APPENDIX G1

Air Quality and Greenhouse Gas Emissions Estimates

G1.1.1 CRITERIA POLLUTANT EMISSIONS SUMMARIES

Maximum Day Total Unmitigated Construction Emissions

Emissions Source	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Equipment and Vehicle Exhaust	29.41	374.27	217.14	15.05	12.79
Fugitive Dust	--	--	--	189.88	27.56
Off-gassing from Paving	4.53	--	--	--	--
Total	33.94	374.27	217.14	204.93	40.35

Maximum Day Total Mitigated Construction Emissions

Emissions Source	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Equipment and Vehicle Exhaust	15.17	316.18	312.85	12.63	11.13
Fugitive Dust	--	--	--	55.71	8.57
Off-gassing from Paving	4.53	--	--	--	--
Total	19.70	316.18	312.85	68.34	19.70

Proposed Action (9.6 MGD) Operational Emissions

Source	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
On-road Exhaust	0.09	1.46	2.36	0.10	0.04
Emergency Generator Testing	0.32	16.92	1.93	1.10	1.02
Slant Well Maintenance (off-road equipment)	0.94	8.28	6.30	0.31	0.29
Total	1.35	26.66	10.59	1.51	1.35
Significance Criteria	137	137	550	82	55
Significant Impact?	No	No	No	No	No

Alternative 5 (6.4 MGD) Operational Emissions

Source	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
On-road Exhaust	0.09	1.46	2.36	0.10	0.04
Emergency Generator Testing	0.27	14.23	1.62	0.90	0.83
Slant Well Maintenance (off-road equipment)	0.94	8.28	6.30	0.31	0.29
Total	1.30	23.97	10.28	1.31	1.16
Significance Criteria	137	137	550	82	55
Significant Impact?	No	No	No	No	No

G1.1.2 MPWSP ESTIMATED CONSTRUCTION PHASING

MPWSP Estimated Construction Phasing	2018												2019												2020											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
9 Additional Slant Wells																																				
Approx 15 months																																				
MPWSP Desalination Plant																																				
Approx 24 months																																				
Source Water Pipeline (from CEMEX)																																				
Approx 6 months																																				
Source Water Pipeline (from Potrero)																																				
Approx 12 months																																				
New Desalinated Water Pipeline and New Transmission Main Pipeline																																				
Approx 15 months																																				
Pipeline to the CSIP Pond																																				
Approx 2 months																																				
Castroville Pipeline																																				
Approx 4 months																																				
Brine Discharge Pipeline																																				
Approx 3 months																																				
ASR Pipelines (ASR Conveyance PL, ASR Redistribution PL, ASR Pump-to-Waste)																																				
Approx 5 months																																				
Terminal Reservoir																																				
Approx 15 months.																																				
ASR Injection/Extraction Wells (ASR-5 and ASR-6 Wells)																																				
Approx 12 months.																																				
Main System-Hidden Hills Interconnection Improvements																																				
Approx 3 months																																				
Ryan Ranch-Bishop Interconnection Improvements																																				
Approx 4 months																																				
Carmel Valley Pump Station																																				
Approx 6 months																																				
Spoils Hauling / Disposal / Pipelineacement																																				
***Mon-Fri, 7am-7pm (24 months)*																																				

G1.1.3 CONSTRUCTION WORKER AUTO AND TRUCK TRIPS

9.6 MGD Facility	Const. workdays	Construction		Vehicle Trips for Criteria Pollutants (per day)				Vehicle Trips Total for GHG			
				Worker		Truck		Worker		Truck	
		Workers	Trucks	Roundtrip	One-Way	Roundtrip	One-Way	Roundtrip	One-Way	Roundtrip	One-Way
Subsurface Slant Wells (9 wells)	315	30	20	33	66	20	40	8,316	16,632	5,040	10,080
Desalination Plant	504	88	55	97	194	55	110	39,110	78,221	22,176	44,352
Source Water Pipeline	126	25	12	28	56	12	24	3,528	7,056	1,512	3,024
Brine Discharge Pipeline	63	12	6	14	28	6	12	882	1,764	378	756
Brine Mixing Box	189	12	6	14	28	6	12	2,646	5,292	1,134	2,268
Castroville Pipeline	84	12	6	14	28	6	12	1,176	2,352	504	1,008
Pipeline to CSIP Pond	42	12	6	14	28	6	12	588	1,176	252	504
New Desalinated Water Pipeline	126	25	12	28	56	12	24	3,528	7,056	1,512	3,024
New Transmission Main Pipeline	189	25	12	28	56	12	24	5,292	10,584	2,268	4,536
ASR Pipelines (ASR Conveyance, ASR Redisribution, and ASR Pump-to-Waste pipelines)	105	25	12	28	56	12	24	2,940	5,880	1,260	2,520
ASR Injection/Extraction Wells	252	25	12	28	56	12	24	5,645	11,290	2,419	4,838
Carmel Valley Pump Station	126	12	6	14	28	6	12	1,411	2,822	605	1,210
Ryan Ranch-Bishop Interconnection	84	12	6	14	28	6	12	1,176	2,352	504	1,008
Main System to Hidden Hills	63	12	6	14	28	6	12	882	1,764	378	756
								Total	154,241	Total	79,884

Note: worker roundtrips per day are estimated assuming they would be equal to 110% of workers, rounded up to the nearest integer.

G1.1.4 AVERAGE DAILY OFFROAD CONSTRUCTION EQUIPMENT HOURS FOR CALEEMOD INPUT AND EQUIPMENT FUEL USE ESTIMATES

Desalination Plant

Off Road Equipment	Approx. HP	Number	Hour/Day	Days	Total hours	Total Workdays	Average Hours/day
Paver	160	1	12	21	252	504	0.5
Rollers	90	2	12	63	1,512	504	1.5
Excavator	200	2	12	42	1,008	504	1.0
Loader	90	2	12	42	1,008	504	1.0
Backhoe	150	2	12	462	11,088	504	11.0
Cranes	200	2	12	462	11,088	504	11.0
Graders	200	1	12	42	504	504	1.0
Off-Highway Trucks	350	1	12	42	504	504	1.0
Off-Highway Tractor	200	1	12	42	504	504	1.0
Forklifts	150	4	12	462	22,176	504	11.0
Water Truck	350	1	4	42	168	504	0.3
Generator	200	2	12	504	12,096	504	12.0

Notes: Construction would occur over 24 months with three main activities: site preperation (2 months); plant development and construction (22 months); site paving (1 month). There would be approximately 21 workdays per month. Construction activites would occur around the clock, with average equipment usage at 12 hours per day.

Subsurface Slant Wells

Off-Road Equipment	Approx. HP	Number	Hour/day	Days	Total hours	Total Workdays	Average Hours/day
Bore/Drill Rigs	350	1	24	90	2,160	315	6.9
Crane	200	2	12	315	7,560	315	12.0
Trencher	150	1	12	315	3,780	315	12.0
Generator	200	2	12	90	2,160	315	3.4
Excavators	200	1	12	90	1,080	315	3.4

Notes: Construction of the 9.5 MGD project would take 15 months with drilling (10 days for each of the nine wells); well development (10 days each well); electrical and pump-to-waste pipeline (1 month). Construction of the 6.1 MGD project would last approximately 12 months with drilling (10 days for each of the seven wells); well development (10 days each well); electrical and pump-to-waste pipeline (1 month). Although overall construction emissions associated with the 6.1 MGD project would be less than the emissions for the 9.5 MGD project, the avarage daily emissions shown above represent both the 9.5 MGD and 6.1 MGD projects. There would be approximately 21 workdays per month. Drilling-related activites would occur around the clock, with drill usage at 24 hours per day and the usage for other equipment at 12 hours per day.

Source Water Pipeline

Off-Road Equipment	Approx. HP	Number	Hour/day	Days	Total hours	Total Workdays	Average Hours/day
Pavers	160	1	6	126	756	126	6.0
Rollers	90	1	6	126	756	126	6.0
Backhoe	150	1	8	126	1,008	126	8.0
Excavators	200	1	8	126	1,008	126	8.0
Cranes	200	1	6	126	756	126	6.0
Jack-and-Bore Rig	350	1	8	10	80	126	0.6
Loader	90	1	8	126	1,008	126	8.0
Generator	200	1	8	126	1,008	126	8.0

Notes: Construction would last 6 months. There would be 10 days of jack-and-boring at the Highway 1 crossing. There would be approximately 21 workdays per month.

Castroville Pipeline

Off-Road Equipment	Approx. HP	Number	Hour/day	Days	Total hours	Total Workdays	Average Hours/day
Pavers	160	1	6	84	504	84	6.0
Rollers	90	1	6	84	504	84	6.0
Backhoe	150	1	8	84	672	84	8.0
Excavators	200	1	8	84	672	84	8.0
Cranes	200	1	6	84	504	84	6.0
Jack-and-Bore Rig	350	1	8	10	80	84	1.0
Loader	90	1	8	84	672	84	8.0
Generator	200	1	8	84	672	84	8.0

Notes: Construction would last 4 months. There would be 10 days of jack-and-boring at the State Route 183 crossing. There would be approximately 21 workdays per month.

Brine Discharge Pipeline

Off-Road Equipment	Approx. HP	Number	Hour/day	Days	Total hours	Total Workdays	Average Hours/day
Pavers	160	1	6	63	378	63	6.0
Rollers	90	1	6	63	378	63	6.0
Backhoe	150	1	8	63	504	63	8.0
Excavators	200	1	8	63	504	63	8.0
Cranes	200	1	6	63	378	63	6.0
Loader	90	1	8	63	504	63	8.0
Generator	200	1	8	63	504	63	8.0

Notes: Construction would last 3 months. There would be approximately 21 workdays per month.

Brine Mixing Box

Off-Road Equipment	Approx. HP	Number	Hour/day	Days	Total hours	Total Workdays	Average Hours/day
Pavers	160	1	6	189	1,134	63	18.0
Rollers	90	1	6	189	1,134	63	18.0
Backhoe	150	1	8	189	1,512	63	24.0
Excavators	200	1	8	189	1,512	63	24.0
Cranes	200	1	6	189	1,134	63	18.0
Loader	90	1	8	189	1,512	63	24.0
Generator	200	1	8	189	1,512	63	24.0

Notes: Construction would last 9 months. There would be approximately 21 workdays per month.

CSIP Pond Pipeline

Off-Road Equipment	Approx. HP	Number	Hour/day	Days	Total hours	Total Workdays	Average Hours/day
Pavers	160	1	6	42	252	42	6.0
Rollers	90	1	6	42	252	42	6.0
Backhoe	150	1	8	42	336	42	8.0
Excavators	200	1	8	42	336	42	8.0
Cranes	200	1	6	42	252	42	6.0
Loader	90	1	8	42	336	42	8.0
Generator	200	1	8	42	336	42	8.0

Notes: Construction would last 2 months. There would be approximately 21 workdays per month.

New Desalinated Water Pipeline

Off-Road Equipment	Approx. HP	Number	Hour/day	Days	Total hours	Total Workdays	Average Hours/day
Pavers	160	1	6	126	756	126	6.0
Rollers	90	1	6	126	756	126	6.0
Backhoe	150	1	8	126	1,008	126	8.0
Excavators	200	1	8	126	1,008	126	8.0
Cranes	200	1	6	126	756	126	6.0
Loader	90	1	8	126	1,008	126	8.0
Generator	200	1	8	126	1,008	126	8.0

Notes: Construction would last 6 months. There would be approximately 21 workdays per month.

New Transmission Main Pipeline

Off-Road Equipment	Approx. HP	Number	Hour/day	Days	Total hours	Total Workdays	Average Hours/day
Pavers	160	1	6	189	1,134	189	6.0
Rollers	90	1	6	189	1,134	189	6.0
Backhoe	150	1	8	189	1,512	189	8.0
Excavators	200	1	8	189	1,512	189	8.0
Cranes	200	1	6	189	1,134	189	6.0
Jack-and-Bore Rig	350	1	8	30	240	189	1.3
Loader	90	1	8	189	1,512	189	8.0
Generator	200	1	8	189	1,512	189	8.0

Notes: Construction would last 9 months. There would be 30 days of jack-and-boring at the two Highway 1 crossings and the crossing of Reservation Road. There would be approximately 21 workdays per month.

ASR Pipelines (ASR Conveyance, ASR Redistribution, and ASR Pump-to-Waste)

Off-Road Equipment	Approx. HP	Number	Hour/day	Days	Total hours	Total Workdays	Average Hours/day
Pavers	160	1	6	105	630	105	6.0
Rollers	90	1	6	105	630	105	6.0
Backhoe	150	1	8	105	840	105	8.0
Excavators	200	1	8	105	840	105	8.0
Cranes	200	1	6	105	630	105	6.0
Loader	90	1	8	105	840	105	8.0
Generator	200	1	8	105	840	105	8.0

Notes: Construction would last 5 months. There would be approximately 21 workdays per month.

ASR Injection/Extraction Wells

Off Road Equipment	Approx. HP	Number	Hour/Day	Days	Total hours	Total Workdays	Average Hours/day
Pavers	160	1	8	5	40	252	0.2
Rollers	90	1	8	47	376	252	1.5
Excavator	200	1	8	42	336	252	1.3
Loader	90	1	8	42	336	252	1.3
Backhoe	150	1	8	42	336	252	1.3
Drill Rig	350	1	24	40	960	252	3.8
Cranes	200	2	8	42	672	252	1.3
Graders	200	1	8	5	40	252	0.2
Off-Highway Trucks	350	1	8	42	336	252	1.3
Off-Highway Tractor	200	1	8	42	336	252	1.3
Generator	200	1	8	210	1,680	252	6.7

Notes: Construction would last 12 months. Site preperation (2 months), well and basin development (10 months); 1 week of paving, and there would be 4 weeks of continious drilling for each well. There would be approximately 21 workdays per month.

Carmel Valley Pump Station

Off-Road Equipment	Approx. HP	Number	Hour/day	Days	Total hours	Total Workdays	Average Hours/day
Pavers	160	1	8	1	8	126	0.1
Rollers	90	1	8	43	344	126	2.7
Loader	90	1	8	42	336	126	2.7
Backhoe	150	1	8	42	336	126	2.7
Crane	200	1	8	21	168	126	1.3
Grader	200	1	8	5	40	126	0.3
Generator	200	1	8	126	1,008	126	8.0

Notes: Construction would last 6 months. There would be 2 months of site preperation, 4 months of building construction, and 1 day of paving. There would be approximately 21 workdays per month.

Ryan Ranch-Bishop Interconnection Improvements

Off-Road Equipment	Approx. HP	Number	Hour/day	Days	Total hours	Total Workdays	Average Hours/day
Pavers	160	1	6	84	504	84	6.0
Rollers	90	1	6	84	504	84	6.0
Backhoe	150	1	8	84	672	84	8.0
Excavators	200	1	8	84	672	84	8.0
Cranes	200	1	6	84	504	84	6.0
Loader	90	1	8	84	672	84	8.0
Generator	200	1	8	84	672	84	8.0

Notes: Construction would last 4 months. There would be approximately 21 workdays per month.

Main System-Hidden Hills Interconnection Improvements Construction Exhaust Emissions

Off-Road Equipment	Approx. HP	Number	Hour/day	Days	Total hours	Total Workdays	Average Hours/day
Pavers	160	1	6	63	378	63	6.0
Rollers	90	1	6	63	378	63	6.0
Backhoe	150	1	8	63	504	63	8.0
Excavators	200	1	8	63	504	63	8.0
Cranes	200	1	6	63	378	63	6.0
Loader	90	1	8	63	504	63	8.0
Generator	200	1	8	63	504	63	8.0

Notes: Construction would last 3 months. There would be approximately 21 workdays per month.

Slant Well Maintenance (2025/2026)

Off-Road Equipment	Approx. HP	Number	Hour/day	Days	Total hours	Total Workdays	Average Hours/day
Grader	200	1	8	60	480	90	5.3
Cranes	200	1	6	90	540	90	6.0
Loader	90	1	8	60	480	90	5.3
Generator	200	1	8	90	720	90	8.0

Notes: Construction would last 3 months. There would be approximately 21 workdays per month.

G1.1.5 EQUIPMENT AND VEHICLE FUEL USE

Off-road 2011 Model Construction Equipment Fuel Consumption Output

Calendar Year	Air Basin	Equipment Type	BSFC (lbs/yr)	Activity (hrs/yr)	BSFC (gal/hr)*
2018	NCC	Bore/Drill Rigs	292,968	7,220	5.71
2018	NCC	Cranes	696,745	28,487	3.44
2018	NCC	Excavators	3,099,104	139,457	3.13
2018	NCC	Graders	1,167,436	41,203	3.99
2018	NCC	Off-Highway Tractors	655,307	32,668	2.82
2018	NCC	Off-Highway Trucks	3,930,849	69,534	7.96
2018	NCC	Other Construction Equipment	877,052	33,231	3.72
2018	NCC	Pavers	206,630	10,447	2.78
2018	NCC	Rollers	535,654	47,340	1.59
2018	NCC	Rough Terrain Forklifts	581,596	39,175	2.09
2018	NCC	Tractors/Loaders/Backhoes	4,306,119	324,756	1.87
2018	NCC	Trenchers	178,019	11,828	2.12

*There is 1.874 pounds/liter of diesel, and 3.79 liters/gallon.

NCC = North Central Coast Air Basin; BSFC = brake specific fuel consumption.

Construction

Total Fuel Use During Contruction

Fuel Type	Fuel Consumed (gal/proj)	Fuel Consumed (av. gal/yr)	Gallons sold in County in 2012	% Project gall/County gal
Gasoline	74,512	37,256	147,000,000	0.03%
Diesel	1,106,802	553,401	68,000,000	0.81%

Construction Equipment Total Diesel Fuel Use

Off Road Equipment	Fuel Consumption (gal/hr)	Total Hours (hrs/project)	Diesel Fuel Consumed (gal/proj)	Diesel Fuel Consumed (av. gal/yr)
Paver	2.8	6,726	18,730	9,365
Rollers	1.6	8,658	13,793	6,897
Excavator	3.1	9,912	31,013	15,507
Loader	1.9	10,248	19,132	9,566
Backhoe	1.9	20,328	37,950	18,975
Cranes	3.4	25,914	89,239	44,620
Graders	4.0	584	2,330	1,165
Off-Highway Trucks	8.0	840	6,686	3,343
Off-Highway Tractor	2.8	840	2,372	1,186
Forklifts	2.1	22,176	46,354	23,177
Water Truck	8.0	168	1,337	669
Generator	3.7	24,432	90,788	45,394
Drill Rigs	5.7	3,120	17,825	8,912
Trencher	2.1	3,780	8,010	4,005
Jack and Bore Rig	5.7	400	2,285	1,143
	Total	138,126	387,846	193,923
		Average gallons/hour	2.8	

See Appendix Section G.1.4 for detail regarding the equipment total hours estimates.

Construction Vehicles Total Fuel Use

Vehicle Type	Fuel Type	Total Trips	Miles/trip	Total Miles Travelled	Ave consum. rate (miles/gallon)	Total Gallons	
						gal/proj	gal/year
Light Duty Truck	gasoline	154,241	10	1,542,408	20.7	74,512	37,256
Heavy Duty Truck	diesel	79,884	63	5,032,692	7.0	718,956	359,478

20.7
7.0

diesel fuel economcy obtained from http://www.dieselforum.org/about-clean-diesel/trucking

Operation and Maintenance

Total Fuel Use During Operation and Maintenance

Fuel Type	Fuel Consumed (ave. gal/yr)	Gallons sold in County in 2012	% Project gall/County gal
Gasoline	10,580	147,000,000	0.01%
Diesel	15,509	68,000,000	0.02%

Slant Well Maintenance Equipment Total Diesel Fuel Use

Off Road Equipment	Fuel Consumption (gal/hr)	Total Hours (hrs/project)	Diesel Fuel Consumed (gal/eventj)	(av. gal/yr)
Grader	4.0	480	1,915	383
Cranes	3.4	540	1,860	372
Loader	1.9	480	896	179
Generator	3.7	720	2,675	535
	Total	2,220	7,346	1,469
		Average gallons/hour	3.3	

See Appendix Section G.1.4 for detail regarding the equipment total hours estimates.

Operations Vehicles Fuel Use

Vehicle Type	Fuel Type	Total Trips/year	Miles/trip	Total Miles Travelled	Ave consumption rate (miles/gallon)	Total Gallons gal/yr
Light Duty Truck	gasoline	21,900	10	219,000	20.7	10,580
Heavy Duty Truck	diesel	1,560	63	98,280	7.0	14,040

diesel fuel economcy obtained from http://www.dieselforum.org/about-clean-diesel/trucking

G1.1.6 CONSTRUCTION CRITERIA POLLUTANT EXHAUST EMISSIONS

2019 Maximum Day Unmitigated Construction Exhaust Emissions (pounds)

Project Component	ROG	NO_x	CO	PM_{10}	$PM_{2.5}$
Desalination Plant	6.39	90.11	48.47	3.36	2.71
Subsurface Slant Wells	3.57	48.28	23.09	1.84	1.56
Source Water Pipeline	2.51	31.10	19.34	1.31	1.12
Brine Discharge Pipeline	2.34	26.99	17.21	1.18	1.04
Brine Mixing Box*	2.34	26.99	17.21	1.18	1.04
Castroville Pipeline	2.39	27.59	17.61	1.19	1.06
Pipeline to CSIP	2.34	26.99	17.21	1.18	1.04
New Transmission Main	2.54	31.52	19.62	1.32	1.13
ASR Pipelines	2.47	30.74	19.10	1.30	1.10
ASR Injection and Extraction Wells	1.45	20.36	10.73	0.70	0.55
Carmel Valley Pump Station	1.09	13.62	7.56	0.51	0.44
Total Emissions	29.41	374.27	217.14	15.05	12.79

Notes: See Esimated Construction Phasing schdule.

*Subsequent to the release of the Draft EIR/EIS, a Brine Mixing Box has been added to the project and the Terminal Reservoir has been removed. The Brine Mixing Box would require the same daily construction equipment use as the Brine Discharge Pipeline so average daily construction emissions for the Brine Mixing Box would be the same as those of the Brine Discharge Pipeline.

2019 Maximum Day Mitigated Construction Exhaust Emissions (pounds)

Project Component	ROG	NO_x	CO	PM_{10}	$PM_{2.5}$
Desalination Plant	3.35	75.46	66.78	2.77	2.26
Subsurface Slant Wells	2.36	41.97	33.59	1.63	1.40
Source Water Pipeline	1.23	26.13	27.35	1.08	0.96
Brine Discharge Pipeline	1.06	21.84	24.86	0.94	0.88
Brine Mixing Box*	1.06	21.84	24.86	0.94	0.88
Castroville Pipeline	1.11	22.74	25.86	0.97	0.91
Pipeline to CSIP	1.06	21.84	24.86	0.94	0.88
New Transmission Main	1.26	26.76	28.05	1.11	0.99
ASR Pipelines	1.20	25.59	26.75	1.06	0.94
ASR Injection and Extraction Wells	0.92	19.82	17.91	0.73	0.61
Carmel Valley Pump Station	0.58	12.21	11.99	0.48	0.42
Total Emissions	15.17	316.18	312.85	12.63	11.13

Notes: See Esimated Construction Phasing schdule.

*Subsequent to the release of the Draft EIR/EIS, a Brine Mixing Box has been added to the project and the Terminal Reservoir has been removed. The Brine Mixing Box would require the same daily construction equipment use as the Brine Discharge Pipeline so average daily construction emissions for the Brine Mixing Box would be the same as those of the Brine Discharge Pipeline.

Desalination Plant

Total Daily Construction Exhaust Emissions (pounds/day)

Emissions	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Unmitigated	6.39	90.11	48.47	3.36	2.71
Mitigated	3.35	75.46	66.78	2.77	2.26

Includes offroad and on-road emissions sources.

Average Daily Offroad Equipment Construction Exhaust Emissions

	Emissions (pounds)				
Offroad Equipment	ROG	NOX	CO	PM_{10}	$PM_{2.5}$
Unmitigated	5.17	56.05	34.57	2.33	2.19
Mitigated	2.13	41.40	52.88	1.74	1.74

See CalEEMod output for equipment use assumptions.

On-road Daily Construction Emissions

			Emission Factors (grams/mile)					Emissions (pounds/day)				
Vehicle Type	Trips/day	miles/trip	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Light duty truck (gas)	194	10	0.0823	0.2714	2.4773	4.8E-02	2.1E-02	0.35	1.16	10.60	0.21	0.09
Heavy duty truck (diesel)	110	25	0.1428	5.4260	0.5447	1.4E-01	7.1E-02	0.87	32.90	3.30	0.82	0.43
							Total	1.22	34.06	13.90	1.03	0.52

Subsurface Slant Wells

Total Daily Construction Exhaust Emissions (pounds/day)

Emissions	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Unmitigated	3.57	48.28	23.09	1.84	1.56
Mitigated	2.36	41.97	33.59	1.63	1.40

Includes offroad and on-road emissions sources.

Average Daily Offroad Equipment Construction Exhaust Emissions

	Emissions (pounds)				
Offroad Equipment	ROG	NOX	CO	PM_{10}	$PM_{2.5}$
Unmitigated	3.14	35.92	18.28	1.47	1.37
Mitigated	1.93	29.61	28.78	1.26	1.21

See CalEEMod output for equipment use assumptions.

On-road Daily Construction Emissions

			Emission Factors (grams/mile)					Emissions (pounds/day)				
Vehicle Type	Trips/day	miles/trip	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Light duty truck (gas)	66	10	0.0823	0.2714	2.4773	4.8E-02	2.1E-02	0.12	0.39	3.60	0.07	0.03
Heavy duty truck	40	25	0.1428	5.4260	0.5447	1.4E-01	7.1E-02	0.31	11.96	1.20	0.30	0.16
							Total	0.43	12.36	4.81	0.37	0.19

Source Water Pipeline

Total Daily Construction Exhaust Emissions (pounds/day)

Emissions	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.51	31.10	19.34	1.31	1.12
Mitigated	1.23	26.13	27.35	1.08	0.96

Includes offroad and on-road emissions sources.

Average Daily Offroad Equipment Construction Exhaust Emissions

	Emissions (pounds)				
Offroad Equipment	ROG	NOX	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.22	23.59	15.56	1.07	1.00
Mitigated	0.94	18.62	23.57	0.84	0.84

See CalEEMod output for equipment use assumptions.

On-road Daily Construction Emissions

			Emission Factors (grams/mile)					Emissions (pounds/day)				
Vehicle Type	Trips/day	miles/trip	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Light duty truck (gas)	56	10	0.0823	0.2714	2.4773	4.8E-02	2.1E-02	0.10	0.34	3.06	0.06	0.03
Heavy duty truck	24	25	0.1428	5.4260	0.5447	1.4E-01	7.1E-02	0.19	7.18	0.72	0.18	0.09
							Total	0.29	7.51	3.78	0.24	0.12

Brine Discharge Pipeline

Total Daily Construction Exhaust Emissions (pounds/day)

Emissions	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.34	26.99	17.21	1.18	1.04
Mitigated	1.06	21.84	24.86	0.94	0.88

Includes offroad and on-road emissions sources.

Average Daily Offroad Equipment Construction Exhaust Emissions

	Emissions (pounds)				
Offroad Equipment	ROG	NOX	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.19	23.23	15.32	1.06	0.98
Mitigated	0.91	18.08	22.97	0.82	0.82

See CalEEMod output for equipment use assumptions.

On-road Daily Construction Emissions

			Emission Factors (grams/mile)					Emissions (pounds/day)				
Vehicle Type	Trips/day	miles/trip	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Light duty truck (gas)	28	10	0.0823	0.2714	2.4773	4.8E-02	2.1E-02	0.05	0.17	1.53	0.03	0.01
Heavy duty truck	12	25	0.1428	5.4260	0.5447	1.4E-01	7.1E-02	0.09	3.59	0.36	0.09	0.05
							Total	0.15	3.76	1.89	0.12	0.06

Castroville Pipeline

Total Daily Construction Exhaust Emissions (pounds/day)

Emissions	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.39	27.59	17.61	1.19	1.06
Mitigated	1.11	22.74	25.86	0.97	0.91

Includes offroad and on-road emissions sources.

Average Daily Offroad Equipment Construction Exhaust Emissions

	Emissions (pounds)				
Offroad Equipment	ROG	NOX	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.24	23.83	15.72	1.07	1.00
Mitigated	0.96	18.98	23.97	0.85	0.85

See CalEEMod output for equipment use assumptions.

On-road Daily Construction Emissions

			Emission Factors (grams/mile)					Emissions (pounds/day)				
Vehicle Type	Trips/day	miles/trip	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Light duty truck (gas)	28	10	0.0823	0.2714	2.4773	4.8E-02	2.1E-02	0.05	0.17	1.53	0.03	0.01
Heavy duty truck	12	25	0.1428	5.4260	0.5447	1.4E-01	7.1E-02	0.09	3.59	0.36	0.09	0.05
							Total	0.15	3.76	1.89	0.12	0.06

Pipeline to CSIP

Total Daily Construction Exhaust Emissions (pounds/day)

Emissions	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.34	26.99	17.21	1.18	1.04
Mitigated	1.06	21.84	24.86	0.94	0.88

Includes offroad and on-road emissions sources.

Average Daily Offroad Equipment Construction Exhaust Emissions

	Emissions (pounds)				
Offroad Equipment	ROG	NOX	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.19	23.23	15.32	1.06	0.98
Mitigated	0.91	18.08	22.97	0.82	0.82

See CalEEMod output for equipment use assumptions.

On-road Daily Construction Emissions

			Emission Factors (grams/mile)					Emissions (pounds/day)				
Vehicle Type	Trips/day	miles/trip	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Light duty truck (gas)	28	10	0.0823	0.2714	2.4773	4.8E-02	2.1E-02	0.05	0.17	1.53	0.03	0.01
Heavy duty truck	12	25	0.1428	5.4260	0.5447	1.4E-01	7.1E-02	0.09	3.59	0.36	0.09	0.05
							Total	0.15	3.76	1.89	0.12	0.06

New Desalinated Water Pipeline (2018)

Total Daily Construction Exhaust Emissions (pounds/day)

Emissions	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.71	33.82	19.42	1.45	1.25
Mitigated	1.20	25.59	26.75	1.06	0.94

Includes offroad and on-road emissions sources.

Average Daily Offroad Equipment Construction Exhaust Emissions

	Emissions (pounds)				
Offroad Equipment	ROG	NOX	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.42	26.31	15.64	1.21	1.13
Mitigated	0.91	18.08	22.97	0.82	0.82

See CalEEMod output for equipment use assumptions.

On-road Daily Construction Emissions

			Emission Factors (grams/mile)					Emissions (pounds/day)				
Vehicle Type	Trips/day	miles/trip	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Light duty truck (gas)	56	10	0.0823	0.2714	2.4773	4.8E-02	2.1E-02	0.10	0.34	3.06	0.06	0.03
Heavy duty truck	24	25	0.1428	5.4260	0.5447	1.4E-01	7.1E-02	0.19	7.18	0.72	0.18	0.09
							Total	0.29	7.51	3.78	0.24	0.12

New Transmission Main

Total Daily Construction Exhaust Emissions (pounds/day)

Emissions	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.54	31.52	19.62	1.32	1.13
Mitigated	1.26	26.76	28.05	1.11	0.99

Includes offroad and on-road emissions sources.

Average Daily Offroad Equipment Construction Exhaust Emissions

	Emissions (pounds)				
Offroad Equipment	ROG	NOX	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.25	24.01	15.84	1.08	1.01
Mitigated	0.97	19.25	24.27	0.87	0.87

See CalEEMod output for equipment use assumptions.

On-road Daily Construction Emissions

			Emission Factors (grams/mile)					Emissions (pounds/day)				
Vehicle Type	Trips/day	miles/trip	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Light duty truck (gas)	56	10	0.0823	0.2714	2.4773	4.8E-02	2.1E-02	0.10	0.34	3.06	0.06	0.03
Heavy duty truck	24	25	0.1428	5.4260	0.5447	1.4E-01	7.1E-02	0.19	7.18	0.72	0.18	0.09
							Total	0.29	7.51	3.78	0.24	0.12

ASR Pipelines

Total Daily Construction Exhaust Emissions (pounds/day)

Emissions	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.47	30.74	19.10	1.30	1.10
Mitigated	1.20	25.59	26.75	1.06	0.94

Includes offroad and on-road emissions sources.

Average Daily Offroad Equipment Construction Exhaust Emissions

	Emissions (pounds)				
Offroad Equipment	ROG	NOX	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.18	23.23	15.32	1.06	0.98
Mitigated	0.91	18.08	22.97	0.82	0.82

See CalEEMod output for equipment use assumptions.

On-road Daily Construction Emissions

			Emission Factors (grams/mile)					Emissions (pounds/day)				
Vehicle Type	Trips/day	miles/trip	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Light duty truck (gas)	56	10	0.0823	0.2714	2.4773	4.8E-02	2.1E-02	0.10	0.34	3.06	0.06	0.03
Heavy duty truck	24	25	0.1428	5.4260	0.5447	1.4E-01	7.1E-02	0.19	7.18	0.72	0.18	0.09
							Total	0.29	7.51	3.78	0.24	0.12

ASR Injection and Extraction Wells

Total Daily Construction Exhaust Emissions (pounds/day)

Emissions	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Unmitigated	1.45	20.36	10.73	0.70	0.55
Mitigated	0.92	19.82	17.91	0.73	0.61

Includes offroad and on-road emissions sources.

Average Daily Offroad Equipment Construction Exhaust Emissions

	Emissions (pounds)				
Offroad Equipment	ROG	NOX	CO	PM_{10}	$PM_{2.5}$
Unmitigated	1.16	12.85	6.95	0.46	0.43
Mitigated	0.63	12.31	14.13	0.49	0.49

See CalEEMod output for equipment use assumptions.

On-road Daily Construction Emissions

			Emission Factors (grams/mile)					Emissions (pounds/day)				
Vehicle Type	Trips/day	miles/trip	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Light duty truck (gas)	56	10	0.0823	0.2714	2.4773	4.8E-02	2.1E-02	0.10	0.34	3.06	0.06	0.03
Heavy duty truck	24	25	0.1428	5.4260	0.5447	1.4E-01	7.1E-02	0.19	7.18	0.72	0.18	0.09
							Total	0.29	7.51	3.78	0.24	0.12

Carmel Valley Pump Station

Total Daily Construction Exhaust Emissions (pounds/day)

Emissions	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Unmitigated	1.09	13.62	7.56	0.51	0.44
Mitigated	0.58	12.21	11.99	0.48	0.42

Includes offroad and on-road emissions sources.

Average Daily Offroad Equipment Construction Exhaust Emissions

	Emissions (pounds)				
Offroad Equipment	ROG	NOX	CO	PM_{10}	$PM_{2.5}$
Unmitigated	0.94	9.86	5.67	0.39	0.38
Mitigated	0.43	8.45	10.10	0.36	0.36

See CalEEMod output for equipment use assumptions.

On-road Daily Construction Emissions

			Emission Factors (grams/mile)					Emissions (pounds/day)				
Vehicle Type	Trips/day	miles/trip	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Light duty truck (gas)	28	10	0.0823	0.2714	2.4773	4.8E-02	2.1E-02	0.05	0.17	1.53	0.03	0.01
Heavy duty truck	12	25	0.1428	5.4260	0.5447	1.4E-01	7.1E-02	0.09	3.59	0.36	0.09	0.05
							Total	0.15	3.76	1.89	0.12	0.06

Ryan Ranch-Bishop Interconnection

Total Daily Construction Exhaust Emissions (pounds/day)

Emissions	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.34	26.99	17.21	1.18	1.04
Mitigated	1.06	21.84	24.86	0.94	0.88

Includes offroad and on-road emissions sources.

Average Daily Offroad Equipment Construction Exhaust Emissions

	Emissions (pounds)				
Offroad Equipment	ROG	NOX	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.19	23.23	15.32	1.06	0.98
Mitigated	0.91	18.08	22.97	0.82	0.82

See CalEEMod output for equipment use assumptions.

On-road Daily Construction Emissions

			Emission Factors (grams/mile)					Emissions (pounds/day)				
Vehicle Type	Trips/day	miles/trip	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Light duty truck (gas)	28	10	0.0823	0.2714	2.4773	4.8E-02	2.1E-02	0.05	0.17	1.53	0.03	0.01
Heavy duty truck	12	25	0.1428	5.4260	0.5447	1.4E-01	7.1E-02	0.09	3.59	0.36	0.09	0.05
							Total	0.15	3.76	1.89	0.12	0.06

MainSystem to Hidden Hills Interconnection

Total Daily Construction Exhaust Emissions (pounds/day)

Emissions	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.34	26.99	17.21	1.18	1.04
Mitigated	1.06	21.84	24.86	0.94	0.88

Includes offroad and on-road emissions sources.

Average Daily Offroad Equipment Construction Exhaust Emissions

	Emissions (pounds)				
Offroad Equipment	ROG	NOX	CO	PM_{10}	$PM_{2.5}$
Unmitigated	2.19	23.23	15.32	1.06	0.98
Mitigated	0.91	18.08	22.97	0.82	0.82

See CalEEMod output for equipment use assumptions.

On-road Daily Construction Emissions

			Emission Factors (grams/mile)					Emissions (pounds/day)				
Vehicle Type	Trips/day	miles/trip	ROG	NOx	CO	PM_{10}	$PM_{2.5}$	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Light duty truck (gas)	28	10	0.0823	0.2714	2.4773	4.8E-02	2.1E-02	0.05	0.17	1.53	0.03	0.01
Heavy duty truck	12	25	0.1428	5.4260	0.5447	1.4E-01	7.1E-02	0.09	3.59	0.36	0.09	0.05
							Total	0.15	3.76	1.89	0.12	0.06

G1.1.7 CONSTRUCTION FUGITIVE DUST

Grading and Earth Moving Fugitive Dust

Fugitive dust from Desalination Plant, Slant Wells, Brine Mixing Box, Monterey Pump Station, Carmel Valley Pump Station, and ASR Facilities Soil Disturbance

Area Disturbed	Emission Factor (pounds/acre) [1]	Emissions[2] (pounds/day)	
(acres)	PM10	PM10	PM2.5 [3]
3.83	20	76.6	15.9
	Mitigated =	26.8	5.6

Maximum acres disturbed: site preparation and grading for the desalination plant (2 acres), slant wells (1 acre), ASR wells (0.25 acre), Carmel Valley Pump Station (0.08 acre), and the Brine Mixing Box (0.5 acre) sites.

Fugitive dust from Pipeline Construction Earth Moving Activities

Soil Disturbed [4]	Emission Factor (pounds/cubic yard) [5]		Emissions (pounds/day)	
(cubic yards/day)	PM10	PM2.5	PM10	PM2.5
3,556	0.001634267	0.000247475	5.8	0.9
		Mitigated =	2.0	0.3

1 The Midwest Research Institute has derived a value of 0.11 tons/acre/month, which converts to 10 pounds per day. The California Air Resources Board review has reviewed this factor and concluded that it represents PM10 emissions with watering. Consequently, CARB concludes that 20 pounds per acre day is more appropriate for unmitigated fugitive dust conditions (CARB, 2002).

2 Mitigation is assumed to reduce emissions by 65 percent, based SCAQMD, 2007

3 PM2.5 fractions for soil disturbance and earth moving were obtained from SCAQMD, 2006.

4 Assumes1,778 cubic yards of soil x 2 = daily trench dimensions (6 feet * 8 feet * 1,000 feet) = 48,000 ft3 = 1,778 cubic yards x 2 = 3,556. Assumes all pipelines would be constructed concurrently; the ASR Pipelines would proceed at a rate of 250 feet per day, all of the other pipelines are assumed to proceed at a rate of 150 feet per day.

5 Based on *truck loading* emission factors included in CalEEMod. Mean wind speed is 7.1 mph. Material moisture content is 2.5% based on AP42. See CalEEMod users manual Appendix A page 10 (http://www.aqmd.gov/caleemod/doc/AppendixA.pdf).

Based on AP-42 Emission Factor: EF (lbs/ton) = k (0.0032)(U/5)^1.3 / (M/2)^1.4

Where:

EF = emission rate in pounds PM10 per ton material handled.

k = particle size multiplier (assumed 0.35 for PM10 and 0.053 for PM2.5 per CalEEMod Users Guide, Appendix A)

U = mean wind speed

M = material moisture content (%).

Particulate Matter size	pounds PM per ton material	tons material per cubic yard	pounds PM per cubic yard
PM10	0.001292763	1.2641662	0.001634267
PM2.5	0.000195761	1.2641662	0.000247475

Unpaved Fugitive Dust From Truck Travel

9. MGD Project - Unpaved Road Fugitive Dust from Trucks

Source	VMT [1] (miles/day)	Emission Factors (pounds/VMT) [2] PM10	PM2.5	Emissions (pounds/day) PM10	PM2.5
Dirt road to Slant Well sites	37.1	1.9	0.2	69.8	7.0
Castroville Pipeline	20.0	1.9	0.2	37.6	3.8
Total	57.1		Unmitigated =	107.5	10.7
			Mitigated [3] =	26.9	2.7

1

Assumes that there would be 40 trips per day along 0.5 mile unpaved road to Castroville Pipeline, resulting in 20.0 VMT on unpaved roads; and also assumes 106 trips per day along a 0.35 dirt road to the subsurface slant well sites, resulting in an additional 37.1 VMT per day on unpaved roads.

2 Based on AP-42 Emission Factor: E (lbs/VMT) = k (s/12)^a (W/3)^b

Where:

E = emission rate in pounds per vehicle mile traveled

k = particle size multiplier (assumed 1.5 lb/VMT for PM10 and 0.15 lb/VMT for PM2.5 per AP-42, Table 13.2.2-2)

a = 0.9

b = 0.45

s = silt content (assumed 8.5% for a construction site per AP-42, Table 13.2.2-1)

W = average weight (tons) of vehicles assumed to be 9.9 tons for the road to the slant wells and Castroville Pipeline (62% trucks weigh 2 tons, 38% weigh 23 tons).

3

Mitigated emissions assume that the dirt roads to the slant well sites, it was assumed that watering twice daily and limiting speeds to 15 mph, emissions could be reduced by 75%, based URBEMIS 2007.

Total Fugitive Dust

Applies to both 9.5 MGD and 6.1 MGD Projects

Total	Emissions (pounds/day) PM10	PM2.5
Unmitigated =	189.88	27.56
Mitigated =	55.71	8.57

G1.1.8 ON-ROAD OPERATIONAL CRITERIA POLLUTANT EMISSIONS

Emission Factors

	Running Exhaust Emission Factors (grams/mile)				
Vehicle Type	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Light duty truck	0.0460	0.1896	1.6776	4.8E-02	2.1E-02
Heavy duty truck	0.1016	3.6610	0.4327	1.1E-01	5.2E-02

Note: derived from EMFAC 2014.
PM10 and PM2.5 emission factors include break and tire wear factors in addition to exhaust.

Daily Operational Emissions (pounds/day)

Proposed Project*

Vehicle Type	Trips/day	miles/trip	ROG	NOx	CO	PM_{10}	$PM_{2.5}$
Light duty truck	60	10	0.06	0.25	2.22	0.06	0.03
Heavy duty truck	6	25	0.03	1.21	0.14	0.04	0.02
Total	66		0.09	1.46	2.36	0.10	0.04

Notes: Trips are one-way; assumes 30 employees would require 2 trips per day; 3 material hauls.
Average truck trip length represents from the Santa Clara/San Benito County line (south of Gilroy) down to Seaside.
Daily trip amounts obtained from the EIR Team traffic engineer (2013).

*There would be no change in daily emissions associated with the 6.4 Variant compared to the proposed 9.6 MDG Project.
There are 453.59 grams per pound.

G1.1.9 ROG OFF-GASSING FROM ASPHALT PAVING

Proposed Action ROG Off-gassing from Asphalt Paving

	Area Paved		Emission Factor (pounds/acre) [1]	Emissions (pounds/acre) [1]
Project Component	(square feet)[1]	(acres)[2]	ROG[3]	ROG
MPWSP Plant	43,560	1.00	2.62	2.62
Road to Terminal Reservoir	24,000	0.55	2.62	1.44
Pump Stations	1,800	0.04	2.62	0.11
Pipelines	6,000	0.14	2.62	0.36
Total	75,360	1.73	2.62	4.53

Notes:

[1] It is assumed that 1 acre would be paved per day at the MPWSP Plant, the pump stations would result in a total of 1,800 square feet of paving, and pipeline installation could result in up to 6,000 square feet (1,000 feet by 6 feet) of paving per day.

[2] There are 43560 square feet per acre.

[3] Emission factor source is from CalEEMod, 2013, and is described in terms of volatile organic compounds, which for the purposes of this analysis is equivalent to reactive organic compounds.

G1.1.10a PROPOSED ACTION EMERGENCY GENERATOR TESTING CRITERIA POLLUTANT EMISSIONS

Criteria Pollutant Emission Factors

Equipment	HP[a]	Load Factor[b]	Emission Factors (g/bhp-hr)				Emission Rates (lb/hr)				
			HC[c]	NOx[d]	PM[e]	CO[c]	ROG[f]	NOx	PM10	PM2.5	CO
Emergency Generator - at Desal Plant	1,000	0.74	0.030	2.000	0.150	0.230	0.062	3.263	0.245	0.226	0.375
Emergency Generator - at Desal Plant (Alternative 5)	804	0.74	0.030	2.000	0.150	0.230	0.050	2.623	0.197	0.182	0.302
Emergency Generator at Carmel Valley Pump Station	68	0.74	0.100	6.900	0.150	0.761	0.014	0.765	0.017	0.015	0.084

Notes:

[a] Proposed generator at desal plant horsepower is from RBF, 2013, Memorandum - MPWSP Capital and O&M Cost Estimate Update, January 9, 2013, Table 2.

[b] Load factors are from CalEEMod.

[c] Emission factors are from Caterpillar specification sheets:

Standby 800 ekW 1,000 kVA 60 Hz 1,800 rpm 480 Volts, Tier 2.

Standby 250 ekW 313 kVA 60 Hz 1,800 rpm 480 Volts, Tier 3.

Standby 50 ekW 50 kVA 60 Hz 1,800 rpm 120 Volts, Tier 3.

[d] Emission factor adjusted per MBUAPCD BACT.

[e] Emission factor adjusted per MBUAPCD Rule 1010.

[f] ROG emission factor based on Offroad database for "other construction equipment". Nox emission factor is conservative; includes Nox+HC

1 kw = 1.340483 hp

A factor of 1.26639 was applied to THC to obtain ROG based on CARB (2000). A factor of 0.92 was applied to PM10 to obtain PM2.5 based on SCAQMD (2006).

Emergency Generator Criteria Pollutant Emissions

Equipment	Test Duration		Maximum Day (lbs/day)					Annual Average (lbs/day)				
	hrs/test	test/yr	ROG	NOx	PM10	PM2.5	CO	ROG	NOx	PM10	PM2.5	CO
Emergency Generator - at Desal Plant	4.2	12	0.26	13.70	1.03	0.95	1.58	0.01	0.45	0.03	0.03	0.05
Emergency Generator - at Desal Plant (Variant)	4.2	12	0.21	11.02	0.83	0.76	1.27	0.01	0.36	0.03	0.03	0.04
Emergency Generator at Carmel Valley Pump Station	4.2	12	0.06	3.21	0.07	0.06	0.35	0.00	0.11	0.00	0.00	0.01
Total Emergency Generator Emissions for Project			0.32	16.92	1.10	1.02	1.93	0.01	0.56	0.04	0.03	0.06
Total Emergency Generator Emissions for Alternative 5			0.27	14.23	0.90	0.83	1.62	0.01	0.47	0.03	0.03	0.05

It is assumed that each diesel generator would be tested approximately 50 hours per year (4.2 hours per test, 12 tests per year) persuant to Rule 1010.

G1.10b ALTERNATIVE 3 EMERGENCY GENERATOR TESTING CRITERIA POLLUTANT EMISSIONS

Criteria Pollutant Emission Factors

Equipment	MW	HP	Load Factor[a]	BACT Emission Factor (g/bhp-hr)[b]				BACT Emission Rates (lb/hr)				
				HC	NOx	PM[c]	CO	ROG[d]	NOx	PM10	PM2.5	CO
Emergency Generator - Natural Gas	10	13,405	0.74	0.150	2.000		2.000	4.154	43.737			43.737

Notes:

[a] Load factors are from CalEEMod.

[b] Emission factors are based on BACT requirements for natural gas engines:

[c] There are no BACT emissions limits for particulate matter in natural gas exhaust, because particulate emissions emission from gas combustion is limited.

[d] ROG emission factor based on Offroad database for "other construction equipment".

1 kw = 1.340483 hp

Emergency Generator Criteria Pollutant Emissions

Equipment	Test Duration		Maximum Day (lbs/day)					Annual Average (lbs/day)				
	hrs/test	hrs/yr	ROG	NOx	PM10	PM2.5	CO	ROG	NOx	PM10	PM2.5	CO
Emergency Generator 1	5.0	12	20.77	218.69	0.00	0.00	218.69	0.68	7.19	0.00	0.00	7.19
Emergency Generator 2	5.0	12	20.77	218.69	0.00	0.00	218.69	0.68	7.19	0.00	0.00	7.19
Emergency Generator 3	5.0	12	20.77	218.69	0.00	0.00	218.69	0.68	7.19	0.00	0.00	7.19
Total Emergency Generator Emissions for Project			62.31	656.06	0.00	0.00	656.06	2.05	21.57	0.00	0.00	21.57

It is assumed that each generator would be tested approximately 60 hours per year (5.0 hours per test, 12 tests per year).

G1.1.11 GHG CONSTRUCTION EMISSIONS

Total Construction GHG Emissions Summary

Project Component	CO_2e Emissions (metric tons)
Desalination Plant	7,087.22
Subsurface Slant Wells	1,880.56
Source Water Pipeline	575.17
Brine Discharge Pipeline	198.02
Brine Mixing Box*	594.06
Castroville Pipeline	271.09
Pipeline to CSIP	189.61
New Desalinated Water Pipeline	571.10
New Transmission Main	873.98
ASR Pipelines	472.24
ASR Injection and Extraction Wells	866.65
Carmel Valley Pump Station	249.65
Ryan Ranch-Bishop Interconnection	264.03
MainSystem to Hidden Hills Interconnection	198.02
Total Emissions	14,291.41
Amortized Emissions (over 40 years)	357.29

*Subsequent to the release of the Draft EIR/EIS, a Brine Mixing Box has been added to the project and the Terminal Reservoir has been removed. The Brine Mixing Box would require the same daily construction equipment use as the Brine Discharge Pipeline, but would last for 9 months (3 times the period of construction for the Brine Discharge Pipeline), so construction emissions for the Brine Mixing Box are three times those of the Brine Discharge Pipeline.

Desalination Plant

Total Construction Emissions (metric tons)

Source	CO_2e
Construction Emissions	7,087.22

Includes offroad and on-road emissions sources.

Total Offroad Equipment Emissions

	CO_2e (metric tons)			
Source	2018	2019	2020	Total
Off-road Equipment	555.96	1,098.33	466.00	2,120.29

See CalEEMod output for equipment use assumptions.

Total On-road Construction GHG Emissions

			Emission Factors (gram/mile)			Total Emissions (Metric tons)			
On-road Sources	Miles/trip	Trips	CO_2	CH_4	N2O	CO_2	CH_4	N_2O	CO_2e
Light duty truck	10	78,221	373.90	0.045	0.087	292	0.04	0.07	314
Heavy duty truck	63	44,352	1,663.79	0.005	0.005	4,649	0.01	0.01	4,653
					Total	4,941	0.05	0.08	4,967

See Section 5, Construction Worker Auto and Truck Trips, for trip assumptions. Emission factors are from Emfac2014 (for CO_2) and TCR, 2016 (for N_2O and CH_4). It is assumed that workers would commute 10 miles to the construction site and truck trips would average 63 miles one-way.

Subsurface Slant Wells

Total Construction Emissions (metric tons)

Source	CO_2e
Construction Emissions	1,880.56

Includes offroad and on-road emissions sources.

Total Offroad Equipment Emissions

	CO_2e (metric tons)			
Source	2018	2019	2020	Total
Off-road Equipment	316.87	439.44		756.31

See CalEEMod output for equipment use assumptions.

Total On-road Construction GHG Emissions

			Emission Factors (gram/mile)			Total Emissions (Metric tons)			
On-road Sources	Miles/trip	Trips	CO_2	CH_4	N2O	CO_2	CH_4	N_2O	CO_2e
Light duty truck	10	16,632	373.90	0.045	0.087	62	0.01	0.01	67
Heavy duty truck	63	10,080	1,663.79	0.005	0.005	1,057	0.00	0.00	1,058
					Total	1,119	0.01	0.02	1,124

See Section 5, Construction Worker Auto and Truck Trips, for trip assumptions. Emission factors are from Emfac2014 (for CO_2) and TCR, 2016 (for N_2O and CH_4). It is assumed that workers would commute 10 miles to the construction site and truck trips would average 63 miles one-way.

Source Water Pipeline

Total Construction Emissions (metric tons)

Source	CO_2e
Construction Emissions	575.17

Includes offroad and on-road emissions sources.

Total Offroad Equipment Emissions

	CO_2e (metric tons)			
Source	2018	2019	2020	Total
Off-road Equipment		229.61		229.61

See CalEEMod output for equipment use assumptions.

Total On-road Construction GHG Emissions

			Emission Factors (gram/mile)			Total Emissions (Metric tons)			
On-road Sources	Miles/trip	Trips	CO_2	CH_4	N2O	CO_2	CH_4	N_2O	CO_2e
Light duty truck	10	7,056	373.90	0.045	0.087	26	0.00	0.01	28
Heavy duty truck	63	3,024	1,663.79	0.005	0.005	317	0.00	0.00	317
					Total	343	0.00	0.01	346

See Section 5, Construction Worker Auto and Truck Trips, for trip assumptions. Emission factors are from Emfac2014 (for CO_2) and TCR, 2016 (for N_2O and CH_4). It is assumed that workers would commute 10 miles to the construction site and truck trips would average 63 miles one-way.

Brine Discharge Pipeline

Total Construction Emissions (metric tons)

Source	CO_2e
Construction Emissions	198.02

Includes offroad and on-road emissions sources.

Total Offroad Equipment Emissions

	CO_2e (metric tons)			
Source	2018	2019	2020	Total
Off-road Equipment		111.63		111.63

See CalEEMod output for equipment use assumptions.

Total On-road Construction GHG Emissions

			Emission Factors (gram/mile)			Total Emissions (Metric tons)			
On-road Sources	Miles/trip	Trips	CO_2	CH_4	N2O	CO_2	CH_4	N_2O	CO_2e
Light duty truck	10	1,764	373.90	0.045	0.087	7	0.00	0.00	7
Heavy duty truck	63	756	1,663.79	0.005	0.005	79	0.00	0.00	79
					Total	86	0.00	0.00	86

See Section 5, Construction Worker Auto and Truck Trips, for trip assumptions. Emission factors are from Emfac2014 (for CO_2) and TCR, 2016 (for N_2O and CH_4). It is assumed that workers would commute 10 miles to the construction site and truck trips would average 63 miles one-way.

Castroville Pipeline

Total Construction Emissions (metric tons)

Source	CO_2e
Construction Emissions	271.09

Includes offroad and on-road emissions sources.

Total Offroad Equipment Emissions

	CO_2e (metric tons)			
Source	2018	2019	2020	Total
Off-road Equipment		155.90		155.90

See CalEEMod output for equipment use assumptions.

Total On-road Construction GHG Emissions

			Emission Factors (gram/mile)			Total Emissions (Metric tons)			
On-road Sources	Miles/trip	Trips	CO_2	CH_4	N2O	CO_2	CH_4	N_2O	CO_2e
Light duty truck	10	2,352	373.90	0.045	0.087	9	0.00	0.00	9
Heavy duty truck	63	1,008	1,663.79	0.005	0.005	106	0.00	0.00	106
					Total	114	0.00	0.00	115

See Section 5, Construction Worker Auto and Truck Trips, for trip assumptions. Emission factors are from Emfac2014 (for CO_2) and TCR, 2016 (for N_2O and CH_4). It is assumed that workers would commute 10 miles to the construction site and truck trips would average 63 miles one-way.

Pipeline to CSIP

Total Construction Emissions (metric tons)

Source	CO_2e
Construction Emissions	189.61

Includes offroad and on-road emissions sources.

Total Offroad Equipment Emissions

	CO_2e (metric tons)			
Source	2018	2019	2020	Total
Off-road Equipment		74.42		74.42

See CalEEMod output for equipment use assumptions.

Total On-road Construction GHG Emissions

			Emission Factors (gram/mile)			Total Emissions (Metric tons)			
On-road Sources	Miles/trip	Trips	CO_2	CH_4	N2O	CO_2	CH_4	N_2O	CO_2e
Light duty truck	10	1,176	373.90	0.045	0.087	9	0.00	0.00	9
Heavy duty truck	63	504	1,663.79	0.005	0.005	106	0.00	0.00	106
					Total	114	0.00	0.00	115

See Section 5, Construction Worker Auto and Truck Trips, for trip assumptions. Emission factors are from Emfac2014 (for CO_2) and TCR, 2016 (for N_2O and CH_4). It is assumed that workers would commute 10 miles to the construction site and truck trips would average 63 miles one-way.

New Desalinated Water Pipeline (2018)

Total Construction Emissions (metric tons)

Source	CO_2e
Construction Emissions	571.10

Includes offroad and on-road emissions sources.

Total Offroad Equipment Emissions

	CO_2e (metric tons)			
Source	2018	2019	2020	Total
Off-road Equipment	225.54			225.54

See CalEEMod output for equipment use assumptions.

Total On-road Construction GHG Emissions

			Emission Factors (gram/mile)			Total Emissions (Metric tons)			
On-road Sources	Miles/trip	Trips	CO_2	CH_4	N2O	CO_2	CH_4	N_2O	CO_2e
Light duty truck	10	7,056	373.90	0.045	0.087	26	0.00	0.01	28
Heavy duty truck	63	3,024	1,663.79	0.005	0.005	317	0.00	0.00	317
					Total	343	0.00	0.01	346

See Section 5, Construction Worker Auto and Truck Trips, for trip assumptions. Emission factors are from Emfac2014 (for CO_2) and TCR, 2016 (for N_2O and CH_4). It is assumed that workers would commute 10 miles to the construction site and truck trips would average 63 miles one-way.

New Transmission Main

Total Construction Emissions (metric tons)

Source	CO_2e
Construction Emissions	873.98

Includes offroad and on-road emissions sources.

Total Offroad Equipment Emissions

	CO_2e (metric tons)			
Source	2018	2019	2020	Total
Off-road Equipment	9.51	346.13		355.64

See CalEEMod output for equipment use assumptions.

Total On-road Construction GHG Emissions

			Emission Factors (gram/mile)			Total Emissions (Metric tons)			
On-road Sources	Miles/trip	Trips	CO_2	CH_4	N2O	CO_2	CH_4	N_2O	CO_2e
Light duty truck	10	10,584	373.90	0.045	0.087	40	0.00	0.01	42
Heavy duty truck	63	4,536	1,663.79	0.005	0.005	475	0.00	0.00	476
					Total	515	0.01	0.01	518

See Section 5, Construction Worker Auto and Truck Trips, for trip assumptions. Emission factors are from Emfac2014 (for CO_2) and TCR, 2016 (for N_2O and CH_4). It is assumed that workers would commute 10 miles to the construction site and truck trips would average 63 miles one-way.

ASR Pipelines

Total Construction Emissions (metric tons)

Source	CO_2e
Construction Emissions	472.24

Includes offroad and on-road emissions sources.

Total Offroad Equipment Emissions

	CO_2e (metric tons)			
Source	2018	2019	2020	Total
Off-road Equipment		184.27		184.27

See CalEEMod output for equipment use assumptions.

Total On-road Construction GHG Emissions

			Emission Factors (gram/mile)			Total Emissions (Metric tons)			
On-road Sources	Miles/trip	Trips	CO_2	CH_4	N2O	CO_2	CH_4	N_2O	CO_2e
Light duty truck	10	5,880	373.90	0.045	0.087	22	0.00	0.01	24
Heavy duty truck	63	2,520	1,663.79	0.005	0.005	264	0.00	0.00	264
					Total	286	0.00	0.01	288

See Section 5, Construction Worker Auto and Truck Trips, for trip assumptions. Emission factors are from Emfac2014 (for CO_2) and TCR, 2016 (for N_2O and CH_4). It is assumed that workers would commute 10 miles to the construction site and truck trips would average 63 miles one-way.

ASR Injection and Extraction Wells

Total Construction Emissions (metric tons)

Source	CO_2e
Construction Emissions	866.65

Includes offroad and on-road emissions sources.

Total Offroad Equipment Emissions

	CO_2e (metric tons)			
Source	2018	2019	2020	Total
Off-road Equipment	163.83	149.92		313.75

See CalEEMod output for equipment use assumptions.

Total On-road Construction GHG Emissions

			Emission Factors (gram/mile)			Total Emissions (Metric tons)			
On-road Sources	Miles/trip	Trips	CO_2	CH_4	N2O	CO_2	CH_4	N_2O	CO_2e
Light duty truck	10	11,290	373.90	0.045	0.087	42	0.01	0.01	45
Heavy duty truck	63	4,838	1,663.79	0.005	0.005	507	0.00	0.00	508
					Total	549	0.01	0.01	553

See Section 5, Construction Worker Auto and Truck Trips, for trip assumptions. Emission factors are from Emfac2014 (for CO_2) and TCR, 2016 (for N_2O and CH_4). It is assumed that workers would commute 10 miles to the construction site and truck trips would average 63 miles one-way.

Carmel Valley Pump Station

Total Construction Emissions (metric tons)

Source	CO_2e
Construction Emissions	249.65

Includes offroad and on-road emissions sources.

Total Offroad Equipment Emissions

	CO_2e (metric tons)			
Source	2018	2019	2020	Total
Off-road Equipment		111.43		111.43

See CalEEMod output for equipment use assumptions.

Total On-road Construction GHG Emissions

			Emission Factors (gram/mile)			Total Emissions (Metric tons)			
On-road Sources	Miles/trip	Trips	CO_2	CH_4	N2O	CO_2	CH_4	N_2O	CO_2e
Light duty truck	10	2,822	373.90	0.045	0.087	11	0.00	0.00	11
Heavy duty truck	63	1,210	1,663.79	0.005	0.005	127	0.00	0.00	127
					Total	137	0.00	0.00	138

See Section 5, Construction Worker Auto and Truck Trips, for trip assumptions. Emission factors are from Emfac2014 (for CO_2) and TCR, 2016 (for N_2O and CH_4). It is assumed that workers would commute 10 miles to the construction site and truck trips would average 63 miles one-way.

Ryan Ranch-Bishop Interconnection

Total Construction Emissions (metric tons)

Source	CO_2e
Construction Emissions	264.03

Includes offroad and on-road emissions sources.

Total Offroad Equipment Emissions

	CO_2e (metric tons)			
Source	2018	2019	2020	Total
Off-road Equipment		148.84		148.84

See CalEEMod output for equipment use assumptions.

Total On-road Construction GHG Emissions

			Emission Factors (gram/mile)			Total Emissions (Metric tons)			
On-road Sources	Miles/trip	Trips	CO_2	CH_4	N2O	CO_2	CH_4	N_2O	CO_2e
Light duty truck	10	2,352	373.90	0.045	0.087	9	0	0	9
Heavy duty truck	63	1,008	1,663.79	0.005	0.005	106	0	0	106
					Total	114	0.00	0.00	115

See Section 5, Construction Worker Auto and Truck Trips, for trip assumptions. Emission factors are from Emfac2014 (for CO_2) and TCR, 2016 (for N_2O and CH_4). It is assumed that workers would commute 10 miles to the construction site and truck trips would average 63 miles one-way.

MainSystem to Hidden Hills Interconnection

Total Construction Emissions (metric tons)

Source	CO_2e
Construction Emissions	198.02

Includes offroad and on-road emissions sources.

Total Offroad Equipment Emissions

	CO_2e (metric tons)			
Source	2018	2019	2020	Total
Off-road Equipment		111.63		111.63

See CalEEMod output for equipment use assumptions.

Total On-road Construction GHG Emissions

			Emission Factors (gram/mile)			Total Emissions (Metric tons)			
On-road Sources	Miles/trip	Trips	CO_2	CH_4	N2O	CO_2	CH_4	N_2O	CO_2e
Light duty truck	10	1,764	373.90	0.045	0.087	7	0.00	0.00	7
Heavy duty truck	63	756	1,663.79	0.005	0.005	79	0.00	0.00	79
					Total	86	0.00	0.00	86

See Section 5, Construction Worker Auto and Truck Trips, for trip assumptions. Emission factors are from Emfac2014 (for CO_2) and TCR, 2016 (for N_2O and CH_4). It is assumed that workers would commute 10 miles to the construction site and truck trips would average 63 miles one-way.

Alternative 1 Construction Emissions Increase Compared to Proposed Project

Emissions Source	CO_2e
Proposed Source Water Pipeline	575.17
Alternative Source Water Pipeline	2,013.10
Amortized	50.33

Note: the alternative pipeline length would be 3.5 times (7.7 miles / 2.2 miles) longer than the proposed pipeline length.

Alternative 5a Total Construction Emissions (2/3 of Slant Well Emissions)

Emissions Source	CO_2e
Equipment and Vehicle Exhaust	13,664.55
Amortized (40 years)	341.61
Proposed Proj. Amortized (40 years)	357
Emissions Decrease	15.67

Alternative 5b Total Construction Emissions (7/9 of Slant Well Emissions and Longer Source Water Pipeline)

Emissions Source	CO_2e
Equipment and Vehicle Exhaust	16,030.40
Amortized (40 years)	400.76
Proposed Proj. Amortized (40 years)	357
Emissions Increase	43.47
Increase compared to Alternantive 5a	59.15

G1.1.12 GHG OPERATIONAL EMISSIONS

Total GHG Emissions for Operations of the Proposed Action

Operation Emissions Source	Operational Emissions (total metric tons)			
	CO_2	N_2O	CH_4	CO_2e
Baseline Electricity Consumption	1,508.27	0.03	0.16	1,521.11
Electricity Consumption with Project	8,335.14	0.16	0.89	8,406.07
Net Increase in Electricity	6,826.87	0.13	0.73	6,884.96
Vehicle Trips	233.58	0.020	0.01	239.66
Emergency Generator Testing	24.86	0.00	0.00	25.09
Off-road Equipment for Slant Well Maintenance (amortized over 5 years)	14.811	0.000	0.002	14.856
Degassing from Discharge Water at the Brine Storage	735.00	---	---	735.00
Loss of Carbon Sequestration	107.981	---	---	107.981
Total	**7,943.10**	**0.15**	**0.75**	**8,007.54**

Total GHG Emissions for Operations of Alternative 5

Operation Emissions Source	Operational Emissions (total metric tons)			
	CO_2	N_2O	CH_4	CO_2e
Baseline Electricity Consumption	1,508.27	0.03	0.16	1,521.11
Electricity Consumption with Project	5,791.27	0.11	0.62	5,840.55
Net Increase in Electricity	4,283.00	0.08	0.46	4,319.44
Vehicle Trips	233.58	0.020	0.01	239.66
Emergency Generator Testing	20.32	0.00	0.00	20.50
Off-road Equipment for Slant Well Maintenance (amortized over 5 years)	10.368	0.000	0.002	10.399
Degassing from Discharge Water at the Brine Storage	490.00	---	---	490.00
Loss of Carbon Sequestration	107.981	---	---	107.981
Total	**5,145.24**	**0.10**	**0.47**	**5,187.99**

Baseline Indirect Emissions from Electricity Consumption

GHGs from Electricity Consumption				
GHG	Emission Factor (lb/kWh)	Electricity Consumption kWhr	metric tons	CO_2e* (metric tons)
CO_2	0.29000	11,466,000	1,508.27	1,508.27
CH_4	0.000031	11,466,000	0.16	4.05
N_20	0.000006	11,466,000	0.03	8.79
			Total =	1,521.11

Indirect Emissions from Electricity Consumption

GHGs from Electricity Consumption				
GHG	Emission Factor (lb/kWh)	Electricity Consumption kWhr	metric tons	CO_2e* (metric tons)
9.6 MGD Proposed Action				
CO_2	0.29000	63,364,310	8,335.14	8,335.14
CH_4	0.000031	63,364,310	0.89	22.36
N_20	0.000006	63,364,310	0.16	48.56
			Total =	8,406.07
6.4 MGD Alternative 5				
CO_2	0.29000	44,025,643	5,791.27	5,791.27
CH_4	0.000031	44,025,643	0.62	15.54
N_20	0.000006	44,025,643	0.11	33.74
			Total =	5,840.55

*Subsequent to the release of the Draft EIR/EIS, a Brine Mixing Box has been added to the project. The Brine Mixing Box would require 200,000 kWhr electricity per year.This amount was added to the total electrical consumption.

Net Increase in Indirect Emissions from Electricity Consumption

GHGs from Electricity Consumption				
GHG	Emission Factor (lb/kWh)	Electricity Consumption kWhr	metric tons	CO_2e* (metric tons)
9.6 MGD Proposed Action				
CO_2	0.29000	51,898,310	6,826.87	6,826.87
CH_4	0.000031	51,898,310	0.73	18.31
N_20	0.000006	51,898,310	0.13	39.78
			Total =	6,884.96
6.4 MGD Alternative 5				
CO_2	0.29000	32,559,643	4,283.00	4,283.00
CH_4	0.000031	32,559,643	0.46	11.49
N_20	0.000006	32,559,643	0.08	24.95
			Total =	4,319.44

Notes: The emission factor for CO_2 was obtained from PG&E, 2015. Emission factors for CH_4 and N_2O are from TCR, 2016.
Project baseline and proposed electricity consumption estimates provided by CalAm June 17, 2016.
*Global Warming Potential for CH_4 = 25; GWP for N_2O = 298 (CARB, 2014).
California Air Resources Board (CARB), 2014. Updated Scoping Report. May 2014.
Pacific Gas and Electric Company (PG&E), 2015. Greenhouse Gas Emission Factors: Guidance for PG&E Customers, November 2015.
The Climate Registry (TCR), 2016. The Climate Registry 2016 Default Emission Factors, April 19, 2016.

Project Mobile Sources

			Running Exhaust Emission Factor (grams/mile)			Total Emissions (Metric tons)			
On-road Sources	Miles/trip	One way Trips	CO_2	CH_4	N_2O	CO_2	CH_4	N_2O	CO_2e
Light duty truck (gas)	10	21,900	342.04	0.045	0.087	74.91	0.010	0.019	80.84
Heavy duty truck	63	1,560	1,614.50	0.005	0.005	158.67	0.001	0.000	158.83
						233.58	0.01	0.020	239.66

Notes: See Section 5, Construction Worker Auto and Truck Trips, for trip assumptions. Emission factors are from Emfac2014 (for CO2) and TCR, 2016 (for N_2O and CH_4). It is assumed that 30 employees would each generate two light duty truck trips per day; 7 days per week (365 days per year), and that there would be 3 heavy duty truck deliveries 260 days per year.

Emergency Generator Emissions

GHG Emissions Factors for Diesel Exhaust

Fuel	CO_2 (g/gal)	N_2O (g/gal)	CH_4 (g/gal)
Diesel Fuel	10,210.00	0.26	0.58

Notes: Emission factors obtained from TCR, 2016, Tables 13.1 and 13.7.

Emergency Generator Emissions associated with the Proposed Action

			Diesel Fuel Consumption[b]		Total Emissions (metric tons)			
Off-Road Equipment	MaxHP[a]	Hrs/yr	gal/hr	gal/yr	CO_2	N_2O	CH_4	CO_2e
Emergency Generator - at Desal Plant	1,000	50.00	45.40	2,270.00	23.177	0.001	0.001	23.39
Emergency Generator - at Desal Plant (Variant)	804	50.00	36.50	1,825.08	18.634	0.000	0.001	18.80
Emergency Generator at Carnel Valley Pump Station	68	50.00	3.30	165.00	1.685	0.000	0.000	1.70
Total Emergency Generator Emissions for Project				2,435.00	24.86	0.00	0.00	25.09
Total Emergency Generator Emissions for Project Variant				1,990.08	20.32	0.00	0.00	20.50

Assumed at 75 percent load with fan.

[a] Proposed generator at desal plant horsepower is from RBF, 2013, Memorandum - MPWSP Capital and O&M Cost Estimate Update, January 9, 2013, Table 2.
[b] Diesel fuel consumption factors are from Caterpillar specification sheets:
Standby 800 ekW 1,000 kVA 60 Hz 1,800 rpm 480 Volts, Tier 2.
Standby 250 ekW 313 kVA 60 Hz 1,800 rpm 480 Volts, Tier 3.
Standby 50 ekW 50 kVA 60 Hz 1,800 rpm 120 Volts, Tier 3.

GHG Emissions Factors for Natural Gas

Fuel	CO_2 (kg/MMBtu)	N_2O (g/MMBtu)	CH_4 (g/MMBtu)
Diesel Fuel	53.06	0.95	3.8

Notes: Emission factors obtained from TCR, 2016, Tables 13.1 and 12.5.

Emergency Generator Emissions associated with Alternative 3

			Natural Gas Consumption[b]		Total Emissions (metric tons)			
Off-Road Equipment	MW	Hrs/yr	scf/MWhr	MMBtu/yr	CO_2	N_2O	CH_4	CO_2e
Emergency Generator - at Desal Plant	30	60.00	10,147	18,739	994	0.018	0.071	1,001

Generators would be natural gas powered. It is assumed that 1,026 Btu/scf natural gas (TCR, 2016), and that for every 1 MW of power, 10,147 scf of natual gas would be consumed each hour for 3/4 load (DSS, 2016).

Diesel Service and Supply (DSS), 2016. Approximate Natrual Gas Consumption Chart, accessed at: http://www.dieselserviceandsupply.com/Natural_Gas_Fuel_Consumption.aspx, on July 18, 2016.

Slant Well Maintenance (2025) emissions

Proposed Action

	Total Emissions (metric tons)			
Source	CO_2	N_2O	CH_4	CO_2e
Off-road Equipment	74.06	0.00	0.01	74.28
Amortized over 5 years	14.81	0.00	0.00	14.86

Alternative 5

Source	Total Emissions (metric tons)			
	CO_2	N_2O	CH_4	CO_2e
Off-road Equipment	51.84	0.00	0.01	52.00
Amortized over 5 years	10.37	0.00	0.00	10.40

CO_2 Degassing Emissions

Source	CO_2 factor	CO_2	Change
	metric tons/yr	metric tons	from project
Proposed Action - 9.6 MGD	735	735.00	0.00
Alternative 3	95	190.00	-545.00
Alternative 4	95	125.40	-609.60
Alternative 5 - 6.4 MGD	735	490.00	-245.00

735 metric tons represents groundwater (slant well) extraction; 95 metric tons represents open water intake.
Degassing emissions for the Alternative 3 would be open water intake (use [95 metric tons/9.6 mgd]*2).
Degassing emissions for the Alternative 4 would be open water intake (use [95 metric tons/9.6 mgd]*1.32).
Degassing emissions for the 6.4 MGD plant would be 2/3s the degasing emissions of the 9.6 MGD plant.

Long-term Carbon Sequestration

Carbon Uptake for Proposed Action

Vegetation Type	CO2 (MT/ac-yr)	acres permanently disturbed						CO_2 (MT/yr)
		Desal Plant	Slant Wells	ASR Wells	Terminal Reservoir	C. Valley Pump Sta.	Total	
Grasslands	4.31	15	0	0	0	0.1	15.1	65.081
Shrub	14.3	0	1	1	1	0	3	42.9
							Total	107.981

Notes: CO_2 uptake factor obtained from CAPCOA, 2013.
Acres of vegetation removal are based on values identified in EIS/EIR Section 4.6, Terrestrial Biological Resources.

Carbon Uptake for Alternative 3

Vegetation Type	CO2 (MT/ac-yr)	acres permanently disturbed						CO_2 (MT/yr)
		Desal Plant	Intake Pump Station	ASR Wells	Terminal Reservoir	C. Valley Pump Sta.	Total	
Grasslands	4.31	91	0	0	0	0.1	91.1	392.641
Shrub	14.3	0	0	1	1	0	2	28.6
							Total	421.241

Notes: CO_2 uptake factor obtained from CAPCOA, 2013. Difference compared to project 313.26
Acres of vegetation removal are based on values identified in EIS/EIR Section 4.6, Terrestrial Biological Resources.

Carbon Uptake for Alternative 4

Vegetation Type	CO2 (MT/ac-yr)	acres permanently disturbed						CO_2 (MT/yr)
		Desal Plant	Intake Pump Station	ASR Wells	Terminal Reservoir	C. Valley Pump Sta.	Total	
Grasslands	4.31	0	0	0	0	0.1	0.1	0.431
Shrub	14.3	0	0	1	1	0	2	28.6
							Total	29.031

Notes: CO_2 uptake factor obtained from CAPCOA, 2013. Difference compared to project 78.95
Acres of vegetation removal are based on values identified in EIS/EIR Section 4.6, Terrestrial Biological Resources.

Total Proposed Project Amortized Operation and Construction Emissions

Source	Total CO_2e Emissions (metric tons)		
	Operation	Construction	Total
Proposed Project	8,007.54	357.29	8,364.83
Alternative 5	5,187.99	341.61	5,529.60
		Difference	2,835.23

G1.1.13 EMFAC 2014 ON-ROAD EMISSION FACTORS

EMFAC2014 (v1.0.7) Emission Rates
Region Type: County
Region: Monterey
Calendar Year: 2018
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	Population	VMT	Trips	ROG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM10_PMTW	PM10_PMBW	PM2_5_RUNEX	PM2_5_PMTW	PM2_5_PMBW
Monterey	2018	LDT1	Aggregated	Aggregated	GAS	9518.7	340980.3	57551	0.0823	2.4773	0.2714	373.9	0.0036	0.008	0.0368	0.00331	0.002	0.01575
Monterey	2018	T7 single construction	Aggregated	Aggregated	DSL	39.989	3653.145	0	0.1428	0.5447	5.426	1663.8	0.0373	0.036	0.0617	0.03567	0.009	0.02646

EMFAC2014 (v1.0.7) Emission Rates
Region Type: County
Region: Monterey
Calendar Year: 2021
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW

Region	CalYr	VehClass	MdlYr	Speed	Fuel	Population	VMT	Trips	ROG_RUNEX	CO_RUNEX	NOx_RUNEX	CO2_RUNEX	PM10_RUNEX	PM10_PMTW	PM10_PMBW	PM2_5_RUNEX	PM2_5_PMTW	PM2_5_PMBW
Monterey	2021	LDT1	Aggregated	Aggregated	GAS	8117.6	303291.3	49250	0.046	1.6776	0.1896	342.04	0.0031	0.008	0.0368	0.00281	0.002	0.01575
Monterey	2021	T7 single construction	Aggregated	Aggregated	DSL	41.508	3965.606	0	0.1016	0.4327	3.661	1614.5	0.017	0.036	0.0617	0.01624	0.009	0.02646

G1.2 CALEEMOD OUTPUT - ANNUAL EMISSIONS

Monterey Peninsula Water Supply Project

Monterey County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	0.00	1000sqft	15.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2020
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 - Land use duty entered here is not relevent to the model run, and only serves the purpose of allowing data to be entered for the construction phase. Note that operational emissions are estimated outside of CalEEMod

Construction Phase - See Appendix Sections 5, Construction Trips, and 6, MPWSP Estimated Construction Phasing, for additional information about phasing of construction actvitities and total workdays.
Off-road Equipment - Hour/day assumptions are presented in Appendix G.

Off-road Equipment - project specific assumptions have been entered.

Off-road Equipment - Refer to "Average Daily Offroad Construction Equipment Hours For CalEEMod" for equipment unit amounts, hours, and hp assumptions.
Off-road Equipment - project information based on project assumptions

Off-road Equipment - Refer to "Average Daily Offroad Construction Equipment Hours for CalEEMod Input" for unit amount, hours/day, and hp assumptions.

Off-road Equipment - See "Average Daily Offroad Construction Equipment Hours for CalEEMod Input" for assumptions regarding unit amounts, hour/day, and hp.

Off-road Equipment - See construction equipment hours assumption in Appendix G

Trips and VMT - Worker and haul trips are estimated outside of CalEEMod using Emfac 2014 emission factors

Grading - Fugitive dust emissions are estimated outside of CalEEMod.

Construction Off-road Equipment Mitigation - Mitigation for off-road equipment is to have engines that meet at least tier 3 emissions requirements.

Off-road Equipment - Slant well maintenance would occur every 5 years after start of operations.

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tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	53.00	0.00
tblTripsAndVMT	WorkerTripNumber	18.00	0.00
tblTripsAndVMT	WorkerTripNumber	28.00	0.00
tblTripsAndVMT	WorkerTripNumber	30.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00
tblTripsAndVMT	WorkerTripNumber	20.00	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	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
Year	tons/yr										MT/yr					
2018	1.1309	12.7563	6.8258		0.0000	0.5368	0.5368	0.0000	0.5015	0.5015			1,702.4164	0.3429	0.0000	1,709.6169
2019	2.3570	25.5664	15.5740		0.0000	1.0914	1.0914	0.0000	1.0202	1.0202			3,866.0339	0.7642	0.0000	3,882.0818
2020	0.2644	2.7702	1.8959		0.0000	0.1143	0.1143	0.0000	0.1072	0.1072			464.2369	0.0838	0.0000	465.9964
2025	0.0310	0.2732	0.2079			0.0101	0.0101		9.5000e-003	9.5000e-003			74.0572	0.0106	0.0000	74.2799
2026	0.0117	0.1035	0.0787			3.8300e-003	3.8300e-003		3.6000e-003	3.6000e-003			28.0520	4.0200e-003	0.0000	28.1363
Total	**3.7951**	**41.4694**	**24.5822**		**0.0000**	**1.7565**	**1.7565**	**0.0000**	**1.6419**	**1.6419**			**6,134.7964**	**1.2055**	**0.0000**	**6,160.1114**

Mitigated Construction

	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
Year	tons/yr										MT/yr					
2018	0.4805	8.8508	10.4793		0.0000	0.3772	0.3772	0.0000	0.3745	0.3745			1,702.4144	0.3429	0.0000	1,709.6149

2019	1.0566	19.9649	24.2794		0.0000	0.8650	0.8650	0.0000	0.8612	0.8612			3,866.0293	0.7642	0.0000	3,882.0772
2020	0.1195	2.3187	2.9612		0.0000	0.0974	0.0974	0.0000	0.0974	0.0974			464.2363	0.0838	0.0000	465.9959
2025	0.0186	0.3657	0.4178			0.0150	0.0150		0.0150	0.0150			74.0571	0.0106	0.0000	74.2798
2026	7.0600e-003	0.1385	0.1582			5.6700e-003	5.6700e-003		5.6700e-003	5.6700e-003			28.0519	4.0200e-003	0.0000	28.1363
Total	**1.6822**	**31.6387**	**38.2959**		**0.0000**	**1.3602**	**1.3602**	**0.0000**	**1.3538**	**1.3538**			**6,134.7891**	**1.2055**	**0.0000**	**6,160.1040**

	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	N20	CO2e
Percent Reduction	**55.67**	**23.71**	**-55.79**	**0.00**	**0.00**	**22.56**	**22.56**	**0.00**	**17.55**	**17.55**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Subsurface Slant Wells (9 wells)	Site Preparation	7/2/2018	9/13/2019	5	315	
2	Desalination Plant	Site Preparation	7/2/2018	6/4/2020	5	504	
3	New Desalinated Water Pipeline	Site Preparation	7/2/2018	12/24/2018	5	126	
4	Terminal Reservoir	Site Preparation	7/2/2018	9/13/2019	5	315	
5	ASR Injection/Extraction Wells	Site Preparation	7/2/2018	6/18/2019	5	252	
6	New Monterey Pipeline	Site Preparation	7/2/2018	9/13/2019	5	315	
7	New Transmission Main Pipeline	Site Preparation	12/25/2018	9/13/2019	5	189	
8	Source Water Pipeline	Site Preparation	1/2/2019	6/26/2019	5	126	
9	Carmel Valley Pump Station	Site Preparation	1/2/2019	6/26/2019	5	126	
10	Monterey Pump Station	Site Preparation	1/2/2019	6/26/2019	5	126	
11	Castroville Pipeline	Site Preparation	3/2/2019	6/27/2019	5	84	
12	ASR Pipelines (ASR Conveyance, ASR Redisribution	Site Preparation	4/2/2019	8/24/2019	5	104	
13	Brine Discharge Pipeline	Site Preparation	4/2/2019	6/27/2019	5	63	

14	Pipeline to CSIP Pond	Site Preparation	5/2/2019	6/28/2019	5	42	
15	Ryan Ranch-Bishop Interconnection	Site Preparation	7/1/2019	10/24/2019	5	84	
16	Main System to Hidden Hills	Site Preparation	7/1/2019	9/25/2019	5	63	
17	Slant Well Maintenance	Site Preparation	10/1/2025	2/4/2026	5	91	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
ASR Pipelines (ASR Conveyance, ASR Redisribution, and ASR Pump-to-Waste pipelines)	Cranes	1	6.00	200	0.29
ASR Pipelines (ASR Conveyance, ASR Redisribution, and ASR Pump-to-Waste pipelines)	Excavators	1	8.00	200	0.38
ASR Pipelines (ASR Conveyance, ASR Redisribution, and ASR Pump-to-Waste pipelines)	Generator Sets	1	8.00	200	0.74
ASR Pipelines (ASR Conveyance, ASR Redisribution, and ASR Pump-to-Waste pipelines)	Pavers	1	6.00	160	0.42
ASR Pipelines (ASR Conveyance, ASR Redisribution, and ASR Pump-to-Waste pipelines)	Rollers	1	6.00	90	0.38
ASR Pipelines (ASR Conveyance, ASR Redisribution, and ASR Pump-to-Waste pipelines)	Rubber Tired Loaders	1	8.00	90	0.36
ASR Pipelines (ASR Conveyance, ASR Redisribution, and ASR Pump-to-Waste pipelines)	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Subsurface Slant Wells (9 wells)	Bore/Drill Rigs	1	6.90	350	0.50
Subsurface Slant Wells (9 wells)	Cranes	2	12.00	200	0.29
Subsurface Slant Wells (9 wells)	Excavators	1	3.40	200	0.38
Subsurface Slant Wells (9 wells)	Generator Sets	2	3.40	200	0.74
Subsurface Slant Wells (9 wells)	Trenchers	1	12.00	150	0.50

Desalination Plant	Cranes	2	11.00	200	0.29
Desalination Plant	Excavators	2	1.00	200	0.38
Desalination Plant	Forklifts	4	11.00	150	0.20
Desalination Plant	Generator Sets	2	12.00	200	0.74
Desalination Plant	Graders	1	1.00	200	0.41
Desalination Plant	Off-Highway Tractors	1	1.00	200	0.44
Desalination Plant	Off-Highway Trucks	1	1.00	350	0.38
Desalination Plant	Off-Highway Trucks	1	0.30	350	0.38
Desalination Plant	Pavers	1	0.50	160	0.42
Desalination Plant	Rollers	2	1.50	90	0.38
Desalination Plant	Rubber Tired Loaders	2	1.00	90	0.36
Desalination Plant	Tractors/Loaders/Backhoes	2	11.00	150	0.37
New Desalinated Water Pipeline	Cranes	1	6.00	200	0.29
New Desalinated Water Pipeline	Excavators	1	8.00	200	0.38
New Desalinated Water Pipeline	Generator Sets	1	8.00	200	0.74
New Desalinated Water Pipeline	Pavers	1	6.00	160	0.42
New Desalinated Water Pipeline	Rollers	1	6.00	90	0.38
New Desalinated Water Pipeline	Rubber Tired Loaders	1	8.00	90	0.36
New Desalinated Water Pipeline	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Terminal Reservoir	Cranes	2	6.90	200	0.29
Terminal Reservoir	Excavators	1	1.10	200	0.38
Terminal Reservoir	Generator Sets	1	8.00	200	0.74
Terminal Reservoir	Graders	1	1.10	200	0.41
Terminal Reservoir	Off-Highway Tractors	1	1.10	200	0.44
Terminal Reservoir	Off-Highway Trucks	1	0.50	350	0.38
Terminal Reservoir	Pavers	1	0.50	160	0.42
Terminal Reservoir	Rollers	1	1.60	90	0.38
Terminal Reservoir	Rubber Tired Loaders	1	1.10	90	0.36
Terminal Reservoir	Tractors/Loaders/Backhoes	1	6.90	150	0.37
ASR Injection/Extraction Wells	Bore/Drill Rigs	1	3.80	350	0.50

ASR Injection/Extraction Wells	Cranes	2	1.30	200	0.29
ASR Injection/Extraction Wells	Excavators	1	1.30	200	0.38
ASR Injection/Extraction Wells	Generator Sets	1	6.70	200	0.74
ASR Injection/Extraction Wells	Graders	1	0.20	200	0.41
ASR Injection/Extraction Wells	Off-Highway Tractors	1	1.30	200	0.44
ASR Injection/Extraction Wells	Off-Highway Trucks	1	1.30	350	0.38
ASR Injection/Extraction Wells	Pavers	1	0.20	160	0.42
ASR Injection/Extraction Wells	Rollers	1	1.50	90	0.38
ASR Injection/Extraction Wells	Rubber Tired Loaders	1	1.30	90	0.36
ASR Injection/Extraction Wells	Tractors/Loaders/Backhoes	1	1.30	150	0.37
New Monterey Pipeline	Bore/Drill Rigs	1	0.80	350	0.50
New Monterey Pipeline	Cranes	1	6.00	200	0.29
New Monterey Pipeline	Excavators	1	8.00	200	0.38
New Monterey Pipeline	Generator Sets	1	8.00	200	0.74
New Monterey Pipeline	Pavers	1	6.00	160	0.42
New Monterey Pipeline	Rollers	1	6.00	90	0.38
New Monterey Pipeline	Rubber Tired Loaders	1	8.00	90	0.36
New Monterey Pipeline	Tractors/Loaders/Backhoes	1	8.00	150	0.37
New Transmission Main Pipeline	Bore/Drill Rigs	1	1.30	350	0.50
New Transmission Main Pipeline	Cranes	1	6.00	200	0.29
New Transmission Main Pipeline	Excavators	1	8.00	200	0.38
New Transmission Main Pipeline	Generator Sets	1	8.00	200	0.74
New Transmission Main Pipeline	Pavers	1	6.00	160	0.42
New Transmission Main Pipeline	Rollers	1	6.00	90	0.38
New Transmission Main Pipeline	Rubber Tired Loaders	1	8.00	90	0.36
New Transmission Main Pipeline	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Source Water Pipeline	Bore/Drill Rigs	1	0.60	350	0.50
Source Water Pipeline	Cranes	1	6.00	200	0.29
Source Water Pipeline	Excavators	1	8.00	200	0.38
Source Water Pipeline	Generator Sets	1	8.00	200	0.74

Source Water Pipeline	Pavers	1	6.00	160	0.42
Source Water Pipeline	Rollers	1	6.00	90	0.38
Source Water Pipeline	Rubber Tired Loaders	1	8.00	90	0.36
Source Water Pipeline	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Carmel Valley Pump Station	Cranes	1	1.30	200	0.29
Carmel Valley Pump Station	Generator Sets	1	8.00	200	0.74
Carmel Valley Pump Station	Graders	1	0.30	200	0.41
Carmel Valley Pump Station	Pavers	1	0.10	160	0.42
Carmel Valley Pump Station	Rollers	1	2.70	90	0.38
Carmel Valley Pump Station	Rubber Tired Loaders	1	2.70	90	0.36
Carmel Valley Pump Station	Tractors/Loaders/Backhoes	1	2.70	150	0.37
Monterey Pump Station	Cranes	1	1.30	200	0.29
Monterey Pump Station	Generator Sets	1	8.00	200	0.74
Monterey Pump Station	Graders	1	0.30	200	0.41
Monterey Pump Station	Pavers	1	0.10	160	0.42
Monterey Pump Station	Rollers	1	2.70	90	0.38
Monterey Pump Station	Rubber Tired Loaders	1	2.70	90	0.36
Monterey Pump Station	Tractors/Loaders/Backhoes	1	2.70	150	0.37
Castroville Pipeline	Bore/Drill Rigs	1	1.00	350	0.50
Castroville Pipeline	Cranes	1	6.00	200	0.29
Castroville Pipeline	Excavators	1	8.00	200	0.38
Castroville Pipeline	Generator Sets	1	8.00	200	0.74
Castroville Pipeline	Pavers	1	6.00	160	0.42
Castroville Pipeline	Rollers	1	6.00	90	0.38
Castroville Pipeline	Rubber Tired Loaders	1	8.00	90	0.36
Castroville Pipeline	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Brine Discharge Pipeline	Cranes	1	6.00	200	0.29
Brine Discharge Pipeline	Excavators	1	8.00	200	0.38
Brine Discharge Pipeline	Generator Sets	1	8.00	200	0.74
Brine Discharge Pipeline	Pavers	1	6.00	160	0.42

Brine Discharge Pipeline	Rollers	1	6.00	90	0.38
Brine Discharge Pipeline	Rubber Tired Loaders	1	8.00	90	0.36
Brine Discharge Pipeline	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Pipeline to CSIP Pond	Cranes	1	6.00	200	0.29
Pipeline to CSIP Pond	Excavators	1	8.00	200	0.38
Pipeline to CSIP Pond	Generator Sets	1	8.00	200	0.74
Pipeline to CSIP Pond	Pavers	1	6.00	160	0.42
Pipeline to CSIP Pond	Rollers	1	6.00	90	0.38
Pipeline to CSIP Pond	Rubber Tired Loaders	1	8.00	90	0.36
Pipeline to CSIP Pond	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Ryan Ranch-Bishop Interconnection	Cranes	1	6.00	200	0.29
Ryan Ranch-Bishop Interconnection	Excavators	1	8.00	200	0.38
Ryan Ranch-Bishop Interconnection	Generator Sets	1	8.00	200	0.74
Ryan Ranch-Bishop Interconnection	Pavers	1	6.00	160	0.42
Ryan Ranch-Bishop Interconnection	Rollers	1	6.00	90	0.38
Ryan Ranch-Bishop Interconnection	Rubber Tired Loaders	1	8.00	90	0.36
Ryan Ranch-Bishop Interconnection	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Main System to Hidden Hills	Cranes	1	6.00	200	0.29
Main System to Hidden Hills	Excavators	1	8.00	200	0.38
Main System to Hidden Hills	Generator Sets	1	8.00	200	0.74
Main System to Hidden Hills	Pavers	1	6.00	160	0.42
Main System to Hidden Hills	Rollers	1	6.00	90	0.38
Main System to Hidden Hills	Rubber Tired Loaders	1	8.00	90	0.36
Main System to Hidden Hills	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Slant Well Maintenance	Graders	1	5.30	200	0.41
Slant Well Maintenance	Cranes	1	6.00	200	0.29
Slant Well Maintenance	Rubber Tired Loaders	1	5.30	90	0.36
Slant Well Maintenance	Generator Sets	1	8.00	200	0.74

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Subsurface Slant Wells (9 wells) - 2018

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.2221	2.6032	1.2372			0.1067	0.1067		0.0990	0.0990			315.2462	0.0775	0.0000	316.8727
Total	**0.2221**	**2.6032**	**1.2372**		**0.0000**	**0.1067**	**0.1067**	**0.0000**	**0.0990**	**0.0990**			**315.2462**	**0.0775**	**0.0000**	**316.8727**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.1281	1.9610	1.8838			0.0831	0.0831		0.0804	0.0804			315.2458	0.0775	0.0000	316.8723
Total	**0.1281**	**1.9610**	**1.8838**		**0.0000**	**0.0831**	**0.0831**	**0.0000**	**0.0804**	**0.0804**			**315.2458**	**0.0775**	**0.0000**	**316.8723**

3.2 Subsurface Slant Wells (9 wells) - 2019

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.2888	3.3046	1.6818			0.1357	0.1357		0.1259	0.1259			437.1615	0.1085	0.0000	439.4408
Total	**0.2888**	**3.3046**	**1.6818**		**0.0000**	**0.1357**	**0.1357**	**0.0000**	**0.1259**	**0.1259**			**437.1615**	**0.1085**	**0.0000**	**439.4408**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.1780	2.7237	2.6478			0.1155	0.1155		0.1117	0.1117			437.1610	0.1085	0.0000	439.4403
Total	**0.1780**	**2.7237**	**2.6478**		**0.0000**	**0.1155**	**0.1155**	**0.0000**	**0.1117**	**0.1117**			**437.1610**	**0.1085**	**0.0000**	**439.4403**

3.3 Desalination Plant - 2018

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.3732	4.1697	2.3235			0.1750	0.1750		0.1640	0.1640			553.8724	0.0994	0.0000	555.9601
Total	**0.3732**	**4.1697**	**2.3235**		**0.0000**	**0.1750**	**0.1750**	**0.0000**	**0.1640**	**0.1640**			**553.8724**	**0.0994**	**0.0000**	**555.9601**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.1398	2.7120	3.4635			0.1139	0.1139		0.1139	0.1139			553.8718	0.0994	0.0000	555.9594
Total	**0.1398**	**2.7120**	**3.4635**		**0.0000**	**0.1139**	**0.1139**	**0.0000**	**0.1139**	**0.1139**			**553.8718**	**0.0994**	**0.0000**	**555.9594**

3.3 Desalination Plant - 2019

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.6746	7.3146	4.5108			0.3046	0.3046		0.2855	0.2855			1,094.1864	0.1971	0.0000	1,098.3257
Total	**0.6746**	**7.3146**	**4.5108**		**0.0000**	**0.3046**	**0.3046**	**0.0000**	**0.2855**	**0.2855**			**1,094.1864**	**0.1971**	**0.0000**	**1,098.3257**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.2784	5.4033	6.9005			0.2270	0.2270		0.2270	0.2270			1,094.1851	0.1971	0.0000	1,098.3244
Total	**0.2784**	**5.4033**	**6.9005**		**0.0000**	**0.2270**	**0.2270**	**0.0000**	**0.2270**	**0.2270**			**1,094.1851**	**0.1971**	**0.0000**	**1,098.3244**

3.3 Desalination Plant - 2020

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.2644	2.7702	1.8959			0.1143	0.1143		0.1072	0.1072			464.2369	0.0838	0.0000	465.9964
Total	**0.2644**	**2.7702**	**1.8959**		**0.0000**	**0.1143**	**0.1143**	**0.0000**	**0.1072**	**0.1072**			**464.2369**	**0.0838**	**0.0000**	**465.9964**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.1195	2.3187	2.9612			0.0974	0.0974		0.0974	0.0974			464.2363	0.0838	0.0000	465.9959
Total	**0.1195**	**2.3187**	**2.9612**		**0.0000**	**0.0974**	**0.0974**	**0.0000**	**0.0974**	**0.0974**			**464.2363**	**0.0838**	**0.0000**	**465.9959**

3.4 New Desalinated Water Pipeline - 2018

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.1522	1.6574	0.9851			0.0761	0.0761		0.0709	0.0709			224.5592	0.0465	0.0000	225.5357
Total	**0.1522**	**1.6574**	**0.9851**		**0.0000**	**0.0761**	**0.0761**	**0.0000**	**0.0709**	**0.0709**			**224.5592**	**0.0465**	**0.0000**	**225.5357**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0575	1.1393	1.4468			0.0517	0.0517		0.0517	0.0517			224.5589	0.0465	0.0000	225.5354
Total	**0.0575**	**1.1393**	**1.4468**		**0.0000**	**0.0517**	**0.0517**	**0.0000**	**0.0517**	**0.0517**			**224.5589**	**0.0465**	**0.0000**	**225.5354**

3.5 Terminal Reservoir - 2018

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.1337	1.5449	0.7289			0.0617	0.0617		0.0577	0.0577			193.7106	0.0360	0.0000	194.4658
Total	**0.1337**	**1.5449**	**0.7289**		**0.0000**	**0.0617**	**0.0617**	**0.0000**	**0.0577**	**0.0577**			**193.7106**	**0.0360**	**0.0000**	**194.4658**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0490	0.9530	1.1424			0.0387	0.0387		0.0387	0.0387			193.7103	0.0360	0.0000	194.4656
Total	**0.0490**	**0.9530**	**1.1424**		**0.0000**	**0.0387**	**0.0387**	**0.0000**	**0.0387**	**0.0387**			**193.7103**	**0.0360**	**0.0000**	**194.4656**

3.5 Terminal Reservoir - 2019

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.1699	1.9153	0.9830			0.0755	0.0755		0.0707	0.0707			269.6703	0.0503	0.0000	270.7264
Total	**0.1699**	**1.9153**	**0.9830**		**0.0000**	**0.0755**	**0.0755**	**0.0000**	**0.0707**	**0.0707**			**269.6703**	**0.0503**	**0.0000**	**270.7264**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0688	1.3386	1.6046			0.0544	0.0544		0.0544	0.0544			269.6700	0.0503	0.0000	270.7260
Total	**0.0688**	**1.3386**	**1.6046**		**0.0000**	**0.0544**	**0.0544**	**0.0000**	**0.0544**	**0.0544**			**269.6700**	**0.0503**	**0.0000**	**270.7260**

3.6 ASR Injection/Extraction Wells - 2018

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0826	0.9548	0.4657			0.0342	0.0342		0.0323	0.0323			163.1867	0.0304	0.0000	163.8254
Total	**0.0826**	**0.9548**	**0.4657**		**0.0000**	**0.0342**	**0.0342**	**0.0000**	**0.0323**	**0.0323**			**163.1867**	**0.0304**	**0.0000**	**163.8254**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0414	0.8060	0.9253			0.0321	0.0321		0.0321	0.0321			163.1865	0.0304	0.0000	163.8252
Total	**0.0414**	**0.8060**	**0.9253**		**0.0000**	**0.0321**	**0.0321**	**0.0000**	**0.0321**	**0.0321**			**163.1865**	**0.0304**	**0.0000**	**163.8252**

3.6 ASR Injection/Extraction Wells - 2019

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0703	0.7776	0.4206			0.0278	0.0278		0.0262	0.0262			149.3307	0.0280	0.0000	149.9177
Total	**0.0703**	**0.7776**	**0.4206**		**0.0000**	**0.0278**	**0.0278**	**0.0000**	**0.0262**	**0.0262**			**149.3307**	**0.0280**	**0.0000**	**149.9177**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0382	0.7445	0.8547			0.0296	0.0296		0.0296	0.0296			149.3305	0.0280	0.0000	149.9175
Total	**0.0382**	**0.7445**	**0.8547**		**0.0000**	**0.0296**	**0.0296**	**0.0000**	**0.0296**	**0.0296**			**149.3305**	**0.0280**	**0.0000**	**149.9175**

3.7 New Monterey Pipeline - 2018

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.1609	1.7584	1.0450			0.0801	0.0801		0.0747	0.0747			242.3778	0.0511	0.0000	243.4513
Total	**0.1609**	**1.7584**	**1.0450**		**0.0000**	**0.0801**	**0.0801**	**0.0000**	**0.0747**	**0.0747**			**242.3778**	**0.0511**	**0.0000**	**243.4513**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0622	1.2314	1.5568			0.0556	0.0556		0.0556	0.0556			242.3775	0.0511	0.0000	243.4510
Total	**0.0622**	**1.2314**	**1.5568**		**0.0000**	**0.0556**	**0.0556**	**0.0000**	**0.0556**	**0.0556**			**242.3775**	**0.0511**	**0.0000**	**243.4510**

3.7 New Monterey Pipeline - 2019

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.2050	2.1813	1.4389			0.0985	0.0985		0.0919	0.0919			336.8918	0.0716	0.0000	338.3945
Total	**0.2050**	**2.1813**	**1.4389**		**0.0000**	**0.0985**	**0.0985**	**0.0000**	**0.0919**	**0.0919**			**336.8918**	**0.0716**	**0.0000**	**338.3945**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0874	1.7296	2.1866			0.0780	0.0780		0.0780	0.0780			336.8914	0.0716	0.0000	338.3941
Total	**0.0874**	**1.7296**	**2.1866**		**0.0000**	**0.0780**	**0.0780**	**0.0000**	**0.0780**	**0.0780**			**336.8914**	**0.0716**	**0.0000**	**338.3941**

3.8 New Transmission Main Pipeline - 2018

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	6.2100e-003	0.0680	0.0404			3.0800e-003	3.0800e-003		2.8700e-003	2.8700e-003			9.4636	2.0200e-003	0.0000	9.5059
Total	**6.2100e-003**	**0.0680**	**0.0404**		**0.0000**	**3.0800e-003**	**3.0800e-003**	**0.0000**	**2.8700e-003**	**2.8700e-003**			**9.4636**	**2.0200e-003**	**0.0000**	**9.5059**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	2.4300e-003	0.0481	0.0607			2.1600e-003	2.1600e-003		2.1600e-003	2.1600e-003			9.4635	2.0200e-003	0.0000	9.5059
Total	**2.4300e-003**	**0.0481**	**0.0607**		**0.0000**	**2.1600e-003**	**2.1600e-003**	**0.0000**	**2.1600e-003**	**2.1600e-003**			**9.4635**	**2.0200e-003**	**0.0000**	**9.5059**

3.8 New Transmission Main Pipeline - 2019

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.2073	2.2088	1.4572			0.0994	0.0994		0.0926	0.0926			344.5722	0.0740	0.0000	346.1260
Total	**0.2073**	**2.2088**	**1.4572**		**0.0000**	**0.0994**	**0.0994**	**0.0000**	**0.0926**	**0.0926**			**344.5722**	**0.0740**	**0.0000**	**346.1260**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0896	1.7708	2.2328			0.0796	0.0796		0.0796	0.0796			344.5718	0.0740	0.0000	346.1256
Total	**0.0896**	**1.7708**	**2.2328**		**0.0000**	**0.0796**	**0.0796**	**0.0000**	**0.0796**	**0.0796**			**344.5718**	**0.0740**	**0.0000**	**346.1256**

3.9 Source Water Pipeline - 2019

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.1397	1.4862	0.9803			0.0672	0.0672		0.0627	0.0627			228.5939	0.0483	0.0000	229.6089
Total	**0.1397**	**1.4862**	**0.9803**		**0.0000**	**0.0672**	**0.0672**	**0.0000**	**0.0627**	**0.0627**			**228.5939**	**0.0483**	**0.0000**	**229.6089**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0593	1.1731	1.4847			0.0530	0.0530		0.0530	0.0530			228.5936	0.0483	0.0000	229.6086
Total	**0.0593**	**1.1731**	**1.4847**		**0.0000**	**0.0530**	**0.0530**	**0.0000**	**0.0530**	**0.0530**			**228.5936**	**0.0483**	**0.0000**	**229.6086**

3.10 Carmel Valley Pump Station - 2019

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0590	0.6210	0.3571			0.0248	0.0248		0.0237	0.0237			111.1949	0.0112	0.0000	111.4299
Total	**0.0590**	**0.6210**	**0.3571**		**0.0000**	**0.0248**	**0.0248**	**0.0000**	**0.0237**	**0.0237**			**111.1949**	**0.0112**	**0.0000**	**111.4299**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0270	0.5326	0.6365			0.0229	0.0229		0.0229	0.0229			111.1947	0.0112	0.0000	111.4298
Total	**0.0270**	**0.5326**	**0.6365**		**0.0000**	**0.0229**	**0.0229**	**0.0000**	**0.0229**	**0.0229**			**111.1947**	**0.0112**	**0.0000**	**111.4298**

3.11 Monterey Pump Station - 2019

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0590	0.6210	0.3571			0.0248	0.0248		0.0237	0.0237			111.1949	0.0112	0.0000	111.4299
Total	**0.0590**	**0.6210**	**0.3571**		**0.0000**	**0.0248**	**0.0248**	**0.0000**	**0.0237**	**0.0237**			**111.1949**	**0.0112**	**0.0000**	**111.4299**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0270	0.5326	0.6365			0.0229	0.0229		0.0229	0.0229			111.1947	0.0112	0.0000	111.4298
Total	**0.0270**	**0.5326**	**0.6365**		**0.0000**	**0.0229**	**0.0229**	**0.0000**	**0.0229**	**0.0229**			**111.1947**	**0.0112**	**0.0000**	**111.4298**

3.12 Castroville Pipeline - 2019

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0940	1.0008	0.6602			0.0451	0.0451		0.0421	0.0421			155.2010	0.0331	0.0000	155.8963
Total	**0.0940**	**1.0008**	**0.6602**		**0.0000**	**0.0451**	**0.0451**	**0.0000**	**0.0421**	**0.0421**			**155.2010**	**0.0331**	**0.0000**	**155.8963**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0403	0.7971	1.0067			0.0359	0.0359		0.0359	0.0359			155.2008	0.0331	0.0000	155.8961
Total	**0.0403**	**0.7971**	**1.0067**		**0.0000**	**0.0359**	**0.0359**	**0.0000**	**0.0359**	**0.0359**			**155.2008**	**0.0331**	**0.0000**	**155.8961**

3.13 ASR Pipelines (ASR Conveyance, ASR Redisribution, and

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.1138	1.2080	0.7967			0.0549	0.0549		0.0512	0.0512			183.4713	0.0383	0.0000	184.2745
Total	**0.1138**	**1.2080**	**0.7967**		**0.0000**	**0.0549**	**0.0549**	**0.0000**	**0.0512**	**0.0512**			**183.4713**	**0.0383**	**0.0000**	**184.2745**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0475	0.9404	1.1942			0.0427	0.0427		0.0427	0.0427			183.4711	0.0383	0.0000	184.2743
Total	**0.0475**	**0.9404**	**1.1942**		**0.0000**	**0.0427**	**0.0427**	**0.0000**	**0.0427**	**0.0427**			**183.4711**	**0.0383**	**0.0000**	**184.2743**

3.14 Brine Discharge Pipeline - 2019

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0689	0.7318	0.4826			0.0333	0.0333		0.0310	0.0310			111.1413	0.0232	0.0000	111.6278
Total	**0.0689**	**0.7318**	**0.4826**		**0.0000**	**0.0333**	**0.0333**	**0.0000**	**0.0310**	**0.0310**			**111.1413**	**0.0232**	**0.0000**	**111.6278**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0288	0.5697	0.7234			0.0259	0.0259		0.0259	0.0259			111.1411	0.0232	0.0000	111.6277
Total	**0.0288**	**0.5697**	**0.7234**		**0.0000**	**0.0259**	**0.0259**	**0.0000**	**0.0259**	**0.0259**			**111.1411**	**0.0232**	**0.0000**	**111.6277**

3.15 Pipeline to CSIP Pond - 2019

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0460	0.4879	0.3217			0.0222	0.0222		0.0207	0.0207			74.0942	0.0155	0.0000	74.4186
Total	**0.0460**	**0.4879**	**0.3217**		**0.0000**	**0.0222**	**0.0222**	**0.0000**	**0.0207**	**0.0207**			**74.0942**	**0.0155**	**0.0000**	**74.4186**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0192	0.3798	0.4823			0.0172	0.0172		0.0172	0.0172			74.0941	0.0155	0.0000	74.4185
Total	**0.0192**	**0.3798**	**0.4823**		**0.0000**	**0.0172**	**0.0172**	**0.0000**	**0.0172**	**0.0172**			**74.0941**	**0.0155**	**0.0000**	**74.4185**

3.16 Ryan Ranch-Bishop Interconnection - 2019

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0919	0.9757	0.6435			0.0444	0.0444		0.0414	0.0414			148.1884	0.0309	0.0000	148.8371
Total	**0.0919**	**0.9757**	**0.6435**		**0.0000**	**0.0444**	**0.0444**	**0.0000**	**0.0414**	**0.0414**			**148.1884**	**0.0309**	**0.0000**	**148.8371**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0384	0.7595	0.9645			0.0345	0.0345		0.0345	0.0345			148.1882	0.0309	0.0000	148.8369
Total	**0.0384**	**0.7595**	**0.9645**		**0.0000**	**0.0345**	**0.0345**	**0.0000**	**0.0345**	**0.0345**			**148.1882**	**0.0309**	**0.0000**	**148.8369**

3.17 Main System to Hidden Hills - 2019

Unmitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0689	0.7318	0.4826			0.0333	0.0333		0.0310	0.0310			111.1413	0.0232	0.0000	111.6278
Total	**0.0689**	**0.7318**	**0.4826**		**0.0000**	**0.0333**	**0.0333**	**0.0000**	**0.0310**	**0.0310**			**111.1413**	**0.0232**	**0.0000**	**111.6278**

Mitigated Construction On-Site

	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					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000	0.0000	0.0000	0.0000
Off-Road	0.0288	0.5697	0.7234			0.0259	0.0259		0.0259	0.0259			111.1411	0.0232	0.0000	111.6277
Total	**0.0288**	**0.5697**	**0.7234**		**0.0000**	**0.0259**	**0.0259**	**0.0000**	**0.0259**	**0.0259**			**111.1411**	**0.0232**	**0.0000**	**111.6277**

3.18 Slant Well Maintenance - 2025

Unmitigated Construction On-Site

	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					
Off-Road	0.0310	0.2732	0.2079			0.0101	0.0101		9.5000e-003	9.5000e-003			74.0572	0.0106	0.0000	74.2799
Total	**0.0310**	**0.2732**	**0.2079**			**0.0101**	**0.0101**		**9.5000e-003**	**9.5000e-003**			**74.0572**	**0.0106**	**0.0000**	**74.2799**

Mitigated Construction On-Site

	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					
Off-Road	0.0186	0.3657	0.4178			0.0150	0.0150		0.0150	0.0150			74.0571	0.0106	0.0000	74.2798
Total	**0.0186**	**0.3657**	**0.4178**			**0.0150**	**0.0150**		**0.0150**	**0.0150**			**74.0571**	**0.0106**	**0.0000**	**74.2798**

3.18 Slant Well Maintenance - 2026

Unmitigated Construction On-Site

	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					
Off-Road	0.0117	0.1035	0.0787			3.8300e-003	3.8300e-003		3.6000e-003	3.6000e-003			28.0520	4.0200e-003	0.0000	28.1363
Total	**0.0117**	**0.1035**	**0.0787**			**3.8300e-003**	**3.8300e-003**		**3.6000e-003**	**3.6000e-003**			**28.0520**	**4.0200e-003**	**0.0000**	**28.1363**

Mitigated Construction On-Site

	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					
Off-Road	7.0600e-003	0.1385	0.1582			5.6700e-003	5.6700e-003		5.6700e-003	5.6700e-003			28.0519	4.0200e-003	0.0000	28.1363
Total	**7.0600e-003**	**0.1385**	**0.1582**			**5.6700e-003**	**5.6700e-003**		**5.6700e-003**	**5.6700e-003**			**28.0519**	**4.0200e-003**	**0.0000**	**28.1363**

G1.3 CALEEMOD OUTPUT - MAXIMUM DAILY

Monterey Peninsula Water Supply Project

Monterey County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Heavy Industry	0.00	1000sqft	15.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.8	**Precipitation Freq (Days)**	55
Climate Zone	4			**Operational Year**	2020
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 - Land use duty entered here is not relevent to the model run, and only serves the purpose of allowing data to be entered for the construction phase. Note that operational emissions are estimated outside of CalEEMod

Construction Phase - See Appendix Sections 5, Construction Trips, and 6, MPWSP Estimated Construction Phasing, for additional information about phasing of construction actvitities and total workdays.

Off-road Equipment - Hour/day assumptions are presented in Appendix G.

Off-road Equipment - project specific assumptions have been entered.

Off-road Equipment - Refer to "Average Daily Offroad Construction Equipment Hours For CalEEMod" for equipment unit amounts, hours, and hp assumptions.

Off-road Equipment - project information based on project assumptions

Off-road Equipment - Refer to "Average Daily Offroad Construction Equipment Hours for CalEEMod Input" for unit amount, hours/day, and hp assumptions.

Off-road Equipment - See "Average Daily Offroad Construction Equipment Hours for CalEEMod Input" for assumptions regarding unit amounts, hour/day, and hp.

Off-road Equipment - See construction equipment hours assumption in Appendix G

Trips and VMT - Worker and haul trips are estimated outside of CalEEMod using Emfac 2014 emission factors

Grading - Fugitive dust emissions are estimated outside of CalEEMod.

Construction Off-road Equipment Mitigation - Mitigation for off-road equipment is to have engines that meet at least tier 3 emissions requirements.

Off-road Equipment - Slant well maintenance would occur every 5 years after start of operations.

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tblTripsAndVMT	WorkerTripNumber	20.00	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	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
Year	lb/day										lb/day					
2018	17.3311	195.5940	104.7080		0.0000	8.2213	8.2213	0.0000	7.6792	7.6792			28,884.5735	5.8434	0.0000	29,007.2837
2019	28.6902	310.1877	190.5386		0.0000	13.3359	13.3359	0.0000	12.4653	12.4653			52,229.3086	10.3598	0.0000	52,446.8652
2020	4.7220	49.4671	33.8553		0.0000	2.0418	2.0418	0.0000	1.9142	1.9142			9,138.0993	1.6493	0.0000	9,172.7340
2025	0.9391	8.2777	6.2987		0.0000	0.3066	0.3066	0.0000	0.2879	0.2879			2,473.7608	0.3542	0.0000	2,481.1996
2026	0.9391	8.2777	6.2987		0.0000	0.3066	0.3066	0.0000	0.2879	0.2879			2,473.7608	0.3542	0.0000	2,481.1996
Total	**52.6215**	**571.8041**	**341.6992**		**0.0000**	**24.2121**	**24.2121**	**0.0000**	**22.6345**	**22.6345**			**95,199.5028**	**18.5609**	**0.0000**	**95,589.2822**

Mitigated Construction

	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
Year	lb/day										lb/day					
2018	7.3930	136.2462	161.2444		0.0000	5.8015	5.8015	0.0000	5.7600	5.7600			28,884.5734	5.8434	0.0000	29,007.2837
2019	12.8692	244.6743	297.9042		0.0000	10.6751	10.6751	0.0000	10.6347	10.6347			52,229.3085	10.3598	0.0000	52,446.8652
2020	2.1336	41.4047	52.8777		0.0000	1.7393	1.7393	0.0000	1.7393	1.7393			9,138.0993	1.6493	0.0000	9,172.7340
2025	0.5650	11.0824	12.6594		0.0000	0.4539	0.4539	0.0000	0.4539	0.4539			2,473.7608	0.3542	0.0000	2,481.1996
2026	0.5650	11.0824	12.6594		0.0000	0.4539	0.4539	0.0000	0.4539	0.4539			2,473.7608	0.3542	0.0000	2,481.1996
Total	**23.5257**	**444.4900**	**537.3450**		**0.0000**	**19.1236**	**19.1236**	**0.0000**	**19.0417**	**19.0417**			**95,199.5028**	**18.5609**	**0.0000**	**95,589.2821**

	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	N20	CO2e
Percent Reduction	55.29	22.27	-57.26	0.00	0.00	21.02	21.02	0.00	15.87	15.87	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Subsurface Slant Wells (9 wells)	Site Preparation	7/2/2018	9/13/2019	5	315	
2	Desalination Plant	Site Preparation	7/2/2018	6/4/2020	5	504	
3	New Desalinated Water Pipeline	Site Preparation	7/2/2018	12/24/2018	5	126	
4	Terminal Reservoir	Site Preparation	7/2/2018	9/13/2019	5	315	
5	ASR Injection/Extraction Wells	Site Preparation	7/2/2018	6/18/2019	5	252	
6	New Monterey Pipeline	Site Preparation	7/2/2018	9/13/2019	5	315	
7	New Transmission Main Pipeline	Site Preparation	12/25/2018	9/13/2019	5	189	
8	Source Water Pipeline	Site Preparation	1/2/2019	6/26/2019	5	126	
9	Carmel Valley Pump Station	Site Preparation	1/2/2019	6/26/2019	5	126	
10	Monterey Pump Station	Site Preparation	1/2/2019	6/26/2019	5	126	
11	Castroville Pipeline	Site Preparation	3/2/2019	6/27/2019	5	84	
12	ASR Pipelines (ASR Conveyance, ASR Redisribution,	Site Preparation	4/2/2019	8/24/2019	5	104	
13	Brine Discharge Pipeline	Site Preparation	4/2/2019	6/27/2019	5	63	
14	Pipeline to CSIP Pond	Site Preparation	5/2/2019	6/28/2019	5	42	
15	Ryan Ranch-Bishop Interconnection	Site Preparation	7/1/2019	10/24/2019	5	84	
16	Main System to Hidden Hills	Site Preparation	7/1/2019	9/25/2019	5	63	
17	Slant Well Maintenance	Site Preparation	10/1/2025	2/4/2026	5	91	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
ASR Pipelines (ASR Conveyance, ASR Redisribution, and ASR Pump-to-Waste	Cranes	1	6.00	200	0.29
ASR Pipelines (ASR Conveyance, ASR Redisribution, and ASR Pump-to-Waste	Excavators	1	8.00	200	0.38
ASR Pipelines (ASR Conveyance, ASR Redisribution, and ASR Pump-to-Waste	Generator Sets	1	8.00	200	0.74
ASR Pipelines (ASR Conveyance, ASR Redisribution, and ASR Pump-to-Waste	Pavers	1	6.00	160	0.42
ASR Pipelines (ASR Conveyance, ASR Redisribution, and ASR Pump-to-Waste	Rollers	1	6.00	90	0.38
ASR Pipelines (ASR Conveyance, ASR Redisribution, and ASR Pump-to-Waste	Rubber Tired Loaders	1	8.00	90	0.36
ASR Pipelines (ASR Conveyance, ASR Redisribution, and ASR Pump-to-Waste	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Subsurface Slant Wells (9 wells)	Bore/Drill Rigs	1	6.90	350	0.50
Subsurface Slant Wells (9 wells)	Cranes	2	12.00	200	0.29
Subsurface Slant Wells (9 wells)	Excavators	1	3.40	200	0.38
Subsurface Slant Wells (9 wells)	Generator Sets	2	3.40	200	0.74
Subsurface Slant Wells (9 wells)	Trenchers	1	12.00	150	0.50
Desalination Plant	Cranes	2	11.00	200	0.29
Desalination Plant	Excavators	2	1.00	200	0.38
Desalination Plant	Forklifts	4	11.00	150	0.20
Desalination Plant	Generator Sets	2	12.00	200	0.74
Desalination Plant	Graders	1	1.00	200	0.41
Desalination Plant	Off-Highway Tractors	1	1.00	200	0.44
Desalination Plant	Off-Highway Trucks	1	1.00	350	0.38
Desalination Plant	Off-Highway Trucks	1	0.30	350	0.38
Desalination Plant	Pavers	1	0.50	160	0.42
Desalination Plant	Rollers	2	1.50	90	0.38
Desalination Plant	Rubber Tired Loaders	2	1.00	90	0.36
Desalination Plant	Tractors/Loaders/Backhoes	2	11.00	150	0.37
New Desalinated Water Pipeline	Cranes	1	6.00	200	0.29

New Desalinated Water Pipeline	Excavators	1	8.00	200	0.38
New Desalinated Water Pipeline	Generator Sets	1	8.00	200	0.74
New Desalinated Water Pipeline	Pavers	1	6.00	160	0.42
New Desalinated Water Pipeline	Rollers	1	6.00	90	0.38
New Desalinated Water Pipeline	Rubber Tired Loaders	1	8.00	90	0.36
New Desalinated Water Pipeline	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Terminal Reservoir	Cranes	2	6.90	200	0.29
Terminal Reservoir	Excavators	1	1.10	200	0.38
Terminal Reservoir	Generator Sets	1	8.00	200	0.74
Terminal Reservoir	Graders	1	1.10	200	0.41
Terminal Reservoir	Off-Highway Tractors	1	1.10	200	0.44
Terminal Reservoir	Off-Highway Trucks	1	0.50	350	0.38
Terminal Reservoir	Pavers	1	0.50	160	0.42
Terminal Reservoir	Rollers	1	1.60	90	0.38
Terminal Reservoir	Rubber Tired Loaders	1	1.10	90	0.36
Terminal Reservoir	Tractors/Loaders/Backhoes	1	6.90	150	0.37
ASR Injection/Extraction Wells	Bore/Drill Rigs	1	3.80	350	0.50
ASR Injection/Extraction Wells	Cranes	2	1.30	200	0.29
ASR Injection/Extraction Wells	Excavators	1	1.30	200	0.38
ASR Injection/Extraction Wells	Generator Sets	1	6.70	200	0.74
ASR Injection/Extraction Wells	Graders	1	0.20	200	0.41
ASR Injection/Extraction Wells	Off-Highway Tractors	1	1.30	200	0.44
ASR Injection/Extraction Wells	Off-Highway Trucks	1	1.30	350	0.38
ASR Injection/Extraction Wells	Pavers	1	0.20	160	0.42
ASR Injection/Extraction Wells	Rollers	1	1.50	90	0.38
ASR Injection/Extraction Wells	Rubber Tired Loaders	1	1.30	90	0.36
ASR Injection/Extraction Wells	Tractors/Loaders/Backhoes	1	1.30	150	0.37
New Monterey Pipeline	Bore/Drill Rigs	1	0.80	350	0.50
New Monterey Pipeline	Cranes	1	6.00	200	0.29
New Monterey Pipeline	Excavators	1	8.00	200	0.38

New Monterey Pipeline	Generator Sets	1	8.00	200	0.74
New Monterey Pipeline	Pavers	1	6.00	160	0.42
New Monterey Pipeline	Rollers	1	6.00	90	0.38
New Monterey Pipeline	Rubber Tired Loaders	1	8.00	90	0.36
New Monterey Pipeline	Tractors/Loaders/Backhoes	1	8.00	150	0.37
New Transmission Main Pipeline	Bore/Drill Rigs	1	1.30	350	0.50
New Transmission Main Pipeline	Cranes	1	6.00	200	0.29
New Transmission Main Pipeline	Excavators	1	8.00	200	0.38
New Transmission Main Pipeline	Generator Sets	1	8.00	200	0.74
New Transmission Main Pipeline	Pavers	1	6.00	160	0.42
New Transmission Main Pipeline	Rollers	1	6.00	90	0.38
New Transmission Main Pipeline	Rubber Tired Loaders	1	8.00	90	0.36
New Transmission Main Pipeline	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Source Water Pipeline	Bore/Drill Rigs	1	0.60	350	0.50
Source Water Pipeline	Cranes	1	6.00	200	0.29
Source Water Pipeline	Excavators	1	8.00	200	0.38
Source Water Pipeline	Generator Sets	1	8.00	200	0.74
Source Water Pipeline	Pavers	1	6.00	160	0.42
Source Water Pipeline	Rollers	1	6.00	90	0.38
Source Water Pipeline	Rubber Tired Loaders	1	8.00	90	0.36
Source Water Pipeline	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Carmel Valley Pump Station	Cranes	1	1.30	200	0.29
Carmel Valley Pump Station	Generator Sets	1	8.00	200	0.74
Carmel Valley Pump Station	Graders	1	0.30	200	0.41
Carmel Valley Pump Station	Pavers	1	0.10	160	0.42
Carmel Valley Pump Station	Rollers	1	2.70	90	0.38
Carmel Valley Pump Station	Rubber Tired Loaders	1	2.70	90	0.36
Carmel Valley Pump Station	Tractors/Loaders/Backhoes	1	2.70	150	0.37
Monterey Pump Station	Cranes	1	1.30	200	0.29
Monterey Pump Station	Generator Sets	1	8.00	200	0.74

Monterey Pump Station	Graders	1	0.30	200	0.41
Monterey Pump Station	Pavers	1	0.10	160	0.42
Monterey Pump Station	Rollers	1	2.70	90	0.38
Monterey Pump Station	Rubber Tired Loaders	1	2.70	90	0.36
Monterey Pump Station	Tractors/Loaders/Backhoes	1	2.70	150	0.37
Castroville Pipeline	Bore/Drill Rigs	1	1.00	350	0.50
Castroville Pipeline	Cranes	1	6.00	200	0.29
Castroville Pipeline	Excavators	1	8.00	200	0.38
Castroville Pipeline	Generator Sets	1	8.00	200	0.74
Castroville Pipeline	Pavers	1	6.00	160	0.42
Castroville Pipeline	Rollers	1	6.00	90	0.38
Castroville Pipeline	Rubber Tired Loaders	1	8.00	90	0.36
Castroville Pipeline	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Brine Discharge Pipeline	Cranes	1	6.00	200	0.29
Brine Discharge Pipeline	Excavators	1	8.00	200	0.38
Brine Discharge Pipeline	Generator Sets	1	8.00	200	0.74
Brine Discharge Pipeline	Pavers	1	6.00	160	0.42
Brine Discharge Pipeline	Rollers	1	6.00	90	0.38
Brine Discharge Pipeline	Rubber Tired Loaders	1	8.00	90	0.36
Brine Discharge Pipeline	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Pipeline to CSIP Pond	Cranes	1	6.00	200	0.29
Pipeline to CSIP Pond	Excavators	1	8.00	200	0.38
Pipeline to CSIP Pond	Generator Sets	1	8.00	200	0.74
Pipeline to CSIP Pond	Pavers	1	6.00	160	0.42
Pipeline to CSIP Pond	Rollers	1	6.00	90	0.38
Pipeline to CSIP Pond	Rubber Tired Loaders	1	8.00	90	0.36
Pipeline to CSIP Pond	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Ryan Ranch-Bishop Interconnection	Cranes	1	6.00	200	0.29
Ryan Ranch-Bishop Interconnection	Excavators	1	8.00	200	0.38
Ryan Ranch-Bishop Interconnection	Generator Sets	1	8.00	200	0.74

Ryan Ranch-Bishop Interconnection	Pavers	1	6.00	160	0.42
Ryan Ranch-Bishop Interconnection	Rollers	1	6.00	90	0.38
Ryan Ranch-Bishop Interconnection	Rubber Tired Loaders	1	8.00	90	0.36
Ryan Ranch-Bishop Interconnection	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Main System to Hidden Hills	Cranes	1	6.00	200	0.29
Main System to Hidden Hills	Excavators	1	8.00	200	0.38
Main System to Hidden Hills	Generator Sets	1	8.00	200	0.74
Main System to Hidden Hills	Pavers	1	6.00	160	0.42
Main System to Hidden Hills	Rollers	1	6.00	90	0.38
Main System to Hidden Hills	Rubber Tired Loaders	1	8.00	90	0.36
Main System to Hidden Hills	Tractors/Loaders/Backhoes	1	8.00	150	0.37
Slant Well Maintenance	Graders	1	5.30	200	0.41
Slant Well Maintenance	Cranes	1	6.00	200	0.29
Slant Well Maintenance	Rubber Tired Loaders	1	5.30	90	0.36
Slant Well Maintenance	Generator Sets	1	8.00	200	0.74

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
ASR Pipelines (ASR Conveyance, ASR	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Subsurface Slant Wells (9 wells)	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Desalination Plant	21	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
New Desalinated Water Pipeline	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Terminal Reservoir	11	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
ASR Injection/Extraction	12	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
New Monterey Pipeline	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
New Transmission Main Pipeline	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Source Water Pipeline	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Carmel Valley Pump Station	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Monterey Pump Station	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

Castroville Pipeline	8	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Brine Discharge Pipeline	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Pipeline to CSIP Pond	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Ryan Ranch-Bishop Interconnection	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Main System to Hidden Hills	7	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Subsurface Slant Wells (9 wells) - 2018

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.3913	39.7433	18.8891			1.6290	1.6290		1.5114	1.5114			5,305.3354	1.3035		5,332.7081
Total	**3.3913**	**39.7433**	**18.8891**		**0.0000**	**1.6290**	**1.6290**	**0.0000**	**1.5114**	**1.5114**			**5,305.3354**	**1.3035**		**5,332.7081**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.9556	29.9385	28.7602			1.2682	1.2682		1.2267	1.2267			5,305.3354	1.3035		5,332.7081

Total	**1.9556**	**29.9385**	**28.7602**		**0.0000**	**1.2682**	**1.2682**	**0.0000**	**1.2267**	**1.2267**			**5,305.3354**	**1.3035**		**5,332.7081**

3.2 Subsurface Slant Wells (9 wells) - 2019

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	3.1394	35.9193	18.2804			1.4749	1.4749		1.3683	1.3683			5,237.9141	1.3004		5,265.2233
Total	**3.1394**	**35.9193**	**18.2804**		**0.0000**	**1.4749**	**1.4749**	**0.0000**	**1.3683**	**1.3683**			**5,237.9141**	**1.3004**		**5,265.2233**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.9347	29.6058	28.7803			1.2550	1.2550		1.2146	1.2146			5,237.9141	1.3004		5,265.2233
Total	**1.9347**	**29.6058**	**28.7803**		**0.0000**	**1.2550**	**1.2550**	**0.0000**	**1.2146**	**1.2146**			**5,237.9141**	**1.3004**		**5,265.2233**

3.3 Desalination Plant - 2018

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	5.6982	63.6594	35.4732			2.6719	2.6719		2.5032	2.5032			9,321.2187	1.6730		9,356.3521
Total	**5.6982**	**63.6594**	**35.4732**		**0.0000**	**2.6719**	**2.6719**	**0.0000**	**2.5032**	**2.5032**			**9,321.2187**	**1.6730**		**9,356.3521**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.1336	41.4047	52.8777			1.7393	1.7393		1.7393	1.7393			9,321.2187	1.6730		9,356.3521
Total	**2.1336**	**41.4047**	**52.8777**		**0.0000**	**1.7393**	**1.7393**	**0.0000**	**1.7393**	**1.7393**			**9,321.2187**	**1.6730**		**9,356.3521**

3.3 Desalination Plant - 2019

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	5.1696	56.0509	34.5658			2.3344	2.3344		2.1878	2.1878			9,242.4063	1.6650		9,277.3708
Total	**5.1696**	**56.0509**	**34.5658**		**0.0000**	**2.3344**	**2.3344**	**0.0000**	**2.1878**	**2.1878**			**9,242.4063**	**1.6650**		**9,277.3708**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.1336	41.4047	52.8777			1.7393	1.7393		1.7393	1.7393			9,242.4063	1.6650		9,277.3708
Total	**2.1336**	**41.4047**	**52.8777**		**0.0000**	**1.7393**	**1.7393**	**0.0000**	**1.7393**	**1.7393**			**9,242.4063**	**1.6650**		**9,277.3708**

3.3 Desalination Plant - 2020

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	4.7220	49.4671	33.8553			2.0418	2.0418		1.9142	1.9142			9,138.0993	1.6493		9,172.7340
Total	**4.7220**	**49.4671**	**33.8553**		**0.0000**	**2.0418**	**2.0418**	**0.0000**	**1.9142**	**1.9142**			**9,138.0993**	**1.6493**		**9,172.7340**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.1336	41.4047	52.8777			1.7393	1.7393		1.7393	1.7393			9,138.0993	1.6493		9,172.7340
Total	**2.1336**	**41.4047**	**52.8777**		**0.0000**	**1.7393**	**1.7393**	**0.0000**	**1.7393**	**1.7393**			**9,138.0993**	**1.6493**		**9,172.7340**

3.4 New Desalinated Water Pipeline - 2018

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.4151	26.3073	15.6357			1.2071	1.2071		1.1256	1.1256			3,929.1136	0.8136		3,946.1989
Total	**2.4151**	**26.3073**	**15.6357**		**0.0000**	**1.2071**	**1.2071**	**0.0000**	**1.1256**	**1.1256**			**3,929.1136**	**0.8136**		**3,946.1989**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9131	18.0840	22.9654			0.8209	0.8209		0.8209	0.8209			3,929.1136	0.8136		3,946.1989
Total	**0.9131**	**18.0840**	**22.9654**		**0.0000**	**0.8209**	**0.8209**	**0.0000**	**0.8209**	**0.8209**			**3,929.1136**	**0.8136**		**3,946.1989**

3.5 Terminal Reservoir - 2018

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.0414	23.5861	11.1282			0.9416	0.9416		0.8813	0.8813			3,259.9898	0.6053		3,272.7006
Total	**2.0414**	**23.5861**	**11.1282**		**0.0000**	**0.9416**	**0.9416**	**0.0000**	**0.8813**	**0.8813**			**3,259.9898**	**0.6053**		**3,272.7006**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7483	14.5502	17.4418			0.5915	0.5915		0.5915	0.5915			3,259.9898	0.6053		3,272.7006
Total	**0.7483**	**14.5502**	**17.4418**		**0.0000**	**0.5915**	**0.5915**	**0.0000**	**0.5915**	**0.5915**			**3,259.9898**	**0.6053**		**3,272.7006**

3.5 Terminal Reservoir - 2019

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.8470	20.8183	10.6848			0.8208	0.8208		0.7685	0.7685			3,231.0936	0.6025		3,243.7470
Total	**1.8470**	**20.8183**	**10.6848**		**0.0000**	**0.8208**	**0.8208**	**0.0000**	**0.7685**	**0.7685**			**3,231.0936**	**0.6025**		**3,243.7470**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.7483	14.5502	17.4418			0.5915	0.5915		0.5915	0.5915			3,231.0936	0.6025		3,243.7470
Total	**0.7483**	**14.5502**	**17.4418**		**0.0000**	**0.5915**	**0.5915**	**0.0000**	**0.5915**	**0.5915**			**3,231.0936**	**0.6025**		**3,243.7470**

3.6 ASR Injection/Extraction Wells - 2018

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.2607	14.5764	7.1100			0.5223	0.5223		0.4931	0.4931			2,746.2975	0.5119		2,757.0478
Total	**1.2607**	**14.5764**	**7.1100**		**0.0000**	**0.5223**	**0.5223**	**0.0000**	**0.4931**	**0.4931**			**2,746.2975**	**0.5119**		**2,757.0478**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6320	12.3051	14.1274			0.4894	0.4894		0.4894	0.4894			2,746.2975	0.5119		2,757.0478
Total	**0.6320**	**12.3051**	**14.1274**		**0.0000**	**0.4894**	**0.4894**	**0.0000**	**0.4894**	**0.4894**			**2,746.2975**	**0.5119**		**2,757.0478**

3.6 ASR Injection/Extraction Wells - 2019

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.1614	12.8523	6.9516			0.4592	0.4592		0.4337	0.4337			2,720.8085	0.5093		2,731.5038
Total	**1.1614**	**12.8523**	**6.9516**		**0.0000**	**0.4592**	**0.4592**	**0.0000**	**0.4337**	**0.4337**			**2,720.8085**	**0.5093**		**2,731.5038**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.6320	12.3051	14.1274			0.4894	0.4894		0.4894	0.4894			2,720.8085	0.5093		2,731.5038
Total	**0.6320**	**12.3051**	**14.1274**		**0.0000**	**0.4894**	**0.4894**	**0.0000**	**0.4894**	**0.4894**			**2,720.8085**	**0.5093**		**2,731.5038**

3.7 New Monterey Pipeline - 2018

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.4568	26.8461	15.9542			1.2232	1.2232		1.1404	1.1404			4,079.0202	0.8603		4,097.0855
Total	**2.4568**	**26.8461**	**15.9542**		**0.0000**	**1.2232**	**1.2232**	**0.0000**	**1.1404**	**1.1404**			**4,079.0202**	**0.8603**		**4,097.0855**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9502	18.8001	23.7679			0.8481	0.8481		0.8481	0.8481			4,079.0202	0.8603		4,097.0855
Total	**0.9502**	**18.8001**	**23.7679**		**0.0000**	**0.8481**	**0.8481**	**0.0000**	**0.8481**	**0.8481**			**4,079.0202**	**0.8603**		**4,097.0855**

3.7 New Monterey Pipeline - 2019

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.2280	23.7098	15.6398			1.0707	1.0707		0.9984	0.9984			4,036.5178	0.8574		4,054.5226
Total	**2.2280**	**23.7098**	**15.6398**		**0.0000**	**1.0707**	**1.0707**	**0.0000**	**0.9984**	**0.9984**			**4,036.5178**	**0.8574**		**4,054.5226**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9502	18.8001	23.7679			0.8481	0.8481		0.8481	0.8481			4,036.5178	0.8574		4,054.5226
Total	**0.9502**	**18.8001**	**23.7679**		**0.0000**	**0.8481**	**0.8481**	**0.0000**	**0.8481**	**0.8481**			**4,036.5178**	**0.8574**		**4,054.5226**

3.8 New Transmission Main Pipeline - 2018

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.4828	27.1828	16.1533			1.2333	1.2333		1.1497	1.1497			4,172.7119	0.8894		4,191.3897
Total	**2.4828**	**27.1828**	**16.1533**		**0.0000**	**1.2333**	**1.2333**	**0.0000**	**1.1497**	**1.1497**			**4,172.7119**	**0.8894**		**4,191.3897**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9733	19.2476	24.2694			0.8651	0.8651		0.8651	0.8651			4,172.7119	0.8894		4,191.3897
Total	**0.9733**	**19.2476**	**24.2694**		**0.0000**	**0.8651**	**0.8651**	**0.0000**	**0.8651**	**0.8651**			**4,172.7119**	**0.8894**		**4,191.3897**

3.8 New Transmission Main Pipeline - 2019

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.2530	24.0090	15.8393			1.0799	1.0799		1.0069	1.0069			4,128.5422	0.8865		4,147.1584
Total	**2.2530**	**24.0090**	**15.8393**		**0.0000**	**1.0799**	**1.0799**	**0.0000**	**1.0069**	**1.0069**			**4,128.5422**	**0.8865**		**4,147.1584**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9733	19.2476	24.2694			0.8651	0.8651		0.8651	0.8651			4,128.5422	0.8865		4,147.1583
Total	**0.9733**	**19.2476**	**24.2694**		**0.0000**	**0.8651**	**0.8651**	**0.0000**	**0.8651**	**0.8651**			**4,128.5422**	**0.8865**		**4,147.1583**

3.9 Source Water Pipeline - 2019

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.2181	23.5901	15.5599			1.0670	1.0670		0.9950	0.9950			3,999.7081	0.8457		4,017.4683
Total	**2.2181**	**23.5901**	**15.5599**		**0.0000**	**1.0670**	**1.0670**	**0.0000**	**0.9950**	**0.9950**			**3,999.7081**	**0.8457**		**4,017.4683**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9409	18.6210	23.5672			0.8413	0.8413		0.8413	0.8413			3,999.7081	0.8457		4,017.4683
Total	**0.9409**	**18.6210**	**23.5672**		**0.0000**	**0.8413**	**0.8413**	**0.0000**	**0.8413**	**0.8413**			**3,999.7081**	**0.8457**		**4,017.4683**

3.10 Carmel Valley Pump Station - 2019

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9357	9.8577	5.6680			0.3935	0.3935		0.3753	0.3753			1,945.5769	0.1958		1,949.6891
Total	**0.9357**	**9.8577**	**5.6680**		**0.0000**	**0.3935**	**0.3935**	**0.0000**	**0.3753**	**0.3753**			**1,945.5769**	**0.1958**		**1,949.6891**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.4287	8.4544	10.1039			0.3639	0.3639		0.3639	0.3639			1,945.5769	0.1958		1,949.6891
Total	**0.4287**	**8.4544**	**10.1039**		**0.0000**	**0.3639**	**0.3639**	**0.0000**	**0.3639**	**0.3639**			**1,945.5769**	**0.1958**		**1,949.6891**

3.11 Monterey Pump Station - 2019

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9357	9.8577	5.6680			0.3935	0.3935		0.3753	0.3753			1,945.5769	0.1958		1,949.6891
Total	**0.9357**	**9.8577**	**5.6680**		**0.0000**	**0.3935**	**0.3935**	**0.0000**	**0.3753**	**0.3753**			**1,945.5769**	**0.1958**		**1,949.6891**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.4287	8.4544	10.1039			0.3639	0.3639		0.3639	0.3639			1,945.5769	0.1958		1,949.6891
Total	**0.4287**	**8.4544**	**10.1039**		**0.0000**	**0.3639**	**0.3639**	**0.0000**	**0.3639**	**0.3639**			**1,945.5769**	**0.1958**		**1,949.6891**

3.12 Castroville Pipeline - 2019

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.2380	23.8295	15.7196			1.0744	1.0744		1.0018	1.0018			4,073.3276	0.8690		4,091.5769
Total	**2.2380**	**23.8295**	**15.7196**		**0.0000**	**1.0744**	**1.0744**	**0.0000**	**1.0018**	**1.0018**			**4,073.3276**	**0.8690**		**4,091.5769**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9594	18.9791	23.9685			0.8549	0.8549		0.8549	0.8549			4,073.3276	0.8690		4,091.5769
Total	**0.9594**	**18.9791**	**23.9685**		**0.0000**	**0.8549**	**0.8549**	**0.0000**	**0.8549**	**0.8549**			**4,073.3276**	**0.8690**		**4,091.5769**

3.13 ASR Pipelines (ASR Conveyance, ASR Redisribution, and

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.1882	23.2311	15.3205			1.0559	1.0559		0.9848	0.9848			3,889.2789	0.8108		3,906.3054
Total	**2.1882**	**23.2311**	**15.3205**		**0.0000**	**1.0559**	**1.0559**	**0.0000**	**0.9848**	**0.9848**			**3,889.2789**	**0.8108**		**3,906.3054**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9131	18.0840	22.9654			0.8209	0.8209		0.8209	0.8209			3,889.2789	0.8108		3,906.3054
Total	**0.9131**	**18.0840**	**22.9654**		**0.0000**	**0.8209**	**0.8209**	**0.0000**	**0.8209**	**0.8209**			**3,889.2789**	**0.8108**		**3,906.3054**

3.14 Brine Discharge Pipeline - 2019

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.1882	23.2311	15.3205			1.0559	1.0559		0.9848	0.9848			3,889.2789	0.8108		3,906.3054
Total	**2.1882**	**23.2311**	**15.3205**		**0.0000**	**1.0559**	**1.0559**	**0.0000**	**0.9848**	**0.9848**			**3,889.2789**	**0.8108**		**3,906.3054**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9131	18.0840	22.9654			0.8209	0.8209		0.8209	0.8209			3,889.2789	0.8108		3,906.3054
Total	**0.9131**	**18.0840**	**22.9654**		**0.0000**	**0.8209**	**0.8209**	**0.0000**	**0.8209**	**0.8209**			**3,889.2789**	**0.8108**		**3,906.3054**

3.15 Pipeline to CSIP Pond - 2019

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.1882	23.2311	15.3205			1.0559	1.0559		0.9848	0.9848			3,889.2789	0.8108		3,906.3054
Total	**2.1882**	**23.2311**	**15.3205**		**0.0000**	**1.0559**	**1.0559**	**0.0000**	**0.9848**	**0.9848**			**3,889.2789**	**0.8108**		**3,906.3054**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9131	18.0840	22.9654			0.8209	0.8209		0.8209	0.8209			3,889.2789	0.8108		3,906.3054
Total	**0.9131**	**18.0840**	**22.9654**		**0.0000**	**0.8209**	**0.8209**	**0.0000**	**0.8209**	**0.8209**			**3,889.2789**	**0.8108**		**3,906.3054**

3.16 Ryan Ranch-Bishop Interconnection - 2019

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.1882	23.2311	15.3205			1.0559	1.0559		0.9848	0.9848			3,889.2789	0.8108		3,906.3054
Total	**2.1882**	**23.2311**	**15.3205**		**0.0000**	**1.0559**	**1.0559**	**0.0000**	**0.9848**	**0.9848**			**3,889.2789**	**0.8108**		**3,906.3054**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9131	18.0840	22.9654			0.8209	0.8209		0.8209	0.8209			3,889.2789	0.8108		3,906.3054
Total	**0.9131**	**18.0840**	**22.9654**		**0.0000**	**0.8209**	**0.8209**	**0.0000**	**0.8209**	**0.8209**			**3,889.2789**	**0.8108**		**3,906.3054**

3.17 Main System to Hidden Hills - 2019

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	2.1882	23.2311	15.3205			1.0559	1.0559		0.9848	0.9848			3,889.2789	0.8108		3,906.3054
Total	**2.1882**	**23.2311**	**15.3205**		**0.0000**	**1.0559**	**1.0559**	**0.0000**	**0.9848**	**0.9848**			**3,889.2789**	**0.8108**		**3,906.3054**

Mitigated Construction On-Site

	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	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.9131	18.0840	22.9654			0.8209	0.8209		0.8209	0.8209			3,889.2789	0.8108		3,906.3054
Total	**0.9131**	**18.0840**	**22.9654**		**0.0000**	**0.8209**	**0.8209**	**0.0000**	**0.8209**	**0.8209**			**3,889.2789**	**0.8108**		**3,906.3054**

3.18 Slant Well Maintenance - 2025

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Off-Road	0.9391	8.2777	6.2987			0.3066	0.3066		0.2879	0.2879			2,473.7608	0.3542		2,481.1996
Total	**0.9391**	**8.2777**	**6.2987**			**0.3066**	**0.3066**		**0.2879**	**0.2879**			**2,473.7608**	**0.3542**		**2,481.1996**

3.18 Slant Well Maintenance - 2026

Unmitigated Construction On-Site

	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	lb/day										lb/day					
Off-Road	0.9391	8.2777	6.2987			0.3066	0.3066		0.2879	0.2879			2,473.7608	0.3542		2,481.1996
Total	**0.9391**	**8.2777**	**6.2987**			**0.3066**	**0.3066**		**0.2879**	**0.2879**			**2,473.7608**	**0.3542**		**2,481.1996**

G1.4.1 HEALTH RISK ASSESSMENT CALCULATIONS

CalAm - Carmel Valley Pump Station

Pollutant	Concentration (ug/m3)		Cancer Risk (in a million) 3rd Tri-Birth	0 to 2	2 to 16	16 to 70	Total	Chronic REL	Chronic HI
DPM	1.37E-01	1.10E+00	4.08E-07	4.79E-06	0.00E+00	0.00E+00	5.20E-06	5	0.027434
DPM	0.00E+00	1.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5	0
DPM	0.00E+00	1.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5	0
DPM	0.00E+00	1.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5	0
DPM	0.00E+00	1.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5	0
DPM	0.00E+00	1.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5	0
TOTALS							5.20E-06		2.743E-02
							Cancer Risk		Chronic HI
							5.2		
							per million		

Cancer Risk Inputs	**1**							
Age Category	Daily Breathing Rate	Inhalation Absorption Rate	days/year	years		Average Time days	Child Risk Factor	Fraction of Time at Home
3rd tri - birth	361	1	90	0.25	1.00E-06	25550	10	0.85
0 to 2	1090	1	350	0.25	1.00E-06	25550	10	0.85
2 to 16	745	1	350	0	1.00E-06	25550	3	0.72
16 to 70	290	1	350	0	1.00E-06	25550	1	0.73
Cancer Risk Inputs	**2**							
Age Category	Daily Breathing Rate	Inhalation Absorption Rate	days/year	years		Average Time days	Child Risk Factor	Fraction of Time at Home
3rd tri - birth	361	1	90	0	1.00E-06	25550	10	0.85
0 to 2	1090	1	350	0	1.00E-06	25550	10	0.85
2 to 16	745	1	350	0	1.00E-06	25550	3	0.72
16 to 70	290	1	350	0	1.00E-06	25550	1	0.73
Cancer Risk Inputs	**3**							
Age Category	Daily Breathing Rate	Inhalation Absorption Rate	days/year	years		Average Time days	Child Risk Factor	Fraction of Time at Home
3rd tri - birth	361	1	90	0	1.00E-06	25550	10	0.85
0 to 2	1090	1	350	0	1.00E-06	25550	10	0.85
2 to 16	745	1	350	0	1.00E-06	25550	3	0.72
16 to 70	290	1	350	0	1.00E-06	25550	1	0.73
Cancer Risk Inputs	**4-Jan**							
Age Category	Daily Breathing Rate	Inhalation Absorption Rate	days/year	years		Average Time days	Child Risk Factor	Fraction of Time at Home
3rd tri - birth	361	1	90	0	1.00E-06	25550	10	0.85
0 to 2	1090	1	350	0	1.00E-06	25550	10	0.85
2 to 16	745	1	350	0	1.00E-06	25550	3	0.72
16 to 70	290	1	350	0	1.00E-06	25550	1	1

CalAm - ASR Injection

Pollutant	Concentration (ug/m3)	Factor (slope factor)	Cancer Risk (in a million) 3rd Tri-Birth	0 to 2	2 to 16	16 to 70	Total	Chronic REL	Chronic HI
DPM	1.68E-01	1.10E+00	4.99E-07	5.86E-06	0.00E+00	0.00E+00	6.36E-06	5	0.0336
DPM	0.00E+00	1.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5	0
DPM	0.00E+00	1.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5	0
DPM	0.00E+00	1.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5	0
DPM	0.00E+00	1.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5	0
DPM	0.00E+00	1.10E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5	0
TOTALS							6.36E-06		3.360E-02
							Cancer Risk		Chronic HI
							6.4		
							per million		

Cancer Risk Inputs	1							
Age Category	Daily Breathing Rate	Inhalation Absorption Rate	days/year	years		Average Time days	Child Risk Factor	Fraction of Time at Home
3rd tri - birth	361	1	90	0.25	1.00E-06	25550	10	0.85
0 to 2	1090	1	350	0.75	1.00E-06	25550	10	0.85
2 to 16	745	1	350	0	1.00E-06	25550	3	0.72
16 to 70	290	1	350	0	1.00E-06	25550	1	0.73

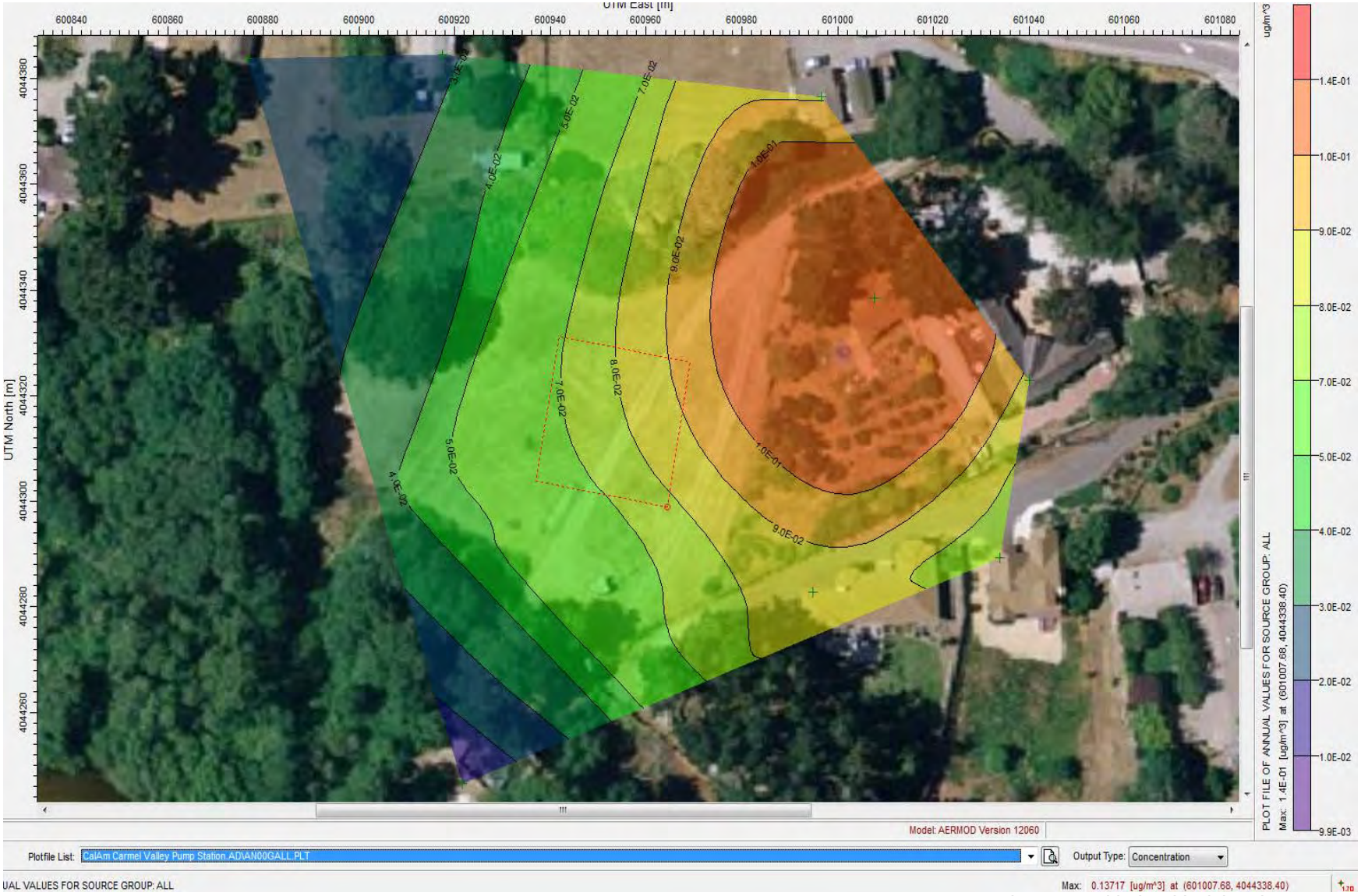
Cancer Risk Inputs	2							
Age Category	Daily Breathing Rate	Inhalation Absorption Rate	days/year	years		Average Time days	Child Risk Factor	Fraction of Time at Home
3rd tri - birth	361	1	90	0	1.00E-06	25550	10	0.85
0 to 2	1090	1	350	0	1.00E-06	25550	10	0.85
2 to 16	745	1	350	0	1.00E-06	25550	3	0.72
16 to 70	290	1	350	0	1.00E-06	25550	1	0.73

Cancer Risk Inputs	3							
Age Category	Daily Breathing Rate	Inhalation Absorption Rate	days/year	years		Average Time days	Child Risk Factor	Fraction of Time at Home
3rd tri - birth	361	1	90	0	1.00E-06	25550	10	0.85
0 to 2	1090	1	350	0	1.00E-06	25550	10	0.85
2 to 16	745	1	350	0	1.00E-06	25550	3	0.72
16 to 70	290	1	350	0	1.00E-06	25550	1	0.73

Cancer Risk Inputs	4-Jan							
Age Category	Daily Breathing Rate	Inhalation Absorption Rate	days/year	years		Average Time days	Child Risk Factor	Fraction of Time at Home
3rd tri - birth	361	1	90	0	1.00E-06	25550	10	0.85
0 to 2	1090	1	350	0	1.00E-06	25550	10	0.85
2 to 16	745	1	350	0	1.00E-06	25550	3	0.72
16 to 70	290	1	350	0	1.00E-06	25550	1	1

G1.4.2 HEALTH RISK ASSESSMENT DISPERSION MODELING RESULTS

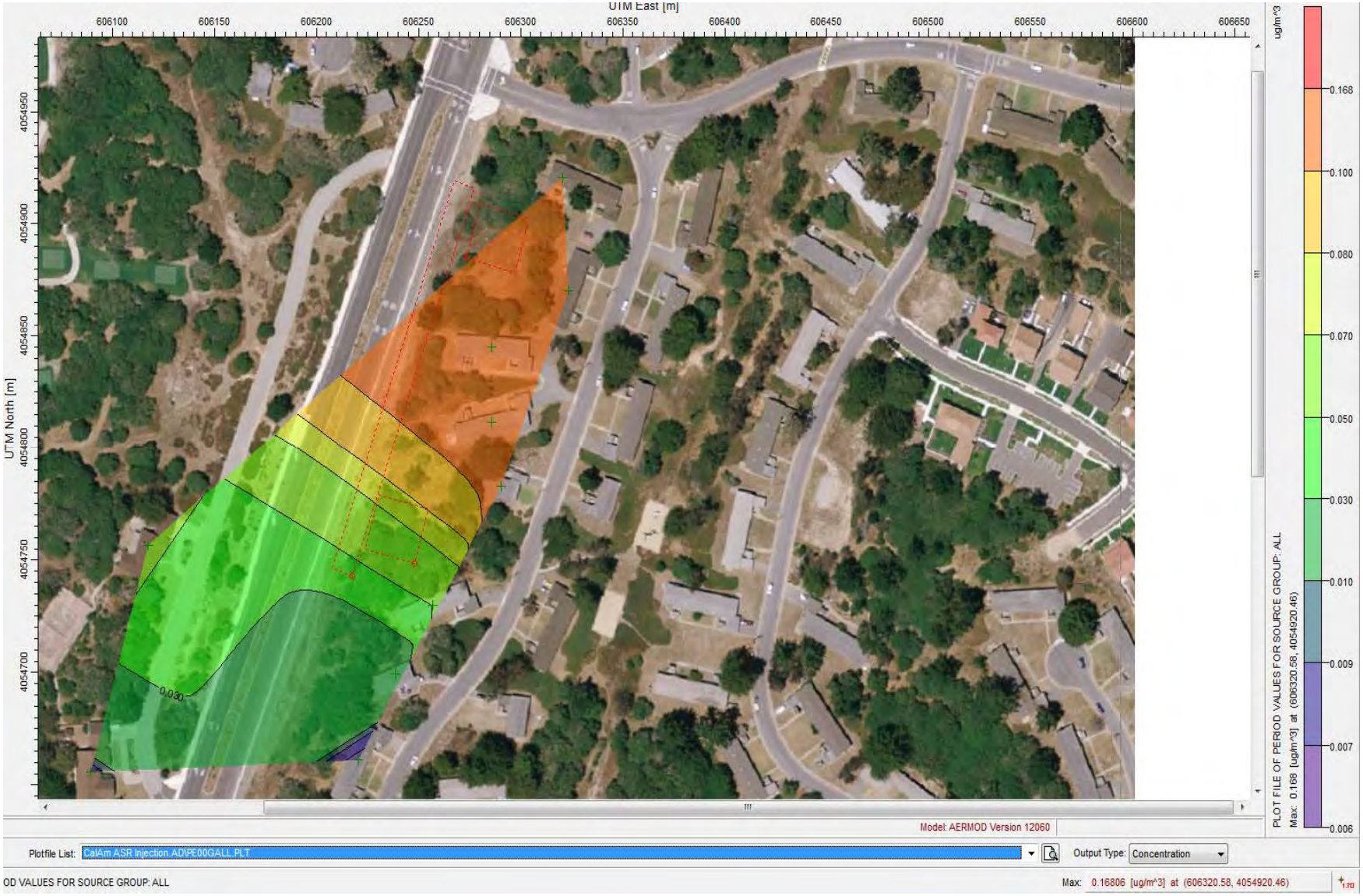
Carmel Valley Pump Station Modeling Results - showing annual concentration contours



0.13717 Annual Max used in health risk calcus

Carmel Valley Pump Station Modeling Results - Without Contours but showing concentrations at receptors

ASR Injection Modeling Results - showing annual concentration contours



0.168 Annual max used in health risk calculations

ASR Injection Modeling Results - Without Contours but showing concentrations at receptors