# **Appendix B:**

Air Quality and Greenhouse Gas Emissions Model and Construction Health Risk Assessment Results

#### Urbemis 2007 Version 9.2.4

# Combined Annual Emissions Reports (Tons/Year)

File Name:

Project Name: Garaventa

**URBEMIS** Annual

Project Location: Alameda County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

# Summary Report:

CONSTRUCTION EMISSION ESTIMATES											
	ROG	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	PM10 Dust	PM10 Exhaust	<u>PM10</u>	PM2.5 Dust PM2	.5 Exhaust	PM2.5	<u>CO2</u>
2013 TOTALS (tons/year unmitigated)	0.53	3.47	2.72	0.00	11.88	0.20	12.08	2.48	0.18	2.66	476.73
2014 TOTALS (tons/year unmitigated)	1.27	1.88	2.60	0.00	0.01	0.12	0.12	0.00	0.11	0.11	395.30
2015 TOTALS (tons/year unmitigated)	1.27	1.74	2.47	0.00	0.01	0.11	0.12	0.00	0.10	0.10	395.40
2016 TOTALS (tons/year unmitigated)	0.23	0.25	0.37	0.00	0.00	0.02	0.02	0.00	0.01	0.01	62.16
AREA SOURCE EMISSION ESTIMATES											
		ROG	<u>NOx</u>	CO	<u>SO2</u>	<u>PM10</u>	PM2.5	<u>CO2</u>			
TOTALS (tons/year, unmitigated)		0.95	0.17	0.38	0.00	0.00	0.00	222.75			
OPERATIONAL (VEHICLE) EMISSION ESTIMA	ΓES										
		ROG	<u>NOx</u>	CO	<u>SO2</u>	<u>PM10</u>	PM2.5	<u>CO2</u>			
TOTALS (tons/year, unmitigated)		0.87	1.22	10.43	0.01	1.95	0.37	1,070.85			
SUM OF AREA SOURCE AND OPERATIONAL I	EMISSION EST	MATES									
		ROG	<u>NOx</u>	CO	<u>SO2</u>	<u>PM10</u>	PM2.5	<u>CO2</u>			
TOTALS (tons/year, unmitigated)		1.82	1.39	10.81	0.01	1.95	0.37	1,293.60			
Construction Unmitigated Detail Report:											
CONSTRUCTION EMISSION ESTIMATES Annu	al Tons Per Yea	ır, Unmitigated									
	<u>ROG</u>	<u>NOx</u>	<u>co</u>	<u>SO2</u>	PM10 Dust	PM10 Exhaust	<u>PM10</u>	PM2.5 Dust	PM2.5 Exhaust	<u>PM2.5</u>	<u>CO2</u>
2013	0.53	3.47	2.72	0.00	11.88	0.20	12.08	2.48	0.18	2.66	476.73

Garaventa Hills Project

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Mass Grading 04/01/2013-	0.23	1.84	1.10	0.00	10.30	0.09	10.39	2.15	0.09	2.24	209.77
09/27/2013 Mass Grading Dust	0.00	0.00	0.00	0.00	10.30	0.00	10.30	2.15	0.00	2.15	0.00
Mass Grading Off Road Diesel	0.23	1.80	1.02	0.00	0.00	0.09	0.09	0.00	0.08	0.08	195.49
Mass Grading On Road Diesel	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.99
Mass Grading Worker Trips	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.30
Building 07/01/2013-10/25/2013	0.19	1.00	1.09	0.00	0.00	0.06	0.07	0.00	0.06	0.06	180.95
Building Off Road Diesel	0.17	0.93	0.62	0.00	0.00	0.06	0.06	0.00	0.06	0.06	121.48
Building Vendor Trips	0.00	0.05	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	11.96
Building Worker Trips	0.01	0.02	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.51
Fine Grading 09/30/2013-	0.04	0.28	0.17	0.00	1.58	0.01	1.60	0.33	0.01	0.34	31.35
10/25/2013 Fine Grading Dust	0.00	0.00	0.00	0.00	1.58	0.00	1.58	0.33	0.00	0.33	0.00
Fine Grading Off Road Diesel	0.04	0.28	0.16	0.00	0.00	0.01	0.01	0.00	0.01	0.01	30.07
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	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.28
Asphalt 10/28/2013-11/29/2013	0.04	0.19	0.13	0.00	0.00	0.01	0.01	0.00	0.01	0.01	21.43
Paving Off-Gas	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	0.03	0.16	0.10	0.00	0.00	0.01	0.01	0.00	0.01	0.01	14.15
Paving On Road Diesel	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.73
Paving Worker Trips	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.55
Building 12/02/2013-02/26/2016	0.04	0.17	0.23	0.00	0.00	0.01	0.01	0.00	0.01	0.01	33.23
Building Off Road Diesel	0.03	0.15	0.11	0.00	0.00	0.01	0.01	0.00	0.01	0.01	17.83
Building Vendor Trips	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.10
Building Worker Trips	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	12.30
2014	1.27	1.88	2.60	0.00	0.01	0.12	0.12	0.00	0.11	0.11	395.30
Building 12/02/2013-02/26/2016	0.39	1.88	2.59	0.00	0.01	0.12	0.12	0.00	0.11	0.11	394.25
Building Off Road Diesel	0.34	1.69	1.29	0.00	0.00	0.11	0.11	0.00	0.10	0.10	211.57
Building Vendor Trips	0.01	0.13	0.11	0.00	0.00	0.00	0.01	0.00	0.00	0.00	36.74
Building Worker Trips	0.04	0.06	1.19	0.00	0.01	0.00	0.01	0.00	0.00	0.01	145.95
Coating 01/15/2014-03/11/2016	0.88	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.05
Architectural Coating	0.88	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	1.05
2015	1.27	1.74	2.47	0.00	0.01	0.11	0.12	0.00	0.10	0.10	395.40

Building 12/02/2013-02/26/2016	0.36	1.74	2.46	0.00	0.01	0.11	0.12	0.00	0.10	0.10	394.30
Building Off Road Diesel	0.31	1.57	1.26	0.00	0.00	0.10	0.10	0.00	0.09	0.09	211.57
Building Vendor Trips	0.01	0.11	0.10	0.00	0.00	0.00	0.01	0.00	0.00	0.00	36.74
Building Worker Trips	0.03	0.06	1.10	0.00	0.01	0.00	0.01	0.00	0.00	0.01	146.00
Coating 01/15/2014-03/11/2016	0.92	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.09
Architectural Coating	0.92	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	1.09
2016	0.23	0.25	0.37	0.00	0.00	0.02	0.02	0.00	0.01	0.01	62.16
Building 12/02/2013-02/26/2016	0.05	0.25	0.37	0.00	0.00	0.02	0.02	0.00	0.01	0.01	61.95
Building Off Road Diesel	0.04	0.23	0.19	0.00	0.00	0.01	0.01	0.00	0.01	0.01	33.23
Building Vendor Trips	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.77
Building Worker Trips	0.00	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	22.94
Coating 01/15/2014-03/11/2016	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
Architectural Coating	0.18	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21

#### Phase Assumptions

Phase: Fine Grading 9/30/2013 - 10/25/2013 - Fine Grading

Total Acres Disturbed: 31.7

Maximum Daily Acreage Disturbed: 7.92 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 4/1/2013 - 9/27/2013 - Mass Grading

Total Acres Disturbed: 31.7

Maximum Daily Acreage Disturbed: 7.92 Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 22.88

Off-Road Equipment:

<sup>1</sup> 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: Paving 10/28/2013 - 11/29/2013 - Roadways

Acres to be Paved: 7.92

Off-Road Equipment:

- 4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
- 1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
- 2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 12/2/2013 - 2/26/2016 - Bldg Construction

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

Phase: Building Construction 7/1/2013 - 10/25/2013 - Bridge Construction

Off-Road Equipment:

- 1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 4 hours per day
- 1 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day
- 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 Pavers (100 hp) operating at a 0.62 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

Phase: Architectural Coating 1/15/2014 - 3/11/2016 - Coating

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

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

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

#### Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

<u>Source</u>	ROG	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>	PM2.5	<u>CO2</u>
Natural Gas	0.01	0.17	0.07	0.00	0.00	0.00	221.86
Hearth	0.00	0.00	0.00	0.00	0.00	0.00	0.40
Landscape	0.06	0.00	0.31	0.00	0.00	0.00	0.49
Consumer Products	0.68						
Architectural Coatings	0.20						
TOTALS (tons/year, unmitigated)	0.95	0.17	0.38	0.00	0.00	0.00	222.75

#### Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with wood fireplaces changed from 10% to 0%

Percentage of residences with natural gas fireplaces changed from 55% to 100%

# Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Annual Tons Per Year, Unmitigated

Source	ROG	NOX	СО	SO2	PM10	PM25	CO2
Single family housing	0.87	1.22	10.43	0.01	1.95	0.37	1,070.85
TOTALS (tons/year, unmitigated)	0.87	1.22	10.43	0.01	1.95	0.37	1,070.85

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2013 Season: Annual

Emfac: Version: Emfac2007 V2.3 Nov 1 2006

#### Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	31.70	9.57	dwelling units	76.00	727.32	6,218.37
					727.32	6,218.37

#### Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.5	0.6	99.2	0.2
Light Truck < 3750 lbs	12.3	0.8	96.8	2.4

Light Truck 3751-5750 lbs	19.8	0.5	99.5	0.0
Med Truck 5751-8500 lbs	6.3	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	0.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0
Motorcycle	2.9	55.2	44.8	0.0
School Bus	0.0	0.0	0.0	0.0
Motor Home	0.6	0.0	83.3	16.7

# **Travel Conditions**

		Residential		(	Commercial	nercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer		
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4		
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6		
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0		
% of Trips - Residential	32.9	18.0	49.1					

<sup>%</sup> of Trips - Commercial (by land use)

#### Urbemis 2007 Version 9.2.4

# Combined Summer Emissions Reports (Pounds/Day)

File Name:

Project Name: Garaventa

Project Location: Alameda County

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

Off-Road Vehicle Emissions Based on: OFFROAD2007

# Summary Report:

CONSTRUCTION EMISSION ESTIMATES

	ROG	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	PM10 Dust	PM10 Exhaust	<u>PM10</u>	PM2.5 Dust PM2	2.5 Exhaust	PM2.5	<u>CO2</u>
2013 TOTALS (lbs/day unmitigated)	8.01	51.80	42.51	0.02	158.47	2.94	161.42	33.11	2.70	35.81	7,484.88
2014 TOTALS (lbs/day unmitigated)	10.02	14.42	19.95	0.01	0.07	0.89	0.95	0.02	0.81	0.84	3,029.47
2015 TOTALS (lbs/day unmitigated)	9.76	13.34	18.89	0.01	0.07	0.82	0.89	0.02	0.75	0.78	3,029.87
2016 TOTALS (lbs/day unmitigated)	9.51	12.36	17.96	0.01	0.07	0.73	0.80	0.02	0.67	0.69	3,030.17
AREA SOURCE EMISSION ESTIMATES											
		<u>ROG</u>	<u>NOx</u>	CO	<u>SO2</u>	<u>PM10</u>	PM2.5	<u>CO2</u>			
TOTALS (lbs/day, unmitigated)		5.48	0.99	3.80	0.00	0.01	0.01	1,221.15			
OPERATIONAL (VEHICLE) EMISSION ESTIMATE	S										
		ROG	<u>NOx</u>	CO	<u>SO2</u>	<u>PM10</u>	PM2.5	<u>CO2</u>			
TOTALS (lbs/day, unmitigated)		4.67	5.76	56.31	0.06	10.70	2.05	6,140.58			
SUM OF AREA SOURCE AND OPERATIONAL EMISSION ESTIMATES											
		ROG	<u>NOx</u>	CO	<u>SO2</u>	<u>PM10</u>	PM2.5	<u>CO2</u>			
TOTALS (lbs/day, unmitigated)		10.15	6.75	60.11	0.06	10.71	2.06	7,361.73			

#### Construction Unmitigated Detail Report:

CONSTRUCTION EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

1100 1000 1000 1000 1000 1000 1000 100	<u>ROG</u>	<u>NOx</u>	CO	<u>SO2</u>	PM10 Dust	PM10 Exhaust	<u>PM10</u>	PM2.5 Dust	PM2.5 Exhaust	PM2.5	<u>CO2</u>
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Time Slice 4/1/2013-6/28/2013 Active	3.58	28.30	16.98	0.00	158.41	1.43	159.84	33.08	1.32	34.40	3,227.29
Davs: 65 Mass Grading 04/01/2013-	3.58	28.30	16.98	0.00	158.41	1.43	159.84	33.08	1.32	34.40	3,227.29
09/27/2013 Mass Grading Dust	0.00	0.00	0.00	0.00	158.40	0.00	158.40	33.08	0.00	33.08	0.00
Mass Grading Off Road Diesel	3.51	27.76	15.68	0.00	0.00	1.41	1.41	0.00	1.30	1.30	3,007.48
Mass Grading On Road Diesel	0.03	0.48	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	92.13
Mass Grading Worker Trips	0.04	0.06	1.14	0.00	0.01	0.00	0.01	0.00	0.00	0.00	127.68
Time Slice 7/1/2013-9/27/2013 Active	<u>8.01</u>	<u>51.80</u>	<u>42.51</u>	0.02	<u>158.47</u>	2.94	<u>161.42</u>	<u>33.11</u>	2.70	<u>35.81</u>	7,484.88
Davs: 65 Building 07/01/2013-10/25/2013	4.43	23.50	25.53	0.01	0.07	1.51	1.58	0.02	1.39	1.41	4,257.59
Building Off Road Diesel	4.04	21.89	14.67	0.00	0.00	1.44	1.44	0.00	1.33	1.33	2,858.25
Building Vendor Trips	0.09	1.08	0.91	0.00	0.01	0.04	0.05	0.00	0.04	0.04	281.50
Building Worker Trips	0.31	0.54	9.94	0.01	0.05	0.03	0.08	0.02	0.02	0.04	1,117.85
Mass Grading 04/01/2013-	3.58	28.30	16.98	0.00	158.41	1.43	159.84	33.08	1.32	34.40	3,227.29
09/27/2013 Mass Grading Dust	0.00	0.00	0.00	0.00	158.40	0.00	158.40	33.08	0.00	33.08	0.00
Mass Grading Off Road Diesel	3.51	27.76	15.68	0.00	0.00	1.41	1.41	0.00	1.30	1.30	3,007.48
Mass Grading On Road Diesel	0.03	0.48	0.16	0.00	0.00	0.02	0.02	0.00	0.02	0.02	92.13
Mass Grading Worker Trips	0.04	0.06	1.14	0.00	0.01	0.00	0.01	0.00	0.00	0.00	127.68
Time Slice 9/30/2013-10/25/2013	7.97	51.33	42.35	0.01	158.47	2.92	161.40	33.11	2.69	35.79	7,392.75
Active Davs: 20 Building 07/01/2013-10/25/2013	4.43	23.50	25.53	0.01	0.07	1.51	1.58	0.02	1.39	1.41	4,257.59
Building Off Road Diesel	4.04	21.89	14.67	0.00	0.00	1.44	1.44	0.00	1.33	1.33	2,858.25
Building Vendor Trips	0.09	1.08	0.91	0.00	0.01	0.04	0.05	0.00	0.04	0.04	281.50
Building Worker Trips	0.31	0.54	9.94	0.01	0.05	0.03	0.08	0.02	0.02	0.04	1,117.85
Fine Grading 09/30/2013-	3.54	27.83	16.82	0.00	158.41	1.41	159.82	33.08	1.30	34.38	3,135.16
10/25/2013 Fine Grading Dust	0.00	0.00	0.00	0.00	158.40	0.00	158.40	33.08	0.00	33.08	0.00
Fine Grading Off Road Diesel	3.51	27.76	15.68	0.00	0.00	1.41	1.41	0.00	1.30	1.30	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	0.06	1.14	0.00	0.01	0.00	0.01	0.00	0.00	0.00	127.68
Time Slice 10/28/2013-11/29/2013	3.12	14.89	10.50	0.01	0.02	1.17	1.19	0.01	1.07	1.08	1,714.31
Active Davs: 25 Asphalt 10/28/2013-11/29/2013	3.12	14.89	10.50	0.01	0.02	1.17	1.19	0.01	1.07	1.08	1,714.31
Paving Off-Gas	0.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.10	12.84	8.03	0.00	0.00	1.09	1.09	0.00	1.00	1.00	1,131.92
Paving On Road Diesel	0.13	1.95	0.65	0.00	0.01	0.07	0.08	0.00	0.06	0.07	378.10
Paving Worker Trips	0.06	0.10	1.82	0.00	0.01	0.01	0.02	0.00	0.00	0.01	204.29

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Time Slice 12/2/2013-12/31/2013	3.27	15.52	21.06	0.01	0.07	1.00	1.06	0.02	0.92	0.94	3,020.54
Active Davs: 22 Building 12/02/2013-02/26/2016	3.27	15.52	21.06	0.01	0.07	1.00	1.06	0.02	0.92	0.94	3,020.54
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	0.09	1.08	0.91	0.00	0.01	0.04	0.05	0.00	0.04	0.04	281.50
Building Worker Trips	0.31	0.54	9.94	0.01	0.05	0.03	0.08	0.02	0.02	0.04	1,117.85
Time Slice 1/1/2014-1/14/2014 Active	2.99	14.42	19.88	0.01	0.07	0.89	0.95	0.02	0.81	0.84	3,021.09
Davs: 10 Building 12/02/2013-02/26/2016	2.99	14.42	19.88	0.01	0.07	0.89	0.95	0.02	0.81	0.84	3,021.09
Building Off Road Diesel	2.63	12.97	9.89	0.00	0.00	0.82	0.82	0.00	0.76	0.76	1,621.20
Building Vendor Trips	0.08	0.96	0.85	0.00	0.01	0.04	0.05	0.00	0.03	0.04	281.52
Building Worker Trips	0.28	0.49	9.14	0.01	0.05	0.03	0.08	0.02	0.02	0.04	1,118.38
Time Slice 1/15/2014-12/31/2014	10.02	14.42	<u>19.95</u>	0.01	0.07	0.89	0.95	0.02	<u>0.81</u>	0.84	3.029.47
Active Davs: 251 Building 12/02/2013-02/26/2016	2.99	14.42	19.88	0.01	0.07	0.89	0.95	0.02	0.81	0.84	3,021.09
Building Off Road Diesel	2.63	12.97	9.89	0.00	0.00	0.82	0.82	0.00	0.76	0.76	1,621.20
Building Vendor Trips	0.08	0.96	0.85	0.00	0.01	0.04	0.05	0.00	0.03	0.04	281.52
Building Worker Trips	0.28	0.49	9.14	0.01	0.05	0.03	0.08	0.02	0.02	0.04	1,118.38
Coating 01/15/2014-03/11/2016	7.03	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.38
Architectural Coating	7.03	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	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.38
Time Slice 1/1/2015-12/31/2015 Active	9.76	<u>13.34</u>	<u>18.89</u>	<u>0.01</u>	0.07	0.82	0.89	0.02	0.75	0.78	3,029.87
Davs: 261 Building 12/02/2013-02/26/2016	2.73	13.33	18.83	0.01	0.07	0.82	0.89	0.02	0.75	0.78	3,021.48
Building Off Road Diesel	2.40	12.04	9.62	0.00	0.00	0.76	0.76	0.00	0.70	0.70	1,621.20
Building Vendor Trips	0.07	0.85	0.79	0.00	0.01	0.03	0.04	0.00	0.03	0.03	281.54
Building Worker Trips	0.25	0.44	8.41	0.01	0.05	0.03	0.08	0.02	0.02	0.04	1,118.75
Coating 01/15/2014-03/11/2016	7.03	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.38
Architectural Coating	7.03	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	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.38
Time Slice 1/1/2016-2/26/2016 Active	<u>9.51</u>	<u>12.36</u>	<u>17.96</u>	<u>0.01</u>	0.07	0.73	0.80	0.02	0.67	0.69	3,030.17
Davs: 41 Building 12/02/2013-02/26/2016	2.48	12.35	17.90	0.01	0.07	0.73	0.80	0.02	0.67	0.69	3,021.78
Building Off Road Diesel	2.19	11.19	9.40	0.00	0.00	0.67	0.67	0.00	0.62	0.62	1,621.20
Building Vendor Trips	0.07	0.76	0.74	0.00	0.01	0.03	0.04	0.00	0.03	0.03	281.56
Building Worker Trips	0.23	0.41	7.76	0.01	0.05	0.03	0.08	0.02	0.02	0.04	1,119.02
Coating 01/15/2014-03/11/2016	7.03	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.39

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Architectural Coating	7.03	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	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.39
Time Slice 2/29/2016-3/11/2016 Active	7.03	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.39
Davs: 10 Coating 01/15/2014-03/11/2016	7.03	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.39
Architectural Coating	7.03	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	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.39

#### Phase Assumptions

Phase: Fine Grading 9/30/2013 - 10/25/2013 - Fine Grading

Total Acres Disturbed: 31.7

Maximum Daily Acreage Disturbed: 7.92 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 4/1/2013 - 9/27/2013 - Mass Grading

Total Acres Disturbed: 31.7

Maximum Daily Acreage Disturbed: 7.92 Fugitive Dust Level of Detail: Default

20 lbs per acre-day

On Road Truck Travel (VMT): 22.88

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: Paving 10/28/2013 - 11/29/2013 - Roadways

Acres to be Paved: 7.92

Off-Road Equipment:

- 4 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 6 hours per day
- 1 Pavers (100 hp) operating at a 0.62 load factor for 7 hours per day
- 2 Paving Equipment (104 hp) operating at a 0.53 load factor for 6 hours per day
- 1 Rollers (95 hp) operating at a 0.56 load factor for 7 hours per day

Phase: Building Construction 12/2/2013 - 2/26/2016 - Bldg Construction

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

Phase: Building Construction 7/1/2013 - 10/25/2013 - Bridge Construction

Off-Road Equipment:

- 1 Bore/Drill Rigs (291 hp) operating at a 0.75 load factor for 4 hours per day
- 1 Cement and Mortar Mixers (10 hp) operating at a 0.56 load factor for 8 hours per day
- 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 Pavers (100 hp) operating at a 0.62 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

Phase: Architectural Coating 1/15/2014 - 3/11/2016 - Coating

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

#### Area Source Unmitigated Detail Report:

AREA SOURCE EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	<u>NOx</u>	CO	<u>SO2</u>	<u>PM10</u>	PM2.5	<u>CO2</u>
Natural Gas	0.07	0.95	0.41	0.00	0.00	0.00	1,215.70
Hearth - No Summer Emissions							
Landscape	0.61	0.04	3.39	0.00	0.01	0.01	5.45
Consumer Products	3.72						
Architectural Coatings	1.08						
TOTALS (lbs/day, unmitigated)	5.48	0.99	3.80	0.00	0.01	0.01	1,221.15

#### Area Source Changes to Defaults

Percentage of residences with wood stoves changed from 35% to 0%

Percentage of residences with wood fireplaces changed from 10% to 0%

Percentage of residences with natural gas fireplaces changed from 55% to 100%

# Operational Unmitigated Detail Report:

OPERATIONAL EMISSION ESTIMATES Summer Pounds Per Day, Unmitigated

<u>Source</u>	ROG	NOX	СО	SO2	PM10	PM25	CO2
Single family housing	4.67	5.76	56.31	0.06	10.70	2.05	6,140.58
TOTALS (lbs/day, unmitigated)	4.67	5.76	56.31	0.06	10.70	2.05	6,140.58

Operational Settings:

Does not include correction for passby trips

Does not include double counting adjustment for internal trips

Analysis Year: 2013 Temperature (F): 85 Season: Summer

Emfac: Version: Emfac2007 V2.3 Nov 1 2006

#### Summary of Land Uses

Land Use Type	Acreage	Trip Rate	Unit Type	No. Units	Total Trips	Total VMT
Single family housing	31.70	9.57	dwelling units	76.00	727.32	6,218.37
					727.32	6,218.37

#### Vehicle Fleet Mix

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.5	0.6	99.2	0.2
Light Truck < 3750 lbs	12.3	0.8	96.8	2.4
Light Truck 3751-5750 lbs	19.8	0.5	99.5	0.0
Med Truck 5751-8500 lbs	6.3	0.0	100.0	0.0
Lite-Heavy Truck 8501-10,000 lbs	0.8	0.0	75.0	25.0
Lite-Heavy Truck 10,001-14,000 lbs	0.6	0.0	50.0	50.0
Med-Heavy Truck 14,001-33,000 lbs	1.3	0.0	15.4	84.6
Heavy-Heavy Truck 33,001-60,000 lbs	0.7	0.0	0.0	100.0
Other Bus	0.1	0.0	0.0	100.0
Urban Bus	0.1	0.0	0.0	100.0

Motorcycle		2.9	55.2	2	44.8	0.0	
School Bus		0.0	0.0	)	0.0	0.0	
Motor Home		0.6	0.0	)	83.3	16.7	
	Travel Conditions						
		Residential		Commercial			
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer	
Urban Trip Length (miles)	10.8	7.3	7.5	9.5	7.4	7.4	
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6	
Trip speeds (mph)	35.0	35.0	35.0	35.0	35.0	35.0	
% of Trips - Residential	32.9	18.0	49.1				

<sup>%</sup> of Trips - Commercial (by land use)

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# **Summary Results**

Project Name: Garaventa

Project and Baseline Years:
Unmitigated ProjectBaseline CO2e (metric Baseline CO2e)

Mitigated ProjectBaseline CO2e

Results	tons/year) ¹	(metric tons/year)
Transportation:	796.29	796.29
Area Source:	1.01	1.01
Electricity:	94.76	79.60
Natural Gas:	200.16	168.14
Water & Wastewater:	14.68	14.68
Solid Waste:	39.37	39.37
Agriculture:	0.00	0.00
Off-Road Equipment:	0.00	0.00
Refrigerants:	0.00	0.00
Sequestration:	0.00	0.00
Purchase of Offsets:	0.00	0.00
Total:	1,146.27	1,099.08

Baseline is currently: **OFF**Baseline Project Name:
Go to Settings Tab to Turn On Baseline

# **Detailed Results**

Unmitigated <sup>1</sup>	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation: <sup>2</sup>				796.29	69.47%
Area Source:	0.81	0.00	0.00	1.01	0.09%
Electricity: <sup>3</sup>	94.61	0.00	0.00	94.76	8.27%
Natural Gas:	199.65	0.02	0.00	200.16	17.46%
Water & Wastewater:	14.66	0.00	0.00	14.68	1.28%
Solid Waste:	0.28	1.86	N/A	39.37	3.43%
Agriculture:	0.00	0.00	0.00	0.00	0.00%
Off-Road Equipment:	0.00	0.00	0.00	0.00	0.00%
Refrigerants:	N/A	N/A	N/A	0.00	0.00%
Sequestration:	N/A	N/A	N/A	0.00	0.00%
Purchase of Offsets:	N/A	N/A	N/A	0.00	0.00%
Total:			•	1,146.27	100.00%

Mitigated <sup>4</sup>	CO2 (metric tpy)	CH4 (metric tpy)	N2O (metric tpy)	CO2e (metric tpy)	% of Total
Transportation: <sup>2</sup>				796.29	72.45%
Area Source:	0.81	0.00	0.00	1.01	0.09%
Electricity: <sup>3</sup>	79.47	0.00	0.00	79.60	7.24%
Natural Gas:	167.71	0.02	0.00	168.14	15.30%
Water & Wastewater:	14.66	0.00	0.00	14.68	1.34%
Solid Waste:	0.28	1.86	N/A	39.37	3.58%
Agriculture:	0.00	0.00	0.00	0.00	0.00%
Off-Road Equipment:	0.00	0.00	0.00	0.00	0.00%
Refrigerants:	N/A	N/A	N/A	0.00	0.00%
Sequestration:	N/A	N/A	N/A	0.00	0.00%
Purchase of Offsets:	N/A	N/A	N/A	0.00	0.00%
Total:				1,099.08	100.00%

<sup>&</sup>lt;sup>2</sup> Several adjustments were made to transportation emissions after they have been imported from URBEMIS.

After importing from URBEMIS, CO2 emissions are converted to metric tons and then adjusted to account for the "Pavley" regulation. Then, CO2 is converted to CO2e by multiplying by 100/95 to account for the contribution of other GHGs (CH4, N2O, and HFCs [from leaking air conditioners]). Finally, CO2e is adjusted to account for th low carbon fuels rule.

<sup>&</sup>lt;sup>1</sup> The unmitigated project includes the City of Livermore's current 64% reduction in solid waste.

Source: Livermore Sanitation website: http://www.livermoresanitation.com/residential-services.html , accessed January 2012.

<sup>&</sup>lt;sup>3</sup> Electricity was adjusted to account for PG&E's lower emission factor, which is 45.99% of than the state-wide average.

The model does not allow for adjustment of the emission factors, so the electricity usage was instead adjusted by this amount.

Source: PG&E Greenhouse Gas Emission Factors Info Sheet, last updated 4/8/2011, projection for 2016

available at: 2016 from http://www.pge.com/includes/docs/pdfs/shared/environment/calculator/pge\_ghg\_emission\_factor\_info\_sheet.pdf

 $<sup>^{\</sup>rm 4}$  Mitigated includes Energy Efficiency 16% above Title 24.

# Construction-Period Health Risk Assessment Calculations for Diesel Particulate Matter (DPM) Cancer Risk, DPM Non-Cancer Hazard and PM 2.5 Exposure

# **Garaventa Hills Project**

# **CANCER RISK:**

# 1. URBEMIS Output

Specifics of construction phases were entered into URBEMIS. Default assumptions regarding construction equipment were used.

Total emissions (all years) were added together and divided by the total construction period in years (0.2 + 0.12 + 0.11 + 0.02 / 3 years = 0.15 average yearly short tons as the average yearly emissions rate).

#### 2. Screen3

The average yearly emissions rate was converted to micro-grams/second/square meter (using a conversion factor of 1 short ton per year = 0.0287 g/s) then dividing by the project area (128,285 m<sup>2</sup>). This emission rate, calculated at 3.3614E-08 g/s/m<sup>2</sup> was entered into Screen3 with these other parameters:

- Source type: area
- Urban dispersion coefficient
- Source release height: 3 meters
- Simple terrain flat
- Automated distances
- Full meteorology

This resulted in a maximum 1-hour concentration of 0.9674 ug/m³, which would occur at a distance of 270 meters. (Screen3 output is attached.)

# 3. Scaling to Annual

GLC = (X1-hour) (Scalar)

Where GLC is the annual average ground level concentration.

The maximum 1-hour concentration from the Screen3 output was then multiplied by the BAAQMD recommended hourly to annual Scalar of 0.1 for the following:

GLC = (0.9674 ug/m3) (0.1)

Ground Level Concentration = 0.09674 ug/m3

# 4. Calculate Risk

This GLC was used as the concentration in air ("C air") for calculation of inhalation dose as follows:

Inhalation Dose =  $(C air*DBR*A*EF*ED*1x10^{-6})/AT$ 

DBR = daily breathing rate = 302

A = inhalation absorption rate for DPM = 1

EF = Exposure frequency = 250 days/yr (assuming 5 days a week for 50 weeks for the entire year)

ED = Exposure duration = 3 years (full construction period)

AT = Averaging time = 25,550 (for a 70 year cancer risk)

Inhalation Dose =  $(0.09674) (302) (1) (250) (3) (10^{-6}) / 25550$ 

Inhalation Dose = 8.576E-07

And from there calculated the Inhalation Cancer Risk:

Inhalation Cancer Potency factor (for DPM) = 1.1

Inhalation Cancer Risk per million = (Inhalation Dose)\*Inhalation Cancer Potency factor\*10<sup>6</sup>

Inhalation Cancer Risk per million = (8.576E-07)\*1.1\*10^6

Inhalation Cancer Risk per million (adult) = 0.943 - compared to Threshold of 10.0

Because an infant could be exposed during the construction, an age sensitivity factor of 10 is used.

Inhalation Cancer Risk \* ASF = risk adjusted for age sensitivity

0.943\*10 = 9.43

Inhalation Cancer Risk per million (infant) = 9.43 compared to Threshold of 10.00

PM10 is below threshold levels, even when analyzing worst case scenario.

# FOR CHRONIC NON-CANCER:

Hazard Quotient = C air/REL

REL = DPM inhalation non-cancer chronic (long-term) reference exposure level = 5 ug/m<sup>3</sup>

Hazard Quotient = 0.0.09674 / 5.0

Hazard Quotient = 0.019 compared to Threshold of 1.000

Chronic hazards are below threshold levels.

# **FOR PM2.5**

The total PM2.5 emissions from URBEMIS (all years added together) were summed then divided by the total construction period in years.

Total PM2.5 emissions (all years) were added together and divided by the total construction period in years (0.18 + 0.11 + 0.1 + 0.01/3 years = 0.133 average yearly short tons as the average yearly emissions rate).

The average yearly emissions rate was converted to micro-grams/second/square meter (using a conversion factor of 1 short ton per year = 0.0287 g/s) then dividing by the project area as above. This emission rate, calculated at 2.9879E-08 g/s/m<sup>2</sup> was entered into Screen3 with the same parameters as for PM10 above and scaled to an annual average.

Annual Average PM2.5 concentration of 0.086 ug/m<sup>3</sup> compared to the threshold of 0.300 ug/m<sup>3</sup>

PM2.5 is below threshold levels.

# 02/21/12

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16:40:36
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\*\*\* SCREEN3 MODEL RUN \*\*\*

\*\*\* VERSION DATED 96043 \*\*\*

C:\Users\bruce\Documents\Lakes\Screen View\Garaventa.scr

# SIMPLE TERRAIN INPUTS:

SOURCE TYPE = AREA

EMISSION RATE (G/(S-M\*\*2)) = 0.336140E-07

SOURCE HEIGHT (M) = 3.0000

LENGTH OF LARGER SIDE (M) = 375.0000

LENGTH OF SMALLER SIDE (M) = 350.0000

RECEPTOR HEIGHT (M) = 0.0000

URBAN/RURAL OPTION = URBAN

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED. THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION

BUOY. FLUX = 0.000 M\*\*4/S\*\*3; MOM. FLUX = 0.000 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

DIST	CONC		U10M	USTK	MIX HT	PLUME	MAX DIR
(M)	(UG/M**3)	STAB	(M/S)	(M/S)	(M)	HT (M)	(DEG)
1.	0.6775	5	1.0	1.0	10000.0	3.00	42.
100.	0.8069	5	1.0	1.0	10000.0	3.00	42.
200.	0.9061	5	1.0	1.0	10000.0	3.00	42.
300.	0.8478	5	1.0	1.0	10000.0	3.00	43.
400.	0.5478	5	1.0	1.0	10000.0	3.00	43.
500.	0.4177	5	1.0	1.0	10000.0	3.00	42.
600.	0.3407	5	1.0	1.0	10000.0	3.00	42.
700.	0.2885	5	1.0	1.0	10000.0	3.00	41.
800.	0.2502	5	1.0	1.0	10000.0	3.00	40.
900.	0.2207	5	1.0	1.0	10000.0	3.00	40.
1000.	0.1971	5	1.0	1.0	10000.0	3.00	40.

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:

270. 0.9674 5 1.0 1.0 10000.0 3.00 43.

# 02/21/12

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16:45:57
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\*\*\* SCREEN3 MODEL RUN \*\*\*

\*\*\* VERSION DATED 96043 \*\*\*

C:\Users\bruce\Documents\Lakes\Screen View\Garaventa.scr

# SIMPLE TERRAIN INPUTS:

SOURCE TYPE = AREA

EMISSION RATE (G/(S-M\*\*2)) = 0.298790E-07

SOURCE HEIGHT (M) = 3.0000

LENGTH OF LARGER SIDE (M) = 375.0000

LENGTH OF SMALLER SIDE (M) = 350.0000

RECEPTOR HEIGHT (M) = 0.0000

URBAN/RURAL OPTION = URBAN

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED. THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION

BUOY. FLUX = 0.000 M\*\*4/S\*\*3; MOM. FLUX = 0.000 M\*\*4/S\*\*2.

\*\*\* FULL METEOROLOGY \*\*\*

\*\*\* TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES \*\*\*

DIST	CONC		U10M	USTK	MIX HT	PLUME	MAX DIR
(M)	(UG/M**3)	STAB	(M/S)	(M/S)	(M)	HT (M)	(DEG)
1.	0.6022	5	1.0	1.0	10000.0	3.00	42.
100.	0.7173	5	1.0	1.0	10000.0	3.00	42.
200.	0.8054	5	1.0	1.0	10000.0	3.00	42.
300.	0.7536	5	1.0	1.0	10000.0	3.00	43.
400.	0.4870	5	1.0	1.0	10000.0	3.00	43.
500.	0.3713	5	1.0	1.0	10000.0	3.00	42.
600.	0.3029	5	1.0	1.0	10000.0	3.00	42.
700.	0.2565	5	1.0	1.0	10000.0	3.00	41.
800.	0.2224	5	1.0	1.0	10000.0	3.00	40.
900.	0.1962	5	1.0	1.0	10000.0	3.00	40.
1000.	0.1752	5	1.0	1.0	10000.0	3.00	40.

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:

270. 0.8599 5 1.0 1.0 10000.0 3.00 43.

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