APPENDICES

AIR QUALITY

HEAVY EQUIPMENT EMISSIONS

Project: El Rio Sewer
Date: 12/19/00
Scenario: Peak Day (3 spreads)

INPUTS AND EMISSION FACTORS

Equipment Type	Model	Fuel	BHP	Number	Load Factor (Percent)	Hours/Day	Emission Factors (lb/BHP-hr) NOx	ROC	CO	PM10	SOx
Tracked tractor	Caterpillar D6	Diesel	140	0	64	8	0.023	0.002	0.011	0.0010	0.002
Tracked tractor	Caterpillar D8N	Diesel	285	0	64	8	0.023	0.002	0.011	0.0010	0.002
Tracked tractor (cert.)	Caterpillar D8	Diesel	285	0	64	8	0.015	0.002	0.011	0.0009	0.002
Pipelayer	Caterpillar 527G	Diesel	200	0	64	8	0.023	0.002	0.011	0.0010	0.002
Wheeled tractor	Caterpillar 824C	Diesel	315	0	59	8	0.021	0.002	0.010	0.0005	0.002
Landfill compactor	Caterpillar 826C	Diesel	315	0	59	8	0.021	0.002	0.010	0.0005	0.002
Elevating scraper	Caterpillar 623E	Diesel	365	0	72	8	0.019	0.001	0.011	0.0015	0.002
Elevating scraper (cert.)	Caterpillar 623	Diesel	365	0	72	8	0.015	0.002	0.011	0.0009	0.002
Tandem scraper	Caterpillar 637E	Diesel	700	0	72	8	0.019	0.001	0.011	0.0015	0.002
Standard scraper	Caterpillar 631E	Diesel	450	0	72	8	0.019	0.001	0.011	0.0015	0.002
Grader	Caterpillar 140G	Diesel	150	0	61	8	0.021	0.001	0.011	0.0015	0.002
Backhoe	Caterpillar 426	Diesel	70	3	55	8	0.022	0.003	0.015	0.0010	0.002
Wheeled loader	Bobcat	Diesel	65	0	68	8	0.023	0.002	0.011	0.0015	0.002
Wheeled loader	Caterpillar 950E	Diesel	160	2	68	8	0.023	0.002	0.011	0.0015	0.002
Wheeled loader	Caterpillar 966E	Diesel	216	2	68	8	0.023	0.002	0.011	0.0015	0.002
Wheeled loader	Caterpillar 988B	Diesel	375	0	68	8	0.023	0.002	0.011	0.0015	0.002
Excavator	Caterpillar 235	Diesel	250	3	57	8	0.024	0.001	0.011	0.0015	0.002
Excavator	Caterpillar 245	Diesel	360	0	57	8	0.024	0.001	0.011	0.0015	0.002
Off-highway truck	Caterpillar 773B	Diesel	650	0	57	8	0.026	0.005	0.032	0.0020	0.002
Crane	Cummins	Diesel	230	3	43	8	0.023	0.003	0.009	0.0015	0.002
Generator	Caterpillar 3114	Diesel	109	0	74	8	0.018	0.002	0.011	0.0010	0.002
Asphalt paver	Caterpillar AP-1200	Diesel	145	0	62	8	0.023	0.001	0.007	0.0010	0.002
Welding machine	Perkins 4-236	Diesel	63	0	45	8	0.018	0.002	0.011	0.0010	0.002
Water wagon	Caterpillar 3406B	Diesel	350	0	57	8	0.026	0.005	0.032	0.0020	0.002
Roller	Caterpillar CS-431B	Diesel	102	3	56	8	0.020	0.002	0.007	0.0010	0.002

DAILY AND TOTAL EMISSIONS

Equipment Type	Emissions (lb/day) NOx	ROC	CO	PM10	SOx	Total Days	Emissions (Total Tons) NOx	ROC	CO	PM10	SOx
Tracked tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tracked tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tracked tractor (cert.)	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Pipelayer	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Landfill compactor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Elevating scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Elevating scraper (cert.)	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tandem scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Standard scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Grader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Backhoe	20.3	2.8	13.9	0.9	1.8	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	40.0	3.5	19.1	2.6	3.5	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	54.1	4.7	25.9	3.5	4.7	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Excavator	82.1	3.4	37.6	5.1	6.8	0	0.00	0.00	0.00	0.00	0.00
Excavator	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Off-highway truck	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Crane	54.6	7.1	21.4	3.6	4.7	0	0.00	0.00	0.00	0.00	0.00
Generator	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Asphalt paver	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Welding machine	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Water wagon	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Roller	27.4	2.7	9.6	1.4	2.7	0	0.00	0.00	0.00	0.00	0.00
SUM	278.5	24.2	127.4	17.1	24.4		0.00	0.00	0.00	0.00	0.00

Emissions = BHP*Number*Load factor/100*Hours/day*lb/BHP-hr

Emission factors from Nonroad Engine and Vehicle Emissions Study (EPA, 1991)
Load factors from EPA NONROAD Model (in prep): Average Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling (Report No. NR-005, Dec 1997)
1996 Federal Stds: 0.015 NOx, 0.0009 PM, 0.002 THC lb/BHP-hr

HEAVY EQUIPMENT EMISSIONS

Project: El Rio Sewer
Date: 12/19/00
Scenario: Total Project (3 spreads)

INPUTS AND EMISSION FACTORS

Equipment Type	Model	Fuel	BHP	Number	Load Factor (Percent)	Hours/Day	Emission Factors (lb/BHP-hr) NOx	ROC	CO	PM10	SOx
Tracked tractor	Caterpillar D6	Diesel	140	0	64	8	0.023	0.002	0.011	0.0010	0.002
Tracked tractor	Caterpillar D8N	Diesel	285	0	64	8	0.023	0.002	0.011	0.0010	0.002
Tracked tractor (cert.)	Caterpillar D8	Diesel	285	0	64	8	0.015	0.002	0.011	0.0009	0.002
Pipelayer	Caterpillar 527G	Diesel	200	0	64	8	0.023	0.002	0.011	0.0010	0.002
Wheeled tractor	Caterpillar 824C	Diesel	315	0	59	8	0.021	0.002	0.010	0.0005	0.002
Landfill compactor	Caterpillar 826C	Diesel	315	0	59	8	0.021	0.002	0.010	0.0005	0.002
Elevating scraper	Caterpillar 623E	Diesel	365	0	72	8	0.019	0.001	0.011	0.0015	0.002
Elevating scraper (cert.)	Caterpillar 623	Diesel	365	0	72	8	0.015	0.002	0.011	0.0009	0.002
Tandem scraper	Caterpillar 637E	Diesel	700	0	72	8	0.019	0.001	0.011	0.0015	0.002
Standard scraper	Caterpillar 631E	Diesel	450	0	72	8	0.019	0.001	0.011	0.0015	0.002
Grader	Caterpillar 140G	Diesel	150	0	61	8	0.021	0.001	0.011	0.0015	0.002
Backhoe	Caterpillar 426	Diesel	70	3	55	8	0.022	0.003	0.015	0.0010	0.002
Wheeled loader	Bobcat	Diesel	65	0	68	8	0.023	0.002	0.011	0.0015	0.002
Wheeled loader	Caterpillar 950E	Diesel	160	2	68	8	0.023	0.002	0.011	0.0015	0.002
Wheeled loader	Caterpillar 966E	Diesel	216	2	68	8	0.023	0.002	0.011	0.0015	0.002
Wheeled loader	Caterpillar 988B	Diesel	375	0	68	8	0.023	0.002	0.011	0.0015	0.002
Excavator	Caterpillar 235	Diesel	250	3	57	8	0.024	0.001	0.011	0.0015	0.002
Excavator	Caterpillar 245	Diesel	360	0	57	8	0.024	0.001	0.011	0.0015	0.002
Off-highway truck	Caterpillar 773B	Diesel	650	0	57	8	0.026	0.005	0.032	0.0020	0.002
Crane	Cummins	Diesel	230	3	43	8	0.023	0.003	0.009	0.0015	0.002
Generator	Caterpillar 3114	Diesel	109	0	74	8	0.018	0.002	0.011	0.0010	0.002
Asphalt paver	Caterpillar AP-1200	Diesel	145	0	62	8	0.023	0.001	0.007	0.0010	0.002
Welding machine	Perkins 4-236	Diesel	63	0	45	8	0.018	0.002	0.011	0.0010	0.002
Water wagon	Caterpillar 3406B	Diesel	350	0	57	8	0.026	0.005	0.032	0.0020	0.002
Roller	Caterpillar CS-431B	Diesel	102	3	56	8	0.020	0.002	0.007	0.0010	0.002

DAILY AND TOTAL EMISSIONS

Equipment Type	Emissions (lb/day) NOx	ROC	CO	PM10	SOx	Total Days	Emissions (Total Tons) NOx	ROC	CO	PM10	SOx
Tracked tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tracked tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tracked tractor (cert.)	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Pipelayer	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Landfill compactor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Elevating scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Elevating scraper (cert.)	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tandem scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Standard scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Grader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Backhoe	20.3	2.8	13.9	0.9	1.8	300	3.05	0.42	2.08	0.14	0.28
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	40.0	3.5	19.1	2.6	3.5	300	6.01	0.52	2.87	0.39	0.52
Wheeled loader	54.1	4.7	25.9	3.5	4.7	300	8.11	0.71	3.88	0.53	0.71
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Excavator	82.1	3.4	37.6	5.1	6.8	300	12.31	0.51	5.64	0.77	1.03
Excavator	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Off-highway truck	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Crane	54.6	7.1	21.4	3.6	4.7	300	8.19	1.07	3.20	0.53	0.71
Generator	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Asphalt paver	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Welding machine	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Water wagon	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Roller	27.4	2.7	9.6	1.4	2.7	300	4.11	0.41	1.44	0.21	0.41
SUM	278.5	24.2	127.4	17.1	24.4		41.78	3.64	19.12	2.57	3.65

Emissions = BHP*Number*Load factor/100*Hours/day*lb/BHP-hr

Emission factors from Nonroad Engine and Vehicle Emissions Study (EPA, 1991)
Load factors from EPA NONROAD Model (in prep): Average Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling (Report No. NR-005, Dec 1997)
1996 Federal Stds: 0.015 NOx, 0.0009 PM, 0.002 THC lb/BHP-hr

HEAVY EQUIPMENT EMISSIONS

Project: El Rio Sewer
Date: 12/19/00
Scenario: Boring & Jacking

INPUTS AND EMISSION FACTORS

					Load Factor		Emission Factors (lb/BHP-hr)				
Equipment Type	Model	Fuel	BHP	Number	(Percent)	Hours/Day	NOx	ROC	CO	PM10	SOx
Tracked tractor	Caterpillar D6	Diesel	140	0	64	8	0.023	0.002	0.011	0.0010	0.002
Tracked tractor	Caterpillar D8N	Diesel	285	0	64	8	0.023	0.002	0.011	0.0010	0.002
Tracked tractor (cert.)	Caterpillar D8	Diesel	285	0	64	8	0.015	0.002	0.011	0.0009	0.002
Pipelayer	Caterpillar 527G	Diesel	200	0	64	8	0.023	0.002	0.011	0.0010	0.002
Wheeled tractor	Caterpillar 824C	Diesel	315	0	59	8	0.021	0.002	0.010	0.0005	0.002
Landfill compactor	Caterpillar 826C	Diesel	315	0	59	8	0.021	0.002	0.010	0.0005	0.002
Elevating scraper	Caterpillar 623E	Diesel	365	0	72	8	0.019	0.001	0.011	0.0015	0.002
Elevating scraper (cert.)	Caterpillar 623	Diesel	365	0	72	8	0.015	0.002	0.011	0.0009	0.002
Tandem scraper	Caterpillar 637E	Diesel	700	0	72	8	0.019	0.001	0.011	0.0015	0.002
Standard scraper	Caterpillar 631E	Diesel	450	0	72	8	0.019	0.001	0.011	0.0015	0.002
Grader	Caterpillar 140G	Diesel	150	0	61	8	0.021	0.001	0.011	0.0015	0.002
Backhoe	Caterpillar 426	Diesel	70	0	55	8	0.022	0.003	0.015	0.0010	0.002
Wheeled loader	Bobcat	Diesel	65	0	68	8	0.023	0.002	0.011	0.0015	0.002
Wheeled loader	Caterpillar 950E	Diesel	160	0	68	8	0.023	0.002	0.011	0.0015	0.002
Wheeled loader	Caterpillar 966E	Diesel	216	0	68	8	0.023	0.002	0.011	0.0015	0.002
Wheeled loader	Caterpillar 988B	Diesel	375	0	68	8	0.023	0.002	0.011	0.0015	0.002
Excavator	Caterpillar 235	Diesel	250	0	57	8	0.024	0.001	0.011	0.0015	0.002
Excavator	Caterpillar 245	Diesel	360	0	57	8	0.024	0.001	0.011	0.0015	0.002
Off-highway truck	Caterpillar 773B	Diesel	650	0	57	8	0.026	0.005	0.032	0.0020	0.002
Crane	Cummins	Diesel	230	0	43	8	0.023	0.003	0.009	0.0015	0.002
Drill rig	Caterpillar 3406	Diesel	320	1	75	12	0.018	0.002	0.011	0.0010	0.002
Mud pumps	Caterpillar 3306	Diesel	190	2	74	12	0.018	0.002	0.011	0.0010	0.002
Welding machine	Perkins 4-236	Diesel	63	0	45	8	0.018	0.002	0.011	0.0010	0.002
Water wagon	Caterpillar 3406B	Diesel	350	0	57	8	0.026	0.005	0.032	0.0020	0.002
Roller	Caterpillar CS-431B	Diesel	102	0	56	8	0.020	0.002	0.007	0.0010	0.002

DAILY AND TOTAL EMISSIONS

	Emissions (lb/day)					Total	Emissions (Total Tons)				
Equipment Type	NOx	ROC	CO	PM10	SOx	Days	NOx	ROC	CO	PM10	SOx
Tracked tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tracked tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tracked tractor (cert.)	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Pipelayer	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Landfill compactor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Elevating scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Elevating scraper (cert.)	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tandem scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Standard scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Grader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Backhoe	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Excavator	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Excavator	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Off-highway truck	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Crane	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Drill rig	51.8	5.8	31.7	2.9	5.8	5	0.13	0.01	0.08	0.01	0.01
Mud pumps	60.7	6.7	37.1	3.4	6.7	5	0.15	0.02	0.09	0.01	0.02
Welding machine	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Water wagon	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Roller	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
SUM	112.6	12.5	68.8	6.3	12.5		0.28	0.03	0.17	0.02	0.03

Emissions = BHP*Number*Load factor/100*Hours/day*lb/BHP-hr

Emission factors from Nonroad Engine and Vehicle Emissions Study (EPA, 1991)
Load factors from EPA NONROAD Model (in prep): Average Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling (Report No. NR-005, Dec 1997)
1996 Federal Stds: 0.015 NOx, 0.0009 PM, 0.002 THC lb/BHP-hr

MOTOR VEHICLE EMISSIONS
EMFAC7Gc Model
(2/10/00 Version)

Project: El Rio Sewer
Date: 12/19/00
Scenario: Construction workers (Peak Day)

Year	2006
Daily Trips	70.0
Trip Length	15.0
TOG-Temperature	75
CO-Temperature	50
NOx-Temperature	75
Speed	40
Average Soak Time (min)	180

FLEET MIX

		Proportion			Miles		
	Total	NCat	Cat	Diesel	NCat	Cat	Diesel
%Autos	35.00	0.54	99.23	0.23	2	365	1
%LD Trucks	60.00	0.00	99.75	0.25	0	628	2
%MD Trucks	5.00	0.02	94.98	5.00	0	50	3
%HD Trucks	0.00	0.00	0.00	100.00	0	0	0
%Motorcycles	0.00	100.00	0.00	0.00	0	0	0
TOTAL	100.0				2	1,043	5

EMISSION FACTORS

ROG		CO		NOx		PM	
NCat Auto Run	3.76	NCat Auto Run	29.04	NCat Auto Run	2.91	NCat Auto Run	0.03
Cat Auto Run	0.10	Cat Auto Run	2.19	Cat Auto Run	0.32	Cat Auto Run	0.00
Diesel Auto Run	0.31	Diesel Auto Run	1.09	Diesel Auto Run	1.40	Diesel Auto Run	0.34
NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00
Cat LDT Run	0.10	Cat LDT Run	2.09	Cat LDT Run	0.48	Cat LDT Run	0.00
Diesel LDT Run	0.27	Diesel LDT Run	1.09	Diesel LDT Run	1.27	Diesel LDT Run	0.35
NCat MDT Run	1.63	NCat MDT Run	21.92	NCat MDT Run	3.46	NCat MDT Run	0.03
Cat MDT Run	0.18	Cat MDT Run	2.38	Cat MDT Run	0.70	Cat MDT Run	0.00
Diesel MDT Run	0.15	Diesel MDT Run	3.59	Diesel MDT Run	3.10	Diesel MDT Run	0.24
HDT Run	0.79	HDT Run	6.32	HDT Run	7.46	HDT Run	0.37
Motorcycle Run	1.56	Motorcycle Run	6.59	Motorcycle Run	0.99	Motorcycle Run	0.04
NCat Auto Variable Start	7.61	NCat Auto Variable Start	37.05	NCat Auto Variable Start	1.26	Motorcycle Tire/Brake	0.01
Cat Auto Variable Start	1.43	Cat Auto Variable Start	17.60	Cat Auto Variable Start	1.25		
Diesel Auto Variable Start	0.61	Diesel Auto Variable Start	8.81	Diesel Auto Variable Start	0.35		
NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00		
Cat LDT Variable Start	1.50	Cat LDT Variable Start	17.12	Cat LDT Variable Start	1.91		
Diesel LDT Variable Start	0.99	Diesel LDT Variable Start	6.93	Diesel LDT Variable Start	1.06		
NCat MDT Variable Start	5.77	NCat MDT Variable Start	28.30	NCat MDT Variable Start	1.61		
Cat MDT Variable Start	2.17	Cat MDT Variable Start	20.80	Cat MDT Variable Start	2.73		
Motorcycle Variable Start	3.15	Motorcycle Variable Start	10.68	Motorcycle Variable Start	0.64		
NCat Auto Hot Soak	7.78						
Cat Auto Hot Soak	0.44						
NCat LDT Hot Soak	0.00						
Cat LDT Hot Soak	0.34						
NCat MDT Hot Soak	5.99						
Cat MDT Hot Soak	0.27						
Motorcycle Hot Soak	0.53						
NCat Auto Diurnal	6.39						
Cat Auto Diurnal	0.55						
NCat LDT Diurnal	0.00						
Cat LDT Diurnal	0.43						
NCat MDT Diurnal	5.26						
Cat MDT Diurnal	0.36						
Motorcycle Diurnal	0.41						
NCat Auto Resting	0.12						
Cat Auto Resting	0.07						
NCat LDT Resting	0.00						
Cat LDT Resting	0.06						
NCat MDT Resting	0.39						
Cat MDT Resting	0.04						
NCat Auto Evaporative	0.170						
Cat Auto Evaporative	0.032						
NCat LDT Evaporative	0.000						
Cat LDT Evaporative	0.023						
NCat MDT Evaporative	0.129						
Cat MDT Evaporative	0.019						

Glossary

NCat	Vehicles without catalytic convertors
Cat	Vehicles with catalytic convertors
LDT	Light duty truck
MDT	Medium duty truck
HDT	Heavy duty truck
Run	Exhaust emissions (g/mi) during warmed up operation
Variable Start	Exhaust emissions (g/trip) following an engine-off period of variable duration
Hot Soak	Evaporative emissions (g/trip) immediately following engine-off
Diurnal	Evaporative emissions (g/hour) due to daily rise in temperature
Resting	Evaporative emissions (g/hour) due to fuel line or plastic tank permeation
Evaporative	Evaporative emissions (g/mi) due to fuel system heating during operation

RESULTS (Total lbs)

	ROG	CO	NOx	PM
Running	0.26	5.07	1.04	0.00
Variable Start	0.23	2.69	0.26	0.00
Hot Soak	0.06	0.00	0.00	0.00
Diurnal	0.03	0.00	0.00	0.00
Resting	0.00	0.00	0.00	0.00
Evaporative	0.06	0.00	0.00	0.00
Tire/Break Wear	0.00	0.00	0.00	0.05
SUM	0.64	7.76	1.30	0.05
Tons	0.000	0.004	0.001	0.000

MOTOR VEHICLE EMISSIONS
EMFAC7Gc Model
(2/10/00 Version)

Project: El Rio Sewer
Date: 12/19/00
Scenario: Construction workers (Total Project)

Year	2006
Total Trips	21000.0
Trip Length	15.0
TOG-Temperature	75
CO-Temperature	50
NOx-Temperature	75
Speed	40
Average Soak Time (min)	180

FLEET MIX

		Proportion			Miles		
	Total	NCat	Cat	Diesel	NCat	Cat	Diesel
%Autos	35.00	0.54	99.23	0.23	595	109,401	254
%LD Trucks	60.00	0.00	99.75	0.25	0	188,528	473
%MD Trucks	5.00	0.02	94.98	5.00	3	14,959	788
%HD Trucks	0.00	0.00	0.00	100.00	0	0	0
%Motorcycles	0.00	100.00	0.00	0.00	0	0	0
TOTAL	100.0				599	312,888	1,514

EMISSION FACTORS

ROG		CO		NOx		PM	
NCat Auto Run	3.76	NCat Auto Run	29.04	NCat Auto Run	2.91	NCat Auto Run	0.03
Cat Auto Run	0.10	Cat Auto Run	2.19	Cat Auto Run	0.32	Cat Auto Run	0.00
Diesel Auto Run	0.31	Diesel Auto Run	1.09	Diesel Auto Run	1.40	Diesel Auto Run	0.34
NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00
Cat LDT Run	0.10	Cat LDT Run	2.09	Cat LDT Run	0.48	Cat LDT Run	0.00
Diesel LDT Run	0.27	Diesel LDT Run	1.09	Diesel LDT Run	1.27	Diesel LDT Run	0.35
NCat MDT Run	1.63	NCat MDT Run	21.92	NCat MDT Run	3.46	NCat MDT Run	0.03
Cat MDT Run	0.18	Cat MDT Run	2.38	Cat MDT Run	0.70	Cat MDT Run	0.00
Diesel MDT Run	0.15	Diesel MDT Run	3.59	Diesel MDT Run	3.10	Diesel MDT Run	0.24
HDT Run	0.79	HDT Run	6.32	HDT Run	7.46	HDT Run	0.37
Motorcycle Run	1.56	Motorcycle Run	6.59	Motorcycle Run	0.99	Motorcycle Run	0.04
NCat Auto Variable Start	7.61	NCat Auto Variable Start	37.05	NCat Auto Variable Start	1.26	Motorcycle Tire/Brake	0.01
Cat Auto Variable Start	1.43	Cat Auto Variable Start	17.60	Cat Auto Variable Start	1.25		
Diesel Auto Variable Start	0.61	Diesel Auto Variable Start	8.81	Diesel Auto Variable Start	0.35		
NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00		
Cat LDT Variable Start	1.50	Cat LDT Variable Start	17.12	Cat LDT Variable Start	1.91		
Diesel LDT Variable Start	0.99	Diesel LDT Variable Start	6.93	Diesel LDT Variable Start	1.06		
NCat MDT Variable Start	5.77	NCat MDT Variable Start	28.30	NCat MDT Variable Start	1.61		
Cat MDT Variable Start	2.17	Cat MDT Variable Start	20.80	Cat MDT Variable Start	2.73		
Motorcycle Variable Start	3.15	Motorcycle Variable Start	10.68	Motorcycle Variable Start	0.64		
NCat Auto Hot Soak	7.78						
Cat Auto Hot Soak	0.44						
NCat LDT Hot Soak	0.00						
Cat LDT Hot Soak	0.34						
NCat MDT Hot Soak	5.99						
Cat MDT Hot Soak	0.27						
Motorcycle Hot Soak	0.53						
NCat Auto Diurnal	6.39						
Cat Auto Diurnal	0.55						
NCat LDT Diurnal	0.00						
Cat LDT Diurnal	0.43						
NCat MDT Diurnal	5.26						
Cat MDT Diurnal	0.36						
Motorcycle Diurnal	0.41						
NCat Auto Resting	0.12						
Cat Auto Resting	0.07						
NCat LDT Resting	0.00						
Cat LDT Resting	0.06						
NCat MDT Resting	0.39						
Cat MDT Resting	0.04						
NCat Auto Evaporative	0.170						
Cat Auto Evaporative	0.032						
NCat LDT Evaporative	0.000						
Cat LDT Evaporative	0.023						
NCat MDT Evaporative	0.129						
Cat MDT Evaporative	0.019						

Glossary

NCat	Vehicles without catalytic convertors
Cat	Vehicles with catalytic convertors
LDT	Light duty truck
MDT	Medium duty truck
HDT	Heavy duty truck
Run	Exhaust emissions (g/mi) during warmed up operation
Variable Start	Exhaust emissions (g/trip) following an engine-off period of variable duration
Hot Soak	Evaporative emissions (g/trip) immediately following engine-off
Diurnal	Evaporative emissions (g/hour) due to daily rise in temperature
Resting	Evaporative emissions (g/hour) due to fuel line or plastic tank permeation
Evaporative	Evaporative emissions (g/mi) due to fuel system heating during operation

RESULTS (Total lbs)

	ROG	CO	NOx	PM
Running	77.28	1521.58	311.10	1.01
Variable Start	70.09	807.15	79.22	0.00
Hot Soak	17.77	0.00	0.00	0.00
Diurnal	8.29	0.00	0.00	0.00
Resting	1.08	0.00	0.00	0.00
Evaporative	18.13	0.00	0.00	0.00
Tire/Break Wear	0.00	0.00	0.00	13.89
SUM	192.64	2328.74	390.32	14.90
Tons	0.096	1.164	0.195	0.007

MOTOR VEHICLE EMISSIONS
EMFAC7Gc Model
(2/10/00 Version)

Project: El Rio Sewer
Date: 12/19/00
Scenario: Heavy-duty trucks (Peak Day)

Year	2006
Total Trips	13
Trip Length	15.0
TOG-Temperature	75
CO-Temperature	50
NOx-Temperature	75
Speed	40
Average Soak Time (min)	180

FLEET MIX

		Proportion			Miles		
	Total	NCat	Cat	Diesel	NCat	Cat	Diesel
%Autos	0.00	0.54	99.23	0.23	0	0	0
%LD Trucks	0.00	0.00	99.75	0.25	0	0	0
%MD Trucks	0.00	0.02	94.98	5.00	0	0	0
%HD Trucks	100.00	0.00	0.00	100.00	0	0	195
%Motorcycles	0.00	100.00	0.00	0.00	0	0	0
TOTAL	100.0				0	0	195

EMISSION FACTORS

ROG		CO		NOx		PM	
NCat Auto Run	3.76	NCat Auto Run	29.04	NCat Auto Run	2.91	NCat Auto Run	0.03
Cat Auto Run	0.10	Cat Auto Run	2.19	Cat Auto Run	0.32	Cat Auto Run	0.00
Diesel Auto Run	0.31	Diesel Auto Run	1.09	Diesel Auto Run	1.40	Diesel Auto Run	0.34
NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00
Cat LDT Run	0.10	Cat LDT Run	2.09	Cat LDT Run	0.48	Cat LDT Run	0.00
Diesel LDT Run	0.27	Diesel LDT Run	1.09	Diesel LDT Run	1.27	Diesel LDT Run	0.35
NCat MDT Run	1.63	NCat MDT Run	21.92	NCat MDT Run	3.46	NCat MDT Run	0.03
Cat MDT Run	0.18	Cat MDT Run	2.38	Cat MDT Run	0.70	Cat MDT Run	0.00
Diesel MDT Run	0.15	Diesel MDT Run	3.59	Diesel MDT Run	3.10	Diesel MDT Run	0.24
HDT Run	0.79	HDT Run	6.32	HDT Run	7.46	HDT Run	0.37
Motorcycle Run	1.56	Motorcycle Run	6.59	Motorcycle Run	0.99	Motorcycle Run	0.04
NCat Auto Variable Start	7.61	NCat Auto Variable Start	37.05	NCat Auto Variable Start	1.26	Motorcycle Tire/Brake	0.01
Cat Auto Variable Start	1.43	Cat Auto Variable Start	17.60	Cat Auto Variable Start	1.25		
Diesel Auto Variable Start	0.61	Diesel Auto Variable Start	8.81	Diesel Auto Variable Start	0.35		
NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00		
Cat LDT Variable Start	1.50	Cat LDT Variable Start	17.12	Cat LDT Variable Start	1.91		
Diesel LDT Variable Start	0.99	Diesel LDT Variable Start	6.93	Diesel LDT Variable Start	1.06		
NCat MDT Variable Start	5.77	NCat MDT Variable Start	28.30	NCat MDT Variable Start	1.61		
Cat MDT Variable Start	2.17	Cat MDT Variable Start	20.80	Cat MDT Variable Start	2.73		
Motorcycle Variable Start	3.15	Motorcycle Variable Start	10.68	Motorcycle Variable Start	0.64		
NCat Auto Hot Soak	7.78						
Cat Auto Hot Soak	0.44						
NCat LDT Hot Soak	0.00						
Cat LDT Hot Soak	0.34						
NCat MDT Hot Soak	5.99						
Cat MDT Hot Soak	0.27						
Motorcycle Hot Soak	0.53						
NCat Auto Diurnal	6.39						
Cat Auto Diurnal	0.55						
NCat LDT Diurnal	0.00						
Cat LDT Diurnal	0.43						
NCat MDT Diurnal	5.26						
Cat MDT Diurnal	0.36						
Motorcycle Diurnal	0.41						
NCat Auto Resting	0.12						
Cat Auto Resting	0.07						
NCat LDT Resting	0.00						
Cat LDT Resting	0.06						
NCat MDT Resting	0.39						
Cat MDT Resting	0.04						
NCat Auto Evaporative	0.170						
Cat Auto Evaporative	0.032						
NCat LDT Evaporative	0.000						
Cat LDT Evaporative	0.023						
NCat MDT Evaporative	0.129						
Cat MDT Evaporative	0.019						

Glossary

NCat	Vehicles without catalytic convertors
Cat	Vehicles with catalytic convertors
LDT	Light duty truck
MDT	Medium duty truck
HDT	Heavy duty truck
Run	Exhaust emissions (g/mi) during warmed up operation
Variable Start	Exhaust emissions (g/trip) following an engine-off period of variable duration
Hot Soak	Evaporative emissions (g/trip) immediately following engine-off
Diurnal	Evaporative emissions (g/hour) due to daily rise in temperature
Resting	Evaporative emissions (g/hour) due to fuel line or plastic tank permeation
Evaporative	Evaporative emissions (g/mi) due to fuel system heating during operation

RESULTS (Total lbs)

	ROG	CO	NOx	PM
Running	0.34	2.72	3.21	0.16
Variable Start	0.00	0.00	0.00	0.00
Hot Soak	0.00	0.00	0.00	0.00
Diurnal	0.00	0.00	0.00	0.00
Resting	0.00	0.00	0.00	0.00
Evaporative	0.00	0.00	0.00	0.00
Tire/Break Wear	0.00	0.00	0.00	0.02
SUM	0.34	2.72	3.21	0.18
Tons	0.000	0.001	0.002	0.000

MOTOR VEHICLE EMISSIONS
EMFAC7Gc Model
(2/10/00 Version)

Project: El Rio Sewer
Date: 12/19/00
Scenario: Heavy-duty trucks (Total Project)

Year	2006
Total Trips	4000
Trip Length	15.0
TOG-Temperature	75
CO-Temperature	50
NOx-Temperature	75
Speed	40
Average Soak Time (min)	180

FLEET MIX

		Proportion			Miles		
	Total	NCat	Cat	Diesel	NCat	Cat	Diesel
%Autos	0.00	0.54	99.23	0.23	0	0	0
%LD Trucks	0.00	0.00	99.75	0.25	0	0	0
%MD Trucks	0.00	0.02	94.98	5.00	0	0	0
%HD Trucks	100.00	0.00	0.00	100.00	0	0	60,000
%Motorcycles	0.00	100.00	0.00	0.00	0	0	0
TOTAL	100.0				0	0	60,000

EMISSION FACTORS

ROG		CO		NOx		PM	
NCat Auto Run	3.76	NCat Auto Run	29.04	NCat Auto Run	2.91	NCat Auto Run	0.03
Cat Auto Run	0.10	Cat Auto Run	2.19	Cat Auto Run	0.32	Cat Auto Run	0.00
Diesel Auto Run	0.31	Diesel Auto Run	1.09	Diesel Auto Run	1.40	Diesel Auto Run	0.34
NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00
Cat LDT Run	0.10	Cat LDT Run	2.09	Cat LDT Run	0.48	Cat LDT Run	0.00
Diesel LDT Run	0.27	Diesel LDT Run	1.09	Diesel LDT Run	1.27	Diesel LDT Run	0.35
NCat MDT Run	1.63	NCat MDT Run	21.92	NCat MDT Run	3.46	NCat MDT Run	0.03
Cat MDT Run	0.18	Cat MDT Run	2.38	Cat MDT Run	0.70	Cat MDT Run	0.00
Diesel MDT Run	0.15	Diesel MDT Run	3.59	Diesel MDT Run	3.10	Diesel MDT Run	0.24
HDT Run	0.79	HDT Run	6.32	HDT Run	7.46	HDT Run	0.37
Motorcycle Run	1.56	Motorcycle Run	6.59	Motorcycle Run	0.99	Motorcycle Run	0.04
NCat Auto Variable Start	7.61	NCat Auto Variable Start	37.05	NCat Auto Variable Start	1.26	Motorcycle Tire/Brake	0.01
Cat Auto Variable Start	1.43	Cat Auto Variable Start	17.60	Cat Auto Variable Start	1.25		
Diesel Auto Variable Start	0.61	Diesel Auto Variable Start	8.81	Diesel Auto Variable Start	0.35		
NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00		
Cat LDT Variable Start	1.50	Cat LDT Variable Start	17.12	Cat LDT Variable Start	1.91		
Diesel LDT Variable Start	0.99	Diesel LDT Variable Start	6.93	Diesel LDT Variable Start	1.06		
NCat MDT Variable Start	5.77	NCat MDT Variable Start	28.30	NCat MDT Variable Start	1.61		
Cat MDT Variable Start	2.17	Cat MDT Variable Start	20.80	Cat MDT Variable Start	2.73		
Motorcycle Variable Start	3.15	Motorcycle Variable Start	10.68	Motorcycle Variable Start	0.64		
NCat Auto Hot Soak	7.78						
Cat Auto Hot Soak	0.44						
NCat LDT Hot Soak	0.00						
Cat LDT Hot Soak	0.34						
NCat MDT Hot Soak	5.99						
Cat MDT Hot Soak	0.27						
Motorcycle Hot Soak	0.53						
NCat Auto Diurnal	6.39						
Cat Auto Diurnal	0.55						
NCat LDT Diurnal	0.00						
Cat LDT Diurnal	0.43						
NCat MDT Diurnal	5.26						
Cat MDT Diurnal	0.36						
Motorcycle Diurnal	0.41						
NCat Auto Resting	0.12						
Cat Auto Resting	0.07						
NCat LDT Resting	0.00						
Cat LDT Resting	0.06						
NCat MDT Resting	0.39						
Cat MDT Resting	0.04						
NCat Auto Evaporative	0.170						
Cat Auto Evaporative	0.032						
NCat LDT Evaporative	0.000						
Cat LDT Evaporative	0.023						
NCat MDT Evaporative	0.129						
Cat MDT Evaporative	0.019						

Glossary

NCat	Vehicles without catalytic convertors
Cat	Vehicles with catalytic convertors
LDT	Light duty truck
MDT	Medium duty truck
HDT	Heavy duty truck
Run	Exhaust emissions (g/mi) during warmed up operation
Variable Start	Exhaust emissions (g/trip) following an engine-off period of variable duration
Hot Soak	Evaporative emissions (g/trip) immediately following engine-off
Diurnal	Evaporative emissions (g/hour) due to daily rise in temperature
Resting	Evaporative emissions (g/hour) due to fuel line or plastic tank permeation
Evaporative	Evaporative emissions (g/mi) due to fuel system heating during operation

RESULTS (Total lbs)

	ROG	CO	NOx	PM
Running	104.50	835.98	986.77	48.94
Variable Start	0.00	0.00	0.00	0.00
Hot Soak	0.00	0.00	0.00	0.00
Diurnal	0.00	0.00	0.00	0.00
Resting	0.00	0.00	0.00	0.00
Evaporative	0.00	0.00	0.00	0.00
Tire/Break Wear	0.00	0.00	0.00	6.61
SUM	104.50	835.98	986.77	55.56
Tons	0.052	0.418	0.493	0.028

MOTOR VEHICLE EMISSIONS
EMFAC7Gc Model
(2/10/00 Version)

Project: El Rio Sewer
Date: 12/21/00
Scenario: Operations

Year	2006
Daily Trips	4.0
Trip Length	15.0
TOG-Temperature	75
CO-Temperature	50
NOx-Temperature	75
Speed	40
Average Soak Time (min)	180

FLEET MIX

		Proportion			Miles		
	Total	NCat	Cat	Diesel	NCat	Cat	Diesel
%Autos	0.00	0.54	99.23	0.23	0	0	0
%LD Trucks	100.00	0.00	99.75	0.25	0	60	0
%MD Trucks	0.00	0.02	94.98	5.00	0	0	0
%HD Trucks	0.00	0.00	0.00	100.00	0	0	0
%Motorcycles	0.00	100.00	0.00	0.00	0	0	0
TOTAL	100.0				0	60	0

EMISSION FACTORS

ROG		CO		NOx		PM	
NCat Auto Run	3.76	NCat Auto Run	29.04	NCat Auto Run	2.91	NCat Auto Run	0.03
Cat Auto Run	0.10	Cat Auto Run	2.19	Cat Auto Run	0.32	Cat Auto Run	0.00
Diesel Auto Run	0.31	Diesel Auto Run	1.09	Diesel Auto Run	1.40	Diesel Auto Run	0.34
NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00
Cat LDT Run	0.10	Cat LDT Run	2.09	Cat LDT Run	0.48	Cat LDT Run	0.00
Diesel LDT Run	0.27	Diesel LDT Run	1.09	Diesel LDT Run	1.27	Diesel LDT Run	0.35
NCat MDT Run	1.63	NCat MDT Run	21.92	NCat MDT Run	3.46	NCat MDT Run	0.03
Cat MDT Run	0.18	Cat MDT Run	2.38	Cat MDT Run	0.70	Cat MDT Run	0.00
Diesel MDT Run	0.15	Diesel MDT Run	3.59	Diesel MDT Run	3.10	Diesel MDT Run	0.24
HDT Run	0.79	HDT Run	6.32	HDT Run	7.46	HDT Run	0.37
Motorcycle Run	1.56	Motorcycle Run	6.59	Motorcycle Run	0.99	Motorcycle Run	0.04
NCat Auto Variable Start	7.61	NCat Auto Variable Start	37.05	NCat Auto Variable Start	1.26	Motorcycle Tire/Brake	0.01
Cat Auto Variable Start	1.43	Cat Auto Variable Start	17.60	Cat Auto Variable Start	1.25		
Diesel Auto Variable Start	0.61	Diesel Auto Variable Start	8.81	Diesel Auto Variable Start	0.35		
NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00		
Cat LDT Variable Start	1.50	Cat LDT Variable Start	17.12	Cat LDT Variable Start	1.91		
Diesel LDT Variable Start	0.99	Diesel LDT Variable Start	6.93	Diesel LDT Variable Start	1.06		
NCat MDT Variable Start	5.77	NCat MDT Variable Start	28.30	NCat MDT Variable Start	1.61		
Cat MDT Variable Start	2.17	Cat MDT Variable Start	20.80	Cat MDT Variable Start	2.73		
Motorcycle Variable Start	3.15	Motorcycle Variable Start	10.68	Motorcycle Variable Start	0.64		
NCat Auto Hot Soak	7.78						
Cat Auto Hot Soak	0.44						
NCat LDT Hot Soak	0.00						
Cat LDT Hot Soak	0.34						
NCat MDT Hot Soak	5.99						
Cat MDT Hot Soak	0.27						
Motorcycle Hot Soak	0.53						
NCat Auto Diurnal	6.39						
Cat Auto Diurnal	0.55						
NCat LDT Diurnal	0.00						
Cat LDT Diurnal	0.43						
NCat MDT Diurnal	5.26						
Cat MDT Diurnal	0.36						
Motorcycle Diurnal	0.41						
NCat Auto Resting	0.12						
Cat Auto Resting	0.07						
NCat LDT Resting	0.00						
Cat LDT Resting	0.06						
NCat MDT Resting	0.39						
Cat MDT Resting	0.04						
NCat Auto Evaporative	0.170						
Cat Auto Evaporative	0.032						
NCat LDT Evaporative	0.000						
Cat LDT Evaporative	0.023						
NCat MDT Evaporative	0.129						
Cat MDT Evaporative	0.019						

Glossary

NCat	Vehicles without catalytic convertors
Cat	Vehicles with catalytic convertors
LDT	Light duty truck
MDT	Medium duty truck
HDT	Heavy duty truck
Run	Exhaust emissions (g/mi) during warmed up operation
Variable Start	Exhaust emissions (g/trip) following an engine-off period of variable duration
Hot Soak	Evaporative emissions (g/trip) immediately following engine-off
Diurnal	Evaporative emissions (g/hour) due to daily rise in temperature
Resting	Evaporative emissions (g/hour) due to fuel line or plastic tank permeation
Evaporative	Evaporative emissions (g/mi) due to fuel system heating during operation

RESULTS (Total lbs)

	ROG	CO	NOx	PM
Running	0.01	0.28	0.06	0.00
Variable Start	0.01	0.15	0.02	0.00
Hot Soak	0.00	0.00	0.00	0.00
Diurnal	0.00	0.00	0.00	0.00
Resting	0.00	0.00	0.00	0.00
Evaporative	0.00	0.00	0.00	0.00
Tire/Break Wear	0.00	0.00	0.00	0.00
SUM	0.03	0.43	0.08	0.00
Tons	0.000	0.000	0.000	0.000

MOTOR VEHICLE EMISSIONS
EMFAC7Gc Model
(2/10/00 Version)

Project: El Rio Sewer
Date: 12/21/00
Scenario: Operations

Year	2006
Annual Trips	560.0
Trip Length	15.0
TOG-Temperature	75
CO-Temperature	50
NOx-Temperature	75
Speed	40
Average Soak Time (min)	180

FLEET MIX

		Proportion			Miles		
	Total	NCat	Cat	Diesel	NCat	Cat	Diesel
%Autos	0.00	0.54	99.23	0.23	0	0	0
%LD Trucks	100.00	0.00	99.75	0.25	0	8,379	21
%MD Trucks	0.00	0.02	94.98	5.00	0	0	0
%HD Trucks	0.00	0.00	0.00	100.00	0	0	0
%Motorcycles	0.00	100.00	0.00	0.00	0	0	0
TOTAL	100.0				0	8,379	21

EMISSION FACTORS

ROG		CO		NOx		PM	
NCat Auto Run	3.76	NCat Auto Run	29.04	NCat Auto Run	2.91	NCat Auto Run	0.03
Cat Auto Run	0.10	Cat Auto Run	2.19	Cat Auto Run	0.32	Cat Auto Run	0.00
Diesel Auto Run	0.31	Diesel Auto Run	1.09	Diesel Auto Run	1.40	Diesel Auto Run	0.34
NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00
Cat LDT Run	0.10	Cat LDT Run	2.09	Cat LDT Run	0.48	Cat LDT Run	0.00
Diesel LDT Run	0.27	Diesel LDT Run	1.09	Diesel LDT Run	1.27	Diesel LDT Run	0.35
NCat MDT Run	1.63	NCat MDT Run	21.92	NCat MDT Run	3.46	NCat MDT Run	0.03
Cat MDT Run	0.18	Cat MDT Run	2.38	Cat MDT Run	0.70	Cat MDT Run	0.00
Diesel MDT Run	0.15	Diesel MDT Run	3.59	Diesel MDT Run	3.10	Diesel MDT Run	0.24
HDT Run	0.79	HDT Run	6.32	HDT Run	7.46	HDT Run	0.37
Motorcycle Run	1.56	Motorcycle Run	6.59	Motorcycle Run	0.99	Motorcycle Run	0.04
NCat Auto Variable Start	7.61	NCat Auto Variable Start	37.05	NCat Auto Variable Start	1.26	Motorcycle Tire/Brake	0.01
Cat Auto Variable Start	1.43	Cat Auto Variable Start	17.60	Cat Auto Variable Start	1.25		
Diesel Auto Variable Start	0.61	Diesel Auto Variable Start	8.81	Diesel Auto Variable Start	0.35		
NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00		
Cat LDT Variable Start	1.50	Cat LDT Variable Start	17.12	Cat LDT Variable Start	1.91		
Diesel LDT Variable Start	0.99	Diesel LDT Variable Start	6.93	Diesel LDT Variable Start	1.06		
NCat MDT Variable Start	5.77	NCat MDT Variable Start	28.30	NCat MDT Variable Start	1.61		
Cat MDT Variable Start	2.17	Cat MDT Variable Start	20.80	Cat MDT Variable Start	2.73		
Motorcycle Variable Start	3.15	Motorcycle Variable Start	10.68	Motorcycle Variable Start	0.64		
NCat Auto Hot Soak	7.78						
Cat Auto Hot Soak	0.44						
NCat LDT Hot Soak	0.00						
Cat LDT Hot Soak	0.34						
NCat MDT Hot Soak	5.99						
Cat MDT Hot Soak	0.27						
Motorcycle Hot Soak	0.53						
NCat Auto Diurnal	6.39						
Cat Auto Diurnal	0.55						
NCat LDT Diurnal	0.00						
Cat LDT Diurnal	0.43						
NCat MDT Diurnal	5.26						
Cat MDT Diurnal	0.36						
Motorcycle Diurnal	0.41						
NCat Auto Resting	0.12						
Cat Auto Resting	0.07						
NCat LDT Resting	0.00						
Cat LDT Resting	0.06						
NCat MDT Resting	0.39						
Cat MDT Resting	0.04						
NCat Auto Evaporative	0.170						
Cat Auto Evaporative	0.032						
NCat LDT Evaporative	0.000						
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Glossary

NCat	Vehicles without catalytic convertors
Cat	Vehicles with catalytic convertors
LDT	Light duty truck
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Run	Exhaust emissions (g/mi) during warmed up operation
Variable Start	Exhaust emissions (g/trip) following an engine-off period of variable duration
Hot Soak	Evaporative emissions (g/trip) immediately following engine-off
Diurnal	Evaporative emissions (g/hour) due to daily rise in temperature
Resting	Evaporative emissions (g/hour) due to fuel line or plastic tank permeation
Evaporative	Evaporative emissions (g/mi) due to fuel system heating during operation

RESULTS (Total lbs)

	ROG	CO	NOx	PM
Running	1.86	38.66	8.93	0.02
Variable Start	1.85	21.10	2.36	0.00
Hot Soak	0.42	0.00	0.00	0.00
Diurnal	0.20	0.00	0.00	0.00
Resting	0.03	0.00	0.00	0.00
Evaporative	0.42	0.00	0.00	0.00
Tire/Break Wear	0.00	0.00	0.00	0.37
SUM	4.78	59.76	11.28	0.39
Tons	0.002	0.030	0.006	0.000

HEAVY EQUIPMENT EMISSIONS

Project: El Rio Sewer
Date: 1/2/01
Scenario: WWTP Construction

INPUTS AND EMISSION FACTORS

Equipment Type	Model	Fuel	BHP	Number	Load Factor (Percent)	Hours/Day	Emission Factors (lb/BHP-hr) NOx	ROC	CO	PM10	SOx
Tracked tractor	Caterpillar D6	Diesel	140	0	64	8	0.023	0.002	0.011	0.0010	0.002
Tracked tractor	Caterpillar D8N	Diesel	285	1	64	8	0.023	0.002	0.011	0.0010	0.002
Tracked tractor (cert.)	Caterpillar D8	Diesel	285	0	64	8	0.015	0.002	0.011	0.0009	0.002
Pipelayer	Caterpillar 527G	Diesel	200	0	64	8	0.023	0.002	0.011	0.0010	0.002
Wheeled tractor	Caterpillar 824C	Diesel	315	0	59	8	0.021	0.002	0.010	0.0005	0.002
Landfill compactor	Caterpillar 826C	Diesel	315	0	59	8	0.021	0.002	0.010	0.0005	0.002
Elevating scraper	Caterpillar 623E	Diesel	365	0	72	8	0.019	0.001	0.011	0.0015	0.002
Elevating scraper (cert.)	Caterpillar 623	Diesel	365	0	72	8	0.015	0.002	0.011	0.0009	0.002
Tandem scraper	Caterpillar 637E	Diesel	700	0	72	8	0.019	0.001	0.011	0.0015	0.002
Standard scraper	Caterpillar 631E	Diesel	450	2	72	8	0.019	0.001	0.011	0.0015	0.002
Grader	Caterpillar 140G	Diesel	150	0	61	8	0.021	0.001	0.011	0.0015	0.002
Backhoe	Caterpillar 426	Diesel	70	0	55	8	0.022	0.003	0.015	0.0010	0.002
Wheeled loader	Bobcat	Diesel	65	0	68	8	0.023	0.002	0.011	0.0015	0.002
Wheeled loader	Caterpillar 950E	Diesel	160	0	68	8	0.023	0.002	0.011	0.0015	0.002
Wheeled loader	Caterpillar 966E	Diesel	216	2	68	8	0.023	0.002	0.011	0.0015	0.002
Wheeled loader	Caterpillar 988B	Diesel	375	0	68	8	0.023	0.002	0.011	0.0015	0.002
Excavator	Caterpillar 235	Diesel	250	0	57	8	0.024	0.001	0.011	0.0015	0.002
Excavator	Caterpillar 245	Diesel	360	0	57	8	0.024	0.001	0.011	0.0015	0.002
Off-highway truck	Caterpillar 773B	Diesel	650	0	57	8	0.026	0.005	0.032	0.0020	0.002
Crane	Cummins	Diesel	230	0	43	8	0.023	0.003	0.009	0.0015	0.002
Generator	Caterpillar 3114	Diesel	109	0	74	4	0.018	0.002	0.011	0.0010	0.002
Asphalt paver	Caterpillar AP-1200	Diesel	145	0	62	8	0.023	0.001	0.007	0.0010	0.002
Welding machine	Perkins 4-236	Diesel	63	0	45	8	0.018	0.002	0.011	0.0010	0.002
Water wagon	Caterpillar 3406B	Diesel	350	0	57	8	0.026	0.005	0.032	0.0020	0.002
Roller	Caterpillar CS-431B	Diesel	102	0	56	8	0.020	0.002	0.007	0.0010	0.002

DAILY AND TOTAL EMISSIONS

Equipment Type	Emissions (lb/day) NOx	ROC	CO	PM10	SOx	Total Days	Emissions (Total Tons) NOx	ROC	CO	PM10	SOx
Tracked tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tracked tractor	33.6	2.9	16.1	1.5	2.9	60	1.01	0.09	0.48	0.04	0.09
Tracked tractor (cert.)	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Pipelayer	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Landfill compactor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Elevating scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Elevating scraper (cert.)	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tandem scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Standard scraper	98.5	5.2	57.0	7.8	10.4	100	4.92	0.26	2.85	0.39	0.52
Grader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Backhoe	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	54.1	4.7	25.9	3.5	4.7	132	3.57	0.31	1.71	0.23	0.31
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Excavator	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Excavator	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Off-highway truck	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Crane	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Generator	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Asphalt paver	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Welding machine	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Water wagon	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Roller	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
SUM	186.1	12.8	98.9	12.8	18.0		9.50	0.66	5.04	0.67	0.92

Emissions = BHP*Number*Load factor/100*Hours/day*lb/BHP-hr

Emission factors from Nonroad Engine and Vehicle Emissions Study (EPA, 1991)
Load factors from EPA NONROAD Model (in prep): Average Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling (Report No. NR-005, Dec 1997)
1996 Federal Stds: 0.015 NOx, 0.0009 PM, 0.002 THC lb/BHP-hr

MOTOR VEHICLE EMISSIONS
EMFAC7Gc Model
(2/10/00 Version)

Project: EL Rio Sewer
Date: 01/02/01
Scenario: Construction workers (Peak Day WWTP Alternative)

Year	2006
Daily Trips	100.0
Trip Length	15.0
TOG-Temperature	75
CO-Temperature	50
NOx-Temperature	75
Speed	40
Average Soak Time (min)	180

FLEET MIX

		Proportion			Miles		
	Total	NCat	Cat	Diesel	NCat	Cat	Diesel
%Autos	35.00	0.54	99.23	0.23	3	521	1
%LD Trucks	60.00	0.00	99.75	0.25	0	898	2
%MD Trucks	5.00	0.02	94.98	5.00	0	71	4
%HD Trucks	0.00	0.00	0.00	100.00	0	0	0
%Motorcycles	0.00	100.00	0.00	0.00	0	0	0
TOTAL	100.0				3	1,490	7

EMISSION FACTORS

ROG		CO		NOx		PM	
NCat Auto Run	3.76	NCat Auto Run	29.04	NCat Auto Run	2.91	NCat Auto Run	0.03
Cat Auto Run	0.10	Cat Auto Run	2.19	Cat Auto Run	0.32	Cat Auto Run	0.00
Diesel Auto Run	0.31	Diesel Auto Run	1.09	Diesel Auto Run	1.40	Diesel Auto Run	0.34
NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00
Cat LDT Run	0.10	Cat LDT Run	2.09	Cat LDT Run	0.48	Cat LDT Run	0.00
Diesel LDT Run	0.27	Diesel LDT Run	1.09	Diesel LDT Run	1.27	Diesel LDT Run	0.35
NCat MDT Run	1.63	NCat MDT Run	21.92	NCat MDT Run	3.46	NCat MDT Run	0.03
Cat MDT Run	0.18	Cat MDT Run	2.38	Cat MDT Run	0.70	Cat MDT Run	0.00
Diesel MDT Run	0.15	Diesel MDT Run	3.59	Diesel MDT Run	3.10	Diesel MDT Run	0.24
HDT Run	0.79	HDT Run	6.32	HDT Run	7.46	HDT Run	0.37
Motorcycle Run	1.56	Motorcycle Run	6.59	Motorcycle Run	0.99	Motorcycle Run	0.04
NCat Auto Variable Start	7.61	NCat Auto Variable Start	37.05	NCat Auto Variable Start	1.26	Motorcycle Tire/Brake	0.01
Cat Auto Variable Start	1.43	Cat Auto Variable Start	17.60	Cat Auto Variable Start	1.25		
Diesel Auto Variable Start	0.61	Diesel Auto Variable Start	8.81	Diesel Auto Variable Start	0.35		
NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00		
Cat LDT Variable Start	1.50	Cat LDT Variable Start	17.12	Cat LDT Variable Start	1.91		
Diesel LDT Variable Start	0.99	Diesel LDT Variable Start	6.93	Diesel LDT Variable Start	1.06		
NCat MDT Variable Start	5.77	NCat MDT Variable Start	28.30	NCat MDT Variable Start	1.61		
Cat MDT Variable Start	2.17	Cat MDT Variable Start	20.80	Cat MDT Variable Start	2.73		
Motorcycle Variable Start	3.15	Motorcycle Variable Start	10.68	Motorcycle Variable Start	0.64		
NCat Auto Hot Soak	7.78						
Cat Auto Hot Soak	0.44						
NCat LDT Hot Soak	0.00						
Cat LDT Hot Soak	0.34						
NCat MDT Hot Soak	5.99						
Cat MDT Hot Soak	0.27						
Motorcycle Hot Soak	0.53						
NCat Auto Diurnal	6.39						
Cat Auto Diurnal	0.55						
NCat LDT Diurnal	0.00						
Cat LDT Diurnal	0.43						
NCat MDT Diurnal	5.26						
Cat MDT Diurnal	0.36						
Motorcycle Diurnal	0.41						
NCat Auto Resting	0.12						
Cat Auto Resting	0.07						
NCat LDT Resting	0.00						
Cat LDT Resting	0.06						
NCat MDT Resting	0.39						
Cat MDT Resting	0.04						
NCat Auto Evaporative	0.170						
Cat Auto Evaporative	0.032						
NCat LDT Evaporative	0.000						
Cat LDT Evaporative	0.023						
NCat MDT Evaporative	0.129						
Cat MDT Evaporative	0.019						

Glossary

NCat	Vehicles without catalytic convertors
Cat	Vehicles with catalytic convertors
LDT	Light duty truck
MDT	Medium duty truck
HDT	Heavy duty truck
Run	Exhaust emissions (g/mi) during warmed up operation
Variable Start	Exhaust emissions (g/trip) following an engine-off period of variable duration
Hot Soak	Evaporative emissions (g/trip) immediately following engine-off
Diurnal	Evaporative emissions (g/hour) due to daily rise in temperature
Resting	Evaporative emissions (g/hour) due to fuel line or plastic tank permeation
Evaporative	Evaporative emissions (g/ml) due to fuel system heating during operation

RESULTS (Total lbs)

	ROG	CO	NOx	PM
Running	0.37	7.25	1.48	0.00
Variable Start	0.33	3.84	0.38	0.00
Hot Soak	0.08	0.00	0.00	0.00
Diurnal	0.04	0.00	0.00	0.00
Resting	0.01	0.00	0.00	0.00
Evaporative	0.09	0.00	0.00	0.00
Tire/Break Wear	0.00	0.00	0.00	0.07
SUM	0.92	11.09	1.86	0.07
Tons	0.000	0.006	0.001	0.000

MOTOR VEHICLE EMISSIONS
EMFAC7Gc Model
(2/10/00 Version)

Project: EL Rio Sewer
Date: 01/02/01
Scenario: Construction workers (Total Project WWTP Alternative)

Year	2006
Daily Trips	30000.0
Trip Length	15.0
TOG-Temperature	75
CO-Temperature	50
NOx-Temperature	75
Speed	40
Average Soak Time (min)	180

FLEET MIX

		Proportion			Miles		
	Total	NCat	Cat	Diesel	NCat	Cat	Diesel
%Autos	35.00	0.54	99.23	0.23	851	156,287	362
%LD Trucks	60.00	0.00	99.75	0.25	0	269,325	675
%MD Trucks	5.00	0.02	94.98	5.00	5	21,371	1,125
%HD Trucks	0.00	0.00	0.00	100.00	0	0	0
%Motorcycles	0.00	100.00	0.00	0.00	0	0	0
TOTAL	100.0				855	446,983	2,162

EMISSION FACTORS

ROG		CO		NOx		PM	
NCat Auto Run	3.76	NCat Auto Run	29.04	NCat Auto Run	2.91	NCat Auto Run	0.03
Cat Auto Run	0.10	Cat Auto Run	2.19	Cat Auto Run	0.32	Cat Auto Run	0.00
Diesel Auto Run	0.31	Diesel Auto Run	1.09	Diesel Auto Run	1.40	Diesel Auto Run	0.34
NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00
Cat LDT Run	0.10	Cat LDT Run	2.09	Cat LDT Run	0.48	Cat LDT Run	0.00
Diesel LDT Run	0.27	Diesel LDT Run	1.09	Diesel LDT Run	1.27	Diesel LDT Run	0.35
NCat MDT Run	1.63	NCat MDT Run	21.92	NCat MDT Run	3.46	NCat MDT Run	0.03
Cat MDT Run	0.18	Cat MDT Run	2.38	Cat MDT Run	0.70	Cat MDT Run	0.00
Diesel MDT Run	0.15	Diesel MDT Run	3.59	Diesel MDT Run	3.10	Diesel MDT Run	0.24
HDT Run	0.79	HDT Run	6.32	HDT Run	7.46	HDT Run	0.37
Motorcycle Run	1.56	Motorcycle Run	6.59	Motorcycle Run	0.99	Motorcycle Run	0.04
NCat Auto Variable Start	7.61	NCat Auto Variable Start	37.05	NCat Auto Variable Start	1.26	Motorcycle Tire/Brake	0.01
Cat Auto Variable Start	1.43	Cat Auto Variable Start	17.60	Cat Auto Variable Start	1.25		
Diesel Auto Variable Start	0.61	Diesel Auto Variable Start	8.81	Diesel Auto Variable Start	0.35		
NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00		
Cat LDT Variable Start	1.50	Cat LDT Variable Start	17.12	Cat LDT Variable Start	1.91		
Diesel LDT Variable Start	0.99	Diesel LDT Variable Start	6.93	Diesel LDT Variable Start	1.06		
NCat MDT Variable Start	5.77	NCat MDT Variable Start	28.30	NCat MDT Variable Start	1.61		
Cat MDT Variable Start	2.17	Cat MDT Variable Start	20.80	Cat MDT Variable Start	2.73		
Motorcycle Variable Start	3.15	Motorcycle Variable Start	10.68	Motorcycle Variable Start	0.64		
NCat Auto Hot Soak	7.78						
Cat Auto Hot Soak	0.44						
NCat LDT Hot Soak	0.00						
Cat LDT Hot Soak	0.34						
NCat MDT Hot Soak	5.99						
Cat MDT Hot Soak	0.27						
Motorcycle Hot Soak	0.53						
NCat Auto Diurnal	6.39						
Cat Auto Diurnal	0.55						
NCat LDT Diurnal	0.00						
Cat LDT Diurnal	0.43						
NCat MDT Diurnal	5.26						
Cat MDT Diurnal	0.36						
Motorcycle Diurnal	0.41						
NCat Auto Resting	0.12						
Cat Auto Resting	0.07						
NCat LDT Resting	0.00						
Cat LDT Resting	0.06						
NCat MDT Resting	0.39						
Cat MDT Resting	0.04						
NCat Auto Evaporative	0.170						
Cat Auto Evaporative	0.032						
NCat LDT Evaporative	0.000						
Cat LDT Evaporative	0.023						
NCat MDT Evaporative	0.129						
Cat MDT Evaporative	0.019						

Glossary

NCat	Vehicles without catalytic convertors
Cat	Vehicles with catalytic convertors
LDT	Light duty truck
MDT	Medium duty truck
HDT	Heavy duty truck
Run	Exhaust emissions (g/mi) during warmed up operation
Variable Start	Exhaust emissions (g/trip) following an engine-off period of variable duration
Hot Soak	Evaporative emissions (g/trip) immediately following engine-off
Diurnal	Evaporative emissions (g/hour) due to daily rise in temperature
Resting	Evaporative emissions (g/hour) due to fuel line or plastic tank permeation
Evaporative	Evaporative emissions (g/mi) due to fuel system heating during operation

RESULTS (Total lbs)

	ROG	CO	NOx	PM
Running	110.40	2173.69	444.42	1.44
Variable Start	100.12	1153.07	113.17	0.00
Hot Soak	25.39	0.00	0.00	0.00
Diurnal	11.85	0.00	0.00	0.00
Resting	1.55	0.00	0.00	0.00
Evaporative	25.90	0.00	0.00	0.00
Tire/Break Wear	0.00	0.00	0.00	19.84
SUM	275.20	3326.77	557.60	21.29
Tons	0.138	1.663	0.279	0.011

MOTOR VEHICLE EMISSIONS
EMFAC7Gc Model
(2/10/00 Version)

Project: EL Rio Sewer
Date: 01/02/01
Scenario: Operation (WWTP Alternative)

Year	2006
Daily Trips	10.0
Trip Length	15.0
TOG-Temperature	75
CO-Temperature	50
NOx-Temperature	75
Speed	40
Average Soak Time (min)	180

FLEET MIX

		Proportion			Miles		
	Total	NCat	Cat	Diesel	NCat	Cat	Diesel
%Autos	0.00	0.54	99.23	0.23	0	0	0
%LD Trucks	100.00	0.00	99.75	0.25	0	150	0
%MD Trucks	0.00	0.02	94.98	5.00	0	0	0
%HD Trucks	0.00	0.00	0.00	100.00	0	0	0
%Motorcycles	0.00	100.00	0.00	0.00	0	0	0
TOTAL	100.0				0	150	0

EMISSION FACTORS

ROG		CO		NOx		PM	
NCat Auto Run	3.76	NCat Auto Run	29.04	NCat Auto Run	2.91	NCat Auto Run	0.03
Cat Auto Run	0.10	Cat Auto Run	2.19	Cat Auto Run	0.32	Cat Auto Run	0.00
Diesel Auto Run	0.31	Diesel Auto Run	1.09	Diesel Auto Run	1.40	Diesel Auto Run	0.34
NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00	NCat LDT Run	0.00
Cat LDT Run	0.10	Cat LDT Run	2.09	Cat LDT Run	0.48	Cat LDT Run	0.00
Diesel LDT Run	0.27	Diesel LDT Run	1.09	Diesel LDT Run	1.27	Diesel LDT Run	0.35
NCat MDT Run	1.63	NCat MDT Run	21.92	NCat MDT Run	3.46	NCat MDT Run	0.03
Cat MDT Run	0.18	Cat MDT Run	2.38	Cat MDT Run	0.70	Cat MDT Run	0.00
Diesel MDT Run	0.15	Diesel MDT Run	3.59	Diesel MDT Run	3.10	Diesel MDT Run	0.24
HDT Run	0.79	HDT Run	6.32	HDT Run	7.46	HDT Run	0.37
Motorcycle Run	1.56	Motorcycle Run	6.59	Motorcycle Run	0.99	Motorcycle Run	0.04
NCat Auto Variable Start	7.61	NCat Auto Variable Start	37.05	NCat Auto Variable Start	1.26	Motorcycle Tire/Brake	0.01
Cat Auto Variable Start	1.43	Cat Auto Variable Start	17.60	Cat Auto Variable Start	1.25		
Diesel Auto Variable Start	0.61	Diesel Auto Variable Start	8.81	Diesel Auto Variable Start	0.35		
NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00	NCat LDT Variable Start	0.00		
Cat LDT Variable Start	1.50	Cat LDT Variable Start	17.12	Cat LDT Variable Start	1.91		
Diesel LDT Variable Start	0.99	Diesel LDT Variable Start	6.93	Diesel LDT Variable Start	1.06		
NCat MDT Variable Start	5.77	NCat MDT Variable Start	28.30	NCat MDT Variable Start	1.61		
Cat MDT Variable Start	2.17	Cat MDT Variable Start	20.80	Cat MDT Variable Start	2.73		
Motorcycle Variable Start	3.15	Motorcycle Variable Start	10.68	Motorcycle Variable Start	0.64		
NCat Auto Hot Soak	7.78						
Cat Auto Hot Soak	0.44						
NCat LDT Hot Soak	0.00						
Cat LDT Hot Soak	0.34						
NCat MDT Hot Soak	5.99						
Cat MDT Hot Soak	0.27						
Motorcycle Hot Soak	0.53						
NCat Auto Diurnal	6.39						
Cat Auto Diurnal	0.55						
NCat LDT Diurnal	0.00						
Cat LDT Diurnal	0.43						
NCat MDT Diurnal	5.26						
Cat MDT Diurnal	0.36						
Motorcycle Diurnal	0.41						
NCat Auto Resting	0.12						
Cat Auto Resting	0.07						
NCat LDT Resting	0.00						
Cat LDT Resting	0.06						
NCat MDT Resting	0.39						
Cat MDT Resting	0.04						
NCat Auto Evaporative	0.170						
Cat Auto Evaporative	0.032						
NCat LDT Evaporative	0.000						
Cat LDT Evaporative	0.023						
NCat MDT Evaporative	0.129						
Cat MDT Evaporative	0.019						

Glossary

NCat	Vehicles without catalytic convertors
Cat	Vehicles with catalytic convertors
LDT	Light duty truck
MDT	Medium duty truck
HDT	Heavy duty truck
Run	Exhaust emissions (g/mi) during warmed up operation
Variable Start	Exhaust emissions (g/trip) following an engine-off period of variable duration
Hot Soak	Evaporative emissions (g/trip) immediately following engine-off
Diurnal	Evaporative emissions (g/hour) due to daily rise in temperature
Resting	Evaporative emissions (g/hour) due to fuel line or plastic tank permeation
Evaporative	Evaporative emissions (g/mi) due to fuel system heating during operation

RESULTS (Total lbs)

	ROG	CO	NOx	PM
Running	0.03	0.69	0.16	0.00
Variable Start	0.03	0.38	0.04	0.00
Hot Soak	0.01	0.00	0.00	0.00
Diurnal	0.00	0.00	0.00	0.00
Resting	0.00	0.00	0.00	0.00
Evaporative	0.01	0.00	0.00	0.00
Tire/Break Wear	0.00	0.00	0.00	0.01
SUM	0.09	1.07	0.20	0.01
Tons	0.000	0.001	0.000	0.000

HEAVY EQUIPMENT EMISSIONS

Project: El Rio Sewer
Date: 1/2/01
Scenario: Operation-standby generator

INPUTS AND EMISSION FACTORS

Equipment Type	Model	Fuel	BHP	Number	Load Factor (Percent)	Hours/Day	Emission Factors (lb/BHP-hr) NOx	ROC	CO	PM10	SOx
Tracked tractor	Caterpillar D6	Diesel	140	0	64	8	0.023	0.002	0.011	0.0010	0.002
Tracked tractor	Caterpillar D8N	Diesel	285	0	64	8	0.023	0.002	0.011	0.0010	0.002
Tracked tractor (cert.)	Caterpillar D8	Diesel	285	0	64	8	0.015	0.002	0.011	0.0009	0.002
Pipelayer	Caterpillar 527G	Diesel	200	0	64	8	0.023	0.002	0.011	0.0010	0.002
Wheeled tractor	Caterpillar 824C	Diesel	315	0	59	8	0.021	0.002	0.010	0.0005	0.002
Landfill compactor	Caterpillar 826C	Diesel	315	0	59	8	0.021	0.002	0.010	0.0005	0.002
Elevating scraper	Caterpillar 623E	Diesel	365	0	72	8	0.019	0.001	0.011	0.0015	0.002
Elevating scraper (cert.)	Caterpillar 623	Diesel	365	0	72	8	0.015	0.002	0.011	0.0009	0.002
Tandem scraper	Caterpillar 637E	Diesel	700	0	72	8	0.019	0.001	0.011	0.0015	0.002
Standard scraper	Caterpillar 631E	Diesel	450	0	72	8	0.019	0.001	0.011	0.0015	0.002
Grader	Caterpillar 140G	Diesel	150	0	61	8	0.021	0.001	0.011	0.0015	0.002
Backhoe	Caterpillar 426	Diesel	70	0	55	8	0.022	0.003	0.015	0.0010	0.002
Wheeled loader	Bobcat	Diesel	65	0	68	8	0.023	0.002	0.011	0.0015	0.002
Wheeled loader	Caterpillar 950E	Diesel	160	0	68	8	0.023	0.002	0.011	0.0015	0.002
Wheeled loader	Caterpillar 966E	Diesel	216	0	68	8	0.023	0.002	0.011	0.0015	0.002
Wheeled loader	Caterpillar 988B	Diesel	375	0	68	8	0.023	0.002	0.011	0.0015	0.002
Excavator	Caterpillar 235	Diesel	250	0	57	8	0.024	0.001	0.011	0.0015	0.002
Excavator	Caterpillar 245	Diesel	360	0	57	8	0.024	0.001	0.011	0.0015	0.002
Off-highway truck	Caterpillar 773B	Diesel	650	0	57	8	0.026	0.005	0.032	0.0020	0.002
Crane	Cummins	Diesel	230	0	43	8	0.023	0.003	0.009	0.0015	0.002
Generator	Caterpillar 3114	Diesel	109	1	74	4	0.018	0.002	0.011	0.0010	0.002
Asphalt paver	Caterpillar AP-1200	Diesel	145	0	62	8	0.023	0.001	0.007	0.0010	0.002
Welding machine	Perkins 4-236	Diesel	63	0	45	8	0.018	0.002	0.011	0.0010	0.002
Water wagon	Caterpillar 3406B	Diesel	350	0	57	8	0.026	0.005	0.032	0.0020	0.002
Roller	Caterpillar CS-431B	Diesel	102	0	56	8	0.020	0.002	0.007	0.0010	0.002

DAILY AND TOTAL EMISSIONS

Equipment Type	Emissions (lb/day) NOx	ROC	CO	PM10	SOx	Total Days	Emissions (Total Tons) NOx	ROC	CO	PM10	SOx
Tracked tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tracked tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tracked tractor (cert.)	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Pipelayer	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled tractor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Landfill compactor	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Elevating scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Elevating scraper (cert.)	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Tandem scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Standard scraper	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Grader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Backhoe	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Wheeled loader	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Excavator	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Excavator	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Off-highway truck	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Crane	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Generator	5.8	0.6	3.5	0.3	0.6	12	0.03	0.00	0.02	0.00	0.00
Asphalt paver	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Welding machine	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Water wagon	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
Roller	0.0	0.0	0.0	0.0	0.0	0	0.00	0.00	0.00	0.00	0.00
SUM	5.8	0.6	3.5	0.3	0.6		0.03	0.00	0.02	0.00	0.00

Emissions = BHP*Number*Load factor/100*Hours/day*lb/BHP-hr

Emission factors from Nonroad Engine and Vehicle Emissions Study (EPA, 1991)
Load factors from EPA NONROAD Model (in prep): Average Life, Annual Activity, and Load Factor Values for Nonroad Engine Emissions Modeling (Report No. NR-005, Dec 1997)
1996 Federal Stds: 0.015 NOx, 0.0009 PM, 0.002 THC lb/BHP-hr

BIOLOGY

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Oxnard & Saticoy Quads

CHARADRIUS ALEXANDRINUS NIVOSUS (NESTING)
WESTERN SNOWY PLOVER
Element Code: ABNNB03031

List Status | NDDB Element Ranks | Other Lists
Federal: Threatened | Global: G4T2 | CDFG Status: SC
State: None | State: S2

Habitat Associations
General: FEDERAL LISTING APPLIES ONLY TO THE PACIFIC COASTAL POPULATION.
Micro: SANDY BEACHES, SALT POND LEVEES & SHORES OF LARGE ALKALI LAKES. NEEDS SANDY, GRAVELLY OR FRIABLE SOILS FOR NESTING.

Occurrence No. 39 Map Index:15689
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: PAGE, G. & L. STENZEL 1981 (LIT)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary: Ormond Beach
Location: ORMOND BEACH, APPROX 1.5 MI SW OF PORT HUENEME.

Dates Last Seen
Element: 1978-XX-XX
Site: 1978-XX-XX

Lat/Long: 34ø08'04" / 119ø10'46"
UTM: Zone-11 N3779024 E299010
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 58.7 ac

Township: 01N
Range: 22W
Section: 28 Qtr XX
Meridian: S
Elevation: 10 ft

Comments
Distribution:
Ecological: NESTING AREA IS A DUNE-BACKED BEACH.
Threat:
General: 22 MUSEUM EGG SETS COLLECTED BETWEEN 1896 AND 1937; ONE CHICK OBSERVED BY WILBUR IN 1975; 14 PAIRS OBSERVED DURING MAY-JUNE OF 1978.
Owner/Manager: CITY OF OXNARD, PVT

Occurrence No. 40 Map Index:36858
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: PAGE, G. & L. STENZEL 1981 (LIT)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary: McGrath Beach
Location: MCGRATH STATE BEACH.

Dates Last Seen
Element: 1978-XX-XX
Site: 1978-XX-XX

Lat/Long: 34ø13'10" / 119ø15'22"
UTM: Zone-11 N3788601 E292153
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 166.9 ac

Township: 02N
Range: 23W
Section: 35 Qtr XX
Meridian: S
Elevation: 10 ft

Comments
Distribution:
Ecological: NESTING AREA IS A DUNE-BACKED BEACH.
Threat:
General: THREE PAIRS OBSERVED DURING A 1978 STUDY.
Owner/Manager: DPR-MCGRATH SB

Occurrence No. 41 Map Index:36879 ÄÄDates Last SeenÄÄ Lat/Long: 34ø14'22" / 119ø15'54" Township: 02N
Occ Rank: Unknown Element: 1978-XX-XX UTM: Zone-11 N3790844 E291390 Range: 23W
Origin: Natural/Native occurrence Site: 1978-XX-XX Precision: NON-SPECIFIC Section: 23 Qtr XX
Presence: Presumed Extant Symbol Type: POLYGON Meridian: S
Trend: Unknown Area: 58.5 ac Elevation: 15 ft
Main Source: PAGE, G. & L. STENZEL 1981 (LIT)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary: McGrath Beach
Location: MOUTH OF SANTA CLARA RIVER.
ÄÄÄÄÄÄCommentsÄÄÄÄÄÄÄÄ
Distribution:
Ecological: NESTING AREA IS A DUNE-BACKED BEACH.
Threat:
General: 30 ADULTS AND 6 NESTS REPORTED BY WILBUR IN 1975; 25 ADULTS OBSERVED DURING 1976; 13 PAIRS OBSERVED DURING 1978 STUDY.
Owner/Manager: UNKNOWN

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Oxnard & Saticoy Quads

CHARADRIUS ALEXANDRINUS NIVOSUS (NESTING) (cont.)
WESTERN SNOWY PLOVER
Element Code: ABNNB03031

List Status — Federal: Threatened — State: None
NDDB Element Ranks — Global: G4T2 — State: S2
Other Lists — CDFG Status: SC

Occurrence No. 123 Map Index:36254
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SMITH, R. 1997 (OBS)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary:
Location: HOLLYWOOD BY THE SEA (OXNARD BEACH), NORTH OF INLET TO CHANNEL ISLAND HARBOR, 4 MILES SOUTHWEST OF OXNARD.

Dates Last Seen
Element: 1997-06-26
Site: 1997-06-26

Lat/Long: 34ø09'43" / 119ø13'39"
UTM: Zone-11 N3782146 E294671
Precision: SPECIFIC
Symbol Type: POLYGON
Area: 48.1 ac

Township: 01N
Range: 22W
Section: 19 Qtr XX
Meridian: S
Elevation: 15 ft

Comments
Distribution: BEACH WITH LOW DUNES NORTH OF HARBOR INLET.
Ecological: NESTING, TO 200 YARDS NORTH OF HARBOR INLET, WINTERING AREA TO 1000 YARDS
Threat: HUMAN USE, DOGS AND CATS.
General: 17 ADULTS OBSERVED 21 FEB 1997 AND 2 ADULTS AND 2 JUVENILES OBSERVED 26 JUNE 1997.
Owner/Manager: STATE

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Oxnard & Saticoy Quads

STERNA ANTILLARUM BROWNI (NESTING COLONY)
CALIFORNIA LEAST TERN
Element Code: ABNNM08103

List Status — Federal: Endangered — State: Endangered
NDDB Element Ranks — Global: G4T2T3 — State: S2S3
Other Lists — CDFG Status:

Habitat Associations
General: NESTS ALONG THE COAST FROM SAN FRANCISCO BAY SOUTH TO NORTHERN BAJA CALIFORNIA.
Micro: COLONIAL BREEDER ON BARE OR SPARSELY VEGETATED, FLAT SUBSTRATES: SAND BEACHES, ALKALI FLATS, LAND FILLS, OR PAVED AREAS.

Occurrence No. 9 Map Index:36858
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Fluctuating
Main Source: ERICKSON, R. 1985 (LIT)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary: McGrath Beach
Location: FROM THE SANTA CLARA RIVER MOUTH SOUTH TO MCGRATH LAKE.

Dates Last Seen
Element: 1996-XX-XX
Site: 1996-XX-XX

Lat/Long: 34ø13'10" / 119ø15'22"
UTM: Zone-11 N3788601 E292153
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 166.9 ac

Township: 02N
Range: 23W
Section: 35 Qtr XX
Meridian: S
Elevation: 10 ft

Comments
Distribution: SITE INCLUDES "SANTA CLARA RIVER MOUTH", "MCGRATH BEACH" & MCGRATH LAKE SITES.
Ecological:
Threat: AREA IS PLAGUED BY HUMAN DISTURBANCE AND ENCROACHING VEGETATION.
General: IN USE SINCE 1920'S. SITE OF "A LARGE COLONY" IN 1939. 1978-81: 10-25 PRS/YR FLEDGED 12-25/YR. 1987: 15 PRS 10 FLEDGED. 1988: 2 PRS 4 FLEDGED. 1990: 27 PRS 34 FLEDGED. 1991: 26 PRS 24 FLEDGED. 1992: 26 PRS 35 FLEDGED. 1996: 28 PRS 20 FLDGD.
Owner/Manager: DPR-MCGRATH SB, OTHERS

Occurrence No. 11 Map Index:15689
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing
Main Source: ATWOOD, J. ET AL 1977 (LIT)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary: Ormond Beach
Location: ORMOND BEACH, GENRERALLY BETWEEN THE SOUTHERN CALIFORNIA EDISON PLANT AND PERKINS RD.

Dates Last Seen
Element: 1998-05-05
Site: 1998-05-05

Lat/Long: 34ø08'04" / 119ø10'46"
UTM: Zone-11 N3779024 E299010
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 58.7 ac

Township: 01N
Range: 22W
Section: 28 Qtr XX
Meridian: S
Elevation: 10 ft

Comments
Distribution: THE ORMOND BEACH SITE HAS TWO SUB-SITES, "PERKINS ROAD" AND "EDISON". SOME YEARS THE DATA IS REPORTED SEPARATELY & SOME YEARS THE DATA IS COMBINED.
Ecological:
Threat: SITE HAS PROBLEMS WITH HUMAN DISTURBANCE (TEENAGERS WERE SEEN BEATING FLEDGLINS TO DEATH), ORV'S & PREDATORS.
General: 1ST NESTING WAS 1974. 1977: 30 PRS, 10 FLEDGED. 1988: 3-4 PRS, FLEDGING SUCCESS UNKNOWN. 1990: 42 PRS, 30 FLEDGED. 1991: 17 PRS 12-14 FLEDGED. 1992: 18 PRS 17 FLEDGED. 1995: ~107 PRS. 1996: 85 PRS ~155 FLEDGED. 1998: 1ST BIRDS SEEN 5 MAY.
Owner/Manager: CITY OF OXNARD, PVT

Occurrence No. 79 Map Index:36254 ÄÄDates Last SeenÄÄ Lat/Long: 34ø09'43" / 119ø13'39" Township: 01N
Occ Rank: Good Element: 1997-06-27 UTM: Zone-11 N3782146 E294671 Range: 22W
Origin: Natural/Native occurrence Site: 1997-06-27 Precision: SPECIFIC Section: 19 Qtr XX
Presence: Presumed Extant Symbol Type: POLYGON Meridian: S
Trend: Unknown Area: 48.1 ac Elevation: 15 ft
Main Source: SMITH, R. 1997 (OBS)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary:
Location: HOLLYWOOD BY THE SEA (OXNARD BEACH), NORTH OF INLET TO CHANNEL ISLAND HARBOR, 4 MILES SOUTHWEST OF OXNARD.
ÄÄÄÄÄÄCommentsÄÄÄÄÄÄÄÄ
Distribution: BEACH WITH LOW DUNES NORTH OF HARBOR INLET.
Ecological: NESTING, TO 200 YARDS NORTH OF HARBOR INLET.
Threat: HUMAN USE, DOGS AND CATS.
General: 9 ADULTS AND 2 JUVENILES OBSERVED 27 JUNE 1997.
Owner/Manager: STATE

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Oxnard & Saticoy Quads

COCCYZUS AMERICANUS OCCIDENTALIS (NESTING)
WESTERN YELLOW-BILLED CUCKOO
Element Code: ABNRB02022

List Status — Federal: None — State: Endangered
NDDB Element Ranks — Global: G5T2T3 — State: S1
Other Lists — CDFG Status:

Habitat Associations

General: RIPARIAN FOREST NESTER, ALONG THE BROAD, LOWER FLOOD-BOTTOMS OF LARGER RIVER SYSTEMS.
Micro: NESTS IN RIPARIAN JUNGLES OF WILLOW, OFTEN MIXED WITH COTTONWOODS, W/ LOWER STORY OF BLACKBERRY, NETTLES, OR WILD GRAPE.

Occurrence No. 69 — Map Index:15673 — Dates Last Seen
Occ Rank: None — Element: 1942-07-04
Origin: Natural/Native occurrence — Site: 1977-07-22
Presence: Possibly Extirpated
Trend: Unknown
Main Source: GAINES, D. 1977 (LIT)
Quad Summary: OXNARD (3411922/114B)*, SATICOY (3411932/140C)
County Summary: VENTURA
SNA Summary:
Location: SANTA CLARA RIVER FROM THE MOUTH TO THE VICINITY OF MONTALVO.

Lat/Long: 34ø14'05" / 119ø13'11"
UTM: Zone-11 N3790221 E295548
Precision: NON SPECIFIC
Symbol Type: POLYGON
Area: 966.7 ac

Township: 02N
Range: 22W
Section: 30 Qtr XX
Meridian: S
Elevation: 75 ft

Comments

Distribution:
Ecological: SITE IS A SANDY FLOODPLAIN BETWEEN LEVEES; MOST VEGETATION IS DENUDED, PROBABLY BY ORV TRAFFIC. SOME WILLOWS OCCUR IN NARROW, INTERMITTENT STRIPS, BUT COVER IS SPARSE (20%).
Threat:
General: TWO WFVZ EGG SETS FROM THE MOUTH COLLECTED 18 JULY 1920 & 31 JULY 1921 AND ONE WFVZ EGG SET FROM THE VICINITY OF MONTALVO COLLECTED 4 JULY 1942. SURVEY OF SANTA CLARA RIVER IN 1977 BY GAINES DID NOT LOCATE ANY CUCKOOS IN THIS AREA.
Owner/Manager: PVT

Oxnard & Saticoy Quads

RIPARIA RIPARIA (NESTING)
BANK SWALLOW
Element Code: ABPAU08010

ÄÄÄÄÄList StatusÄÄÄÄÄÄÄÄÄÄÄÄÄNDDB Element RanksÄÄÄÄÄÄÄÄOther ListsÄÄÄÄÄÄ
Federal: None Global: G5 CDFG Status:
State: Threatened State: S2S3

ÄÄÄÄÄHabitat Associations

General: COLONIAL NESTER; NESTS PRIMARILY IN RIPARIAN AND OTHER LOWLAND HABITATS WEST OF THE DESERT.
Micro: REQUIRES VERTICAL BANKS/CLIFFS WITH FINE-TEXTURED/SANDY SOILS NEAR STREAMS, RIVERS, LAKES, OCEAN TO DIG NESTING HOLE.

Occurrence No. 114 Map Index:36882
Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown
Main Source: GARRETT, K. & J. DUNN 1981 (LIT)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary:
Location: SANTA CLARA RIVER ESTUARY.

ÄÄDates Last SeenÄÄ
Element: 1976-XX-XX
Site: 1976-XX-XX

Lat/Long: 34ø14'05" / 119ø15'41"
UTM: Zone-11 N3790301 E291699
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 99X
Range: 99X
Section: XX Qtr XX
Meridian: X
Elevation: 15 ft

ÄÄÄÄÄCommentsÄÄÄÄÄÄÄÄÄ
Distribution:
Ecological:
Threat:
General: ONE OR TWO PAIRS NESTED HERE IN 1976.
Owner/Manager: DPR-MCGRATH SB?, PVT

VIREO BELLII PUSILLUS (NESTING)
LEAST BELL'S VIREO
Element Code: ABPBW01114

List Status	NDDB Element Ranks	Other Lists
Federal: Endangered	Global: G5T2	CDFG Status:
State: Endangered	State: S2	

Habitat Associations

General: SUMMER RESIDENT OF SOUTHERN CALIF. INHABITS LOW RIPARIAN GROWTH IN VIC OF WATER OR IN DRY RIVER BOTTOMS; BELOW 2000 FT.
Micro: NESTS PLACED ALONG MARGINS OF BUSHES OR ON TWIGS PROJECTING INTO PATHWAYS, USUALLY WILLOW, BACCHARIS, MESQUITE.

Occurrence No. 109 Map Index:21213
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Increasing
Main Source: SWEETWATER ENVIRONMENT 1991 (OBS)
Quad Summary: SANTA PAULA (3411931/140D)*, SATICOY (3411932/140C)
County Summary: VENTURA
SNA Summary: Santa Clara River
Location: SANTA CLARA RIVER, NORTHEAST OF SATICOY

Dates Last Seen
Element: 1991-08-XX
Site: 1991-08-XX

Lat/Long: 34ø17'34" / 119ø07'18"
UTM: Zone-11 N3796457 E304720
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 207.8 ac

Township: 03N
Range: 21W
Section: XX Qtr XX
Meridian: S
Elevation: 150 ft

Comments
Distribution:
Ecological:
Threat: COWBIRDS, WATER PROJECT
General: 1 TERRITORIAL MALE OBSERVED IN 1981; 5 PAIRS AND 2 TERRITORIAL MALES DETECTED IN 1991.
Owner/Manager: UNKNOWN

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Oxnard & Saticoy Quads

PASSERCULUS SANDWICHENSIS BELDINGI
BELDING'S SAVANNAH SPARROW
Element Code: ABPBX99015

List Status — Federal: None — State: Endangered
NDDB Element Ranks — Global: G5T3 — State: S3
Other Lists — CDFG Status:

Habitat Associations
General: INHABITS COASTAL SALT MARSHES, FROM SANTA BARBARA SOUTH THROUGH SAN DIEGO COUNTY.
Micro: NESTS IN SALICORNIA ON AND ABOUT MARGINS OF TIDAL FLATS.

Occurrence No. 3 Map Index:15592
Dates Last Seen
Element: 1991-XX-XX
Site: 1991 XX XX
Lat/Long: 34ø13'51" / 119ø15'39"
UTM: Zone 11 N3789867 E291758
Precision: NON SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile
Township: 99X
Range: 99X
Section: XX Qtr XX
Meridian: S
Elevation: 10 ft
Occ Rank: Poor
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Decreasing
Main Source: U.S. FISH & WILDLIFE SERVICE 1987 (LIT)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary:
Location: MCGRATH STATE BEACH; NORTH EDGE OF BEACH ON SOUTH SIDE OF SANTA CLARA RIVER MOUTH.
Comments
Distribution:
Ecological: THE MARSH IS CLOSED TO TIDAL ACTION & HAS BEEN INVADED BY FRESHWATER MARSH PLANTS. VERY LITTLE PICKLEWEED. POPULATION CONSIDERED EXTIRPATED IN 1986, BUT 1 POSTED BIRD OBSERVED HERE IN 1991.
Threat: AS LONG AS MARSH REMAINS CLOSED TO TIDAL INFLUENCE, IT IS UNLIKELY THAT BELDING'S WILL RECOLONIZE THIS AREA.
General: NOT SURVEYED IN 1973, 12 PRS ESTIMATED IN 1977, 0 ESTIMATED IN 1986, 1 BIRD OBSERVED IN 1991.
Owner/Manager: DPR-MCGRATH SB

Occurrence No. 4 Map Index:36841
Dates Last Seen
Element: 1998-05-05
Site: 1998-05-05
Lat/Long: 34ø07'55" / 119ø10'25"
UTM: Zone-11 N3778725 E299548
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 97.2 ac
Township: 01N
Range: 22W
Section: 34 Qtr XX
Meridian: S
Elevation: 10 ft
Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Fluctuating
Main Source: U.S. FISH & WILDLIFE SERVICE 1987 (LIT)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary: Ormond Beach
Location: ORMOND BEACH, 1 MI SE OF PORT HUENEME.
Comments
Distribution: 1986: SMALL PATCH OF MARSH BETWEEN POWER PLANT & NW FENCELINE OF PT MUGU TRAINING CENTER CONTAINED 2 PRS; LARGER MORE VIABLE MARSH BETWEEN EDISON & HALECO PROPERTIES HAD 18 PRS.
Ecological: ABOUT AN 8 HA SALTMARSH. MARSH MAINTAINED BY SEEPAGE & DRAINAGE. THIS AREA IS UPCOAST AND CONTIGUOUS WITH THE MUGU LAGOON HABITAT. 1991: AT LEAST 2 ACRES OF PICKLEWEED HABITAT WAS DISCED. 1998: SALTMARSH DISTURBED AT NORTHERN END.
Threat: HUMAN DISTURBANCE IS LARGE PROBLEM. AT LEAST PART OF THE AREA IS PROPOSED FOR A MARINA & HOUSING DEVELOPMENT.
General: NOT SURVEYED IN 1973, 17 PRS ESTIMATED IN 1977, 20 PRS ESTIMATED IN 1986, 15 PRS ESTIMATED IN 1991, >50 BIRDS OBSERVED 5 MAY 1998.
Owner/Manager: PVT, DPR

Oxnard & Saticoy Quads

EUCYCLOGOBIUS NEWBERRYI
TIDEWATER GOBY
Element Code: AFCQN04010

List Status: Federal: Endangered; State: None
NDDB Element Ranks: Global: G2G3; State: S2S3
Other Lists: CDFG Status: SC

Habitat Associations
General: BRACKISH WATER HABITATS ALONG THE CALIF COAST FROM AGUA HEDIONDA LAGOON, SAN DIEGO CO. TO THE MOUTH OF THE SMITH RIVER.
Micro: FOUND IN SHALLOW LAGOONS AND LOWER STREAM REACHES, THEY NEED FAIRLY STILL BUT NOT STAGNANT WATER & HIGH OXYGEN LEVELS.

Occurrence No. 76 Map Index:33743
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SWIFT, C. ET AL 1986 (LIT)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary: McGrath Beach
Location: SANTA CLARA RIVER ESTUARY, FROM MOUTH TO 3.0 MILES UPSTREAM, BETWEEN VENTURA AND OXNARD

Dates Last Seen
Element: 1999-03-13
Site: 1999-03-13

Lat/Long: /
UTM:
Precision:
Symbol Type:
Radius:

Township:
Range:
Section: Qtr
Meridian:
Elevation:

Comments
Distribution: SITE OCCUPIES 75-100 ACRES.
Ecological:
Threat: POSSIBLE THREAT: CHAMELEON GOBY PRESENT UPSTREAM IN PYRAMID LAKE AND MAY BE DETRIMENTAL IF IT MOVES DOWNSTREAM.
General: LACM 34071-1, COLLECTED 22 SEP 1974. UNKNOWN NUMBER COLLECTED IN 1984. POP PRESUMED EXTANT IN 1990 BY SWIFT. COLLECTED IN 1995. 9 ADULTS OBSERVED ON 13 MAR 1999.
Owner/Manager: DPR-MCGRATH SB, PVT

Occurrence No. 101 Map Index:36227
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: U.S. FISH & WILDLIFE SERVICE 1996 (LIT)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary:
Location: OXNARD DRAIN ("J" STREET CANAL), ORMOND BEACH AREA, SE OF PORT HUENEME

Dates Last Seen
Element: 1995-XX-XX
Site: 1995-XX-XX

Lat/Long: 34ø08'36" / 119ø11'07"
UTM: Zone-11 N3780000 E298498
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 44.4 ac

Township: 01N
Range: 22W
Section: 28 Qtr XX
Meridian: S
Elevation: 10 ft

Comments
Distribution: 0.75 TO 2.5 ACRES OF HABITAT.
Ecological: AN INTERMITTENT POPULATION. IN THE LAST 10-15 YEARS IT AT TIMES IS APPARENTLY EXTIRPATED OR AT UNDETECTABLE LEVELS.
Threat:
General: FIRST COLLECTED BY AMBROSE AND LAFFERTY IN 1993; LAST COLLECTED IN 1995.
Owner/Manager: CITY OF OXNARD, PVT

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Oxnard & Saticoy Quads

CLEMMYS MARMORATA PALLIDA
SOUTHWESTERN POND TURTLE
Element Code: ARAAD02032

List Status — Federal: None — State: None
NDDB Element Ranks — Global: G4T2T3 — State: S2
Other Lists — CDFG Status: SC

Habitat Associations

General: INHABITS PERMANENT OR NEARLY PERMANENT BODIES OF WATER IN MANY HABITAT TYPES; BELOW 6000 FT ELEV.
Micro: REQUIRE BASKING SITES SUCH AS PARTIALLY SUBMERGED LOGS, VEGETATION MATS, OR OPEN MUD BANKS. NEED SUITABLE NESTING SITES.

* SENSITIVE *

Occurrence No. 73 — Map Index: — Dates Last Seen — Lat/Long: / — Township:
Occ Rank: Unknown — Element: 1987-XX-XX — UTM: — Range:
Origin: Natural/Native occurrence — Site: 1987-XX-XX — Precision: — Section: — Qtr
Presence: Presumed Extant — Symbol Type: — Meridian:
Trend: Unknown — Radius: — Elevation:
Main Source: BRATTSTROM, B. & D. MESSER 1988 (LIT)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary: McGrath Beach
Location: *SENSITIVE* Location information suppressed.

Comments

Distribution: Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological: COMMUNITY TYPE MAPPED AT THIS LOCATION IS SOUTHERN RIPARIAN SCRUB.
Threat:
General:
Owner/Manager:

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Oxnard & Saticoy Quads

PHRYNOSOMA CORONATUM BLAINVILLEI
SAN DIEGO HORNED LIZARD — Element Code: ARACF12021

List Status	NDDB Element Ranks	Other Lists
Federal: None	Global: G4T3T4	CDFG Status: SC
State: None	State: S2S3	

Habitat Associations

General: INHABITS COASTAL SAGE SCRUB AND CHAPARRAL IN ARID AND SEMI-ARID CLIMATE CONDIT
Micro: PREFERS FRIABLE, ROCKY, OR SHALLOW SANDY SOILS.

Occurrence No. 411 Map Index:33536 — Dates Last Seen
Occ Rank: Good — Element: 1995-08-18
Origin: Natural/Native occurrence — Site: 1995-08-18
Presence: Presumed Extant
Trend: Unknown
Main Source: VANDER PLUYM, D. 1995 (OBS)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary:
Location: SOUTH OF THE SANTA CLARA RIVER, SW OF THE INTERSECTION OF LELAND STREET, AUTO CENTER DRIVE, AND VENTURA ROAD, EL RIO.

Lat/Long: 34ø14'20" / 119ø11'52"
UTM: Zone-11 N3790631 E297586
Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 99X
Range: 99X
Section: XX Qtr XX
Meridian: S
Elevation: 55 ft

Comments

Distribution: SPECIMEN LOCATED ON THE RIVER SIDE OF THE EXISTING LEVEE.
Ecological: HABITAT CONSISTS OF RUDERAL VEGETATION, MOSTLY BRASSICA GENICULATA, WITH SOME STAR THISTLE. OPEN, SANDY TO CLAY SUBSTRATE; ABOUT 20 FEET FROM WILLOW RIPARIAN WOODLAND.
Threat: THREATS INCLUDE ORV'S AND LEVEE REPLACEMENT.
General: 1 ADULT OBSERVED ON 18 AUGUST 1995.
Owner/Manager: VEN COUNTY

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Oxnard & Saticoy Quads

SOUTHERN COASTAL SALT MARSH

Element Code: CTT52120CA

List Status	NDDB Element Ranks	Other Lists
Federal: None	Global: G2	
State: None	State: S2.1	

Habitat Associations

General: None for this Element
Micro: None for this Element

Occurrence No. 20 Map Index:15588
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOOD, L. 1977 (LIT)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary: McGrath Beach
Location: SANTA CLARA RIVER MOUTH (S OF VENTURA).

Dates Last Seen
Element: 1976-XX-XX
Site: 1976-XX-XX

Lat/Long: 34ø14'08" / 119ø15'48"
UTM: Zone-11 N3790396 E291540
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1 mile

Township: 99X
Range: 99X
Section: XX Qtr XX
Meridian: S
Elevation:

Comments

Distribution: 75 ACRES MARSH (CNACC 1976).
Ecological: SPP INCL CORDYLANTHUS MARITIMUS SSP MARITIMUS. ASSOC VEG: RIPARIAN COMM.
Threat: AREA CHANNELIZED FOR FLOOD CONTROL. INDUSTRY & AG ON UPLANDS.
General: THIS WAS OCC #020 OF CTT52120CA.
Owner/Manager: STATE, PVT

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Oxnard & Saticoy Quads

COASTAL AND VALLEY FRESHWATER MARSH

Element Code: CTT52410CA

List Status — Federal: None — State: None
NDDB Element Ranks — Global: G3 — State: S2.1
Other Lists

Habitat Associations

General: None for this Element
Micro: None for this Element

Occurrence No. 38 Map Index:15603
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOOD, L. 1977 (LIT)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary: McGrath Beach
Location: MC GRATH LAKE, 4 MI NW OF OXNARD.

Dates Last Seen
Element: 1976-12-XX
Site: 1976-12-XX

Lat/Long: 34ø13'08" / 119ø15'14"
UTM: Zone-11 N3788513 E292380
Precision: SPECIFIC
Symbol Type: POLYGON
Area: 29.2 ac

Township: 02N
Range: 22W
Section: XX Qtr XX
Meridian: S
Elevation: 10 ft

Comments

Distribution:
Ecological: TYPICAL MARSH VEG. UNABLE TO CONVERT TO FLORISTIC CLASSIFICATION, LACKS SPP. INFO
Threat: HEAVY REC USE; BORDERED BY ROAD.
General:
Owner/Manager: DPR-MCGRATH SB

Oxnard & Saticoy Quads

SOUTHERN RIPARIAN SCRUB

Element Code: CTT63300CA

List Status — Federal: None — State: None
NDDB Element Ranks — Global: G3 — State: S3.2
Other Lists

Habitat Associations

General: None for this Element
Micro: None for this Element

Occurrence No. 25 Map Index:00106
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WIESLANDER, A. 1934 (MAP)
Quad Summary: FILLMORE (3411848/139B)*, MOORPARK (3411838/139C), PIRU (3411847/139A), SANTA PAULA (3411931/140D), SATICOY (3411932/140C)
County Summary: VENTURA
SNA Summary: Santa Clara River
Location: SANTA CLARA RIVER BED FROM NEAR CONFL CALUMET CYN D/S TO VICINITY OF SATICOY.

Dates Last Seen
Element: 1986-12-10
Site: 1986-12-10

Lat/Long: 34ø20'44" / 119ø03'29"
UTM: Zone-11 N3802208 E310700
Precision: SPECIFIC
Symbol Type: POLYGON
Area: 4,299.3 ac

Township: 04N
Range: 20W
Section: 35 Qtr XX
Meridian: S
Elevation: 360 ft

Comments

Distribution: SEEN IN 1986 AERIALS.
Ecological: MAPPED BY WIESLANDER SURVEY AS SCRUB W/DOMINANTS BACCHARIS VIMINEA, NICOTIANA GLAUCA, LEPIDOSPARTUM SQUAMATUM, ERIOGONUM FASCICULATUM, CORETHROGYNE FILAGINIFOLIA, GRASSES AND WILLOWS. DOMINANCE CHANGES ALONG STREAM COURSE.
Threat: DISTURBED IN VARYING DEGREES THROUGHOUT.
General: THIS WAS OCC #025 OF CTT63300CA.
Owner/Manager: UNKNOWN

Occurrence No. 26 Map Index:15665
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WIESLANDER, A. 1934 (MAP)
Quad Summary: SATICOY (3411932/140C)*, OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary: McGrath Beach
Location: SANTA CLARA RIVER BED FROM RIVER MOUTH U/S TO VICINITY OF SATICOY.

Dates Last Seen
Element: 1986-12-10
Site: 1986-12-10

Lat/Long: 34ø14'17" / 119ø13'30"
UTM: Zone-11 N3790603 E295068
Precision: SPECIFIC
Symbol Type: POLYGON
Area: 914.8 ac

Township: 99X
Range: 99X
Section: XX Qtr XX
Meridian: S
Elevation:

Comments

Distribution: SEEN IN 1986 AERIALS.
Ecological: MAPPED BY WIESLANDER SURVEY AS SCRUB OF BACCHARIS VIMINEA AND NICOTIANA GLAUCA OVER GRASSES.
Threat: SOME AREAS DISTURBED. GRAVEL PITS IN ADJACENT AREAS.
General: NEEDS FIELD VERIFICATION OF VEGETATION CONDITION, COMPOSITION. THIS WAS OCC #026 OF CTT63300CA.
Owner/Manager: UNKNOWN

Oxnard & Saticoy Quads

CICINDELA HIRTICOLLIS GRAVIDA
SANDY BEACH TIGER BEETLE
Element Code: IICOL02101

List Status — Federal: None — State: None
NDDB Element Ranks — Global: G5T4 — State: S1
Other Lists — CDFG Status:

Habitat Associations

General: INHABITS AREAS ADJACENT TO NON-BRACKISH WATER ALONG THE COAST OF CALIFORNIA FROM SAN FRANCISCO BAY TO NORTHERN MEXICO.
Micro: CLEAN, DRY, LIGHT-COLORED SAND IN THE UPPER ZONE. SUBTERRANEAN LARVAE PREFER MOIST SAND NOT AFFECTED BY WAVE ACTION.

Occurrence No. 18 — Map Index:36858
Occ Rank: None
Origin: Natural/Native occurrence
Presence: Extirpated
Trend: Unknown
Main Source: NAGANO, C. 1980 (LIT)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary: McGrath Beach
Location: MCGRATH STATE BEACH, JUST SOUTH OF THE SANTA CLARA RIVER MOUTH.

Dates Last Seen
Element: 1970-05-22
Site: 1979-XX-XX

Lat/Long: 34ø13'10" / 119ø15'22"
UTM: Zone-11 N3788601 E292153
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 166.9 ac

Township: 02N
Range: 23W
Section: 35 Qtr XX
Meridian: S
Elevation: 10 ft

Comments
Distribution:
Ecological: INHABITED CLEAN, DRY, LIGHT-COLORED SAND IN THE UPPER ZONE.
Threat: SENSITIVE TO CONTACT WITH HUMANS.
General: HISTORICAL LOCATION. IN 1970, BEETLE WAS ABUNDANT ON SAND BARS ALONG AN INLAND BAY (MCGRATH LAKE?) LEADING TO THE OCEAN.
Owner/Manager: DPR-MCGRATH SB

Occurrence No. 19 — Map Index:15678
Occ Rank: None
Origin: Natural/Native occurrence
Presence: Extirpated
Trend: Unknown
Main Source: NAGANO, C. 1980 (LIT)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary:
Location: PORT HUENEME.

Dates Last Seen
Element: XXXX-XX-XX
Site: 1979-XX-XX

Lat/Long: 34ø08'35" / 119ø11'44"
UTM: Zone-11 N3780014 E297560
Precision: NON-SPECIFIC
Symbol Type: POLYGON
Area: 51.8 ac

Township: 01N
Range: 22W
Section: 28 Qtr XX
Meridian: S
Elevation: 10 ft

Comments
Distribution:
Ecological: INHABITED CLEAN, DRY, LIGHT-COLORED SAND IN THE UPPER ZONE, USUALLY CLOSE TO NON-BRACKISH WATER.
Threat: SENSITIVE TO CONTACT WITH HUMANS.
General: HISTORICAL LOCATION.
Owner/Manager: UNKNOWN

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Oxnard & Saticoy Quads

DANAUS PLEXIPPUS
MONARCH BUTTERFLY
Element Code: IILEPP2010

List Status — Federal: None — State: None
NDDB Element Ranks — Global: G5 — State: S3
Other Lists — CDFG Status:

Habitat Associations

General: WINTER ROOST SITES EXTEND ALONG THE COAST FROM NORTHERN MENDOCINO TO BAJA CALIFORNIA, MEXICO.
Micro: ROOSTS LOCATED IN WIND-PROTECTED TREE GROVES (EUCALYPTUS, MONTEREY PINE, CYPRESS), WITH NECTAR AND WATER SOURCES NEARBY.

Occurrence No. 168 Map Index:15639
Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Fluctuating
Main Source: SAKAI, W. 1989 (OBS)
Quad Summary: SATICOY (3411932/140C)
County Summary: VENTURA
SNA Summary: Arundell Barranca
Location: ARUNDELL BARRANCA SITE, APPROXIMATELY 100M NORTH OF TELEGRAPH ROAD, EAST OF VENTURA.

Dates Last Seen
Element: 1998-01-09
Site: 1998-01-09

Lat/Long: 34ø16'43" / 119ø13'18"
UTM: Zone-11 N3795088 E295473
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 02N
Range: 22W
Section: XX Qtr XX
Meridian: S
Elevation: 260 ft

Comments
Distribution: IN 1994-95, MONARCHS CLUSTERED ~100M NORTH OF THE NORMAL ROOST LOCATION.
Ecological: HABITAT IS A CONCRETE-LINED CREEK CHANNEL, BORDERED ON EITHER SIDE BY EUCALYPTUS WINDROWS.
Threat:
General: 30K MONARCHS OBSERVED IN JAN 1987. 20K ON 12 FEB 1989. 10K+ OBSERVED DURING 1989-90. 10K+ OBSERVED DURING 1990-91. 500 IN 1992-93. 7500 OBSERVED IN 1993-94. 4000 OBSERVED IN 1994-95. 25K OBSERVED ON 2 JAN 1996. 40K ON 23 NOV 97 AND 9 JAN 98
Owner/Manager: PVT

Occurrence No. 169 Map Index:15623
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Fluctuating
Main Source: SAKAI, W. 1989 (OBS)
Quad Summary: SATICOY (3411932/140C)
County Summary: VENTURA
SNA Summary:
Location: CAMINO REAL PARK, NE OF THE JUNCTION OF HWY 126 AND HWY 101, SAN BUENAVENTURA, EAST OF VENTURA.

Dates Last Seen
Element: 1998-10-30
Site: 1998-10-30

Lat/Long: 34ø16'04" / 119ø14'05"
UTM: Zone-11 N3793907 E294245
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 02N
Range: 22W
Section: XX Qtr XX
Meridian: S
Elevation: 160 ft

Comments
Distribution: LOCALS RECALL MONARCHS USING THIS SITE EVERY YEAR FOR MANY YEARS.
Ecological: SITE IS LOCATED IN A CREEK BED; ROOST TREES ARE EUCALYPTUS IN THE "BARRANCA."
Threat: TREE TRIMMING/SPRAYING IS A POTENTIAL THREAT; PARK MAINTENANCE STAFF SHOULD BE ALERTED.
General: 5-10K OBSERVED IN 1985. 10-15K IN 86-87. 5-10K IN DEC 88; <100 BY FEB 89. 15K AT "NEW" ROOST SITE IN 89-90. 3K+ IN 90-91. 500 IN 92-93. 300 IN 93 94. 1K IN 94-95. 10 AT OLD SITE, 100 AT NEW SITE IN 96. 20K, NOV 97; 0, JAN 98. 5K, OCT 98.
Owner/Manager: CITY OF SAN BUENAVENTURA

Occurrence No. 170 Map Index:15679 ÄÄDates Last SeenÄÄ Lat/Long: 34ø15'37" / 119ø11'40" Township: 02N
Occ Rank: Good Element: 1998-01-09 UTM: Zone-11 N3792987 E297953 Range: 22W
Origin: Natural/Native occurrence Site: 1998-01-09 Precision: NON-SPECIFIC Section: XX Qtr XX
Presence: Presumed Extant Symbol Type: POINT Meridian: S
Trend: Stable Radius: 1/5 mile Elevation: 180 ft
Main Source: SAKAI, W. 1989 (OBS)
Quad Summary: SATICOY (3411932/140C)
County Summary: VENTURA
SNA Summary:
Location: HARMON BARRANCA, SOUTH END OF BARRANCA VISTA PARK, 0.5 MILES NE OF MONTALVO.
ÄÄÄÄÄÄCommentsÄÄÄÄÄÄÄÄ
Distribution:
Ecological: ROOST TREES ARE A GROVE OF 50-60 EUCALYPTUS TREES AS WELL AS SOME NATIVE VEGETATION IN THE BARRANCA ADJACENT TO THE PARK.
Threat: MAIN THREATS ARE VANDALISM AND ARSON.
General: 50-100 OBSERVED IN FEB 1985. LOW 100'S IN NOV 1986. 50-60 IN OCT 1987. 100'S IN 1988-89. UNKNOWN # PRESENT IN 1990-91. 10 IN 1992-93. 100 IN 1993-94. NONE IN JAN 1995. 2600 IN 1995-96. 1000 IN NOV 1997; 600 BY JAN 1998.
Owner/Manager: UNKNOWN

Oxnard & Saticoy Quads

DANAUS PLEXIPPUS (cont.)
MONARCH BUTTERFLY
Element Code: IILEPP2010

List Status | NDDB Element Ranks | Other Lists
Federal: None | Global: G5 | CDFG Status:
State: None | State: S3

Occurrence No. 171 Map Index:15649
Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Decreasing
Main Source: SAKAI, W. 1989 (OBS)
Quad Summary: SATICOY (3411932/140C)
County Summary: VENTURA
SNA Summary:
Location: THILLE STREET SITE, APPROXIMATELY 1 MILE ENE OF THE JUNCTION OF HWY 118 AND HWY 101, EAST OF VENTURA.

Dates Last Seen
Element: 1983-XX-XX
Site: 1995-01-XX
Lat/Long: 34ø16'04" / 119ø12'55"
UTM: Zone-11 N3793872 E296044
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 02N
Range: 22W
Section: XX Qtr XX
Meridian: S
Elevation: 200 ft

Comments
Distribution: SITE IS LOCATED BETWEEN HWY 26 AND TELEPHONE ROAD, EAST OF HWY 101.
Ecological: ROOST TREES ARE EUCALYPTUS.
Threat:
General: THOUSANDS OF MONARCHS WERE OBSERVED PATROLLING OVER A PERIOD OF MONTHS IN 1983. NO MONARCHS WERE OBSERVED DURING A JANUARY 1995 SITE VISIT.
Owner/Manager: UNKNOWN

Occurrence No. 172 Map Index:15719
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SAKAI, W. 1989 (OBS)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary:
Location: "BLUE GUM GROVE" SITE, W END OF ETTING RD AT OLDS RD, JUST EOF PLEASANT VALLEY RD, OXNARD.

Dates Last Seen
Element: XXXX-XX-XX
Site: XXXX-XX-XX
Lat/Long: 34ø09'43" / 119ø08'52"
UTM: Zone-11 N3782001 E302012
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 99X
Range: 99X
Section: XX Qtr XX
Meridian: S
Elevation: 30 ft

Comments
Distribution:
Ecological: ROOST TREES ARE EUCALYPTUS, PLANTED IN A TIGHT ROW, FORMING A WINDBREAK.
Threat:
General: APPROXIMATELY 15 MONARCHS WERE OBSERVED; DATE OF OBSERVATION UNKNOWN. SURROUNDING AREA IS A FLOOD PLAIN UTILIZED FOR AGRICULTURE, BUT GRADUALLY TURNING INTO HOUSING TRACTS AND INDUSTRIAL COMPLEXES.
Owner/Manager: UNKNOWN

Oxnard & Saticoy Quads

LASTHENIA GLABRATA SSP COULTERI
COULTER'S GOLDFIELDS
Element Code: PDAST5L0A1

List Status: Federal: Species of Concern; State: None
NDDB Element Ranks: Global: G4T3; State: S2.1
Other Lists: CNPS List: 1B; R-E-D Code: 2-3-2

Habitat Associations

General: COASTAL SALT MARSHES, PLAYAS, VALLEY AND FOOTHILL GRASSLAND, VERNAL POOLS.
Micro: USUALLY FOUND ON ALKALINE SOILS IN PLAYAS, SINKS, AND GRASSLANDS. 1-1400M.

Occurrence No. 53 Map Index:31515
Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DORSETT, D. 1998 (OBS)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary:
Location: ORMOND BEACH, ABOUT 0.5 MILE SOUTH OF JUNCTION OF HUENEME ROAD AND SAVIERS ROAD, PORT HUENEME.

Dates Last Seen
Element: 1998-05-05
Site: 1998-05-05

Lat/Long: 34ø08'22" / 119ø10'38"
UTM: Zone-11 N3779573 E299224
Precision: SPECIFIC
Symbol Type: POINT
Radius: 80 meters

Township: 01N
Range: 22W
Section: 27 Qtr XX
Meridian: S
Elevation: 10 ft

Comments

Distribution:
Ecological: DISTURBED SALT MARSH/MUD FLATS WITH POLYPOGON MONSPELIENSIS, SALICORNIA, SUAEDA, AND SPERGULARIA. BELDINGS SAVANNAH SPARROW REPORTED FROM THIS AREA.
Threat: ROADS (AREAS FREQUENTLY TRAVELED BY VEHICLES) CRISS-CROSS THE AREA. POTENTIAL DEVELOPMENT.
General: 20 PLANTS OBSERVED IN 1998. FIRST REPORTED IN THIS VICINITY IN 1901 COLLECTION BY DAVY.
Owner/Manager: PVT

California Department of Fish and Game
Natural Diversity Data Base
Full Condensed Report Multiple Records per Page

Oxnard & Saticoy Quads

ASTRAGALUS PYCNOSTACHYUS VAR LANOSISSIMUS
VENTURA MARSH MILK-VETCH
Element Code: PDFAB0F7B1

List Status | NDDB Element Ranks | Other Lists
Federal: Proposed Endangered | Global: G3T1 | CNPS List: 1B
State: Endangered | State: S1.1 | R-E-D Code: 3-3-3

Habitat Associations
General: COASTAL SALT MARSH. HISTORICALLY IN COASTAL SOUTHERN CALIFORNIA; NOW KNOWN AT ONE SITE IN VENTURA COUNTY.
Micro: WITHIN REACH OF HIGH TIDE OR PROTECTED BY BARRIER BEACHES, MORE RARELY NEAR SEEPS ON SANDY BLUFFS. 1-35M.

Occurrence No. 2 Map Index:15601
Occ Rank: None
Origin: Natural/Native occurrence
Presence: Extirpated
Trend: Unknown
Main Source: CHASE, R. SN CDA (HERB)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary:
Location: ALONG HARBOR BLVD ACROSS ROAD FROM ENTRANCE TO MCGRATH STATE BEACH, MOUTH OF SANTA CLARA RIVER.

Dates Last Seen
Element: 1967-09-29
Site: 1987-08-02

Lat/Long: 34ø13'37" / 119ø15'19"
UTM: Zone-11 N3789424 E292260
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 99X
Range: 99X
Section: XX Qtr XX
Meridian: S
Elevation: 30 ft

Comments
Distribution:
Ecological: NO HABITAT REMAINS AT THIS LOCATION WHICH IS OVERGROWN WITH INTRODUCED PLANTS.
Threat:
General: COLLECTION FROM A SINGLE PLANT, NOT FOUND AT THIS LOCATION SINCE 1967. ACCORDING TO CHASE, "APPARENTLY MORE PLANTS WERE IN A MOWED AREA OF LAWN AT THE ENTRANCE."
Owner/Manager: DPR-MCGRATH SB, VEN COUNTY

Occurrence No. 6 Map Index:40344
Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown
Main Source: ESSIG, E. SN JEPS #74641 (HERB)
Quad Summary: VENTURA (3411933/141D)*, OXNARD (3411922/114B), SATICOY (3411932/140C), PITAS POINT (3411934/141C)
County Summary: VENTURA
SNA Summary:
Location: VENTURA.

Dates Last Seen
Element: 1911-08-XX
Site: 1987-08-30

Lat/Long: 34ø17'59" / 119ø17'44"
UTM: Zone-11 N3797581 E288717
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 5 mile

Township: 03N
Range: 23W
Section: 33 Qtr XX
Meridian: S
Elevation: 200 ft

Comments
Distribution: EXACT LOCATION NOT KNOWN. MAPPED IN THE GENERAL AREA OF THE CITY OF VENTURA.
Ecological:
Threat:
General: MAIN SOURCE OF INFORMATION FOR THIS SITE IS 1911 COLLECTION BY ESSIG. VICINITY OF PIERPORT BEACH AND SAN BUENAVENTURA STATE BEACH SEARCHED BY BURGESS IN 1987, BUT NO PLANTS FOUND. ONLY MARGINALLY SUITABLE HABITAT REMAINING AT THESE SITES.
Owner/Manager: UNKNOWN

* SENSITIVE *

Occurrence No.	7	Map Index:	ÄÄDates Last SeenÄÄ	Lat/Long:	/	Township:	
Occ Rank:	Poor		Element: 1998-XX-XX	UTM:		Range:	
Origin:	Natural/Native occurrence		Site: 1998-XX-XX	Precision:		Section:	Qtr
Presence:	Presumed Extant			Symbol Type:		Meridian:	
Trend:	Unknown			Radius:		Elevation:	
Main Source:	MEYER, M. 1997 (OBS)						
Quad Summary:	OXNARD (3411922/114B)						
County Summary:	VENTURA						
SNA Summary:							
Location:	*SENSITIVE* Location information suppressed.						

ÄÄÄÄÄÄCommentsÄÄÄÄÄÄÄÄ

Distribution:	Please contact the Calfornia Natural Diversity Database, California Department of Fish and Game, for more information: (916) 324-3812.
Ecological:	DEGRADED COASTAL DUNE ON IMPORTED FILL. WITH BACCHARIS PILULARIS, B. SALICIFOLIA, SALIX LASIOLEPIS, AND MYOPORUM LAETUM. PATCHES OF CARPOBROTUS, AMMOPHILA ARENARIA, BROMUS RUBENS, CENTAUREA, CORTEDERIA, AND POLYPOGON MONSPELIENSIS.
Threat:	NONNATIVE PLANT SPECIES, PROPOSED SOIL BIOREMEDIATION, DEVELOPMENT, PETROLEUM WASTE, OVER-COLLECTION, TRAMPLING, ETC.
General:	
Owner/Manager:	

Oxnard & Saticoy Quads

ASTRAGALUS PYCNOSTACHYUS VAR LANOSISSIMUS (cont.)

VENTURA MARSH MILK-VETCH

Element Code: PDFAB0F7B1

List Status — Federal: Proposed Endangered — State: Endangered

NDDB Element Ranks — Global: G3T1 — State: S1.1

Other Lists — CNPS List: 1B — R-E-D Code: 3-3-3

Occurrence No. 8 — Map Index:15642

Dates Last Seen — Element: 1927-08-28 — Site: 1927-08-28

Lat/Long: 34ø09'28" / 119ø13'14" — UTM: Zone-11 N3781686 E295290 — Precision: NON-SPECIFIC — Symbol Type: POLYGON — Area: 632.7 ac

Township: 01N — Range: 22W — Section: 19 Qtr XX — Meridian: S — Elevation: 10 ft

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: CRAIG, T. #519 MU (HERB)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary:
Location: SILVER STRAND BEACH NEAR HUENEME.

Comments

Distribution: EXACT LOCATION NOT KNOWN; MAPPED AT CNDDB TO INCLUDE SILVER STRAND AREA NORTH OF THE MOUTH OF PORT HUENEME HARBOR.
Ecological:
Threat:
General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1927 COLLECTION BY T. CRAIG.
Owner/Manager: UNKNOWN

California Department of Fish and Game
Natural Diversity Data Base
Full Condensed Report Ä Multiple Records per Page

Oxnard & Saticoy Quads

CORDYLANTHUS MARITIMUS SSP MARITIMUS
SALT MARSH BIRD'S-BEAK
Element Code: PDSCR0J0C2

List Status | NDDB Element Ranks | Other Lists
Federal: Endangered | Global: G3T2 | CNPS List: 1B
State: Endangered | State: S2.1 | R-E-D Code: 2-2-2

Habitat Associations
General: COASTAL SALT MARSH, COASTAL DUNES.
Micro: LIMITED TO THE HIGHER ZONES OF THE SALT MARSH HABITAT. 0-30M.

Occurrence No. 9 Map Index:15642 | Dates Last Seen | Lat/Long: 34ø09'28" / 119ø13'14" | Township: 01N
Occ Rank: None | Element: 1927-08-28 | UTM: Zone-11 N3781686 E295290 | Range: 22W
Origin: Natural/Native occurrence | Site: 1927-08-28 | Precision: NON-SPECIFIC | Section: 19 Qtr XX
Presence: Possibly Extirpated | Symbol Type: POLYGON | Meridian: S
Trend: Unknown | Area: 632.7 ac | Elevation: 10 ft
Main Source: CRAIG #521 DS (HERB)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary:
Location: SILVER STRAND BEACH, PORT HUENEME.

Comments
Distribution:
Ecological:
Threat:
General: MAIN SOURCE OF INFORMATION FOR THIS SITE IS 1927 BY CRAIG (#512 DS). P. ALLEN, 1974, NOTES THAT THE PLANT IS PROBABLY EXTINCT HERE.
Owner/Manager: UNKNOWN

Occurrence No. 10 Map Index:15588 | Dates Last Seen | Lat/Long: 34ø14'08" / 119ø15'48" | Township: 99X
Occ Rank: None | Element: 1960-XX-XX | UTM: Zone-11 N3790396 E291540 | Range: 99X
Origin: Natural/Native occurrence | Site: 1984-08-23 | Precision: NON-SPECIFIC | Section: XX Qtr XX
Presence: Possibly Extirpated | Symbol Type: POINT | Meridian: S
Trend: Decreasing | Radius: 1 mile | Elevation:
Main Source: SHREVE #7430 UC (HERB)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary: McGrath Beach
Location: SANTA CLARA RIVER, NEAR OXNARD.

Comments
Distribution: EXACT LOCATION NOT KNOWN; MAPPED NEAR MOUTH OF RIVER IN VICINITY OF MCGRATH STATE BEACH.
Ecological:
Threat: MUCH PUBLIC USE AND ORV'S.
General: COLLECTED HERE IN 1935 BY SHREVE. SEEN AT THIS SITE IN 1960 ACCORDING TO FOX AND KNUDSEN (1982). SEARCHED IN 1981 AND 1984, BUT NOT FOUND.
Owner/Manager: DPR, CITY OF VENTURA

Occurrence No. 24 Map Index:15701 ÄÄDates Last SeenÄÄ Lat/Long: 34ø07'49" / 119ø10'19" Township: 01N
Occ Rank: Unknown Element: 1984-08-XX UTM: Zone-11 N3778546 E299699 Range: 22W
Origin: Natural/Native occurrence Site: 1984-08-XX Precision: NON-SPECIFIC Section: 34 Qtr XX
Presence: Presumed Extant Symbol Type: POLYGON Meridian: S
Trend: Decreasing Area: 60.1 ac Elevation: 5 ft
Main Source: NEWMAN, J. 1981 (OBS)
Quad Summary: OXNARD (3411922/114B)*, POINT MUGU (3411911/114D)
County Summary: VENTURA
SNA Summary: Ormond Beach
Location: ORMOND BEACH, JUST BEHIND DUNES IN THE VICINITY OF THE SCE POWER GENERATION FACILITY, OXNARD.
ÄÄÄÄÄÄCommentsÄÄÄÄÄÄÄÄ
Distribution: SEVERAL COLONIES MAPPED BEHIND DUNES FROM 0.5 TO 1.5 MILES NW OF ARNOLD ROAD.
Ecological: BACK DUNES AND UPPER SALTMARSH. ON SAND TO SANDY LOAM SOILS, SOMETIMES WITH SALT CRUST. ASSOCIATED WITH UPPER SALTMARSH VEGETATION; SALICORNIA, DISTICHLIS SPICATA, MONANTHOCLOE, POLYPOGON, FRANKENIA, JAUMEA CARNOSA.
Threat: ORV USE ON ADJACENT DUNE CAUSED WIND DEPOSITED SAND TO COVER SOME AREAS PREVIOUSLY OCCUPIED BY THE SPECIES.
General: 300-400 PLANTS REPORTED IN 1981, 100+ IN 1984, 400+ IN 1981. RESTORATION PLAN PROPOSED FOR THIS SITE.
Owner/Manager: PVT-SOUTHERN CAL EDISON

Oxnard & Saticoy Quads

CORDYLANTHUS MARITIMUS SSP MARITIMUS (cont.)

SALT MARSH BIRD'S-BEAK
Element Code: PDSCR0J0C2

List Status — Federal: Endangered — State: Endangered
NDDB Element Ranks — Global: G3T2 — State: S2.1
Other Lists — CNPS List: 1B — R-E-D Code: 2-2-2

Occurrence No. 41 Map Index:36772
Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: FOX, L. ND (PERS)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA
SNA Summary: Ormond Beach
Location: ALONG MCWANE ROAD NEAR OXNARD DRAIN, ABOUT 0.7 MILE SOUTH OF SANTA CLARA HIGH SCHOOL, OXNARD.

Dates Last Seen
Element: 1980-XX-XX
Site: 1980-XX-XX

Lat/Long: 34ø08'23" / 119ø10'50"
UTM: Zone-11 N3779623 E298924
Precision: NON-SPECIFIC
Symbol Type: POINT
Radius: 1/5 mile

Township: 01N
Range: 22W
Section: 28 Qtr XX
Meridian: S
Elevation: 15 ft

Comments

Distribution: END OF ROAD IN AREA OF COUNTY OWNED WETLANDS.
Ecological: ASSOCIATED WITH SALICORNIA VIRGINICA, FRANKENIA GRANDIFOLIA, JAUMEA CARNOSA AND LIMONIUM CALIFORNICUM.
Threat:
General: SITE REPORTED TO FOX BY LOCKEHART IN 1980.
Owner/Manager: VEN COUNTY

NOISE

455
45
500

(1)

AMBIENT NOISE MEASUREMENT DATA SHEET

Padre Associates

5450 Telegraph Rd., Suite 101
Ventura, California 93003

Phone : (805) 644-2220
Telefax : (805) 644-2050

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

Project Number: 2002-2991

Date: 11/23/00

Project Name: El Rio Sewer

Time: 3:05 pm

Location: El Rio End of Myrtle St near 101

Operator: DMH

Weather Conditions: Sky: Clear
Wind: very mild

Noise Sources: traffic on 101, light construction on a home (hammering by hand), birds, agricultural equipment

Distance from primary source:

Begin Time: 3:05 pm

End Time: 3:20 pm

Leq: 61.0

SEL:

Max Hold Peak:

Max Hold Slow:

Noise Meter Type: Larson Davis DSP 80

Leq Range

Calibrator: Cal 200

Calibrated at:: 113.5

Notes: Single family residential neighborhood
Noise meter set up ≈ 5 feet from property line of residence at end of Myrtle St.

SIGNED BY: DM Hebert

(2)

AMBIENT NOISE MEASUREMENT DATA SHEET

Padre Associates

5450 Telegraph Rd., Suite 101
Ventura, California 93003

Phone : (805) 644-2220
Telefax : (805) 644-2050

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

Project Number: 2002-2991

Date: 11/23/00

Project Name: El Rio Sewer

Time: 3:23 pm

Location: Strobe Street 2nd House past library

Operator: DMH

Weather Conditions: Sky: Clear
Wind: light, moving branches

Noise Sources: Traffic on Vinyard and ~~Strobe~~ Strobe street

Distance from primary source: 500 ft from centerline of Vineyard

Begin Time: 3:23 pm

End Time: 3:37 pm

Leq: 63.3

SEL:

Max Hold Peak:

Max Hold Slow:

Noise Meter Type: Larson Davis DSP80

Leq Range

Calibrator: Cal 200

Calibrated at:: 113.5

Notes: ≈ 5 ft. from property line of homes on mountain side of Strobe St (east side)
≈ 25 ft from centerline of strobe street

SIGNED BY: DMH

CFRC.BCSFORMSFORMNODOC

(3)

AMBIENT NOISE MEASUREMENT DATA SHEET

Padre Associates
5450 Telegraph Rd., Suite 101
Ventura, California 93003
Phone : (805) 644-2220
Telefax : (805) 644-2050

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

Project Number: 2002-2991
Date: 11/23/00
Project Name: St Rio Sewer
Time: 3:50 pm
Location: Strickland Drive prop. line of res. ± midway on Strickland
Operator: DmH
Weather Conditions: Sky: Clear
Wind: light moving branches
Noise Sources: Traffic on Central Ave, overhead aircraft, wind very light traffic on Strickland.

Distance from primary source: ± 375' from centerline of Central Ave.
Begin Time: 3:50 pm.
End Time: 4:05 pm.
Leq: 53.4
SEL:
Max Hold Peak:
Max Hold Slow:
Noise Meter Type: Larson Davis DSP 80
Leq Range
Calibrator: Cal 200
Calibrated at:: 113.5
Notes: Residential neighborhood
± 30' from centerline of Strickland Dr.
± 375 from Central

SIGNED BY:

(4)

AMBIENT NOISE MEASUREMENT DATA SHEET

Padre Associates
5450 Telegraph Rd., Suite 101
Ventura, California 93003
Phone : (805) 644-2220
Telefax : (805) 644-2050

padre associates, inc.
ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS

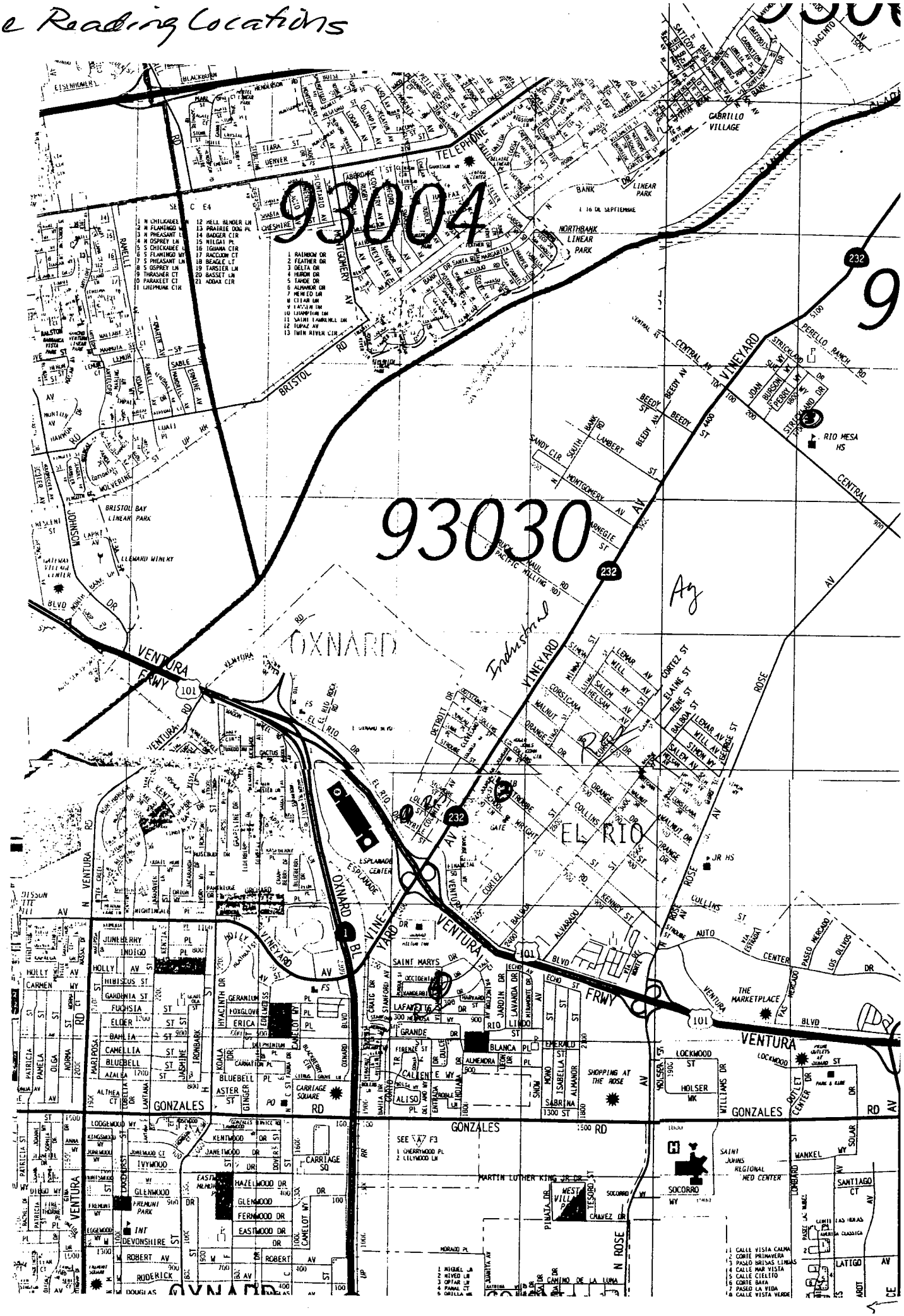
Project Number: 2002-2991
Date: 11/22/00
Project Name: El Rio Sewer
Time: 4:15
Location: Intersection of Villanova & Occidental
Operator: DMH
Weather Conditions: Sky: Clear
Wind: Light
Noise Sources: Light traffic on Villanova Ave & Occidental Dr. Traffic on US 101, residential sprinklers

Distance from primary source: ± 20' from centerline of Occidental Dr.
± 40' from centerline of Villanova Ave.

Begin Time: 4:15
End Time: 4:30
Leq: 53.4
SEL:
Max Hold Peak:
Max Hold Slow:
Noise Meter Type: Larson Davis DPS 80
Leq Range
Calibrator: Cal 200
Calibrated at:: 113.5
Notes:

SIGNED BY: D.M.H

Noise Reading Locations



CONSTRUCTION NOISE MODEL

Project: El Rio Sewer Project
Date: 27-Nov-00
Scenario: Construction - Sewer Installation
Receptor: Strickland Drive and Villanova/Occidental Homes

Assumed Attenuation: 6 dBA per doubling of distance

NOISE SOURCE (Data Source)	NUMBER OF UNITS	ASSUMED USE FACTOR	MAX SOUND PRESSURE LEVEL @ 50 FT (dBA)	DISTANCE (Feet)	DIVERGENCE ATTENUATED NOISE LEVEL Leq (dBA)	GROUND ATTENUATION Leq (dBA)	ATTENUATED NOISE LEVEL Leq (dBA)	NOISE LEVEL BELOW LOUDEST Leq (dBA)	ADDITIVE NOISE LEVEL Leq (dBA)
A	B	C	D	E	F	G	H	I	J
BACKHOE (1)	0	0.50	85	1000					
COMPACTOR (1)	2	0.45	83	15	93.2	-67.4	93.2	0.0	3
CONCRETE MIXER (1)	0	0.73	85	1000					
CONCRETE PUMP (1)	0	0.73	82	180					
COMPRESSORS (1)	0	0.73	81	50					
CRANE (1)	0	0.16	83	180					
DERRICK (1)	0	0.73	88	50					
D8 DOZER (std) (1)	0	0.73	83	50					
D8 DOZER (enhanced enclosure, est.)	0	0.73	82	50					
DRILL RIG (WATER) (3)	0	0.73	80	120					
ELECTRIC GENERATOR (1)	0	1.00	90	50					
FORKLIFT (1)	0	0.73	80	50					
GARBAGE TRUCK (COMPACTOR) (1)	0	0.50	90	60					
GENERATOR (1)	0	0.73	78	50					
MOTOR GRADER (4)	0	0.73	82.5	50					
HOE EXCAVATOR (1)	0	0.80	85	1000					
JACK HAMMERS (1)	0	0.73	88	50					
966F WHEELED LOADER (std) (4)	0	0.73	78	1000					
966F WHEELED LOADER (enhanced enclosure) (4)	0	0.73	77	50					
PAVER (1)	0	0.50	89	10					
PICK-UP TRUCK (1)	0	0.73	79	50					
PICK-UP (2.5 tn) (1)	2	0.73	79	50	80.4	-4.8	80.4	12.8	0.23
PICK-UP (4-W DRIVE) (1)	0	0.73	79	50					
PILE DRIVER (PEAK) (1)	0	0.73	101	50					
PNEUMATIC TOOLS (1)	0	0.05	86	50					
PUMP (1)	0	0.73	66	120					
ROLLER (1)	2	0.45	74	15	84.2	-67.4	84.2	9.0	0.49
CHAIN SAW (Estimated)	0	0.10	90	50					
SCRAPER (3)	0	0.73	82	50					
SCRAPER (3)	0	0.73	82	50					
SHEEPSFOOT ROLLER (1)	0	0.73	78	50					
SHREDDER (1)	0	0.73	75	50					
TRUCK TRACTOR (1)	0	0.73	82	1000					
TRUCK TRACTOR (1)	0	0.73	82	700					
VAN (1)	0	0.73	77	50					
WATER TRUCK (1)	0	0.73	88	1000					
WATER WAGON (1)	0	0.73	83	50					

TOTAL Leq DURING NORMAL OPERATIONS (Maximum from column H + Sum of column J - 3):	94
ASSUMED DAYTIME AMBIENT WITHOUT CONSTRUCTION:	53.4
ASSUMED NIGHTTIME AMBIENT:	46
NUMBER OF DAYTIME HOURS OPERATING:	10
NUMBER OF EVENING HOURS OPERATING:	0
NUMBER OF NIGHTIME HOURS OPERATING:	0
ESTIMATED Ldn:	90
ESTIMATED CNEL:	90

Ground attenuation estimates assume soft sites, average transmission path of 2 meters above the ground

Data Sources:
(1) EPA (1971), Noise From Construction Equipment and Operations, EPA PB 206 717
(2) Harris, C.M. (1991), Handbook of Acoustical Measurements and Noise Control, 3rd. Ed.
(3) Actual measurements by Padre staff
(4) Quinn Company-Caterpillar distributor

CONSTRUCTION NOISE MODEL

Project: El Rio Sewer Project
Date: 27-Nov-00
Scenario: Construction - Sewer Installation
Receptor: Strobe Street Homes

Assumed Attenuation: 6 dBA per doubling of distance

NOISE SOURCE (Data Source)	NUMBER OF UNITS	ASSUMED USE FACTOR	MAX SOUND PRESSURE LEVEL @ 50 FT (dBA)	DISTANCE (Feet)	DIVERGENCE ATTENUATED NOISE LEVEL Leq (dBA)	GROUND ATTENUATION Leq (dBA)	ATTENUATED NOISE LEVEL Leq (dBA)	NOISE LEVEL BELOW LOUDEST Leq (dBA)	ADDITIVE NOISE LEVEL Leq (dBA)
A	B	C	D	E	F	G	H	I	J
BACKHOE (1)	0	0.50	85	1000					
COMPACTOR (1)	2	0.45	83	15	93.2	-67.4	93.2	0.0	3
CONCRETE MIXER (1)	0	0.73	85	1000					
CONCRETE PUMP (1)	0	0.73	82	180					
COMPRESSORS (1)	0	0.73	81	50					
CRANE (1)	0	0.16	83	180					
DERRICK (1)	0	0.73	88	50					
D8 DOZER (std) (1)	0	0.73	83	50					
D8 DOZER (enhanced enclosure, est.)	0	0.73	82	50					
DRILL RIG (WATER) (3)	0	0.73	80	120					
ELECTRIC GENERATOR (1)	0	1.00	90	50					
FORKLIFT (1)	0	0.73	80	50					
GARBAGE TRUCK (COMPACTOR) (1)	0	0.50	90	60					
GENERATOR (1)	0	0.73	78	50					
MOTOR GRADER (4)	0	0.73	82.5	50					
HOE EXCAVATOR (1)	0	0.80	85	1000					
JACK HAMMERS (1)	0	0.73	88	50					
966F WHEELED LOADER (std) (4)	0	0.73	78	1000					
966F WHEELED LOADER (enhanced enclosure) (4)	0	0.73	77	50					
PAVER (1)	0	0.50	89	10					
PICK-UP TRUCK (1)	0	0.73	79	50					
PICK-UP (2.5 tn) (1)	2	0.73	79	50	80.4	-4.8	80.4	12.8	0.23
PICK-UP (4-W DRIVE) (1)	0	0.73	79	50					
PILE DRIVER (PEAK) (1)	0	0.73	101	50					
PNEUMATIC TOOLS (1)	0	0.05	86	50					
PUMP (1)	0	0.73	66	120					
ROLLER (1)	2	0.45	74	15	84.2	-67.4	84.2	9.0	0.49
CHAIN SAW (Estimated)	0	0.10	90	50					
SCRAPER (3)	0	0.73	82	50					
SCRAPER (3)	0	0.73	82	50					
SHEEPSFOOT ROLLER (1)	0	0.73	78	50					
SHREDDER (1)	0	0.73	75	50					
TRUCK TRACTOR (1)	0	0.73	82	1000					
TRUCK TRACTOR (1)	0	0.73	82	700					
VAN (1)	0	0.73	77	50					
WATER TRUCK (1)	0	0.73	88	1000					
WATER WAGON (1)	0	0.73	83	50					

TOTAL Leq DURING NORMAL OPERATIONS (Maximum from column H + Sum of column J - 3):	94
ASSUMED DAYTIME AMBIENT WITHOUT CONSTRUCTION:	63.3
ASSUMED NIGHTTIME AMBIENT:	55
NUMBER OF DAYTIME HOURS OPERATING:	10
NUMBER OF EVENING HOURS OPERATING:	0
NUMBER OF NIGHTTIME HOURS OPERATING:	0
ESTIMATED Ldn:	90
ESTIMATED CNEL:	90

Ground attenuation estimates assume soft sites, average transmission path of 2 meters above the ground

Data Sources:
(1) EPA (1971), Noise From Construction Equipment and Operations, EPA PB 206 717
(2) Harris, C.M. (1991), Handbook of Acoustical Measurements and Noise Control, 3rd. Ed.
(3) Actual measurements by Padre staff
(4) Quinn Company-Caterpillar distributor

CONSTRUCTION NOISE MODEL

Project: El Rio Sewer Project
Date: 27-Nov-00
Scenario: Construction - Sewer Installation
Receptor: Myrtle Street Homes

Assumed Attenuation: 6 dBA per doubling of distance

NOISE SOURCE (Data Source)	NUMBER OF UNITS	ASSUMED USE FACTOR	MAX SOUND PRESSURE LEVEL @ 50 FT (dBA)	DISTANCE (Feet)	DIVERGENCE ATTENUATED NOISE LEVEL Leq (dBA)	GROUND ATTENUATION Leq (dBA)	ATTENUATED NOISE LEVEL Leq (dBA)	NOISE LEVEL BELOW LOUDEST Leq (dBA)	ADDITIVE NOISE LEVEL Leq (dBA)
A	B	C	D	E	F	G	H	I	J
BACKHOE (1)	0	0.50	85	1000					
COMPACTOR (1)	2	0.45	83	15	93.2	-67.4	93.2	0.0	3
CONCRETE MIXER (1)	0	0.73	85	1000					
CONCRETE PUMP (1)	0	0.73	82	180					
COMPRESSORS (1)	0	0.73	81	50					
CRANE (1)	0	0.16	83	180					
DERRICK (1)	0	0.73	88	50					
D8 DOZER (std) (1)	0	0.73	83	50					
D8 DOZER (enhanced enclosure, est.)	0	0.73	82	50					
DRILL RIG (WATER) (3)	0	0.73	80	120					
ELECTRIC GENERATOR (1)	0	1.00	90	50					
FORKLIFT (1)	0	0.73	80	50					
GARBAGE TRUCK (COMPACTOR) (1)	0	0.50	90	60					
GENERATOR (1)	0	0.73	78	50					
MOTOR GRADER (4)	0	0.73	82.5	50					
HOE EXCAVATOR (1)	0	0.80	85	1000					
JACK HAMMERS (1)	0	0.73	88	50					
966F WHEELED LOADER (std) (4)	0	0.73	78	1000					
966F WHEELED LOADER (enhenced enclosure) (4)	0	0.73	77	50					
PAVER (1)	0	0.50	89	10					
PICK-UP TRUCK (1)	0	0.73	79	50					
PICK-UP (2.5 tn) (1)	2	0.73	79	50	80.4	-4.8	80.4	12.8	0.23
PICK-UP (4-W DRIVE) (1)	0	0.73	79	50					
PILE DRIVER (PEAK) (1)	0	0.73	101	50					
PNEUMATIC TOOLS (1)	0	0.05	86	50					
PUMP (1)	0	0.73	66	120					
ROLLER (1)	2	0.45	74	15	84.2	-67.4	84.2	9.0	0.49
CHAIN SAW (Estimated)	0	0.10	90	50					
SCRAPER (3)	0	0.73	82	50					
SCRAPER (3)	0	0.73	82	50					
SHEEPSFOOT ROLLER (1)	0	0.73	78	50					
SHREDDER (1)	0	0.73	75	50					
TRUCK TRACTOR (1)	0	0.73	82	1000					
TRUCK TRACTOR (1)	0	0.73	82	700					
VAN (1)	0	0.73	77	50					
WATER TRUCK (1)	0	0.73	88	1000					
WATER WAGON (1)	0	0.73	83	50					

TOTAL Leq DURING NORMAL OPERATIONS (Maximum from column H + Sum of column J - 3). 94

ASSUMED DAYTIME AMBIENT WITHOUT CONSTRUCTION: 61
ASSUMED NIGHTTIME AMBIENT: 56
NUMBER OF DAYTIME HOURS OPERATING: 10
NUMBER OF EVENING HOURS OPERATING: 0
NUMBER OF NIGHTIME HOURS OPERATING: 0
ESTIMATED Ldn: 90
ESTIMATED CNEL: 90

Ground attenuation estimates assume soft sites, average transmission path of 2 meters above the ground

Data Sources:
(1) EPA (1971), Noise From Construction Equipment and Operations, EPA PB 206 717
(2) Harris, C M (1991), Handbook of Acoustical Measurements and Noise Control, 3rd. Ed.
(3) Actual measurements by Padre staff
(4) Quinn Company-Caterpillar distributor