
1	127,000	2.5	people/vehicle
2	129,000	2.5	days/visit
3	121,000	180	day visit period/year
4	145,000	25	miles/trip

2. Formula

Visitation Days= (X/2)*2.5 people/vehicle*2.5days/visit*180 visitation days

Where:

X= Daily One Way Trips

Therefore:

Daily Trips (X)= (Visitation Days/(2.5 people/vehicle*2.5days/visit*180 visitation days))*2

3. Trip Generation and Mobile Emissions

Trip generation rates calculated based on above assumptions and air pollutant emissions estimated using CalEEMod 2011.

Alt	Visitor Days	Trip Gen.	ROG	NOX	PM10 Exh.	PM10 Dust	PM2.5 Exh.	PM2.5 Dust	Unit	CO2	Unit
1	127,000	226	0.2878	0.2537	5.3400e-003	0.2100	4.9300e-003	0.0563	tons/year	233.4422	MT/year
2	129,000	229	0.2916	0.2570	5.4100e-003	0.2127	4.9900e-003	0.0571	tons/year	236.5409	MT/year
3	121,000	215	0.2738	0.2413	5.0800e-003	0.1997	4.6900e-003	0.0536	tons/year	222.0799	MT/year
4	145,000	258	0.3285	0.2896	6.1000e-003	0.2397	5.6200e-003	0.0643	tons/year	266.4959	MT/year

Alt 1 Mobile CAPs and GHG

San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	1.00	Acre	1.00	43,560.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	51
Climate Zone	4			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - recreation facilities

Construction Phase - operations only

Off-road Equipment - operation only

Vehicle Trips - Based on assumptions for trip generation provided in Calculations for Operational Mobile Emissions

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	OperationalYear	2014	2025
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	ST_TR	1.59	226.00
tblVehicleTrips	SU_TR	1.59	226.00
tblVehicleTrips	WD_TR	1.59	226.00

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2878	0.2537	1.1352	3.3800e-003	0.2100	5.3400e-003	0.2153	0.0563	4.9300e-003	0.0613	0.0000	233.3145	233.3145	6.0800e-003	0.0000	233.4422
Unmitigated	0.2878	0.2537	1.1352	3.3800e-003	0.2100	5.3400e-003	0.2153	0.0563	4.9300e-003	0.0613	0.0000	233.3145	233.3145	6.0800e-003	0.0000	233.4422

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	226.00	226.00	226.00	557,362	557,362
Total	226.00	226.00	226.00	557,362	557,362

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.458934	0.064050	0.159553	0.167879	0.045038	0.005984	0.019094	0.067081	0.001139	0.001520	0.006772	0.000586	0.002368

Alt 2 Mobile CAPs and GHG

San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	1.00	Acre	1.00	43,560.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	51
Climate Zone	4			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - recreation facilities

Construction Phase - operations only

Off-road Equipment - operation only

Vehicle Trips - Based on assumptions for trip generation provided in Calculations for Operational Mobile Emissions

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	OperationalYear	2014	2025
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	ST_TR	1.59	229.00
tblVehicleTrips	SU_TR	1.59	229.00
tblVehicleTrips	WD_TR	1.59	229.00

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2916	0.2570	1.1502	3.4300e-003	0.2127	5.4100e-003	0.2182	0.0571	4.9900e-003	0.0621	0.0000	236.4116	236.4116	6.1600e-003	0.0000	236.5409
Unmitigated	0.2916	0.2570	1.1502	3.4300e-003	0.2127	5.4100e-003	0.2182	0.0571	4.9900e-003	0.0621	0.0000	236.4116	236.4116	6.1600e-003	0.0000	236.5409

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	229.00	229.00	229.00	564,761	564,761
Total	229.00	229.00	229.00	564,761	564,761

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-...	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.458934	0.064050	0.159553	0.167879	0.045038	0.005984	0.019094	0.067081	0.001139	0.001520	0.006772	0.000586	0.002368

Alt 3 Mobile CAPs and GHG

San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	1.00	Acre	1.00	43,560.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	51
Climate Zone	4			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - recreation facilities

Construction Phase - operations only

Off-road Equipment - operation only

Vehicle Trips - Based on assumptions for trip generation provided in Calculations for Operational Mobile Emissions

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	OperationalYear	2014	2025
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	ST_TR	1.59	215.00
tblVehicleTrips	SU_TR	1.59	215.00
tblVehicleTrips	WD_TR	1.59	215.00

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2738	0.2413	1.0799	3.2200e-003	0.1997	5.0800e-003	0.2048	0.0536	4.6900e-003	0.0583	0.0000	221.9585	221.9585	5.7800e-003	0.0000	222.0799
Unmitigated	0.2738	0.2413	1.0799	3.2200e-003	0.1997	5.0800e-003	0.2048	0.0536	4.6900e-003	0.0583	0.0000	221.9585	221.9585	5.7800e-003	0.0000	222.0799

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	215.00	215.00	215.00	530,234	530,234
Total	215.00	215.00	215.00	530,234	530,234

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.458934	0.064050	0.159553	0.167879	0.045038	0.005984	0.019094	0.067081	0.001139	0.001520	0.006772	0.000586	0.002368

Alt 4 Mobile CAPs and GHG

San Joaquin County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	1.00	Acre	1.00	43,560.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.7	**Precipitation Freq (Days)**	51
Climate Zone	4			**Operational Year**	2025
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - recreation facilities

Construction Phase - operations only

Off-road Equipment - operation only

Vehicle Trips - Based on assumptions for trip generation provided in Calculations for Operational Mobile Emissions

Table Name	Column Name	Default Value	New Value
tblProjectCharacteristics	OperationalYear	2014	2025
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblVehicleTrips	ST_TR	1.59	258.00
tblVehicleTrips	SU_TR	1.59	258.00
tblVehicleTrips	WD_TR	1.59	258.00

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3285	0.2896	1.2959	3.8600e-003	0.2397	6.1000e-003	0.2458	0.0643	5.6200e-003	0.0699	0.0000	266.3502	266.3502	6.9400e-003	0.0000	266.4959
Unmitigated	0.3285	0.2896	1.2959	3.8600e-003	0.2397	6.1000e-003	0.2458	0.0643	5.6200e-003	0.0699	0.0000	266.3502	266.3502	6.9400e-003	0.0000	266.4959

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	258.00	258.00	258.00	636,281	636,281
Total	258.00	258.00	258.00	636,281	636,281

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	14.70	6.60	6.60	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.458934	0.064050	0.159553	0.167879	0.045038	0.005984	0.019094	0.067081	0.001139	0.001520	0.006772	0.000586	0.002368

GHG Construction Summary and Energy Use

this sheet summarizes total construction ghg emissions and indirect ghg emissions from energy consumption

Construction Summary

Emissions of CO2 are pulled directly from the "Emissions Summary" sheet of this Appendix

	Years	Alternative 1-3	Phase Total	Alternative 4	Phase Total
Phase 1	3.5	25,488	89,208	25,488	89,208
Phase 2	4	5,994	23,976	6,993	27,972
Phase 3	5	29,006	145,030	29,006	145,030
Total			**258,214**		**262,210**
Amortized 50 years			**5,164**		**5,244**

Energy Use by Alternative

this sheet contains the net energy consumption (-generation) by each Alternative

Alt	Consump GWh/year	MWh/year
1	187	186,700
2	136	135,700
3	142	141,900
4	110	110,300
5	68	68,100

Alterntive 1-4 GHG from Electricity Consumption

this sheet uses the estimated net energy consumption/generation data for the project to calculate indirect GHG emissions for all action alternatives

Electricity Consumption

Annual electricity consumption		
Alternative 1	186,700	MW-hr/year
Alternative 2	135,700	MW-hr/year
Alternative 3	141,900	MW-hr/year
Alternative 4	110,300	MW-hr/year
Alternative 5	68,100	MW-hr/year
Electricity provider	PG&E	unitless
Utility's CO2-e emission factor	0.292	MT/MW-hr

Total Annual Indirect CO2e (metric tons)

Alternative 1	54,493
Alternative 2	39,607
Alternative 3	41,417
Alternative 4	32,194
Alternative 5	19,877

Supplemental Calculations

Utility Intensity Factor

CO2	641	pounds/MWh
CH4	0.029	pounds/MWh
N20	0.006	pounds/MWh

Reference

California Emissions Estimator Mode (CalEEMod) 2011. South Coast Air Quality Management District. Devloped by ENVIRON

Global Warming Potential (100 year) for conversion to CO2e

CO2	1
CH4	21
N20	310

United Nations Framework Convention on Climate Change (UNFCC). 2012. Global Warming Potentials.

		Unit	
CO2e emission factor	643.4690	lbs/MWh	calculation
	0.291873	MT/MWh	conversion
lb/MT Conversion factor			
	2204.62	lb/MT	

GHG Construction Mass Emissions Summary

total CO2 emissions for each phase is copied from the "Emissions Summary" sheet for each Option A, B, and C

Construction Timing

	Years
Phase 1	3.5
Phase 2	4
Phase 3	5

	Option A				Option B				Option C			
	Alt 1,2,3,5	CO2e	Alt 4A	CO2e	Alt 1,2,3,5	CO2e	Alt 4	CO2e	Alt 1,2,3,5	CO2e	Alt 4	CO2e
Phase 1	26,210	91,735	26,210	91,735	24,865	87,028	24,865	87,028	28,948	101,318	28,948	101,318
Phase 2	5,993	23,972	6,932	27,728	5,993	23,972	6,932	27,728	6,502	26,008	7,441	29,764
Phase 3	29,004	145,020	29,004	145,020	27,021	135,105	27,021	135,105	37,744	188,720	37,744	188,720
Total		260,727		264,483		246,105		249,861		316,046		319,802
Amortized		5,215		5,290		4,922		4,997		6,321		6,396

	A	B	C
	5,215	4,922	6,321
AP 1	136	136	136
	54,493	54,493	54,493
	18,033	18,033	18,033
total	77,877	77,584	78,983

	A	B	C
	5,215	4,922	6,321
AP3	132	132	132
	41,417	41,417	41,417
	18,033	18,033	18,033
	64,797	64,504	65,903

	A	B	C
	5,215	4,922	6,321
AP 2	138	138	138
	39,607	39,607	39,607
	18,033	18,033	18,033
total	62,993	62,700	64,099

	A	B	C
	5,290	4,997	6,396
AP 4	158	158	158
	32,194	32,194	32,194
	18,033	18,033	18,033
	55,675	55,382	56,781

	A	B	C
	5,215	4,922	6,321
AP 5	68	68	68
	19,877	19,877	19,877
	18,033	18,033	18,033
	43,193	42,900	44,299

General Conformity Determination

EXECUTIVE SUMMARY

This appendix is the General Conformity Determination (GCD) for the Draft Environmental Impact Statement (EIS) that has been prepared for the Upper San Joaquin River Basin Storage Investigation (Proposed Action) to document the evaluation of the potential physical, biological, cultural, and socioeconomic effects of implementing alternatives to expand water storage capacity in the upper San Joaquin River watershed, as well as a no action alternative. The Investigation is led by the U.S. Department of the Interior, Bureau of Reclamation (Reclamation). The purpose of the Investigation is to determine the type and extent of Federal, State of California (State), and regional interest in a potential project to expand water storage capacity in the upper San Joaquin River watershed to (1) improve water supply reliability and flexibility of the water management system for agricultural, urban, and environmental uses; and (2) enhance San Joaquin River water temperature and flow conditions to support anadromous fish restoration efforts.

The EIS evaluated five different alternatives; a no action alternative, and alternative plans 1 through 5. The no action alternative would not implement any action and thus would not have any emissions and is not evaluated in this GCD. Alternative plans 1 through 5 would all provide new water supplies and would only vary slightly in terms of how water supplies are distributed. Emissions for the GCD were based on the maximum emissions that would occur across all alternative plans and quarry location options.

The General Conformity rule, as codified in Title 40 Code of Federal Regulations (CFR) Part 93, Subpart B, establishes the process by which Federal agencies determine conformance of proposed projects that are federally funded or require Federal approval with the applicable air quality standard. This determination must demonstrate that a Proposed Action would not cause or contribute to new violations of air quality standards, exacerbate existing violations, or interfere with timely attainment or required interim emissions reductions towards attainment. Since the Project is receiving Federal funds through grants with the United States Bureau of Reclamation (Reclamation), it is an action subject to the General Conformity rule.

This GCD documents Reclamation's finding that the Proposed Action complies with the General Conformity Rule and that it conforms to the purposes of the area's approved State Implementation Plan (SIP) and is consistent with all applicable requirements. The GCD was made based on the project design features and mitigation measures that were described in Chapter 4 of the EIS (Reclamation 2014) that will be implemented for the Proposed Action. This compliance is demonstrated herein as follows:

- The operation of the Proposed Action would not result in substantial regional emissions of all applicable air pollutants and would not cause a localized exceedance of an air quality standard; and
- While emissions generated during the construction of the Proposed Action would exceed General Conformity thresholds for oxides of nitrogen (NO_X), a precursor for ozone, these emission increases would be off-set through a Voluntary Emission Reduction Agreement (VERA) with the San Joaquin Valley Air Pollution Control District (SJVAPCD).

TABLE OF CONTENTS

Tables

1 INTRODUCTION

This GCD is required by the implementing regulations of Section 176 of the Clean Air Act (CAA). Section 176(c)(1) of the CAA prohibits Federal agencies from engaging in, supporting, or providing financial assistance for licensing, permitting or approving any activities that do not conform to an approved CAA implementation plan. That approved plan may be a federal, state, or tribal implementation plan.

The CAA defines nonattainment areas as geographic regions that have been designated as not meeting one or more of the National Ambient Air Quality Standards (NAAQS). The CAA requires that each state prepare a SIP for each nonattainment area, and a maintenance plan be prepared for each former non-attainment area that subsequently demonstrated compliance with the standards. The SIP is a state's plan for how it will meet the NAAQS by the deadlines established by the CAA.

The General Conformity rule is codified in Title 40 Code of Federal Regulations (CFR) Part 93, Subpart B, "Determining Conformity of General Federal Actions to State or Federal Implementation Plans." Conformity is defined as "upholding an implementation plan's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards." 40 CFR Part 93 also establishes the process by which Federal agencies determine conformance of proposed projects that are federally funded or require Federal approval. This determination must demonstrate that the Proposed Action would not cause or contribute to new violations of air quality standards, exacerbate existing violations, or interfere with timely attainment or required interim emissions reductions towards attainment.

GENERAL CONFORMITY REGULATORY BACKGROUND

The U.S. EPA (EPA) promulgated the General Conformity Rule on November 30, 1993, in Volume 58 of the Federal Register (FR) Page 63214 (58 FR 63214) to implement the conformity provision of Title I, Section 176(c) of the federal CAA (42 U.S.C. 7506(c)). Section 176(c)(1) requires that the federal government not engage, support, or provide financial assistance for, permit or license, or approve any activity that fails to conform to an approved SIP.

The General Conformity Rule is codified in 40 Code of Federal Regulations (CFR) Part 93 (40 CFR 93), Subpart B, "Determining Conformity of General Federal Actions to State or Federal Implementation Plans." The General Conformity Rule applies to all federal actions, except programs and projects that require funds or approval from the U.S. Department of Transportation (U.S. DOT), the Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), or the Metropolitan Planning Organization (MPO). In lieu of a General Conformity analysis, these latter types of programs and projects must comply with the Transportation Conformity Rule promulgated by U.S. DOT on November 24, 1993 (58 FR 62197). The federal General Conformity Rule is often incorporated into state and local regulations. For instance, the SJVAPCD has adopted the federal General conformity regulations in its Rule 9110, "General Conformity."

GENERAL CONFORMITY REQUIREMENTS

As defined in the CAA, Title I, Section 176(c)(1), conformity means to uphold air quality goals through reduction or elimination of NAAQS violations. Accordingly, a proposed action or activity achieves conformity if the associated pollutant emissions would not:

- Cause or contribute to new violations of any NAAQS in any area;
- Increase the frequency or severity of any existing violation of any NAAQS; or
- Delay timely attainment of any NAAQS or interim emission reductions.

The General Conformity Rule establishes conformity in coordination with and as part of the NEPA environmental review process. The General Conformity Rule affects air pollutant emissions associated with actions that are federally funded, licensed, permitted, or approved; and ensures emissions do not contribute to air quality degradation, or prevent the achievement of state and federal air quality goals. In short, General Conformity, if applicable, refers to the process to evaluate plans, programs, and projects to GCD of a project can be shown through state emission budgets in the SIP, emission offsets, or air quality modeling.

In the SJVAPCD jurisdiction, EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan for 1-hour ozone on March 8, 2010. However, this SIP is based on the revoked federal 1-hour ozone standard and does not have any projected emissions for milestone years after 2010, as attainment was expected to be achieved by then. On August 30, 2012, U.S. EPA proposed to withdraw its approval of the 2004 ozone plan. This action required SJVAPCD to develop new plans for attainment of the 1-hour ozone air quality standard. SJVAPCD has prepared the new 1-hour ozone plan that was approved by the SJVAPCD Governing Board on September 19, 2013. The plan included emissions modeling which confirmed that the SJVAB will attain the revoked 1-hour ozone standard by 2017. In addition, the SJVAPCD's Governing Board adopted the 2007 8-hour Ozone Plan and its amendments in 2007 and 2008, and 2011. This SIP was approved by CARB and U.S. EPA on March 1, 2012 (SJVAPCD 2014a).

SJVAPCD has adopted the 2008 $PM_{2.5}$ (i.e., fine particulate matter) Plan, although this plan has not yet been approved by U.S. EPA. Therefore, it was determined that the current applicable SIPs to be used in the SJVAPCD jurisdiction area for this General Conformity analysis are the 2007 8-hour ozone plan, the 2013 Plan for the Revoked 1-Hour Ozone Standard, the 2008 $PM_{2.5}$ plan, the U.S. EPA approved 2007 PM_{10} (i.e., respirable particulate matter) Maintenance Plan and Request for Re-designation, and the U.S. EPA-approved 1996 Carbon Monoxide Re-designation Request and Maintenance Plan for Ten Federal Planning Areas (SJVAPCD 2014b).

GENERAL CONFORMITY PROCESS

The process to evaluate General Conformity for a proposed federal action involves two major phases or processes: the General Conformity Applicability Review process, and the GCD process. Applicability review process is required for any action that is federally funded, licensed, permitted, or approved, where the total direct and indirect emissions for criteria pollutants and precursors in a nonattainment or maintenance area exceed the General Conformity *de minimis* rates specified in 40 CFR 93.153(b)(1) and (2). If emissions exceed these rates, then a GCD is required.

Based on the definitions from 40 CFR 93.153 and U.S. EPA General Conformity Guidance, direct emissions are caused by the action itself, such as the emissions from the construction of a facility. Indirect emissions are also caused by the action, but are removed from the action in either time or space. For example, emissions from employees commuting to a facility are indirect emissions. Both direct and indirect emissions have to be reasonably foreseeable, meaning that the emissions can be estimated based on acceptable techniques using reasonable assumptions about the type and quantity of equipment used.

The General Conformity requirements provide four steps for the General Conformity Applicability process to determine whether the next phase of General Conformity evaluation requirements apply to a federal action, and therefore, that a GCD may be needed.

The four steps are:

- Step 1 – Determine whether criteria pollutants and their precursors would be emitted.
- Step 2 – Determine whether emissions of criteria pollutants and precursors would occur in a nonattainment or maintenance area.

- Step 3 – Determine whether the action is exempt from the General Conformity Rule.
- Step 4 – Estimate emissions and compare them with the General Conformity *de minimis* threshold emissions rates.

After completing the General Conformity Applicability review process, if the General Conformity Rule is applicable for the proposed action, then a GCD process is required. The GCD process is an assessment of whether the proposed action conforms to the applicable SIP. Positive General Conformity can be shown through state emission budgets, emission offsets, air quality modeling, or any combination of these three processes.

Per 40 CFR 51.859(d) the Conformity Analysis must be based on the total direct and indirect emissions from the action for:

- Maintenance and nonattainment areas, the year mandated in the CAA for attainment;
- farthest year for which emissions are projected in the approved maintenance plan;
- the year during which the emissions for the proposed action are projected to be the greatest on an annual basis; and
- any year for which the applicable SIP specifies an emission budget.

EXEMPTIONS FROM GENERAL CONFORMITY REQUIREMENTS

As noted previously, the general conformity requirements apply to a Federal action if the net project emissions equal or exceed applicable *de minimis* levels. The only exceptions to this applicability criterion are the topical exemptions summarized below, or if the activity is on the Federal agency's presumed-to-conform list (40 CFR Section 93.153(f)) or meets the narrow exemption for Federal actions in response to an emergency or disaster (40 CFR Section 93.153(e)).

- Actions that would result in no emissions increase or an increase in emissions that is clearly below the *de minimis* levels (40 CFR Section93.153(c)(2)). Examples include administrative actions and routine maintenance and repair.
- Actions where the emissions are not reasonably foreseeable (40 CFR Section 93.153(c)(3)).
- Actions which implement a decision to conduct or carry out a conforming program (40 CFR Section 93.153(c)(4)).
- Actions which include major new or modified sources requiring a permit under the New Source
- Review (NSR) program (40 CFR Section93.153(d)(1)).
- Actions in response to emergencies or natural disasters (40 CFR Section93.153(d)(2)).
- Actions which include air quality research not harming the environment (40 CFR Section93.153(d)(3)).
- Actions which include modifications to existing sources to enable compliance with applicable environmental requirements (40 CFR Section 93.153(d)(4)).
- Actions which include emissions from remedial measures carried out under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) that comply with other applicable requirements (40 CFR Section 93.153(d)(5)).

The Proposed Action does not meet any of these exempt categories and the Project does not meet the requirements of 40 CFR § 93.153(e), thus all of the action alternatives would be subject to General Conformity requirements.

APPLICABILITY ANALYSIS

ATTAINMENT STATUS OF PROJECT AREA

EPA designates each county (or portions of counties) within California as attainment, maintenance, or nonattainment based on the area's ability to maintain ambient air concentrations below the air quality standards. Areas are designated as attainment if ambient air concentrations of a criteria pollutant are below the ambient standards. Areas are designated as nonattainment if ambient air concentrations are above the ambient standards. Areas previously designated as nonattainment that subsequently demonstrated compliance with the standards are designated as maintenance. Table 1 shows the designation status of the primary study area located within the San Joaquin Valley Air Basin (SJVAP) for each criteria pollutant.

Table 1 Federal Attainment Status

Pollutant	Federal Classification
Ozone (NO_X and VOC)	Nonattainment (Extreme)
PM_{10}	Maintenance
$PM_{2.5}$	Nonattainment
CO	Urban Fresno: Maintenance. Remaining Basin: Attainment
NO_2	Attainment
SO_2	Attainment

Source:

Under the Federal criteria, the SJVAP is currently designated as nonattainment for 8-hour O3, the 1997 $PM_{2.5}$ standard (annual standard of 15 micrograms/cubic meter [µg/m^3] and 24-hour standard of 65 µg/m^3), and the 2006 24-hour $PM_{2.5}$ standard (35 µg/m^3). The SJVAB is a maintenance area for PM_{10}, and the Fresno Urbanized Area is a maintenance area for CO. The Proposed Action would result in direct and indirect construction emissions within the portions of the basin that are in attainment for CO. The SJVAB is in attainment for NO_2 and SO_2, and unclassified for lead. As such, the lead Federal agency (i.e., Reclamation) would have to demonstrate project-level compliance with the general conformity rule following requirements for each of these pollutants if project-related emissions were to exceed the general conformity *de minimis* thresholds.

DE MINIMUS LEVELS

The general conformity requirements will apply to the Federal action for each pollutant for which the total of direct and indirect emissions caused by the Federal action equal or exceed the *de minimus* emission rates shown below in Table 2. These emission rates are expressed in units of tons per year (tpy) and are compared to the total of direct and indirect emissions caused by the Project for each calendar year when construction activities would take place. The applicable threshold levels for the pollutants for which general conformity is required in the project area are shown in Table 2.

It should be noted that, because O_3 is a secondary pollutant (i.e., it is not emitted directly into the atmosphere but is formed in the atmosphere from the photochemical reactions of VOC and NO_X in the presence of sunlight), its *de minimis* emission rate is based on primary emissions of its precursor pollutants – NO_X and VOCs. If the net emissions of either NO_X or VOCs exceeds the *de minimis* emission rate for O_3 (EPA 1994), the Federal action is subject to a general conformity evaluation for O_3.

Table 2 De minimis Levels for Determining Applicability of General Conformity Requirements for Federal Actions

Pollutant	Federal Classification	General Conformity De Minimis Thresholds (tons per year)
O_3	Nonattainment (Extreme)	NA
NO_X (as O_3 precursor)	NA	10
VOC (as O_3 precursor)	NA	10
CO	Attainment	100
PM_{10}	Maintenance	100
$PM_{2.5}$	Nonattainment	100
SO_2 (as $PM_{2.5}$ precursor)	NA	100
NO_2 (as $PM_{2.5}$ precursor)	NA	100
Ammonia or VOC (as $PM_{2.5}$ precursor)	NA	SJVAPCD determined not significant for 2008 $PM_{2.5}$ Plan

Source: Fierro 2014

CONSTRUCTION EMISSIONS

As described in Chapter 4, "Air Quality and Greenhouse Gas Emissions" for this EIS, the emission-generating activities would take place during construction of the action alternatives and only minimal operational-related emissions would be associated with recreation-user automobile trips. As such, emissions generated during the construction phase are the only emissions subject to this GCD.

Construction of any of the five action alternatives would take approximately 10 years. Alternatives 1 through 5 would all provide new water supplies and would only vary slightly in terms of how water supplies are distributed. With regards air emissions, the primary difference in the alternatives is the type of intake structure that would be constructed under each alternative. Alternative 4 would construct a selective-level intake structure. All other alternatives (i.e., 1, 2, 3, and 5) would construct a low-level intake structure. The difference in structures results in different construction activities and intensity and thus different emissions. In addition, there are three quarry and haul road configuration options under consideration (Option A, B, and C). Each option proposed a different quarry site that results in different haul-route trips and thus exhaust emissions. Details describing the different options are provided in the EIS. This GCD considers the worst-case emissions scenario.

For each of the five alternatives, the construction activities would consist of three distinct phases that would overlap during portions of the entire 10-year construction period. Construction activities for each phase are discussed separately.

Phase 1 includes activities preceding the main dam construction. Activities include initial site access and contractor use area staging, construction of access and haul roads, material processing at the quarry, underwater cofferdam construction, and diversion tunnel construction.

Phase 2 includes activities to construct a Powerhouse/Valve House and intake structure. All structures would then be connected to the diversion tunnel to complete the river outlet works. Extensive excavation, earth moving, and building construction would occur. In addition, access roads would be constructed to the newly built structures.

Phase 3 includes construction of the dam structures. Activities include material processing, such as aggregate from the quarry, completing the cofferdams, preparing the dam foundation, constructing the dam, and reclaiming and demobilizing the construction site. A cement batch plant site would be used to produce material for dam structure construction.

In addition to new construction, various existing facilities would be affected. Reservoir clearing would be required for areas to be inundated, new recreational facilities such as trails and campsites would be constructed, utility systems (e.g., power lines, septic tanks) affected by inundation would be removes and relocated as needed, and the existing Kerckhoff Powerhouse would be decommissioned.

For all phases of construction typical construction activities will require all terrain vehicles, fork lifts, cranes, pick-up and fuel trucks, compressors, loaders, backhoes, excavators, dozers, scrapers, pavement compactors, welders, concrete pumps and concrete trucks, and off-road haul trucks. In addition to typical construction equipment, marine vessels, marine barges, and helicopters would be used for specific construction activities.

For complete details and explanation regarding construction activities, phases, schedules, equipment type and use, see Chapter 2 Alternatives and the Engineering Summary Appendix.

ESTIMATED EMISSIONS AND COMPARISON TO *DE MINIMIS* THRESHOLDS

Emissions of NO_X, PM_{10} (dust and exhaust), and $PM_{2.5}$ (dust and exhaust) were quantified for each year of construction for each action alternative. Emissions of CO, NO_2, and SO_2 were not estimated because the SJVAB is in attainment for these pollutants. Further, these pollutants would represent a minor portion of the total emissions in comparison to fugitive dust and NO_X, as the primary emission sources would result from heavy-duty construction equipment exhaust and fugitive dust from earth moving and other construction activities.

Results are summarized below in Table 3 and compared against the applicable *de minimis* threshold. Bold text represents the maximum emissions that would occur for the particular pollutant over the entire construction period between all Alternative Plans and quarry location options.

Table 3 Annual Emissions of Criteria Pollutants (Tons)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	*de minimis* Levels
VOC	23	**28**	**28**	**28**	**28**	5	29	29	29	29	10
NOX	211	254	254	254	254	43	**262**	**262**	**262**	**262**	10
PM10 dust	36	38	38	38	38	2	58	58	58	58	100
PM10 exhaust	7	9	9	9	9	2	9	9	9	9	100
PM2.5 dust	4	4	4	4	4	<1	6	6	6	6	100
PM2.5 exhaust	6	8	8	8	8	2	8	8	8	8	100

Notes: bold text represents maximum emissions for the respective pollutant over the entire construction period. PM10 emissions represent estimates with incorporated dust control measures and compliance with Regulation V111

APPLICABILITY FOR FEDERAL ACTION

The applicability of the general conformity requirements to the Federal action was evaluated by comparing the total of direct and indirect emissions for the calendar year of greatest emissions to the general conformity *de minimis* thresholds. Where the total of direct and indirect emissions attributable to the Federal action were found to be below the *de minimis* emission rates for a pollutant, that pollutant is excluded from general conformity requirements and no further analysis is required. Those pollutants that could not be excluded from applicability must undergo a general conformity evaluation.

Construction of any of the five alternative plans would result in emissions of NO_X and VOCs that would exceed applicable *de minimis* thresholds. Emissions of NO_X and VOCs could reach a maximum of up to 262 tpy for NO_X and 28 tpy for VOC's. This maximum level would occur for approximately four years.

Emissions of PM_{10} consist primarily of fugitive dust as a result of activities such as blasting, concrete batching, and earth and material moving. As shown in Chapter 4.0, "Air Quality and Greenhouse Gas Emissions" and in Table 3 above, incorporated dust control measures and compliance with SJVAPCD Regulation VIII, dust emissions would be reduced by up to 75 percent and thus would not exceed the *de minimis* thresholds of 100 tons per year. Emissions of PM_{10} would not be subject to GCD.

GENERAL CONFORMITY DETERMINATION

For Federal actions subject to a general conformity evaluation, the regulations delineate several criteria that can be used to demonstrate conformity (40 CFR Section 93.158). This section summarizes the findings that were used to make the determination for the Project.

CONFORMITY REQUIREMENTS OF PROPOSED PROJECT

Based on the results shown in Table 4, conformity determinations are required for construction-phase emissions for:

- NO_X – because annual estimated maximum emissions are greater than the applicability rate of 10 tons per year
- VOCs – because annual estimated emissions are greater than the applicability rate of 10 tons per Year

COMPLIANCE WITH CONFORMITY REQUIREMENTS

To support the general conformity compliance determination, Reclamation demonstrates herein that the emissions of NO_X and VOCs (precursors to O_3) caused by the construction of the proposed Project will not result in an increase in regional NO_X and VOC emissions. This will be achieved by off-setting the NO_X and VOC emissions generated by the construction of any of the alternatives in a manner consistent with the applicable general conformity regulations.

With regards to NO_X and VOC emissions, SJVAPCD staff recommended that the project emissions be fully offset through the SJVAPCD's Emission Reduction Incentive Program (ERIP). The ERIP is a thoroughly audited and grant-based program that contracts with third parties receiving grant funds to implement emission reduction projects, and then assures, tracks and enforces those reductions. The SJVAPCD serves as both the administrator of the projects and the verifier of the emission reductions. Examples of projects funded in the past include electrification of stationary internal combustion engines; replacement of old heavy-duty trucks

with new, cleaner trucks; and replacement of old farm tractors. The SJVAPCD will fund projects within the SJVAB that will produce real, quantifiable, enforceable, and surplus emission reductions, contemporaneously with Project emission increases.

The offsets will be accomplished through a voluntary emissions reduction agreement (VERA) between Reclamation and the SJVAPCD **[MWH: We are currently coordinating this process].** A copy of the agreement setting forth this commitment is attached **[MWH: Once the air district approves this GCD we can include the VERA as part of this report].** The Project's participation in the ERIP will provide pound-for-pound offsets of emissions that exceed the *de minimis* thresholds to offset all emissions subject to the General Conformity Rule down to zero. The offsets will cover maximum NO_X and VOC emissions from all years of construction.

The required offsets were based on the maximum potential emissions for either of the five action alternatives and quarry location options. Through this mechanism, construction emissions of NO_X and VOCs from the Proposed Action which exceed the *de minimis* thresholds will be fully offset and the federal action will conform to the applicable SIPs pursuant to Title 40, Code of Federal Regulations, Part 93, Subpart B, Section 93.158(a)(2) and/or Section 93.158(a)(5)(iii). An explanation of the basis of the fees to be paid into the ERIP is provided below.

Emission fees to be paid by Reclamation into the ERIP are based on the SJVAPCD's Indirect Source Review (ISR) rule, Rule 9510, and include a 4 percent administration fee to cover SJVAPCD costs related to contracting and enforcing the actual emission reductions resulting from the ERIP. The amount of the fee for both NO_X and VOC emissions is $9,350 per ton per year. Fees were determined by alternative such that adequate fees would be applied based on the alternative that is eventually chosen.

Table 4 ERIP Conformity Mitigation Fee

	NO_X (max TPY)	VOC (max TPY)	Mitigation Fee[1] ($/ton)	Administration Fee[2]	Cost
Action Alternatives	262	28	9,350	%4	$ 2,819,960

Notes:

Mitigation fee defined in SJVAPCD Rule 9510 (ISR)

Administration Fee set forth in SJVAPCD Rule 3180

CONCLUSION

As required by 40 CFR 93 Subpart B, an evaluation of the General Conformity was performed for the project for all the affected nonattainment and maintenance areas in the project vicinity. Criteria pollutant emissions generated in each Project-affected area from activities associated with the Project construction were calculated and compared to the General Conformity *de minimis* thresholds to assess whether a GCD is required.

The estimated emissions indicate that the total direct and indirect construction and operational emissions of CO, PM_{10}, $PM_{2.5}$, and SO_2 are below the applicable General Conformity thresholds for all years of construction and operation in all nonattainment and maintenance areas. Construction and operational emissions of NO_X exceed the General Conformity threshold during construction in the SJVAB. Construction emissions of VOC exceed the General Conformity threshold in the SJVAB. Thus a GCD for NO_X for during construction and for VOC during construction in the SJVAB is required.

The Project has entered into an enforceable commitment with the SJVAPCD to participate in its ERIP. The Project's participation in the ERIP will provide pound-for-pound offsets of emissions that exceed the General Conformity thresholds to offset all emissions subject to General Conformity down to zero. The offsets will

cover NO_x emissions during all years of construction, as well as VOCs during all years of construction, as the maximum emissions were used to calculate the mitigation fee. Through this mechanism, construction emissions of NO_x and VOC from the Project which exceed the General Conformity thresholds will be fully offset and the federal action will conform to the applicable SIPs pursuant to Title 40, Code of Federal Regulations, Part 93, Subpart B, Section 93.158(a)(2).

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Emissions Summary

this sheet summarizes worst-case emissions that were used for the General Conformity Determination

	Alternative 1-3, Option C				Alternative 4, Option C			
	Average (TPY)	Phase 1 (TPY)	Phase 2 (TPY)	Phase 3 (TPY)	Average (TPY)	Phase 1 (TPY)	Phase 2 (TPY)	Phase 3 (TPY)
ROG	23	23	4	29	23	23	5	29
NOX	187	211	37	262	190	211	43	262
PM10 (exhaust)	7	7	1	9	7	7	2	9
PM10 (dust)	170	142	8	233	170	142	8	233
CO2 (MT)	29,162	25,488	6,502	37,744	29,531	28,948	7,441	37,744

Year	1	2	3	4	4.5	5	5.5	6	7	8	9	10
Phase 1												
Phase 2												
Phase 3												
Alt 1-3												
ROG/VOC	23	27	27	27	27	4	[illegible]	29	29	29	29	29
NOX	211	248	248	248	248	37	[illegible]	262	262	262	262	262
PM10 dust	142	150	150	150	150	8	[illegible]	233	233	233	233	233
PM10 exhaust	7	8	8	8	8	1	[illegible]	9	9	9	9	9
PM2.5 dust*	14	15	15	15	15	1	[illegible]	23	23	23	23	23
PM2.5 exhaust**	6	8	8	8	8	1	[illegible]	8	8	8	8	8
Alt 4												
ROG/VOC	23	28	28	28	28	5	[illegible]	29	29	29	29	29
NOX	211	254	254	254	254	43	[illegible]	262	262	262	262	262
PM10 dust	142	150	150	150	150	8	[illegible]	233	233	233	233	233
PM10 exhaust	7	9	9	9	9	2	[illegible]	9	9	9	9	9
PM10 dust (mitigated)	36	38	38	38	38	2	60	58	58	58	58	58
PM2.5 dust*	4	4	4	4	4	0	6	6	6	6	6	6
PM2.5 exhaust**	6	8	8	8	8	2	10	8	8	8	8	8

Notes

*Fugitive Dust PM2.5 was calculated based on a 0.1 ratio of PM2.5/PM10 as indicated in EPA 2006 AP-42 Background Document for Revisions to Fine Fraction Ratios used for AP-42 Fugitive Dust Emission Factors

**Exhaust PM2.5 is assumed to be 92% of PM10 based on Sacramento-Metropolitan Air Quality Management District's Roadway Construction Emissions Model, Version 7.2.1 (SMAQMD, 2011)

Alternative 4, Option C was used to represent maximum emissions for conformity