Appendix B
Air Quality Appendix

ESA

Appendix B1
URBEMIS Output

ESA

6/23/2009 8:54:13 AM

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\Perris Berm.urb924

Project Name: Perris Berm

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	9.88	99.06	46.43	0.09	200.31	4.74	205.05	41.87	4.36	46.23	12,984.66
2012 TOTALS (lbs/day unmitigated)	5.36	29.68	67.73	0.09	200.01	1.54	201.55	41.77	1.42	43.19	10,339.28
2013 TOTALS (lbs/day unmitigated)	4.90	23.22	63.33	0.09	0.39	1.39	1.78	0.14	1.26	1.40	10,338.54

6/23/2009 8:54:42 AM

Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\Perris Berm.urb924

Project Name: Perris Berm

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 3/1/2011-12/1/2011 Active Days: 198	**9.88**	**99.06**	46.43	0.09	**200.31**	**4.74**	**205.05**	**41.87**	**4.36**	**46.23**	**12,984.66**
Mass Grading 03/01/2011-12/01/2011	9.88	99.06	46.43	0.09	200.31	4.74	205.05	41.87	4.36	46.23	12,984.66
Mass Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77	0.00
Mass Grading Off Road Diesel	5.11	39.07	21.20	0.00	0.00	2.32	2.32	0.00	2.14	2.14	3,651.00
Mass Grading On Road Diesel	4.70	59.86	23.03	0.08	0.30	2.40	2.71	0.10	2.21	2.31	9,053.83
Mass Grading Worker Trips	0.07	0.13	2.20	0.00	0.01	0.01	0.02	0.00	0.01	0.01	279.83
Time Slice 12/2/2011-12/30/2011 Active Days: 21	3.95	31.68	18.04	0.00	200.01	1.69	201.70	41.77	1.55	43.32	3,162.94
Fine Grading 12/02/2011-02/01/2012	3.95	31.68	18.04	0.00	200.01	1.69	201.70	41.77	1.55	43.32	3,162.94
Fine Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77	0.00
Fine Grading Off Road Diesel	3.91	31.61	16.82	0.00	0.00	1.68	1.68	0.00	1.55	1.55	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.04	0.07	1.22	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.46

Time Slice 1/2/2012-2/1/2012 Active Days: 23	3.74	29.68	17.37	0.00	200.01	1.54	201.55	41.77	1.42	43.19	3,162.91
Fine Grading 12/02/2011-02/01/2012	3.74	29.68	17.37	0.00	200.01	1.54	201.55	41.77	1.42	43.19	3,162.91
Fine Grading Dust	0.00	0.00	0.00	0.00	200.00	0.00	200.00	41.77	0.00	41.77	0.00
Fine Grading Off Road Diesel	3.71	29.61	16.24	0.00	0.00	1.54	1.54	0.00	1.42	1.42	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.06	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.43
Time Slice 2/2/2012-3/30/2012 Active Days: 42	3.09	24.70	15.89	0.00	0.01	1.28	1.29	0.00	1.17	1.18	2,995.34
Trenching 02/02/2012-04/01/2012	3.09	24.70	15.89	0.00	0.01	1.28	1.29	0.00	1.17	1.18	2,995.34
Trenching Off Road Diesel	3.05	24.62	14.52	0.00	0.00	1.27	1.27	0.00	1.17	1.17	2,808.82
Trenching Worker Trips	0.04	0.08	1.36	0.00	0.01	0.01	0.01	0.00	0.00	0.01	186.52
Time Slice 5/2/2012-12/31/2012 Active Days: 174	5.36	25.25	**67.73**	**0.09**	0.39	1.54	1.93	0.14	1.40	1.54	10,339.28
Building 05/02/2012-02/01/2013	5.36	25.25	67.73	0.09	0.39	1.54	1.93	0.14	1.40	1.54	10,339.28
Building Off Road Diesel	3.14	14.81	10.52	0.00	0.00	1.04	1.04	0.00	0.95	0.95	1,621.20
Building Vendor Trips	0.69	7.55	6.61	0.02	0.06	0.31	0.37	0.02	0.28	0.31	1,784.94
Building Worker Trips	1.53	2.89	50.60	0.07	0.33	0.19	0.52	0.12	0.16	0.28	6,933.14
Time Slice 1/1/2013-2/1/2013 Active Days: 24	4.90	23.22	63.33	**0.09**	0.39	1.39	1.78	0.14	1.26	1.40	10,338.54
Building 05/02/2012-02/01/2013	4.90	23.22	63.33	0.09	0.39	1.39	1.78	0.14	1.26	1.40	10,338.54
Building Off Road Diesel	2.88	13.91	10.20	0.00	0.00	0.93	0.93	0.00	0.86	0.86	1,621.20
Building Vendor Trips	0.63	6.67	6.10	0.02	0.06	0.27	0.34	0.02	0.25	0.27	1,785.03
Building Worker Trips	1.39	2.64	47.03	0.07	0.33	0.19	0.52	0.12	0.16	0.28	6,932.32

Phase Assumptions

Phase: Fine Grading 12/2/2011 - 2/1/2012 - Default Fine Site Grading/Excavation Description

Total Acres Disturbed: 40

Maximum Daily Acreage Disturbed: 10

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 3/1/2011 - 12/1/2011 - Default Mass Site Grading/Excavation Description
Total Acres Disturbed: 40
Maximum Daily Acreage Disturbed: 10
Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 2136.14
Off-Road Equipment:
2 Dumpers/Tenders (16 hp) operating at a 0.38 load factor for 8 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
2 Rollers (95 hp) operating at a 0.56 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
2 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 2/2/2012 - 4/1/2012 - Default Trenching Description
Off-Road Equipment:
4 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Building Construction 5/2/2012 - 2/1/2013 - Default Building Construction Description
Off-Road Equipment:
1 Cranes (399 hp) operating at a 0.43 load factor for 6 hours per day
2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day
1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
3 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

6/23/2009 8:55:01 AM

Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\Perris Berm.urb924

Project Name: Perris Berm

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (tons/year unmitigated)	1.02	10.14	4.79	0.01	21.93	0.49	22.42	4.58	0.45	5.03	1,318.69
2012 TOTALS (tons/year unmitigated)	0.57	3.06	6.43	0.01	2.33	0.18	2.51	0.49	0.16	0.66	998.79
2013 TOTALS (tons/year unmitigated)	0.06	0.28	0.76	0.00	0.00	0.02	0.02	0.00	0.02	0.02	124.06

6/23/2009 8:55:41 AM

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\Perris Channel.urb924

Project Name: Perris Outlet Channel

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	5.50	43.58	25.65	0.01	395.82	2.48	398.30	82.67	2.28	84.95	4,581.89
2012 TOTALS (lbs/day unmitigated)	7.88	41.08	126.86	0.18	395.81	2.41	397.96	82.66	2.19	84.64	19,513.32
2013 TOTALS (lbs/day unmitigated)	7.19	37.46	118.49	0.18	0.77	2.18	2.95	0.28	1.97	2.25	19,511.85

6/23/2009 8:56:04 AM

Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\Perris Channel.urb924

Project Name: Perris Outlet Channel

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 3/1/2011-12/1/2011 Active Days: 198	5.50	**43.58**	25.65	0.01	**395.82**	**2.48**	**398.30**	**82.67**	**2.28**	**84.95**	4,581.89
Mass Grading 03/01/2011-12/01/2011	5.50	43.58	25.65	0.01	395.82	2.48	398.30	82.67	2.28	84.95	4,581.89
Mass Grading Dust	0.00	0.00	0.00	0.00	395.80	0.00	395.80	82.66	0.00	82.66	0.00
Mass Grading Off Road Diesel	5.24	40.84	22.92	0.00	0.00	2.37	2.37	0.00	2.18	2.18	3,963.89
Mass Grading On Road Diesel	0.21	2.65	1.02	0.00	0.01	0.11	0.12	0.00	0.10	0.10	400.35
Mass Grading Worker Trips	0.05	0.10	1.71	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.64
Time Slice 12/2/2011-12/30/2011 Active Days: 21	5.29	40.94	24.63	0.00	395.81	2.37	398.18	82.66	2.18	84.85	4,181.53
Fine Grading 12/02/2011-02/01/2012	5.29	40.94	24.63	0.00	395.81	2.37	398.18	82.66	2.18	84.85	4,181.53
Fine Grading Dust	0.00	0.00	0.00	0.00	395.80	0.00	395.80	82.66	0.00	82.66	0.00
Fine Grading Off Road Diesel	5.24	40.84	22.92	0.00	0.00	2.37	2.37	0.00	2.18	2.18	3,963.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.10	1.71	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.64

Time Slice 1/2/2012-2/1/2012 Active Days: 23	4.98	38.28	23.89	0.00	395.81	2.15	397.96	82.66	1.98	84.64	4,181.50
Fine Grading 12/02/2011-02/01/2012	4.98	38.28	23.89	0.00	395.81	2.15	397.96	82.66	1.98	84.64	4,181.50
Fine Grading Dust	0.00	0.00	0.00	0.00	395.80	0.00	395.80	82.66	0.00	82.66	0.00
Fine Grading Off Road Diesel	4.93	38.19	22.31	0.00	0.00	2.15	2.15	0.00	1.98	1.98	3,963.89
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.09	1.59	0.00	0.01	0.01	0.02	0.00	0.00	0.01	217.61
Time Slice 2/2/2012-3/1/2012 Active Days: 21	1.83	15.29	8.92	0.00	0.01	0.74	0.74	0.00	0.68	0.68	1,838.98
Trenching 02/02/2012-03/01/2012	1.83	15.29	8.92	0.00	0.01	0.74	0.74	0.00	0.68	0.68	1,838.98
Trenching Off Road Diesel	1.80	15.24	8.01	0.00	0.00	0.73	0.73	0.00	0.67	0.67	1,714.64
Trenching Worker Trips	0.03	0.05	0.91	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.35
Time Slice 3/2/2012-3/30/2012 Active Days: 21	5.74	23.99	13.56	0.02	0.06	1.71	1.76	0.02	1.57	1.59	2,861.62
Asphalt 03/02/2012-04/01/2012	5.74	23.99	13.56	0.02	0.06	1.71	1.76	0.02	1.57	1.59	2,861.62
Paving Off-Gas	2.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.55	15.48	9.17	0.00	0.00	1.37	1.37	0.00	1.26	1.26	1,272.41
Paving On Road Diesel	0.68	8.45	3.26	0.01	0.05	0.33	0.38	0.02	0.31	0.32	1,433.78
Paving Worker Trips	0.03	0.06	1.13	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.43
Time Slice 4/2/2012-12/31/2012 Active Days: 196	**7.88**	41.08	**126.86**	**0.18**	0.77	2.41	3.19	0.28	2.19	2.46	**19,513.32**
Building 04/02/2012-02/01/2013	7.88	41.08	126.86	0.18	0.77	2.41	3.19	0.28	2.19	2.46	19,513.32
Building Off Road Diesel	3.48	20.42	13.62	0.00	0.00	1.42	1.42	0.00	1.31	1.31	2,259.28
Building Vendor Trips	1.38	14.93	13.09	0.03	0.12	0.62	0.74	0.04	0.56	0.61	3,532.60
Building Worker Trips	3.02	5.72	100.15	0.14	0.65	0.37	1.02	0.23	0.32	0.55	13,721.44
Time Slice 1/1/2013-2/1/2013 Active Days: 24	7.19	37.46	118.49	**0.18**	0.77	2.18	2.95	0.28	1.97	2.25	19,511.85
Building 04/02/2012-02/01/2013	7.19	37.46	118.49	0.18	0.77	2.18	2.95	0.28	1.97	2.25	19,511.85
Building Off Road Diesel	3.19	19.04	13.34	0.00	0.00	1.26	1.26	0.00	1.16	1.16	2,259.28
Building Vendor Trips	1.25	13.21	12.07	0.03	0.12	0.54	0.66	0.04	0.49	0.54	3,532.76
Building Worker Trips	2.75	5.22	93.08	0.14	0.65	0.38	1.03	0.23	0.32	0.55	13,719.81

Phase Assumptions

Phase: Fine Grading 12/2/2011 - 2/1/2012 - Default Fine Site Grading/Excavation Description
Total Acres Disturbed: 79.16
Maximum Daily Acreage Disturbed: 19.79
Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 0
Off-Road Equipment:
1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 3/1/2011 - 12/1/2011 - Default Mass Site Grading/Excavation Description
Total Acres Disturbed: 79.16
Maximum Daily Acreage Disturbed: 19.79
Fugitive Dust Level of Detail: Default
20 lbs per acre-day
On Road Truck Travel (VMT): 94.46
Off-Road Equipment:
1 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Graders (174 hp) operating at a 0.61 load factor for 8 hours per day
1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 8 hours per day
3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day
1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 2/2/2012 - 3/1/2012 - Default Trenching Description
Off-Road Equipment:
2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day
1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day
1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Paving 3/2/2012 - 4/1/2012 - Default Paving Description

Acres to be Paved: 19.79

Off-Road Equipment:

1 Pavers (100 hp) operating at a 0.62 load factor for 8 hours per day

2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day

2 Rollers (95 hp) operating at a 0.56 load factor for 6 hours per day

Phase: Building Construction 4/2/2012 - 2/1/2013 - Default Building Construction Description

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 7 hours per day

3 Forklifts (145 hp) operating at a 0.3 load factor for 8 hours per day

1 Generator Sets (49 hp) operating at a 0.74 load factor for 8 hours per day

3 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Welders (45 hp) operating at a 0.45 load factor for 8 hours per day

6/23/2009 8:56:26 AM

Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\Perris Channel.urb924

Project Name: Perris Outlet Channel

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (tons/year unmitigated)	0.60	4.74	2.80	0.00	43.34	0.27	43.61	9.05	0.25	9.30	497.51
2012 TOTALS (tons/year unmitigated)	0.91	4.88	12.94	0.02	4.63	0.29	4.92	0.98	0.26	1.24	2,009.75
2013 TOTALS (tons/year unmitigated)	0.09	0.45	1.42	0.00	0.01	0.03	0.04	0.00	0.02	0.03	234.14

6/23/2009 8:59:25 AM

Urbemis 2007 Version 9.2.4

Summary Report for Summer Emissions (Pounds/Day)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\Perris Outlet Tower.urb924

Project Name: Perris Outlet Tower

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (lbs/day unmitigated)	2.88	23.76	13.03	0.00	0.21	1.19	1.39	0.04	1.09	1.14	2,411.59
2012 TOTALS (lbs/day unmitigated)	1.83	15.29	8.92	0.00	0.01	0.74	0.74	0.00	0.68	0.68	1,838.98

6/23/2009 9:00:02 AM

Urbemis 2007 Version 9.2.4

Detail Report for Summer Construction Unmitigated Emissions (Pounds/Day)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\Perris Outlet Tower.urb924

Project Name: Perris Outlet Tower

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Summer Pounds Per Day, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
Time Slice 3/1/2011-12/1/2011 Active Days: 198	**2.88**	**23.76**	**13.03**	**0.00**	**0.21**	**1.19**	**1.39**	**0.04**	**1.09**	**1.14**	**2,411.59**
Mass Grading 03/01/2011-12/01/2011	2.88	23.76	13.03	0.00	0.21	1.19	1.39	0.04	1.09	1.14	2,411.59
Mass Grading Dust	0.00	0.00	0.00	0.00	0.20	0.00	0.20	0.04	0.00	0.04	0.00
Mass Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Mass Grading On Road Diesel	0.02	0.26	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	39.90
Mass Grading Worker Trips	0.03	0.06	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.37
Time Slice 12/2/2011-12/30/2011 Active Days: 21	2.86	23.49	12.93	0.00	0.21	1.18	1.38	0.04	1.08	1.13	2,371.69
Fine Grading 12/02/2011-01/01/2012	2.86	23.49	12.93	0.00	0.21	1.18	1.38	0.04	1.08	1.13	2,371.69
Fine Grading Dust	0.00	0.00	0.00	0.00	0.20	0.00	0.20	0.04	0.00	0.04	0.00
Fine Grading Off Road Diesel	2.83	23.44	11.96	0.00	0.00	1.17	1.17	0.00	1.08	1.08	2,247.32
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.03	0.06	0.98	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.37
Time Slice 1/2/2012-3/1/2012 Active Days: 44	1.83	15.29	8.92	0.00	0.01	0.74	0.74	0.00	0.68	0.68	1,838.98
Trenching 01/02/2012-03/01/2012	1.83	15.29	8.92	0.00	0.01	0.74	0.74	0.00	0.68	0.68	1,838.98
Trenching Off Road Diesel	1.80	15.24	8.01	0.00	0.00	0.73	0.73	0.00	0.67	0.67	1,714.64
Trenching Worker Trips	0.03	0.05	0.91	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.35

Time Slice 3/2/2012-6/29/2012 Active Days: 86	1.03	7.89	4.63	0.00	0.00	0.49	0.49	0.00	0.45	0.45	902.99
Building 03/02/2012-07/01/2012	1.03	7.89	4.63	0.00	0.00	0.49	0.49	0.00	0.45	0.45	902.99
Building Off Road Diesel	1.03	7.87	4.56	0.00	0.00	0.49	0.49	0.00	0.45	0.45	893.39
Building Vendor Trips	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.97
Building Worker Trips	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.64
Time Slice 7/2/2012-8/1/2012 Active Days: 23	0.89	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30
Coating 07/02/2012-08/01/2012	0.89	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30
Architectural Coating	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30

Phase Assumptions

Phase: Fine Grading 12/2/2011 - 1/1/2012 - Fine Site Grading/Excavation

Total Acres Disturbed: 0.04

Maximum Daily Acreage Disturbed: 0.01

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 0

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Mass Grading 3/1/2011 - 12/1/2011 - Mass Site Grading/Excavation

Total Acres Disturbed: 0.04

Maximum Daily Acreage Disturbed: 0.01

Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 9.41

Off-Road Equipment:

1 Graders (174 hp) operating at a 0.61 load factor for 6 hours per day

1 Rubber Tired Dozers (357 hp) operating at a 0.59 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 7 hours per day

1 Water Trucks (189 hp) operating at a 0.5 load factor for 8 hours per day

Phase: Trenching 1/2/2012 - 3/1/2012 - Trenching

Off-Road Equipment:

2 Excavators (168 hp) operating at a 0.57 load factor for 8 hours per day

1 Other General Industrial Equipment (238 hp) operating at a 0.51 load factor for 8 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 0 hours per day

Phase: Building Construction 3/2/2012 - 7/1/2012 - Building Construction

Off-Road Equipment:

1 Cranes (399 hp) operating at a 0.43 load factor for 4 hours per day

2 Forklifts (145 hp) operating at a 0.3 load factor for 6 hours per day

1 Tractors/Loaders/Backhoes (108 hp) operating at a 0.55 load factor for 8 hours per day

Phase: Architectural Coating 7/2/2012 - 8/1/2012 - Architectural Coating

Rule: Residential Interior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 100

Rule: Residential Interior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 50

Rule: Residential Exterior Coatings begins 1/1/2005 ends 6/30/2008 specifies a VOC of 250

Rule: Residential Exterior Coatings begins 7/1/2008 ends 12/31/2040 specifies a VOC of 100

Rule: Nonresidential Interior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

Rule: Nonresidential Exterior Coatings begins 1/1/2005 ends 12/31/2040 specifies a VOC of 250

6/23/2009 9:00:25 AM

Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\Perris Outlet Tower.urb924

Project Name: Perris Outlet Tower

Project Location: South Coast AQMD

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (tons/year unmitigated)	0.31	2.60	1.43	0.00	0.02	0.13	0.15	0.00	0.12	0.12	263.65
2012 TOTALS (tons/year unmitigated)	0.10	0.68	0.40	0.00	0.00	0.04	0.04	0.00	0.03	0.03	79.30

Appendix B2
Health Risk Assessment

ESA

DWR PERRIS DAM REMEDIATION PROGRAM

Health Risk Assessment

The sources of diesel particulate matter (DPM) analyzed in this study include emissions from equipment used for construction activities associated with the Perris Dam Remediation, the Outlet Tower Replacement and the Emergency Outlet Extension. Emissions from these activities were input to the United States Environmental Protection Agency (USEPA) approved dispersion model AERMOD to calculate ambient air concentrations at receptors in the project vicinity. Meteorological data representative of the project site were used along with estimated DPM emissions to calculate pollutant concentrations at various receptor locations. The meteorological station nearest to the project site that would represent wind conditions at the project site and that has data reduced for model input is located in Riverside, approximately 13.5 miles northwest of Lake Perris. The data from this station were supplemented with opaque cloud cover data from the Los Angeles International Airport for use in the meteorological preprocessor, AERMET, to prepare hourly surface data files for use in AERMOD.

Emission Rates

Emission rates from construction activities were estimated using the URBEMIS 2007 model. This model incorporates emission factors from the California Air Resources Board's (ARB's) OFFROAD and EMFAC2007 models to estimate construction emissions. Annual off road exhaust emissions of particulate matter less than 2.5 microns in diameter (PM2.5) were used to represent DPM emission rates. According to the project description, nearly 70 percent of all haul truck trips would remain on the project site. Therefore, on road truck emissions were also estimated for haul trucks that would be used on the project site for construction of the Perris Dam Remediation portion of the project. It was assumed that all off road equipment and on road haul trucks would be diesel fueled, and therefore all PM2.5 exhaust emissions would be DPM. This represents a conservative worst case analysis.

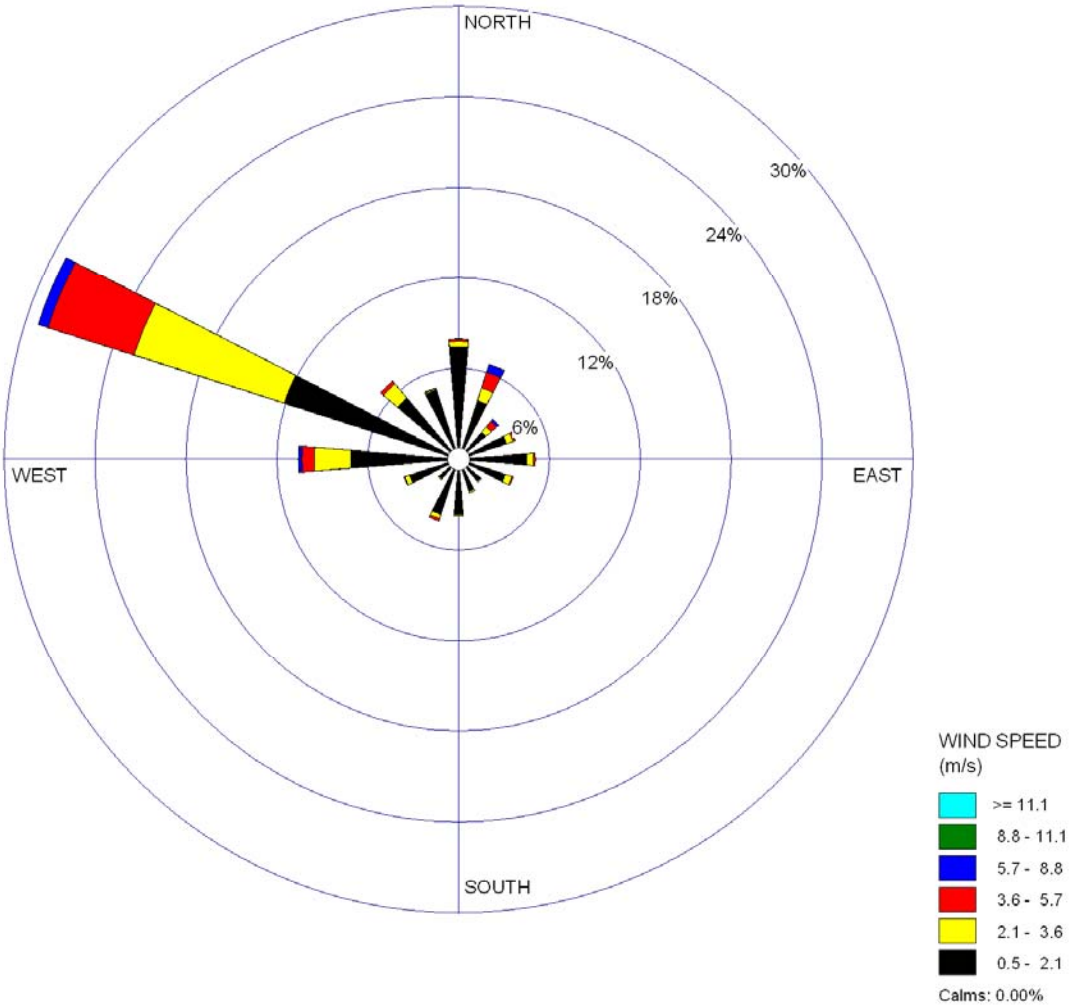
Model Inputs and Results

Geographic information systems (GIS) were used to determine the geographic locations of the emissions sources and sensitive receptors for the proposed project. To determine the worst case exposure, receptors were modeled at ground level breathing height.

As discussed previously, meteorological data from the Riverside meteorological station was used with opaque cloud cover data from the Los Angeles International Airport to prepare hourly

surface files for use in AERMOD. Figure 1 presents a wind rose of the area, and it represents the data used in the model.

Figure 1
Windrose for the Riverside Meteorological Station
(Wind Direction - Blowing From)



Source and receptor elevations were derived from the Perris 7.5 minute digital elevation model. These elevations were processed and imported using AERMAP, an accessory program to AERMOD. Construction equipment emissions were modeled as a series of volume sources. A release height of 5 meters was assumed in accordance with methods recommended by the SCAQMD. This release height is representative of the mid-range of expected plume rise of

exhaust emissions from typical construction equipment during daytime atmospheric conditions (SCAQMD, 2003).

Based on modeling results, emissions from equipment used for the Perris Dam Remediation would result in annual average DPM concentrations of approximately 0.02µg/m^3 at the maximum exposed sensitive receptor. Emissions from construction of the Emergency Outlet Extension would result in annual average DPM concentrations of approximately 0.12µg/m^3 at the maximum exposed receptor and emissions from the Outlet Tower Replacement construction would result in concentrations of approximately 0.048µg/m^3.

Health Risks from Exposure to DPM

The maximum incremental cancer risk from exposure to DPM was calculated following the guidelines established by California Office of Environmental Health Hazard Assessment (OEHHA, 2003). The equation used to determine exposure to DPM through inhalation is demonstrated below:

$$\text{Dose-inh} = \frac{C_{air} * \{DBR\} * A * EF * ED * 10^{-6}}{AT}$$

Where:

Dose-inh	= Dose of the toxic substance through inhalation in milligrams per kilogram of body weight per day (mg/kg-day)
10^{-6}	= Micrograms to milligrams conversion, Liters to cubic meters conversion
C_{air}	= Concentration in air (µg/m^3)
{DBR}	= Daily breathing rate (L/kg body weight – day)
A	= Inhalation absorption factor
EF	= Exposure frequency (days/year)
ED	= Exposure duration (years)
AT	= Averaging time period over which exposure is averaged in days (25,550 days for a 70 year cancer risk)

Since the exposure duration for construction emissions would be less than a 70 year lifetime, the 95th percentile child breathing rate of 581 L/kg-day was used in the equation, rather than the 80th percentile adult breathing rate of 302 L/kg-day. The exposure frequency was assumed to be 365 days per year. For construction the Perris Dam Remediation and Emergency Outlet Extension portions of the project, it was assumed that construction activities would last up to 22 months and therefore the exposure duration would be approximately 1.8 years. It was assumed that construction activities associated with the Outlet Tower Replacement would take approximately 18 months and therefore the exposure duration would be 1.5 years. The modeled concentrations discussed previously were used to represent the concentration of DPM in the air. The inhalation absorption factor was assumed to be 1.

To determine incremental cancer risk the estimated dose through inhalation was multiplied by cancer potency slope factor for DPM, 1.1 $(mg/kg\text{-}day)^{-1}$. It should be noted that the cancer potency slopes established by OEHHA were determined based on a minimum exposure duration of 9 years. There is a large degree of uncertainty regarding cancer risk from short term high exposures versus long term lower exposures (OEHHA, 2003). Since cancer risk was evaluated for periods less than nine years there is some uncertainty in the actual cancer risk that would result from DPM emissions generated during construction of the proposed project. As shown below, the maximum incremental cancer risk to sensitive receptors in the project area would be approximately 3 in one million:

Risk from Perris Dam Remediation Activities

Dose-inhalation $= \frac{0.02\ \mu g/m^3 * 581\ L/kg\text{-}day * 1 * 365\ days/year * 1.8\ years * 10^{-6}}{(25{,}550\ days)}$

$= 0.299 * 10^{-6}$

Cancer Risk $= 0.299 * 10^{-6}\ mg/kg\text{-}day * 1.1\ (mg/kg\text{-}day)^{-1}$

$= 0.329 * 10^{-6}$

~ 0.3 in one million

Risk from Emergency Outlet Extension Construction Activities

Dose-inhalation $= \frac{0.12\ \mu g/m^3 * 581\ L/kg\text{-}day * 1 * 365\ days/year * 1.8\ years * 10^{-6}}{(25{,}550\ days)}$

$= 1.793 * 10^{-6}$

Cancer Risk $= 1.793 * 10^{-6}\ mg/kg\text{-}day * 1.1\ (mg/kg\text{-}day)^{-1}$

$= 1.972 * 10^{-6}$

~ 2.0 in one million

Risk from Outlet Tower Replacement Construction Activities

Dose-inhalation $= \frac{0.048\ \mu g/m^3 * 581\ L/kg\text{-}day * 1 * 365\ days/year * 1.5\ years * 10^{-6}}{(25{,}550\ days)}$

$= 0.598 * 10^{-6}$

Cancer Risk $= 0.598 * 10^{-6}\ mg/kg\text{-}day * 1.1\ (mg/kg\text{-}day)^{-1}$

$= 0.658 * 10^{-6}$

~ 0.7 in one million

Total Risk from All Activities = approximately 3 in one million

It should be noted that assuming the 95th percentile child breathing rate and continuous exposure for the entire duration of construction renders this an extremely conservative analysis. Furthermore, maximum concentrations from each individual activity were used to calculate risk, regardless of where the maximum concentration was located. Therefore, the maximum risk of 3 in one million actually represents risk at three separate receptors and actual risk to an individual receptor would likely be less. Nevertheless, as demonstrated in the equation above, risk to children at residential receptors from DPM emissions generated by construction of the proposed project would be below the SCAQMD significance threshold of 10 in one million. Therefore it can be assumed that risk to all sensitive receptors in the project area would be below 10 in one million and impacts would be less than significant.

References

Jones and Stokes Associates, 2007. *Software User's Guide: URBEMIS2007 for Windows Version 9.2 Emissions Estimate for Land Use Development Projects,* November 2007.

Office of Environmental Health Hazards Assessment (OEHHA), 2003. *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments,* available online at: http://www.oehha.org/air/hot_spots/pdf/HRAguidefinal.pdf, accessed April 29, 2008.

South Coast Air Quality Management District (SCAQMD), 2003. *Localized Significance Threshold Methodology*, June 2003.

United States Environmental Protection Agency (USEPA), 2004. *Users Guide for the AMS/EPA Regulatory Model – AERMOD,* EPA-454/B-003-01, September 2004.

PROJECT TITLE:

Perris Dam Remediation Program
Risk From Perris Dam Remediation Construction Activities

PLOT FILE OF ANNUAL VALUES FOR SOURCE GROUP: PERRIS DAM REMEDIATION — CANCER RISK

0.000 0.050 0.100 0.150 0.200 0.250 0.300

COMMENTS: Cancer risk expressed in incremental risk per million. Emission sources for dam remediation are shown in orange.	SOURCES: **4**	COMPANY NAME: **Environmental Science Associates**	
	RECEPTORS: **401**		
		SCALE: 1:25,000 0 1 km	
	MAX: **0.33262 CANCER RISK**	DATE: **11/14/2008**	

PROJECT TITLE:

Perris Dam Remediation Program
Risk From Emergency Outlet Extension Construction Activities

PLOT FILE OF ANNUAL VALUES FOR SOURCE GROUP: EMERGENCY OUTLET EXTENSION — CANCER RISK

0.000 0.250 0.500 0.750 1.000 1.250 1.500 1.750

COMMENTS: Cancer risk expressed in incremental risk per million. Emission sources for emergency outlet extension construction activities are shown in yellow.	SOURCES: **4**	COMPANY NAME: **Environmental Science Associates**	
	RECEPTORS: **401**		
		SCALE: 1:25,000 0 1 km	
	MAX: **1.97339 CANCER RISK**	DATE: **11/14/2008**	

PROJECT TITLE:

Perris Dam Remediation Program
Risk From Emergency Outlet Tower Replacement Activities

PLOT FILE OF ANNUAL VALUES FOR SOURCE GROUP: OUTLET TOWER REPLACEMENT — CANCER RISK

0.000 0.100 0.200 0.300 0.400 0.500

COMMENTS: Cancer risk expressed in incremental risk per million. Emission sources for outlet tower replacement activities are shown in green.	SOURCES: **4**	COMPANY NAME: **Environmental Science Associates**	
	RECEPTORS: **401**		
		SCALE: 1:25,000 0 1 km	
	MAX: **0.65791 CANCER RISK**	DATE: **11/14/2008**	