

US EPA ARCHIVE DOCUMENT

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)					Total Days	Emissions (Total Tons)				
	NOx	ROC	CO	PM10	SOx		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 Std: 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)					Total Days	Emissions (Total Tons)				
	NOx	ROC	CO	PM10	SOx		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 Std: 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

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
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

Equipment Type	Emissions (lb/day)					Total Days	Emissions (Total Tons)				
	NOx	ROC	CO	PM10	SOx		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 Std: 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	Total	Proportion			Miles		
		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		CO		NOx		PM	
ROG							
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		

Glossary

NCat	Vehicles without catalytic converters
Cat	Vehicles with catalytic converters
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

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

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	Total	Proportion			Miles		
		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		CO		NOx		PM	
ROG							
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 converters
Cat	Vehicles with catalytic converters
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	Total	Proportion			Miles		
		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		CO		NOx		PM	
ROG							
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		

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	

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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	Total	Proportion			Miles		
		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		CO		NOx		PM	
ROG							
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	Total	Proportion			Miles		
		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		

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

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

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	Total	Proportion			Miles		
		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		CO		NOx		PM	
ROG		NCat Auto Run		NCat Auto Run		NCat Auto Run	
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		

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

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

	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)					Total Days	Emissions (Total Tons)				
	NOx	ROC	CO	PM10	SOx		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 Std: 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	Total	Proportion			Miles		
		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	0.98	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/ml) 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	Total	Proportion			Miles		
		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		CO		NOx		PM	
ROG							
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		

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

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

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		CO		NOx		PM	
ROG							
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 converters
Cat	Vehicles with catalytic converters
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)					Total Days	Emissions (Total Tons)				
	NOx	ROC	CO	PM10	SOx		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 Std: 0.015 NOx, 0.0009 PM, 0.002 THC lb/BHP-hr

BIOLOGY

Oxnard & Satcoy Quads

ÄÄÄHabitat Associations

Occurrence No. 39	Map Index:15689	ÅÅDates Last SeenÅÅ	Lat/Long: 34ø08'04" / 119ø10'46"	Township: 01N
Occ Rank: Unknown		Element: 1978 XX-XX	UTM: Zone-11 N3779024 E299010	Range: 22W
Origin: Natural/Native occurrence		Site: 1978 XX-XX	Precision: NON-SPECIFIC	Section: 28 Qtr XX
Presence: Presumed Extant			Symbol Type: POLYGON	Meridian: S
			Area: 58.7 ac	Elevation: 10 ft

1981 (LIT)

Final Summary: OXNARD (3411922/114B)

County Summary: VENTURA

SNA Summary: Ormond Beach

Location: ORMOND BEACH, APPROX 1.5 MI SW OF FORT HOENES.

AAAAAComments/AAAAA

SUBDUCTION: NESTING AREA IS A DUNE-BACKED BEACH.
ECOLOGICAL:

[illegible]

General: 22 MUSEUM EGG SETS COLLE

DURING MAY-JUNE OF 1

Owner/Manager: CITY OF OXNARD, PVI

Yend: UNKNOWN

Mail Source: FAGE, C. & L. S. 114B)
 Card Summary: OYNARD (3411922/114B)

County Summary: VENTURA

SNA Summary: McGrath Beach

Location: MCGRATH STATE BEACH.

ÄÄÄÄÄComment sÄÄÄÄÄÄÄÄ

istribution:

logical: nesting area is a done-backed domain.

General: THREE DAYS OBS

Owner/Manager: DPR - MCGRATH SB

	Occurrence No.	41	Map Index:	36879	AADates Last SeenAA	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.										
	CommentsAAAAA											
	Distribution:											
	Ecological:											
	Threat:											
	General:											
	Owner/Manager:	UNKNOWN										

30 ADULTS AND 6 NESTS REPORTED BY WILBUR IN 1975; 25 ADULTS OBSERVED DURING 1976; 13 PAIRS OBSERVED DURING
 1978 STUDY.
 Owner/Manager: UNKNOWN

AAAA
 Date: 11/15/2000
 Report: RF2WIDE
 Padre Associates
 Information dated 10/02/2000
 Page 1

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

Oxnard & Satcoy Quads

CHARADRIUS ALEXANDRINUS NIVOSUS (NESTING) (cont.)
WESTERN SNOWY PLOVER
Element Code: ABNNB03031
Federal: Threatened
Global: G4T2
State: S2
State: None
List Status: Threatened
Element Ranks: Other Lists: CDFG Status: SC

Occurrence No. 123 Map Index: 36254 Dates Last Seen: Lat/Long: 34°09'43" / 119°13'39" Township: 01N
Occ Rank: Good Element: 1997-06-26 UTM: Zone-11 N3782146 E294671 Range: 22W
Origin: Natural/Native occurrence Site: 1997-06-26 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.

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

Oxnard & Satcoy Quads

ÄÄÄÄHabitat Associations

General: NESTS ALONG THE COAST FROM SAN FRANCISCO BAY SOUTH TO NORTHERN BAJA CALIFORNIA.

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	ÅDates Last SeenÅÅ	Lat/Long: 34ø13'10" / 119ø15'22"	Township: 02N
Occ Rank: Unknown		Element: 1996-XX-XX	UTM: Zone-11 N3788601 E292153	Range: 23W
Origin: Natural/Native occurrence		Site: 1996-XX-XX	Precision: NON-SPECIFIC	Section: 35 Qtr XX
Presence: Presumed Extant			Symbol Type: POLYGON	Meridian: S
Trend: Fluctuating			Area: 166.9 ac	Elevation: 10 ft

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.

ÄÄÄÄComment sÄÄÄÄÄÄ

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 PBS 20 FI.DGD.

Owner/Manager: DPR-MCGRATH SR OTHERS
1990: 28 FRS 20 FDDGD:

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Occurrence No. 11	Map Index:15689	Åädates Last SeenÅä	Lat/Long: 34ø08'04" / 119ø10'46"	Township: 01N
Occ Rank: Unknown		Element: 1998-05-05	UTM: Zone-11 N3779024 E299010	Range: 22W
Origin: Natural/Native occurrence		Site: 1998-05-05	Precision: NON-SPECIFIC	Section: 28 Qtr XX
Presence: Presumed Extant			Symbol Type: POLYGON	Meridian: S
Trend: Decreasing			Area: 58.7 ac	Elevation: 10 ft

Trend: Decreasing
Main Source: ATWOOD, J. ET AL. 1977 (I.I.T)

MAIN SOURCE: RIMWOOD, S.: EP 157.
Quad Summary: OXNARD (3411922/1148)

County Summary: VENTURA

SNA Summary: Ormond Beach

SNA Summary: Olinoid Beach
Location: Ormond Beach generally between the Southern California Edison plant and Perkins Rd.

[illegible]

DISTRIBUTION. THE OPMONT BEACH SITE HAS TWO SUB-SITES "PERKINS ROAD" AND "EDISON". SOME YEARS THE DATA IS REPORTED

DISCUSSION: THE ORMOND BEACH SITE HAS TWO SOB-SITES, FER
SEPARATELY & SOME YEARS THE DATA IS COMBINED

Ecological:

biological:
Threat: SITE HAS PROBLEMS WITH HUMAN DISTURBANCE (TEENAGERS WERE SEEN BEATING FLEEDGLINGS TO DEATH). ORV'S & PREDATORS.

INTEAL: SITE HAS PROBLEMS WITH HUMAN DISTURBANCE (TEENAGERS WERE SEEN BEATING FEEDINGS TO DEATH); CARV & INDESTRUCTIBLE
General: 1ST NESTING WAS 1974 1977: 30 PRS 10 FLEDGED 1988: 3-4 PRS FLEDGING SUCCESS UNKNOWN. 1990: 42 PRS. 30

ISI NESTING WAS 1974: 30 PRS, 10 FLEDGED; 1986: 3-4 PRS, FLEDGING SUCCESS UNKNOWN; 1990: 42 PRS, 20 FLEDGED; 1991: 17 PRS 12-14 FLEDGED; 1992: 18 PRS 17 FLEDGED; 1995: -107 PRS; 1996: 85 PRS -155 FLEDGED; 1998:

FLEDGED: 1991: 1 / PRS
1ST BIRDS SEEN 5 MAY

Owner/Manager: CITY OF OYNARD BVT 3 MAY

4

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

Oxnard & Saticoy Quads

COCCYZUS AMERICANUS OCCIDENTALIS (NESTING)
WESTERN YELLOW-BILLED CUCKOO
Element Code: ABNRB02022
Global: G5T2T3
State: S1
Federal: None
State: Endangered
List Status: None
Element Ranks: 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: Lat/Long: 34°14'05" / 119°13'11" Township: 02N
Occ Rank: None Element: 1942 07 04 UTM: Zone: 11 N3790221 E295548 Range: 22W
Origin: Natural/Native occurrence Site: 1977-07-22 Precision: NON SPFCIFIC Section: 30 Qtr XX
Presence: Possibly Extirpated Symbol Type: POLYGON Meridian: S
Trend: Unknown Area: 966.7 ac Elevation: 75 ft

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.

Distribution:
Ecological: SITE IS A SANDY FLOODPLAIN BETWEEN LEVEES; MOST VEGETATION IS DENUDE, 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

ÄÄÄHabitat 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.

Main Source: GARRETT, K. & J. DUNN 1981 (LIT)

Quad Summary: OXNARD (3411922/114B)

County Summary: VENTURA

SNA Summary:

Location: SANTA CLARA RIVER ESTUARY.

ÄÄÄÄComment sÄÄÄÄÄÄ

Distribution:

Ecological:

Threat:

General: ONE OR TWO PAIRS NESTED HERE IN 1976.

Owner/Manager: DPR-MCGRATH SB?, PVT

Full Condensed Report A Multiple Records per Page

Oxnard & Saticoy Quads

```
' , PASPERCULUS SANDWICHENSIS BELDINGI
' , BELDING'S SAVANNAH SPARROW
' , Element Code: ABPBX99015
' , Federal: None Global: GST3 CDPG Status:
' State: Endangered State: S3
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AAAAHHabitat 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	ÅÄates Last Seen	ÅÄ / Long: 34°13'51" / 119°15'39"	Township: 99X
Occ Rank: Poor	Origin: Natural/Native occurrence	Element: 1991-XX-XX	UTM: Zone 11 N3789867 E291758	Range: 99X
Preence: Presumed Extant	Trend: Decreasing	Site: 1991 XX XX	Precision: NON SPECIFIC	Section: XX Qtr XX
			Symbol Type: POINT	Meridian: S
			Radius: 1/5 mile	Elevation: 10 ft

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.

ÄÄÄÄÄComment-ÄÄÄÄÄÄ

might, but for:

ecological; the marsh is closed to tidal action & has been invaded by freshwater marsh plants. Very little pickweed.

POPULATION CONSIDERED EXTIRPATED IN 1986, BUT A 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

100

Occurrence No. 4	Map Index: 36841	ÅDates Last SeenÅ	Lat/Long: 34ø07'55" / 119ø10'25"	Township: 01N
Occ Rank: Fair	Element: 1998-05-05	UTM: Zone-11 N3778725 E299548	Range: 22W	
Origin: Natural/Native occurrence	Site: 1998-05-05	Precision: NON-SPECIFIC	Section: 34	Qtr XX
Presence: Presumed Extant		Symbol Type: POLYGON	Meridian: S	
Trend: Fluctuating		Area: 97.2 ac	Elevation: 10 ft	

Main Source: U.S. FISH & WILDLIFE SERVICE 1987 (LIT)

Quad Summary: OXNARD (3411922/114B)

County Summary: VENTURA

SNA Summary: Ormond Beach

Summary: ORMOND BEACH. 1 MI SE OF PORT HITTENEME
Location: ORMOND BEACH. 1 MI SE OF PORT HITTENEME

AAAAAComment'sAAAAAAA

1986: SMALL PATCH OF MARSH BETWEEN POWER PLANT & NW FENCE LINE OF PT MICH TRAINING CENTER CONTAINED 2 DPS.

1900: SPARE TAUCH OF PARSH BETWEEN EDISON & HAILECO PROPERTIES HAD 18 PPS
LARGER MORE VIABLE MAPSH BETWEEN EDISON & HAILECO PROPERTIES HAD 18 PPS

larger more viride marsh between Edison & HADECO properties had 16 FR3, Eco[logica]: about an 8 ha saltmarsh marsh maintained by seepage & drainage this area is upcoast and contiguous with the

ABOUT AN 8 HA SALTFLAT. MARSH MAINTAINED BY SEEPAGE & DRAINAGE; THIS AREA IS OF COAST AND CONIGUOUS WITH MUD FLATS. AT LEAST 2 ACRES OF RICKLEFELD HABITAT WAS DISCOVERED IN 1998. SALT MARSH DISTURBED AT

MOGO DAGCON FI
NORTHERN FND

Threat: HUMAN DISTURBANCE IS LARGE PROBLEM AT LEAST PART OF THE AREA IS PROPOSED FOR A MARINA & HOUSING DEVELOPMENT

General: NOT SURVIVED IN 1973 17 PPS ESTIMATED IN 1977 20 PPS ESTIMATED IN 1986 15 PPS ESTIMATED IN 1991 ~50 PPSDS

NOT SURVEILED IN 1975
OBSERVED 5 MAY 1998

Owner/Manager: PVT. DPR

Date: 11/15/2000
 Report: RF21WIDE
 Padre Associates
 Information dated 10/02/2000

Natural Diversity Data Base

[illegible]

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.

Main Source: SWIFT, C. ET AL 1986 (LIT)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA

Location: SANTA CLARA RIVER ESTUARY, FROM MOUTH TO 3.0 MILES UPSTREAM, BETWEEN VENTURA AND OXNARD

Distribution: SITE OCCUPIES 75-100 ACRES.

possible threat: chameleon goby present upstream in pyramid lake and may be detrimental if it moves upstream.

General: LACM 34071-1 COLLECTED 22 SEP 1974 UNKNOWN NUMBER COLLECTED IN 1984. POP PRESUMED EXTANT IN 1990 BY SWIFT: DOMINICAN REPUBLIC

Owner/Manager: DBB - MCGRATH SB PVT
CONNECTED IN 1999:

Item: UNKNOWN
Main Source: U.S. FISH & WILDLIFE SERVICE 1996 (J.T.)

Quant Summary: OANFAD
Count Summary: VENTITRA

Summary: CYNARD DRAIN ("J" STREET CANAL.) ORMOND BEACH AREA. SE OF PORT HUENEME

Distribution: 0.75 TO 2.5 ACRES OF HABITAT.

Threat:

Owner/Manager: CITY OF OXNARD. PVT.

[illegible][illegible]

Report: REF3WINE
Information dated 10/02/2000

Oxnard & Saticoy Quads

[illegible]

ÄÄÄÄHabitat Associations

AAAAAhabitat Associations
AAAAA
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:	ÅÅDates Last Seen	ÅÅ /	Lat/Long:	Township:
Occ Rank:	Unknown		Element:	1987-XX-XX	UTM:	Range:
Origin:	Natural/Native occurrence		Site:	1987-XX-XX	Precision:	Section:
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.

ÄÄÄÄCommentsÄÄÄÄÄÄ

Please contact the California 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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Date: 11/15/2000 Padre Associates
Report: Rf2WIDE Information dated 10/02/2000

Oxnard & Saticoy Quads

ÄÄÄHabitat Associations

General: None for this Element

Occurrence No. 20	Map Index:15588	ÃDates Last SeenÃÃ	Lat/Long: 34ø14'08" / 119ø15'48"	Township: 99X
Occ Rank: Unknown		Element: 1976-XX-XX	UTM: Zone-11 N3790396 E291540	Range: 99X
Origin: Natural/Native occurrence		Site: 1976-XX-XX	Precision: NON-SPECIFIC	Section: XX Qtr XX
Presence: Presumed Extant			Symbol Type: POINT	Meridian: S
Trend: Unknown			Radius: 1 mile	Elevation:

County Summary: VENTURA

AAAAComment s'AAAAAA

Owner/Manager: STATE, PVT

Owner/Manager: STATE, PVT

Date: 11/15/2000
 Report: RF2WIDE
 Padre Associates
 Information dated 10/02/2000

Page 11

Oxnard & Saticoy Quads

“ÄÄÄÄHabitat Associations

MICRO: NONE
 ELEMENT

"The first thing I noticed when I stepped out of the car was the smell of rain. It was a warm, earthy scent that reminded me of childhood. I had never before experienced a rainstorm in a city so vibrant and full of life. The streets were slick with water, reflecting the colorful lights of the buildings. I took a deep breath, savoring the moment. It felt like I had been transported to a different world, one where the air was clean and the sky was a deep, dark blue. I walked down the sidewalk, my feet splashing in the puddles. The sound of the water hitting the pavement was a soothing melody. I looked up at the sky, watching the rain fall in a steady rhythm. It was a beautiful sight, and I felt a sense of peace wash over me. I had found a moment of tranquility in the heart of a bustling city. It was a small miracle, but it was exactly what I needed. I smiled to myself, feeling grateful for the unexpected gift of a rainy day in New York City."

Oxnard & Saticoy Quads

Habitat Associations

Micro: None for this element

Main Source: WIESLANDER, A. 1934 (MAP)
 Quad Summary: FILLMORE (3411848/139B)*, MOORSPARK (3411838/139C), PTRU (3411847/139A), SANTA PAULA (3411931/140D), SATICOY (3411932/140C)

SNA Summary: Santa Clara River

Location: SANTA CLARA RIVER BED FROM NEAR CONFL CALUMET CYN D/S TO VICINITY OF SATICOY.

DOCACTION: CHAIA
ÄÄÄÄÄComment sÄÄÄÄÄÄÄÄ

DISTRIBUTION: SEEN IN 1986 AERIALS.

Ecological: MAPPED BY WIESLANDER SURVEY AS SCRUB W/DOMINANT'S BACCHARIS VIMINEN, 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

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ITEM#: C1410011
Main Source: WTESTLANDER A. 1934 (MAP)

County Summary: SAILCOT
County Summary: VENTURA

Only Summary: VENTURA
CNA Summary: McGrath Beach

SNA Summary: MCGILL BEACH
Location: SANTA CLARA RIVER BED FROM RIVER MOUTH II/S TO VICINITY OF SATICOY.

LOCATION: SANIA

AAAACommentsAAAAAA

Distribution: SEEN IN 1986 AERIALS.

logical: MAPPED BY WIESLANDER SURVEY AS SCRUB OF BACCHARIS VITIS-IDAEA. SOME ARE DISCONTINUED GRAVEL PITS IN ADJACENT AREAS.

Threat: SOME AREAS DISTURBED. GRAVEL PITS IN ADJACENT AREAS.

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Oxnard & Saticoy Quads

ÄÄÄHabitat Associations

Occurrence No. 18	Map Index: 36858	ÅÅDates Last SeenÅÅ	Lat/Long: 34ø13'10" / 119ø15'22"	Township: 02N
Occ Rank: None	Origin: Natural/Native occurrence	Element: 1970-05-22	UTM: Zone-11 N3788601 E292153	Range: 23W
Presence: Extirpated	Site: 1979-XX-XX	Precision: NON-SPECIFIC	Symbol Type: POLYGON	Section: 35 Qtr XX
Trend: Unknown		Area: 166.9 ac		Meridian: S
				Elevation: 10 ft

Distribution:

Owner/Manager: DPR-MCGRATH SB

SNA Summary:

Distribution:

Threat: SENSITIVE TO CONTACT WITH HUMANS.

Owner/Manager: UNKNOWN

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 Date: 11/15/2000
 Report: RP2WIDE
 Padre Associates
 Information dated 10/02/2000
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Oxnard & Saticov Ovads

Habitat Associations

Occurrence No. 168	Map Index:15639	ÅÅDates Last SeenÅÅ	Lat/Long: 34ø16'43" / 119ø13'18"	Township: 02N
Occ Rank: Excellent		Element: 1998-01-09	UTM: Zone-11 N3795088 E295473	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: Fluctuating			Radius: 1/5 mile	Elevation: 260 ft

SNA Summary: Arundell Barranca

Location: ARINDELL BARRANCA SITE. APPROXIMATELY 100M NORTH OF TELEGRAPH ROAD. EAST OF VENTURA.

LOCATION: AKRON
AA comment gAAAA

Distribution: IN 1994-95, MONARCHS CLUSTERED ~100M NORTH OF THE NORMAL ROOST LOCATION.

Distribution: IN 1993-95, HATCHING OCCURRED 100% NORTH OF THE NORMAN ROSS MEMORIAL. **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

[illegible]

Occurrence No. 169	Map Index:15623	ÅDates Last SeenÅÅ	Lat/Long: 34ø16'04" / 119ø14'05"	Township: 02N
Occ Rank: Good		Element: 1998-10-30	UTM: Zone-11 N3793907 E294245	Range: 22W
Origin: Natural/Native occurrence		Site: 1998-10-30	Precision: NON-SPECIFIC	Section: XX Qtr XX
Presence: Presumed Extant			Symbol Type: POINT	Meridian: S
Trend: Fluctuating			Radius: 1/5 mile	Elevation: 160 ft

Friend: 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.

LOCUTION: CAMINO
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-- -- -- Comment -- -- -- -- --

AAAAAAACOMMENTSAAAAAA
Distribution. LOCALS BECALL MONARCHS USING THIS SITE EVERY YEAR FOR MANY YEARS

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

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 AA Dates Last Seen AA Lat/Long: 34°15'37" / 119°11'40" 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.
Comments:
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

Date: 11/15/2000 Padre Associates
Report: RF2WIDE Information dated 10/02/2000
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Oxnard & Saticoy Quads

[illegible]

Occurrence No. 171	Map Index:15649	ÅÅDates Last SeenÅÅ	Lat/Long: 34ø16'04" / 119ø12'55"	Township: 02N
Occ Rank: None	Element: 1983-XX XX	UTM: Zone 11 N3793872 E296044	Range: 22W	
Origin: Natural/Native occurrence	Site: 1995, 01 XX	precination: NON-SPECIFIC1r	Section: XX Qtr XX	
Preence: Possibly Extirpated		Symbol Type: POINT	Meridian: S	
Trend: Decreasing		Radius: 1/5 mile	Elevation: 200 ft	

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.

AAAAAACommentsAAAAAA
Distribution: SITE IS LOCATED BETWEEN HWY 26 AND TELEPHONE ROAD, EAST OF HWY 101.

Ecological: ROOST TREES ARE EUCALYPTUS.

Threat: 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	ÅDates Last Seen: Å	Lat/Long: 34ø9'43" / 119ø08'52"	Township: 99X
Occ Rank: Unknown		Element: XXXX-XX-XX	UTM: Zone-11 N3782001 E302012	Range: 99X
Origin: Natural/Native	occurrence	Site: XXXX-XX-XX	Precision: NON-SPECIFIC	Section: XX Qtr XX
Presence: Presumed Extant			Symbol Type: POINT	Meridian: S
Trend: Unknown			Radius: 1/5 mile	Elevation: 30 ft

Main Source: SAKAI, W. 1989 (OBS)
Quad Summary: OXNARD (3411922/114B)
County Summary: VENTURA

SNA Summary: Location: "BLUE GUM GROVE" SITE, W END OF ETING RD AT OLDS RD, JUST EOF PLEASANT VALLEY RD, OXNARD.

AAAAAComment sAAAAA

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

[illegible]

Date: 11/15/2000 Padre Associates
 Report: R22WIDE Information dated 10/02/2000

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Oxnard & Saticoy Quads

ÄÄÄHabitat Associations

Micro: USUALLY FOUND ON ALKALINE SOILS IN PLAYAS, SINKS, AND GRASSLANDS. 1-1400M.

Main Source: DORSETT, D. 1998 (OBS)
 Quad Summary: OXNARD (3411922/114B)
 County Summary: VENTURA

[ÄÄÄÄComment sÄÄÄÄÄÄ](#)

Owner/Manager: PVT

[illegible]

Date: 11/15/2000
 Report: Rf2WIDE
 Padre Associates
 Information dated 10/02/2000

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

Oxnard & Satcoy Quads

ASTRAGALUS PYNOSTACHYUS VAR LANOSISSIMUS
VENTURA MARSH MILK-VETCH
Element Code: PDFAB07B1
Status: Endangered
Federal: Proposed Endangered
Global: G3T1
State: Si. 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 Lat/Long: 34°13'17" / 119°15'19" Township: 99X
Occ Rank: None Element: 1967-09-29 UTM: Zone-11 N3789424 E2922260 Range: 99X
Origin: Natural/Native occurrence Site: 1987-08-02 Precision: NON-SPECIFIC Section: XX Qtr XX
Presence: Extirpated Symbol Type: POINT Meridian: S
Trend: Unknown Radius: 1/5 mile Elevation: 30 ft

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.

Comments:

Distribution:

Ecological:

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 Lat/Long: 34°17'59" / 119°17'44" Township: 03N
Occ Rank: None Element: 1911-08-XX UTM: Zone-11 N3797581 E288717 Range: 23W
Origin: Natural/Native occurrence Site: 1987-08-30 Precision: NON-SPECIFIC Section: 33 Qtr XX
Presence: Possibly Extirpated Symbol Type: POINT Meridian: S
Trend: Unknown Radius: 5 mile Elevation: 200 ft

Main Source: ESSIG, E. SN JEPS #74641 (HERB)

Quad Summary: VENTURA (3411933/141D)*, OXNARD (3411932/140C), PITAS POINT (3411934/141C)

County Summary: VENTURA

SNA Summary:

Location: VENTURA.

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

AA

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

AA

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Date: 11/15/2000 Padre Associates
Report: RF2WIDE Information dated 10/02/2000
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Oxnard & Saticoy Quads

Occurrence No. 8	Map Index:15642	AADates Last SeenNA	Lat./Long: 34°09'28" / 119°13'14"	Township: 01N
Occ Rank: Unknown		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: Presumed Extant			Symbol Type: POLYGON	Meridian: S
Trend: Unknown			Area: 632.7 ac	Elevation: 10 ft

Ecological:
Threat:
General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1927 COLLECTION BY T. CRAIG.
Owner/Manager: UNKNOWN

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Oxnard & Saticoy Quads

ÄÄÄHabitat Associations

ANTHROPOLOGICAL ASSOCIATIONS

General]: COASTAL; SALT MARSH. COASTAL PINES.

Micro: LIMITED TO THE HIGHER ZONES OF THE SALT MARSH HABITAT. 0-30M.

MICROFILMED
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 FILED
 MAR 21 1968
 FBI - ALBANY

Occurrence No. 9	Map Index:15642	ÅÅDates Last SeenÅÅ	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

[illegible]

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

A A

Occurrence No. 10	Map Index:15588	ÅDates Last SeenÅÅ	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.

ÃÃÃÃÃCommentsÃÃÃÃÃÃÃ

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.

1981 AND 1984, BUT NOT FOUND.

Owner/Manager: DPR, CITY OF VENTURA

Occurrence No. 24 Map Index: 15701 AADates Last Seen: 11/9/10'19" 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.
Comments: AAAAAA
Distribution: SEVERAL COLONIES MAPPED BEHIND DUNES FROM 0.5 TO 1.5 MILES NW OF ARNOLD ROAD.
Ecological: BACK DUNES AND UPPER SALTWASH. ON SAND TO SANDY LOAM SOILS, SOMETIMES WITH SALT CRUST. ASSOCIATED WITH
UPPER SALTWASH 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

Date: 11/15/2000 Padre Associates
Report: RF2WIDE Information dated 10/02/2000 Page 20

Oxnard & Saticoy Quads

[illegible]

NOISE

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: D m H
Weather Sky: Clear
Conditions: 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: Larsen Davis DSP30
Leq Range
Calibrator: Cal 200
Calibrated at: 113.5

Notes: Single family residential neighborhood
Noise meter set up 35 feet from property line of residence
at end of Myrtle St.

SIGNED BY: D m H

AMBIENT NOISE MEASUREMENT DATA SHEET

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Ventura, California 93003

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Project Number: 2002-2991

Date: 11/23/00

Project Name: El Rio Seniors

Time: 3:23 pm

Location: Strobe Street 2nd House past library Operator:

DMH

Weather Sky: Clear

Conditions: Wind: light, moving branches

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

Distance from primary source: 500 ft from center line 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 DSP

Leg Range

Calibrator: Cal 200

Calibrated at: 113.5

Notes: $\approx$ 5 ft. from property line of homes on mountain side of
Strobe St (east side)
 $\approx$ 25 ft from centerline of Strobe Street

SIGNED BY: Am 17

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:

4:15

Location:

Intersection of Villanova & Occidental

Operator:

Dmit

Weather

Sky: Clear

Conditions:

Wind: Light

Noise

Sources:

Light traffic on Villanova Ave & Occidental Dr.
Traffic on US 101, residential sprinklers

Distance from
primary
source:

~ 26' 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.

Reading Locations

93004

93030

Industrial

Ag

PR

VENTURA HWY 101

232

OXNARD

EL RIO

GONZALES

VENTURA

LOCKWOOD

SANTIAGO

1. CALLE VISTA CALMA
2. CORTE PRIMERA
3. PASO BRILLAS LINDAS
4. CALLE MAR VISTA
5. CALLE CIELITO
6. CORTE SAIA
7. PASO LA VIDA
8. CALLE VISTA VERDE

Ag

AROT

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)	A	NUMBER OF UNITS	B	ASSUMED USE FACTOR	C	MAX SOUND PRESSURE LEVEL @ 50 FT (dBA)	D	DISTANCE (Feet)	E	DIVERGENCE			ADDITIVE		
										NOISE LEVEL (dBA)	ATTENUATED NOISE LEVEL (dBA)	GROUND ATTENUATION (dBA)	NOISE LEVEL BELOW LOUDEST (dBA)	NOISE LEVEL (dBA)	
BACKHOE (1)		0	0	0.50	0.50	85	1000			83.2	83.2	-67.4	80.0	0.0	3
COMPACTOR (1)		2	0	0.45	0.45	83	15								
CONCRETE MIXER (1)		0	0	0.73	0.73	85	1000								
CONCRETE PUMP (1)		0	0	0.73	0.73	82	180								
COMPRESSORS (1)		0	0	0.73	0.73	81	50								
CRANE (1)		0	0	0.16	0.16	83	180								
DERRICK (1)		0	0	0.73	0.73	88	50								
DB DOZER (sid) (1)		0	0	0.73	0.73	83	50								
DB DOZER (enhanced enclosure, est.)		0	0	0.73	0.73	82	50								
DRILL RIG (WATER) (3)		0	0	0.73	0.73	80	120								
ELECTRIC GENERATOR (1)		0	0	1.00	1.00	90	50								
FORKLIFT (1)		0	0	0.73	0.73	80	50								
GARBAGE TRUCK (COMPACTOR) (1)		0	0	0.50	0.50	90	60								
GENERATOR (1)		0	0	0.73	0.73	78	50								
MOTOR GRADER (4)		0	0	0.73	0.73	82.5	50								
HOE EXCAVATOR (1)		0	0	0.80	0.80	85	1000								
JACK HAMMERS (1)		0	0	0.73	0.73	88	50								
966F WHEELED LOADER (sid) (4)		0	0	0.73	0.73	78	1000								
966F WHEELED LOADER (enhanced enclosure) (4)		0	0	0.73	0.73	77	50								
PAVER (1)		0	0	0.50	0.50	89	10								
PICK-UP TRUCK (1)		0	0	0.73	0.73	79	50			80.4	80.4	-4.8	80.4	12.8	0.23
PICK-UP (2.5 in) (1)		2	0	0.73	0.73	79	50								
PICK-UP (4-W DRIVE) (1)		0	0	0.73	0.73	79	50								
PILE DRIVER (PEAK) (1)		0	0	0.73	0.73	101	50								
PNEUMATIC TOOLS (1)		0	0	0.05	0.05	86	50								
PUMP (1)		0	0	0.73	0.73	66	120								
ROLLER (1)		2	0	0.45	0.45	74	15								
CHAIN SAW (Estimated)		0	0	0.10	0.10	90	50			84.2	84.2	-67.4	84.2	9.0	0.49
SCRAPER (2)		0	0	0.73	0.73	82	50								
SCRAPER (3)		0	0	0.73	0.73	82	50								
SHEEPSFOOT ROLLER (1)		0	0	0.73	0.73	78	50								
SHREDDER (1)		0	0	0.73	0.73	75	50								
TRUCK TRACTOR (1)		0	0	0.73	0.73	82	1000								
TRUCK TRACTOR (1)		0	0	0.73	0.73	82	700								
VAN (1)		0	0	0.73	0.73	77	50								
WATER TRUCK (1)		0	0	0.73	0.73	88	1000								
WATER WAGON (1)		0	0	0.73	0.73	83	50								
TOTAL Lq 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 NIGHTTIME HOURS OPERATING:															0
ESTIMATED Lq:															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 Padra staff
(4) Quinn Company-Colepille 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)	MAX SOUND PRESSURE LEVEL			DIVERGENCE		ATTENUATED		NOISE LEVEL BELOW		ADDITIVE	
	NUMBER OF UNITS	ASSUMED USE FACTOR	LEVEL @ 50 FT (dBA)	DISTANCE (Feet)	NOISE LEVEL (dBA)	GROUND ATTENUATION (dBA)	NOISE LEVEL (dBA)	NOISE LEVEL (dBA)	NOISE LEVEL (dBA)	NOISE LEVEL (dBA)	NOISE LEVEL (dBA)
A	B	C	D	E	F	G	H	I	J		
BACHHOE (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	86	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	90							
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	90							
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							
SHEEPSHOOT ROLLER (1)	0	0.73	75	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 Lq DURING NORMAL OPERATIONS (Maximum from column H + Sum of column J - 3):									94		
ASSUMED DAYTIME AMBIENT WITHOUT CONSTRUCTION:											
ASSUMED NIGHTTIME AMBIENT:											
NUMBER OF DAYTIME HOURS OPERATING:											
NUMBER OF EVENING HOURS OPERATING:											
NUMBER OF NIGHTTIME HOURS OPERATING:											
ESTIMATED Ldn:											
ESTIMATED CNEL:											

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 208 717
(2) Harris, C.M. (1991), Handbook of Acoustical Measurements and Noise Control, 3rd. Ed.
(3) Actual measurements by Padre staff
(4) Quinn Company-Coleville distributor

CONSTRUCTION NOISE MODEL

Project: El Rin Street 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		GROUND ATTENUATION (dBA)	ATTENUATED NOISE LEVEL		NOISE LEVEL BELOW LOUDEST		ADDITIVE NOISE LEVEL		
					A	B		C	D	E	F	G	H	I
BACKHOE (1)	0	0.50	85	1000										
COMPACTOR (1)	2	0.45	83	15										
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										
DERRIK (1)	0	0.73	88	50										
D8 DOZER (sig) (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 (sig) (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 hp) (1)	2	0.73	79	50										
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										
CHAIN SAW (Estimated)	0	0.10	50	50										
SCRAPER (3)	0	0.73	82	50										
SCRAPER (1)	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	86	1000										
WATER WAGON (1)	0	0.73	83	50										
TOTAL Leq DURING NORMAL OPERATIONS (Maximum from column H + Sum of column J - 3)														0.4

ASSUMED DAYTIME AMBIENT WITHOUT CONSTRUCTION:

ASSUMED NIGHTTIME AMBIENT:
 NUMBER OF DAYTIME HOURS OPERATING:
 NUMBER OF EVENING HOURS OPERATING:
 NUMBER OF NIGHTTIME HOURS OPERATING:
 ESTIMATED Leq:
 ESTIMATED CNEL:

Ground attenuation estimates assume soft fill, 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) Hertz, C.M. (1991), Handbook of Acoustical Measurements and Noise Control, 3rd Ed.
 (3) Actual measurements by Pacific staff
 (4) Quinn Company, Caterpillar distributor