

Appendix 4a

Emission factors during construction and operational phases for existing and planned cement depot

Emission Points	TSP	RSP	Sources	Remarks
Existing Operation (Existing silo emission)				
EP1	0.0243 g/s	0.0124g/s	Point (dust collector)	BPM ¹ requirement
EP2	0.0243 g/s	0.0124g/s	Point (loading Point)	BPM ¹ requirement
EP3	0.0243 g/s	0.0124g/s	Point (dust collector)	BPM ¹ requirement
EP4	0.0243 g/s	0.0124g/s	Point (loading Point)	BPM ¹ requirement
EP5	0.0243 g/s	0.0124g/s	Point (dust collector)	BPM ¹ requirement
EP6	0.0243 g/s	0.0124g/s	Point (dust collector)	BPM ¹ requirement
EP7 (Backup Purpose)	0.0243 g/s	0.0124g/s	Point (loading Point)	BPM ¹ requirement
EP11 (Cement Tanker)	0.000074g/m/s	0.000014g/m/s	Line (vehicle movement ²)	AP42 S13.2.1
EP12 (Cement Tanker)	0.000074g/m/s	0.000014g/m/s	Line (vehicle movement ²)	AP42 S13.2.1
EP13 (Cement Tanker)	0.000148g/m/s	0.000028g/m/s	Line (vehicle movement ²)	AP42 S13.2.1
EP14 (Cement Tanker)	0.000148g/m/s	0.000028g/m/s	Line (vehicle movement ²)	AP42 S13.2.1
EP99 (Barge)	0.0243 g/s	0.0124g/s	Point (dust collector on barge)	BPM ¹ requirement
Proposed Operation (Planned emission points)				
EP8, EP9, EP10	0.0243 g/s	0.0124g/s	Point (dust collector)	BPM ¹ requirement
Construction (Heavy Construction, 0700 – 1900)				
EP15	4.2×10 ⁻⁵ g/m ² /s	----	Area	AP42 S13.2.3
Construction (Wind Erosion)				
EP15	2.70×10 ⁻⁶ g/m ² /s	----	Area	AP42 S11.9

Note: 1. BPM : Best Practicable Means issued by HKEPD

2. on site vehicle movement on wetted paved road in cement depot (not include the traffic in concrete batching plant)

Appendix 4b

Detailed calculation for emission factors of planned cement depot

Emission Factor for Cement Work													
Source No	Source	Emission Rate	Flow Rate	Height	TSP	RSP							Remark
	Type	(mg/m ³)	(m ³ /h)	m	(g/s)	(g/s)							
Operational Phase (Existing Silo)													
EP1	point	50	1750	29	0.02431	0.0124							RSP =0.51 × TSP
EP2	point	50	1750	11	0.02431	0.0124							RSP =0.51 × TSP
EP3	point	50	1750	31	0.02431	0.0124							RSP =0.51 × TSP
EP4	point	50	1750	15	0.02431	0.0124							RSP =0.51 × TSP
EP5	point	50	1750	32	0.02431	0.0124							RSP =0.51 × TSP
EP6	point	50	1750	32	0.02431	0.0124							RSP =0.51 × TSP
EP7 ^[1]	point	50	1750	10	0.02431	0.0124							RSP =0.51 × TSP: As EP7 is for backup purposed, it is not taken into account in the modelling
EP99 (Barge)	point	50	1750	2	0.02431	0.0124							RSP =0.51 × TSP
Operational Phase (Proposed Silo)													
EP8	point	50	1750	32	0.02431	0.0124							RSP =0.51 × TSP
EP9	point	50	1750	32	0.02431	0.0124							RSP =0.51 × TSP
EP10	point	50	1750	32	0.02431	0.0124							RSP =0.51 × TSP
Operational Phase On site Traffic (For Cement Works Only)													
Source No	Source		Total Distance	Height	TSP	RSP	TSP(L)	RSP(L)	N.	Weight	silt loading	Watering eff	
	Type		m	m	(g/m/s)	(g/m/s)	(g/VKT)	(g/VKT)	veh/hr	tonnes	g/m ²	%	
EP11	Line		72.5	0.5	8.71E-05	1.67E-05	380.08	72.85	5.5	38	0.4	85	<ul style="list-style-type: none"> TSP(L) in (g/VKT): $TSP(L)=24(sl/2)^{0.65}(W/3)^{1.5}$; RSP(L) in (g/VKT): $RSP(L)=4.6(sl/2)^{0.65}(W/3)^{1.5}$ sl =0.4 for Low ADT Road; W=38 tonnes (26 tonne for capacity+12 tonnes for cement tanker), 7 cement tankers are for off-site delivery and 4 for on-site delivery (i.e. Total 11 cement tanker). As the road is wet regularly, 85% dust removal efficiency is assumed Vehicle On-site speed : less than 5 kph; TSP =TSP(L) × N × 0.15 (dust removal eff); RSP=RSP(L) × N × 0.15 (dust removal eff);
EP12	Line		51	0.5	8.71E-05	1.67E-05	380.08	72.85	5.5	38	0.4	85	
EP13	Line		68	0.5	1.74E-04	3.34E-05	380.08	72.85	11	38	0.4	85	
EP14	Line		18	0.5	1.74E-04	3.34E-05	380.08	72.85	11	38	0.4	85	
Construction Phase													
Source No	Source	Description		Height	TSP							Watering eff	
	Type			m	(g/m ² /s)							%	
EP15	Area	Heavy Construction		0.5	3.113E-05							85	E=2.69Mg/heactare/month of activity; month of activity: 30 day × 12hr × 60 × 60
EP15	Area	Wind Erosion		0.5	2.7E-06								E=0.85Mg/heactare/yr; year = 365 day × 24hr × 60 × 60

[1] EP7 is the dust collector for backup purpose. It will not be taken into account in the air quality modeling.

Appendix 4c

Emissions factors of adjacent concrete batching plants (Extracted from APCP of K. Wah Concrete, Appendix 4d1)

Location		TSP (g/s) or TSP (g/m ² /s)*	RSP ¹ (g/s) or RSP ¹ (g/m ² /s)*
X	Y		
East wing Concrete Batching Plant (owned by K. Wah Concrete Co. Ltd.) refer to Appendix 4d1			
830120	835515	0.0236	0.0120
839124	835512	0.0236	0.0120
839053	835520	0.0097	0.0049
839077	835538	0.0097	0.0049
839092	835522	0.0097	0.0049
839113	835494	0.0097	0.0049
839142	835514	0.0097	0.0049
839127	835516	0.0097	0.0049
839127	835516	0.0097	0.0049
839121	835512	0.0083	0.0042
839039	835512	0.0097	0.0049
839022	835512	0.0036	0.00184
839100	835493	0.0036	0.00184
Stone Plant (owned by K. Wah Stones (Zhu Hai), Refer to APCP of K. Wah Concrete for details)			
839035	835525	0.0036	0.00184
West wing Concrete Batching Plant (owned by K. Wah Concrete Co. Ltd., Refer to APCP of K. Wah Concrete, Appendix 4d1 for details)			
839010	835539	0.0236	0.0120
839005	835539	0.0236	0.0120
839011	835536	0.0233	0.0118
839009	835536	0.0233	0.0118
839009	835547	0.0236	0.0120
838992	835503	0.0072*	0.00367*
838987	835497	0.00252*	0.00129*

Note [1]: RSP = 0.51×TSP for concrete and cement operation

Emission Factor for On site traffic due to East and West Wing Concrete Batching Plants and Stone Plant (Refer to Appendix 4d2 for details)

On-site Traffic	TSP (g/r s)	RSP (g/ 1/s)	Remark
Concrete Lorry Mixer for East Wing Concrete Batching Plant	1.53×10^{-4}	2.94×10^{-5}	
Concrete Lorry Mixer for West Wing Concrete Batching Plant ^[1,2]	1.53×10^{-4}	2.94×10^{-5}	No operation in construction phase
Lorry for Stone Plant ^[1]	1.25×10^{-4}	2.4×10^{-5}	
Cement tanker for East Wing Concrete Batching Plant	6.33×10^{-5}	1.21×10^{-5}	4 vehicles to deliver cement on site
Cement tanker for West Wing Concrete Batching Plant ^[2]	6.33×10^{-5}	1.21×10^{-5}	No operation in construction phase

[1] As the path for Lorry in the Stone Plant is similar to the path of concrete lorry mixer in West Wing Concrete Batching Plant, for simplicity in modeling, in operational phase the emissions due to the on-site traffic of the West Wing Concrete Batching Plant and Stone Plant are added together. (i.e TSP = 2.78×10^{-4} ; RSP = 5.34×10^{-5})

[2] For construction phase, the west wing concrete batching plant will not be operated. Therefore, the on-site traffic to west wing Concrete Batching Plant are not taken into account in the modelling

Appendix 4d1

Specific Licence and APCP for K. Wah Concrete Batching Plant

2.4 Emission Points and Emission Rates

A co-ordination system, which is used for modelling, has been drawn on the location plan of the plant. The controlled emission rates of these emission points are estimated according to emission factors in AP-42. These parameters, height and emission rate of the emission points, are shown in Table 5 & 6.

Table 5 Emission Points parameters

Emission Point	Location X	Y	Height (m)
EP14	839010	835539	14.7
EP15	839005	835539	23.0
EP16	839011	835536	6.0
EP17	839008	835536	6.0
EP18	839009	835547	7.0
EP19	838992	835503	2.0
EP20	838987	835497	5.0
EP21	838010	835538	0.0

Table 6 Controlled Emission Rate

Emission Point	Controlled efficiency	Emission rate (TSP)	Emission rate (RSP)
EP14	99%	0.0236 g/s	0.0172 g/s
EP15	99%	0.0236 g/s	0.0172 g/s
EP16	99%	0.0233 g/s	0.0170 g/s
EP17	99%	0.0233 g/s	0.0170 g/s
EP18	99%	0.0236 g/s	0.0172 g/s
EP19	90%	0.0072 g/m ² /s	0.000308 g/m ² /s
EP20	90%	0.00252 g/m ² /s	0.000108 g/m ² /s
EP21 Vehicle movement	95%	0.000055 g/m ² /s	0.00004 g/m ² /s

As requested by the EPD, the dust emission impact of the existing batching plant and the two neighbouring plants, K Wah Materials Ltd. and K Wah Stones (Zhu Hai) Co., Ltd. has to be included in this assessment. The emission rate, locations and height of these emission points are listed in table 6a.

Table 6a Controlled Emission Rate

Emission point location	Height (m)	Emission rate (TSP)	Emission rate (RSP)	
<i>K Wah Concrete Co Ltd</i> (existing plant)				
EP1	830120, 835515	22.8	0.0236 g/s	0.0071 g/s
EP2	839124, 835512	22.8	0.0236 g/s	0.0071 g/s
EP3	839053, 835520	1.0 --	0.0097 g/s	0.0029 g/s
EP4	839077, 835538	5.4 --	0.0097 g/s	0.0029 g/s
EP5	839092, 835522	5.4	0.0097 g/s	0.0029 g/s
EP6	839113, 835494	1.0	0.0097 g/s	0.0029 g/s
EP7	839142, 835514	13.0	0.0097 g/s	0.0029 g/s
EP8	839127, 835516	17.0	0.0097 g/s	0.0029 g/s
EP9	839127, 835516	5.6	0.0097 g/s	0.0029 g/s
EP10	839121, 835512	6.65	0.0083 g/s	0.0025 g/s
EP11	839039, 835518	2.0	0.0097 g/s	0.0029 g/s
EP12	839022, 835512	1.0	0.0036 g/s	0.0011 g/s
EP13	839100, 835493	5.4	0.0036 g/s	0.0011 g/s
<i>K Wah Stones (Zhu Hai)</i>				
	839035, 835525	1.0	0.0036 g/s	0.0011 g/s
<i>K Wah Materials Ltd.</i>				

839035, 835530	30	0.0243 g/s	0.0175 g/s
839043, 835533	8	0.0243 g/s	0.0175 g/s
839030, 835540	27.0	0.0243 g/s	0.0175 g/s
839037, 835545	9	0.0243 g/s	0.0175 g/s
839062, 835542	32	0.0243 g/s	0.0175 g/s
839057, 835555	32	0.0243 g/s	0.0175 g/s
839052, 835537	10	0.0243 g/s	0.0175 g/s

The emission rates in Table 6 & 6a will be used to run the model.

3.5 Receptors

The receptors' locations and their heights are tabulated in Table 7.

Table-7 Receptors Locations

Receptor	Location		Height (m)
	X	Y	
1	838690	835540	5
2	838690	835540	10
3	839050	835775	5
4	839050	835775	10
5	839290	835640	35
6	839290	835640	45
7	839150	835480	5

Appendix 4d2

Emission due to vehicle movement for East and West Wing K Wah Concrete Batching Plant and K. Wah Stone Plant

Vehicle Movement inside batching plant:

Emission factor for paved road is

$$\text{TSP} = 24 \times (\text{sl}/2)^{0.65} \times (\text{W}/3)^{1.5}$$

$$\text{RSP} = 4.6 \times (\text{sl}/2)^{0.65} \times (\text{W}/3)^{1.5}$$

where sl: silt factor, 0.4 for low ADT Road

W: weight of concrete lorry mixer, 22 tonnes (10 tonnes concrete + 12 tonnes vehicle weight)

$$\begin{aligned}\text{TSP} &= 24 \times (0.4/2)^{0.65} \times (22/3)^{1.5} \\ &= 167 \text{g/VKT}\end{aligned}$$

$$\begin{aligned}\text{RSP} &= 4.6 \times (0.4/2)^{0.65} \times (22/3)^{1.5} \\ &= 32.1 \text{g/VKT}\end{aligned}$$

Number of concrete lorry mixer per hour is 22 according to APCP for K. Wah Concrete Batching Plant (Appendix 4d1)

Assuming half of concrete lorry mixers are for East Wing Concrete Batching Plant and West Wing Concrete Batching Plant:

Number of Concrete Lorry Mixer for East Wing Concrete Batching Plant = $22 / 2 = 11$

Number of round trip for East Wing Concrete Batching Plant = $11 \times 2 = 22$

Number of Concrete Lorry Mixer for West Wing Concrete Batching Plant = $22 / 2 = 11$

Number of round trip for West Wing Concrete Batching Plant = $11 \times 2 = 22$

As the road surface is wetted regularly, it is assumed that the dust control efficiency is 85%, a factor of 0.15 is adopted.

The emission rates for on-site traffic in East Wing Concrete Batching Plant and West Wing Concrete Batching Plant are:

$$\begin{aligned}\text{The emission rate (TSP)} &= 167 \text{g/VKT} \times (1/1000) \times [(22)/3600] \times 0.15 \\ &= 1.53 \times 10^{-4} \text{g/m/s}\end{aligned}$$

$$\begin{aligned}\text{The emission rate (RSP)} &= 32.1 \text{g/VKT} \times (1/1000) \times [(22)/3600] \times 0.15 \\ &= 2.94 \times 10^{-5} \text{g/m/s}\end{aligned}$$

Vehicle Movement for Stone Plant:

Emission factor for paved road is

$$\text{TSP} = 24 \times (\text{sl}/2)^{0.65} \times (\text{W}/3)^{1.5}$$

$$\text{RSP} = 4.6 \times (\text{sl}/2)^{0.65} \times (\text{W}/3)^{1.5}$$

where sl: silt factor, 0.4 for low ADT Road

W: weight of Lorry, 22 tonnes (10 tonnes aggregate + 12 tonnes vehicle weight)

$$\begin{aligned} \text{TSP} &= 24 \times (0.4/2)^{0.65} \times (22/3)^{1.5} \\ &= 167 \text{g/VKT} \end{aligned}$$

$$\begin{aligned} \text{RSP} &= 4.6 \times (0.4/2)^{0.65} \times (22/3)^{1.5} \\ &= 32.1 \text{g/VKT} \end{aligned}$$

Number of Lorry per hour is 9 according to APCP for K. Wah Stone Plant (Appendix 4d1)

Number of round trip for Lorry = $9 \times 2 = 18$

As the road surface is wetted regularly, it is assumed that the dust control efficiency is 85%, a factor of 0.15 is adopted.

The emission rates for on-site traffic for Stone Plant are:

$$\begin{aligned} \text{The emission rate (TSP)} &= 167 \text{g/VKT} \times (1/1000) \times [(18)/3600] \times 0.15 \\ &= 1.25 \times 10^{-4} \text{ g/m/s} \end{aligned}$$

$$\begin{aligned} \text{The emission rate (RSP)} &= 32.1 \text{g/VKT} \times (1/1000) \times [(18)/3600] \times 0.15 \\ &= 2.4 \times 10^{-5} \text{ g/m/s} \end{aligned}$$

Vehicle movement for on-site delivery of cement

Emission factor for paved road is

$$\text{TSP} = 24 \times (\text{sl}/2)^{0.65} \times (\text{W}/3)^{1.5}$$

$$\text{RSP} = 4.6 \times (\text{sl}/2)^{0.65} \times (\text{W}/3)^{1.5}$$

where sl: silt factor, 0.4 for low ADT Road

W: weight of Lorry, 38 tonnes (26 tonnes aggregate + 12 tonnes vehicle weight)

$$\begin{aligned}\text{TSP} &= 24 \times (0.4/2)^{0.65} \times (38/3)^{1.5} \\ &= 380\text{g/VKT}\end{aligned}$$

$$\begin{aligned}\text{RSP} &= 4.6 \times (0.4/2)^{0.65} \times (38/3)^{1.5} \\ &= 72.8\text{g/VKT}\end{aligned}$$

Number of tanker for delivery cement on site per hour is 4 according to APCP for K. Wah Stone Plant (Appendix 4d1)

Assuming half of cement tankers are for East Wing Concrete Batching Plant and West Wing Concrete Batching Plant:

Number of cement tanker for East Wing Concrete Batching Plant = $4 / 2 = 2$

Number of round trip for East Wing Concrete Batching Plant = $2 \times 2 = 4$

Number of Concrete Lorry Mixer for West Wing Concrete Batching Plant = $4 / 2 = 2$

Number of round trip for West Wing Concrete Batching Plant = $2 \times 2 = 4$

As the road surface is wetted regularly, it is assumed that the dust control efficiency is 85%, a factor of 0.15 is adopted.

The emission rates for on-site traffic for East Wing and West Wing Concrete Batching Plant are:

$$\begin{aligned}\text{The emission rate (TSP)} &= 380\text{g/KT} \times (1/1000) \times [(4)/3600] \times 0.15 \\ &= 6.33 \times 10^{-5} \text{ g/m/s}\end{aligned}$$

$$\begin{aligned}\text{The emission rate (RSP)} &= 72.8\text{g/VKT} \times (1/1000) \times [(4)/3600] \times 0.15 \\ &= 1.21 \times 10^{-5} \text{ g/m/s}\end{aligned}$$

Appendix 4e

Emission factor for road traffic

Roads	Car	PV	PLB	LGV	MGV	HGV	Bus	Total	Car	PV	PLB	LGV	MGV	HGV	Bus	Car	PV	PLB	LGV	MGV	HGV	Bus	Total	conv. factor	Emission	g/km/veh	Veh/hr	g/mi/veh
Ting Kok Rd - EB(#1-33)	0	385	0	65	0	35	15	500	0.03	0.16	0.12	0.11	0.53	0.53	0.69	0.00	61.60	0.00	7.15	0.00	18.55	10.35	97.65	1.00	97.65	0.20	500.0	0.314
TING KOK RD - EB AFTER SAM MUN TSAI RD (#34-36)	0	208	0	35	0	19	8	270	0.03	0.16	0.12	0.11	0.53	0.53	0.69	0.00	33.26	0.00	3.86	0.00	10.02	5.59	52.73	1.00	52.73	0.20	270.0	0.314
Ting Kok Rd - WB (#101-103)	0	354	0	60	0	32	14	460	0.03	0.16	0.12	0.11	0.53	0.53	0.69	0.00	56.67	0.00	6.58	0.00	17.07	9.52	89.84	1.00	89.84	0.20	460.0	0.314
Ting Kok Rd - WB after Sam Mun Tsai Rd (#104-136)	0	593	0	100	0	54	23	770	0.03	0.16	0.12	0.11	0.53	0.53	0.69	0.00	94.86	0.00	11.01	0.00	28.57	15.94	150.38	1.00	150.38	0.20	770.0	0.314
Sam Mun Tsai Rd - SB (#201-217)	0	153	0	45	0	48	5	250	0.03	0.16	0.12	0.11	0.53	0.53	0.69	0.00	24.40	0.00	4.95	0.00	25.18	3.45	57.98	1.00	57.98	0.23	250.0	0.373
SAM MUN TSAI RD-SB BTW CASA MARINA (#214-217)	0	182	0	18	0	25	5	230	0.03	0.16	0.12	0.11	0.53	0.53	0.69	0.00	29.07	0.00	2.02	0.00	13.41	3.17	47.68	1.00	47.68	0.21	230.0	0.334
Sam Mun Tsai Rd - SB after Yu On St (#218-221)	0	85	0	25	0	27	3	140	0.03	0.16	0.12	0.11	0.53	0.53	0.69	0.00	13.66	0.00	2.77	0.00	14.10	1.93	32.47	1.00	32.47	0.23	140.0	0.373
Sam Mun Tsai Rd - NB (#300-303)	0	55	0	16	0	17	2	90	0.03	0.16	0.12	0.11	0.53	0.53	0.69	0.00	8.78	0.00	1.78	0.00	9.06	1.24	20.87	1.00	20.87	0.23	90.0	0.373
Sam Mun Tsai Rd - NB between Yu On St. (#304-308)	0	71	0	7	0	10	2	90	0.03	0.16	0.12	0.11	0.53	0.53	0.69	0.00	11.38	0.00	0.79	0.00	5.25	1.24	18.66	1.00	18.66	0.21	90.0	0.334
Sam Mun Tsai Rd -NB after Yu On St. (#316-320)	0	134	0	40	0	42	4	220	0.03	0.16	0.12	0.11	0.53	0.53	0.69	0.00	21.47	0.00	4.36	0.00	22.15	3.04	51.02	1.00	51.02	0.23	220.0	0.373
Yu Ob St - NB (#401-413)	0	28	0	1	0	21	0	50	0.03	0.16	0.12	0.11	0.53	0.53	0.69	0.00	4.48	0.00	0.11	0.00	11.13	0.00	15.72	1.00	15.72	0.31	50.0	0.506

Appendix 4f

Predicted cumulative 1-hr and 24-hr TSP during construction phase

Predicted cumulative 1-hr TSP concentrations during daytime 0700 - 1900 (with background correction)

Activities: **Construction activities**
 Existing cement work
 East wing concrete batching plant
 Stone plant
 On- site traffic
 Wind Erosion

A/SR	Concentration mg/m ³										
	1.5m	5m	10m	15m	20m	30m	40m	50m	60m	80m	100m
1	137.4	135.4	125.4	112.4							
2	112.9	112.2	106.7	98.8	90.2	75.9	71.9	68.5	66.5	65.8	65.1
3	146.1	139.7	124.4	113.1							
4	150.1	146.2	132.4	117.4	102.2	83.9	73.0	71.1	69.2	66.2	65.0
5	100.9	100.7	96.9	91.5	85.5	74.3	69.3	67.4	65.8	65.0	64.9
6	90.4	90.1	87.7	84.1	80.1	72.4	69.3	67.7	66.3	64.6	64.6
7	341.3	245.6	177.1	216.7	211.9	87.6	77.0	67.7	66.9	63.8	63.1
8	250.1	492.6	197.9	264.9							
9	200.9	172.4	144.2	131.5							
10	132.2	127.0	120.9	112.0							

The predicted cumulative 24-hr TSP at the ASRs (with background correction)

Activities: **Construction activities**
 Existing cement work
 East wing concrete batching plant
 Stone plant
 On- site traffic
 Wind Erosion

A/SR	Concentration mg/m ³										
	1.5m	5m	10m	15m	20m	30m	40m	50m	60m	80m	100m
1	72.3	72.2	71.2	69.9							
2	68.7	68.6	68.0	67.3	66.5	65.1	64.2	63.9	63.6	63.4	63.3
3	70.2	69.9	68.8	68.0							
4	89.2	87.8	83.1	78.5	74.2	68.5	65.9	64.6	63.9	63.4	63.2
5	67.3	67.3	66.8	66.2	65.5	64.3	63.8	63.6	63.4	63.2	63.1
6	65.6	65.6	65.3	65.0	64.6	64.0	63.8	63.6	63.4	63.2	63.1
7	102.1	94.7	89.3	85.0	82.9	66.1	65.2	63.3	63.4	63.1	63.0
8	104.9	119.1	84.7	88.0							
9	77.8	75.1	70.9	69.2							
10	70.5	69.9	68.3	67.1							

Appendix 4g

Predicted cumulative 24-hr TSP for on-site activity during operational phase

Predicted cumulative 24-hr TSP concentrations (with background correction)

Activities: **Proposed Cement Work**
 East Wing Concrete Batching Plant
 West Wing Concrete Batching Plant
 Stone Plant
 On- Site Traffic

ASR	Concentration mg/m ³										
	1.5m	5m	10m	15m	20m	30m	40m	50m	60m	80m	100m
1	84.4	83.5	80.1	77.3							
2	74.8	74.7	73.6	72.0	70.4	67.5	65.7	64.9	64.4	63.9	63.7
3	83.1	82.5	79.9	77.1							
4	118.1	115.3	105.7	95.8	86.4	73.6	68.5	66.1	64.8	63.8	63.4
5	70.4	70.3	69.6	68.5	67.3	65.2	64.6	64.2	63.8	63.4	63.3
6	68.2	68.2	67.6	67.0	66.3	64.9	64.5	64.2	63.9	63.5	63.3
7	140.4	128.4	119.1	109.8	99.6	70.0	68.3	64.0	63.9	63.2	63.0
8	133.4	133.1	99.8	99.7							
9	91.6	86.8	80.2	77.9							
10	74.4	72.9	70.5	69.0							

Appendix 4h

Predicted cumulative 24-hr RSP during operational phase

O1: Predicted 24-hr RSP concentrations (with background correction)

Activities: Proposed Cement Work
 East Wing Concrete Batching Plant
 West Wing Concrete Batching Plant
 Stone Plant
 On Site Traffic

ASR	Concentration mg/m ³										
	1.5m	5m	10m	15m	20m	30m	40m	50m	60m	80m	100m
1	56.2	55.9	54.3	52.7							
2	51.7	51.6	51.1	50.3	49.5	47.8	46.6	46.1	45.8	45.5	45.4
3	55.0	54.8	53.6	52.1							
4	71.6	71.0	67.5	63.3	58.8	51.0	48.2	46.8	46.0	45.4	45.2
5	49.4	49.5	49.2	48.6	48.0	46.7	46.0	45.7	45.5	45.2	45.1
6	48.3	48.3	48.1	47.7	47.3	46.4	45.9	45.7	45.5	45.3	45.2
7	80.5	74.1	71.8	68.7	64.4	48.9	47.9	45.5	45.5	45.1	45.0
8	86.1	81.9	63.8	63.1							
9	61.9	59.1	53.9	52.7							
10	51.6	50.9	49.2	48.3							

T1: Predicted 24-hr RSP at the ASRs due to traffic flow only (with background correction)

ASR	Concentration mg/m ³										
	1.5m	5m	10m	15m	20m	30m	40m	50m	60m	80m	100m
1	49.7	49.3	48.6	47.9							
2	46.6	46.6	46.5	46.4	46.3	46.0	45.8	45.5	45.4	45.1	45.0
3	47.5	47.3	47.2	47.0							
4	47.9	47.8	47.7	47.6	47.4	46.9	46.5	46.1	45.8	45.4	45.2
5	46.2	46.2	46.2	46.2	46.1	46.0	45.8	45.7	45.6	45.4	45.2
6	46.1	46.0	46.0	46.0	46.0	45.8	45.8	45.6	45.5	45.4	45.2
7	52.5	51.3	49.6	48.4	47.7	46.9	46.4	46.0	45.7	45.3	45.2
8	46.8	46.7	46.4	46.4							
9	46.2	46.2	46.2	46.1							
10	46.2	46.1	46.0	45.9							

C1 Predicted cumulative 24-hr RSP concentrations (with background correction)

$$C1 = O1 + T1 - 45(\text{background})$$

ASR	Concentration mg/m ³										
	1.5m	5m	10m	15m	20m	30m	40m	50m	60m	80m	100m
1	60.9	60.2	57.9	55.6							
2	53.3	53.2	52.6	51.8	50.8	48.8	47.4	46.6	46.1	45.6	45.4
3	57.5	57.1	55.7	54.2							
4	74.5	73.8	70.2	65.8	61.2	52.9	49.7	47.9	46.9	45.9	45.4
5	50.7	50.7	50.4	49.8	49.1	47.6	46.8	46.4	46.1	45.6	45.3
6	49.4	49.4	49.1	48.7	48.3	47.2	46.6	46.3	46.0	45.6	45.4
7	88.1	80.4	76.4	72.2	67.1	50.8	49.3	46.5	46.2	45.4	45.2
8	87.9	83.6	65.3	64.5							
9	63.2	60.3	55.1	53.8							
10	52.7	52.0	50.2	49.2							

Appendix 4i

FDM Output File for 24-hr TSP (Construction)

1

FUGITIVE DUST MODEL (FDM)
VERSION 95279
OCT, 1995
DATE AT START OF RUN: 11/11/02 TIME AT START OF RUN: 14:03:17.85

RUN TITLE:
EIA for cement work/concrete batching plant --- TSP(CONSTRUCTION) 24-hr MetData

INPUT FILE NAME: C-TSP-D2.IN
OUTPUT FILE NAME: C-TSP-D2.OUT

CONVERGENCE OPTION 1=OFF, 2=ON 1
MET OPTION SWITCH, 1=CARDS, 2=PREPROCESSED 1
PLOT FILE OUTPUT, 1=NO, 2=YES 1
MET DATA PRINT SWITCH, 1=NO, 2=YES 1
POST-PROCESSOR OUTPUT, 1=NO, 2=YES 1
DEP. VEL./GRAV. SETL. VEL., 1=DEFAULT, 2=USER 1
PRINT 1-HOUR AVERAGE CONCEN, 1=NO, 2=YES 1
PRINT 3-HOUR AVERAGE CONCEN, 1=NO, 2=YES 1
PRINT 8-HOUR AVERAGE CONCEN, 1=NO, 2=YES 1
PRINT 24-HOUR AVERAGE CONCEN, 1=NO, 2=YES 3
PRINT LONG-TERM AVERAGE CONCEN, 1=NO, 2=YES 1
BYPASS RAMMET CALMS RECOGNITION, 1=NO, 2=YES 1
READ HOURLY EMISSION RATES, 1=NO, 2=YES 1
NUMBER OF SOURCES PROCESSED 34
NUMBER OF RECEPTORS PROCESSED 121
NUMBER OF PARTICLE SIZE CLASSES 9
NUMBER OF HOURS OF MET DATA PROCESSED 8760
LENGTH IN MINUTES OF 1-HOUR OF MET DATA 60.
ROUGHNESS LENGTH IN CM 100.00
SCALING FACTOR FOR SOURCE AND RECPTORS 1.0000
PARTICLE DENSITY IN G/CM**3 2.50
ANEMOMETER HEIGHT IN M 10.00

GENERAL PARTICLE SIZE CLASS INFORMATION

PARTICLE SIZE CLASS	GRAV. CHAR. DIA. (UM)	SETTLING VELOCITY (M/SEC)	FRACTION DEPOSITION IN EACH CLASS
1	0.500000	**	** 0.0400
2	1.500000	**	** 0.0700
3	2.250000	**	** 0.0400
4	2.750000	**	** 0.0300
5	3.500000	**	** 0.0700
6	4.500000	**	** 0.0500
7	5.500000	**	** 0.0400
8	8.000000	**	** 0.1700
9	20.000000	**	** 0.4900

** COMPUTED BY FDM

1

RECEPTOR COORDINATES (X,Y,Z)

(838688., 835542., 2.) (838644., 835772., 2.) (839113., 835748., 2.)
(839269., 835776., 2.) (839300., 835640., 2.) (839636., 835352., 2.)
(839744., 835378., 2.) (839128., 835597., 2.) (839149., 835506., 2.)
(839175., 835445., 2.) (839203., 835368., 2.) (838688., 835542., 5.)
(838644., 835772., 5.) (839113., 835748., 5.) (839269., 835776., 5.)
(839300., 835640., 5.) (839636., 835352., 5.) (839744., 835378., 5.)
(839128., 835597., 5.) (839149., 835506., 5.) (839175., 835445., 5.)
(839203., 835368., 5.) (838688., 835542., 10.) (838644., 835772., 10.)
(839113., 835748., 10.) (839269., 835776., 10.) (839300., 835640., 10.)
(839636., 835352., 10.) (839744., 835378., 10.) (839128., 835597., 10.)
(839149., 835506., 10.) (839175., 835445., 10.) (839203., 835368., 10.)
(838688., 835542., 15.) (838644., 835772., 15.) (839113., 835748., 15.)
(839269., 835776., 15.) (839300., 835640., 15.) (839636., 835352., 15.)
(839744., 835378., 15.) (839128., 835597., 15.) (839149., 835506., 15.)
(839175., 835445., 15.) (839203., 835368., 15.) (838688., 835542., 20.)
(838644., 835772., 20.) (839113., 835748., 20.) (839269., 835776., 20.)
(839300., 835640., 20.) (839636., 835352., 20.) (839744., 835378., 20.)
(839128., 835597., 20.) (839149., 835506., 20.) (839175., 835445., 20.)
(839203., 835368., 20.) (838688., 835542., 30.) (838644., 835772., 30.)
(839113., 835748., 30.) (839269., 835776., 30.) (839300., 835640., 30.)
(839636., 835352., 30.) (839744., 835378., 30.) (839149., 835506., 30.)
(839165., 835497., 30.) (839175., 835445., 30.) (839203., 835368., 30.)
(838688., 835542., 40.) (838644., 835772., 40.) (839113., 835748., 40.)
(839269., 835776., 40.) (839300., 835640., 40.) (839636., 835352., 40.)
(839744., 835378., 40.) (839128., 835597., 40.) (839149., 835506., 40.)
(839175., 835445., 40.) (839203., 835368., 40.) (838688., 835542., 50.)
(838644., 835772., 50.) (839113., 835748., 50.) (839269., 835776., 50.)
(839300., 835640., 50.) (839636., 835352., 50.) (839744., 835378., 50.)
(839149., 835506., 50.) (839165., 835497., 50.) (839175., 835445., 50.)
(839203., 835368., 50.) (838688., 835542., 60.) (838644., 835772., 60.)
(839113., 835748., 60.) (839269., 835776., 60.) (839300., 835640., 60.)
(839636., 835352., 60.) (839744., 835378., 60.) (839128., 835597., 60.)
(839149., 835506., 60.) (839175., 835445., 60.) (839203., 835368., 60.)
(838688., 835542., 80.) (838644., 835772., 80.) (839113., 835748., 80.)
(839269., 835776., 80.) (839300., 835640., 80.) (839636., 835352., 80.)
(839744., 835378., 80.) (839128., 835597., 80.) (839149., 835506., 80.)
(839175., 835445., 80.) (839203., 835368., 80.) (838688., 835542., 100.)
(838644., 835772., 100.) (839113., 835748., 100.) (839269., 835776., 100.)
(839300., 835640., 100.) (839636., 835352., 100.) (839744., 835378., 100.)
(839128., 835597., 100.) (839149., 835506., 100.) (839175., 835445., 100.)
(839203., 835368., 100.) (

1

SOURCE INFORMATION

	ENTERED EMIS.	TOTAL								
	RATE (G/SEC)	EMISSION	WIND							
	G/SEC/M OR	RATE	SPEED	X1	Y1	X2	Y2	HEIGHT	WIDTH	
TYPE	G/SEC/M**2)	(G/SEC)	FAC.	(M)	(M)	(M)	(M)	(M)	(M)	
1	0.024300000	0.02430	0.000	839034.	835531.	0.	0.	20.00	0.00	
1	0.024300000	0.02430	0.000	839041.	835534.	0.	0.	11.00	0.00	
1	0.024300000	0.02430	0.000	839030.	835541.	0.	0.	20.00	0.00	
1	0.024300000	0.02430	0.000	839036.	835545.	0.	0.	15.00	0.00	
1	0.024300000	0.02430	0.000	839059.	839541.	0.	0.	20.00	0.00	

1	0.024300000	0.02430	0.000	839054.	835553.	0.	0.	20.00	0.00
1	0.024300000	0.02430	0.000	839035.	835512.	0.	0.	2.00	0.00
2	0.000174000	0.00186	0.000	839073.	835568.	839064.	835562.	0.50	3.50
2	0.000174000	0.01076	0.000	839064.	835562.	839002.	835564.	0.50	3.50
2	0.000174000	0.00893	0.000	839002.	835564.	838999.	835513.	0.50	3.50
2	0.000087150	0.00594	0.000	839000.	835529.	839062.	835557.	0.50	3.50
2	0.000087150	0.00158	0.000	839062.	835557.	839080.	835553.	0.50	3.50
2	0.000087150	0.00789	0.000	838999.	835513.	839080.	835553.	0.50	3.50
2	0.000087150	0.00096	0.000	839080.	835553.	839085.	835563.	0.50	3.50
1	0.023600001	0.02360	0.000	830120.	835515.	0.	0.	20.00	0.00
1	0.023600001	0.02360	0.000	839124.	835512.	0.	0.	20.00	0.00
1	0.009700000	0.00970	0.000	839053.	835520.	0.	0.	1.00	0.00
1	0.009700000	0.00970	0.000	839077.	835538.	0.	0.	5.40	0.00
1	0.009700000	0.00970	0.000	839092.	835522.	0.	0.	5.40	0.00
1	0.009700000	0.00970	0.000	839113.	835494.	0.	0.	1.00	0.00
1	0.009700000	0.00970	0.000	839142.	835514.	0.	0.	13.00	0.00
1	0.009700000	0.00970	0.000	839127.	835516.	0.	0.	17.00	0.00
1	0.009700000	0.00970	0.000	839127.	835516.	0.	0.	5.60	0.00
1	0.008300000	0.00830	0.000	839121.	835512.	0.	0.	6.70	0.00
1	0.009700000	0.00970	0.000	839039.	835518.	0.	0.	2.00	0.00
1	0.003600000	0.00360	0.000	839022.	835512.	0.	0.	1.00	0.00
1	0.003600000	0.00360	0.000	839100.	835493.	0.	0.	5.40	0.00
1	0.003600000	0.00360	0.000	839035.	835525.	0.	0.	1.00	0.00
2	0.000153000	0.01360	0.000	839064.	835562.	839141.	835518.	0.50	3.50
2	0.000125250	0.00774	0.000	839064.	835562.	839002.	835564.	0.50	3.50
2	0.000125250	0.00718	0.000	839002.	835564.	838987.	835509.	0.50	3.50
2	0.000063300	0.00563	0.000	839064.	835562.	839141.	835518.	0.50	3.50
3	0.000031133	0.01482	0.000	839022.	835534.	38.	12.	0.50	22.00
3	0.000002695	0.00050	0.000	839022.	835534.	18.	10.	0.50	22.00

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TOTAL EMISSIONS 0.40139E+00 GRAMS/SEC

LONG DISTANCE (50,000 M) MASS CONSERVATION CORRECTION FACTORS USED

1

TOP 50 TABLE FOR 24 HOUR AVERAGES

RANK RECEPTOR X-COORDINATE Y-COORDINATE ENDING HOUR CONCENTRATION
DEPOSITION

RANK	RECEPTOR	X-COORDINATE	Y-COORDINATE	ENDING HOUR	CONCENTRATION	DEPOSITION
1	20	839148.9	835506.2	5376C	56.0975	1.0254
2	20	839148.9	835506.2	2760C	48.9158	0.9788
3	53	839148.9	835506.2	5376C	45.8956	0.7894
4	20	839148.9	835506.2	5496C	45.7505	0.7953
5	20	839148.9	835506.2	24C	42.8852	0.7508
6	53	839148.9	835506.2	3360C	42.0191	0.7917
7	9	839148.9	835506.2	7872C	41.8513	0.7131
8	9	839148.9	835506.2	5952C	41.6742	0.9002
9	53	839148.9	835506.2	2760C	40.5815	0.7960
10	20	839148.9	835506.2	3360C	40.0052	0.7828
11	8	839128.0	835597.0	8112C	39.0674	0.5889
12	20	839148.9	835506.2	2904C	38.8123	1.0687
13	9	839148.9	835506.2	7896C	38.6335	0.6275
14	20	839148.9	835506.2	8448C	38.5375	0.7657
15	53	839148.9	835506.2	24C	37.7227	0.6527
16	20	839148.9	835506.2	5952C	37.7188	0.8420

17	8	839128.0	835597.0	4176C	36.3349	0.8548
18	8	839128.0	835597.0	3912C	36.3181	0.8461
19	8	839128.0	835597.0	7872C	36.2615	0.6081
20	9	839148.9	835506.2	2904C	34.9195	0.9892
21	9	839148.9	835506.2	3360C	34.7882	0.6819
22	8	839128.0	835597.0	4440C	34.7025	0.7352
23	53	839148.9	835506.2	912C	34.6904	0.6403
24	53	839148.9	835506.2	8424C	34.6091	0.5893
25	9	839148.9	835506.2	8424C	34.2441	0.5592
26	53	839148.9	835506.2	240C	34.1382	0.6388
27	9	839148.9	835506.2	5640C	34.0158	0.9180
28	8	839128.0	835597.0	840C	33.8697	0.6531
29	9	839148.9	835506.2	2760C	33.5994	0.6918
30	8	839128.0	835597.0	4584	33.5992	0.9620
31	9	839148.9	835506.2	8712C	33.5602	0.5752
32	8	839128.0	835597.0	264C	32.9405	0.6364
33	53	839148.9	835506.2	4104C	32.8442	0.6780
34	9	839148.9	835506.2	4176C	32.7089	0.8351
35	8	839128.0	835597.0	3048	32.0086	1.2813
36	53	839148.9	835506.2	5496C	31.9900	0.5547
37	20	839148.9	835506.2	4104C	31.9006	0.6576
38	9	839148.9	835506.2	5376C	31.7924	0.5989
39	19	839128.0	835597.0	840C	31.6920	0.6137
40	20	839148.9	835506.2	240C	31.3944	0.5808
41	8	839128.0	835597.0	4776C	31.1907	0.8554
42	53	839148.9	835506.2	5400C	31.0302	0.5649
43	19	839128.0	835597.0	264C	30.9884	0.6005
44	9	839148.9	835506.2	8448C	30.9848	0.5942
45	53	839148.9	835506.2	1008C	30.7434	0.5283
46	20	839148.9	835506.2	8424C	30.6775	0.5225
47	8	839128.0	835597.0	5640C	30.6433	0.9148
48	20	839148.9	835506.2	6408	30.5444	0.6413
49	9	839148.9	835506.2	4440C	30.5362	1.1427
50	53	839148.9	835506.2	6408	30.5210	0.6449

1

HIGHEST AND SECOND HIGHEST VALUES FOR 24 HOUR AVERAGES

RECEPTOR X-COORDINATE Y-COORDINATE HIGHEST VALUE ENDING HOUR DEPOSITION
 SECOND HIGH ENDING HOUR DEPOSTION

RECEPTOR	X-COORDINATE	Y-COORDINATE	HIGHEST VALUE	ENDING HOUR	DEPOSITION	SECOND HIGH	ENDING HOUR	DEPOSTION
1	838688.0	835542.0	9.3270	576.C	0.2022	8.8776	5544.C	0.1335
2	838644.0	835772.0	5.6664	8760.C	0.0963	4.5175	3600.C	0.0678
3	839113.0	835748.0	7.2209	4776.C	0.1439	6.6995	3024.C	0.2396
4	839269.0	835776.0	8.7708	3048.	0.3606	8.1559	3024.C	0.2480
5	839300.0	835640.0	26.1577	7872.C	0.4235	18.6818	8712.C	0.2813
6	839636.0	835352.0	4.3460	5376.C	0.0556	3.2638	24.C	0.0429
7	839744.0	835378.0	2.6028	912.C	0.0396	2.4690	3360.C	0.0348
8	839128.0	835597.0	39.0674	8112.C	0.5889	36.3349	4176.C	0.8548
9	839148.9	835506.2	41.8513	7872.C	0.7131	41.6742	5952.C	0.9002
10	839175.0	835445.0	14.8235	2904.C	0.2761	12.9649	5496.C	0.1931
11	839203.0	835368.0	7.5097	4704.C	0.1079	5.1952	5712.C	0.0824
12	838688.0	835542.0	9.1899	576.C	0.2013	8.6844	5544.C	0.1299
13	838644.0	835772.0	5.5911	8760.C	0.0950	4.4598	3600.C	0.0667
14	839113.0	835748.0	6.8972	4776.C	0.1394	6.5810	3024.C	0.2422
15	839269.0	835776.0	8.8365	3048.	0.3683	8.0995	3024.C	0.2508
16	839300.0	835640.0	24.7578	7872.C	0.3980	17.7905	8712.C	0.2687

17	839636.0	835352.0	4.3047	5376.C	0.0535	3.2159	24.C	0.0417
18	839744.0	835378.0	2.5858	912.C	0.0391	2.4678	3360.C	0.0344
19	839128.0	835597.0	31.6920	840.C	0.6137	30.9884	264.C	0.6005
20	839148.9	835506.2	56.0975	5376.C	1.0254	48.9158	2760.C	0.9788
21	839175.0	835445.0	12.1314	2904.C	0.2272	10.3007	5496.C	0.1494
22	839203.0	835368.0	6.8766	4704.C	0.0972	4.7943	5712.C	0.0756
23	838688.0	835542.0	8.1709	576.C	0.1833	7.4952	5544.C	0.1128
24	838644.0	835772.0	5.0373	8760.C	0.0861	3.9539	3600.C	0.0590
25	839113.0	835748.0	5.8456	3024.C	0.2246	5.7996	4776.C	0.1203
26	839269.0	835776.0	8.2456	3048.	0.3486	7.3427	3024.C	0.2354
27	839300.0	835640.0	20.1093	7872.C	0.3221	15.0322	5640.C	0.3990
28	839636.0	835352.0	3.8496	5376.C	0.0460	2.8935	24.C	0.0366
29	839744.0	835378.0	2.3451	912.C	0.0345	2.2643	3360.C	0.0309
30	839128.0	835597.0	26.2767	840.C	0.5130	25.9317	264.C	0.5050
31	839148.9	835506.2	21.7268	5952.C	0.4850	18.6964	2760.C	0.3832
32	839175.0	835445.0	7.9292	2904.C	0.1592	6.1341	5496.C	0.0949
33	839203.0	835368.0	5.3426	4704.C	0.0780	3.7595	5712.C	0.0611
34	838688.0	835542.0	6.8569	576.C	0.1592	5.9585	5544.C	0.0904
35	838644.0	835772.0	4.2862	8760.C	0.0746	3.2464	3600.C	0.0485
36	839113.0	835748.0	5.0429	3024.C	0.1993	4.6815	4776.C	0.0995
37	839269.0	835776.0	7.3662	3048.	0.3161	6.2844	3024.C	0.2102
38	839300.0	835640.0	15.4944	7872.C	0.2496	12.3774	5640.C	0.3381
39	839636.0	835352.0	3.2114	5376.C	0.0366	2.4338	24.C	0.0300
40	839744.0	835378.0	2.0013	912.C	0.0286	1.9636	3360.C	0.0263
41	839128.0	835597.0	22.0307	840.C	0.4355	21.5337	264.C	0.4227
42	839148.9	835506.2	25.0338	5376.C	0.4875	23.5294	2760.C	0.5031
43	839175.0	835445.0	6.1877	2904.C	0.1312	4.7984	4704.C	0.0902
44	839203.0	835368.0	4.0761	4704.C	0.0615	2.9144	5712.C	0.0492
45	838688.0	835542.0	5.4703	576.C	0.1321	5.0622	6888.	0.2049
46	838644.0	835772.0	3.4763	8760.C	0.0623	2.4780	3600.C	0.0371
47	839113.0	835748.0	4.1867	3024.C	0.1681	3.6136	4776.C	0.0774
48	839269.0	835776.0	6.3167	3048.	0.2752	5.0911	3024.C	0.1785
49	839300.0	835640.0	11.1889	7872.C	0.1772	9.6212	5640.C	0.2707
50	839636.0	835352.0	2.5070	5376.C	0.0272	1.9455	2760.C	0.0273
51	839744.0	835378.0	1.6174	3360.C	0.0214	1.6113	912.C	0.0223
52	839128.0	835597.0	19.8878	4176.C	0.4851	17.5702	840.C	0.3456
53	839148.9	835506.2	45.8956	5376.C	0.7894	42.0191	3360.C	0.7917
54	839175.0	835445.0	5.1490	4704.C	0.0835	4.8111	2904.C	0.1004
55	839203.0	835368.0	2.8966	4704.C	0.0415	2.1308	5712.C	0.0353
56	838688.0	835542.0	3.3973	6888.	0.1403	3.0567	576.C	0.0820
57	838644.0	835772.0	2.0742	8760.C	0.0409	1.5964	5592.C	0.0550
58	839113.0	835748.0	2.4857	3024.C	0.1045	2.2188	4080.C	0.0877
59	839269.0	835776.0	4.1172	3048.	0.1857	2.8726	3024.C	0.1139
60	839300.0	835640.0	5.5464	840.C	0.0999	4.9015	264.C	0.0906
61	839636.0	835352.0	1.2536	5376.C	0.0122	1.1489	2760.C	0.0167
62	839744.0	835378.0	0.9728	5952.C	0.0199	0.9536	3360.C	0.0126
63	839148.9	835506.2	3.0648	4440.C	0.1243	2.9796	5952.C	0.0649
64	839165.0	835497.0	3.0640	5952.C	0.0651	2.9248	4440.C	0.1188
65	839175.0	835445.0	1.5075	4728.C	0.0303	1.2065	2904.C	0.0277
66	839203.0	835368.0	1.0159	3600.C	0.0167	0.8610	672.C	0.0197
67	838688.0	835542.0	2.0490	6888.	0.0865	1.7898	3648.	0.1133
68	838644.0	835772.0	1.2181	8760.C	0.0274	1.1916	6744.C	0.0261
69	839113.0	835748.0	1.6067	4080.C	0.0599	1.5143	8472.C	0.0319
70	839269.0	835776.0	2.3491	3048.	0.1097	1.8406	264.C	0.0327
71	839300.0	835640.0	2.8702	264.C	0.0525	2.6500	840.C	0.0464
72	839636.0	835352.0	0.8219	5952.C	0.0157	0.7096	4752.C	0.0154
73	839744.0	835378.0	0.7829	5952.C	0.0159	0.7440	4752.C	0.0168
74	839128.0	835597.0	2.1896	264.C	0.0410	1.7844	4080.C	0.0528
75	839148.9	835506.2	0.9069	4440.C	0.0353	0.6717	2904.C	0.0246
76	839175.0	835445.0	0.7763	4728.C	0.0155	0.6338	984.	0.0110

77	839203.0	835368.0	0.4909	984.	0.0085	0.4799	4728.C	0.0096
78	838688.0	835542.0	1.1708	6888.	0.0503	1.1221	4560.C	0.0312
79	838644.0	835772.0	0.8784	6744.C	0.0197	0.8522	5688.C	0.0280
80	839113.0	835748.0	1.1365	4080.C	0.0397	1.0429	8472.C	0.0225
81	839269.0	835776.0	1.2720	264.C	0.0229	1.2212	3048.	0.0584
82	839300.0	835640.0	1.6086	264.C	0.0293	1.0252	840.C	0.0174
83	839636.0	835352.0	0.5894	5952.C	0.0111	0.5056	4752.C	0.0108
84	839744.0	835378.0	0.5955	5952.C	0.0119	0.5645	4752.C	0.0127
85	839148.9	835506.2	0.3300	4440.C	0.0120	0.2724	2904.C	0.0094
86	839165.0	835497.0	0.3698	4440.C	0.0135	0.3048	4728.C	0.0061
87	839175.0	835445.0	0.3921	4728.C	0.0078	0.3555	984.	0.0061
88	839203.0	835368.0	0.3600	984.	0.0061	0.3341	4728.C	0.0067
89	838688.0	835542.0	0.8840	4560.C	0.0254	0.7125	1776.C	0.0223
90	838644.0	835772.0	0.6384	6744.C	0.0148	0.6260	5688.C	0.0211
91	839113.0	835748.0	0.7997	4080.C	0.0261	0.7337	8496.C	0.0183
92	839269.0	835776.0	0.8794	264.C	0.0160	0.6598	4080.C	0.0221
93	839300.0	835640.0	0.9296	264.C	0.0169	0.6012	4176.C	0.0241
94	839636.0	835352.0	0.3988	5952.C	0.0074	0.3374	4752.C	0.0072
95	839744.0	835378.0	0.4304	5952.C	0.0085	0.4054	4752.C	0.0090
96	839128.0	835597.0	0.3602	4080.C	0.0093	0.2603	264.C	0.0048
97	839148.9	835506.2	0.1221	4440.C	0.0042	0.1058	2904.C	0.0035
98	839175.0	835445.0	0.2039	4728.C	0.0040	0.1897	984.	0.0032
99	839203.0	835368.0	0.2498	984.	0.0042	0.2264	3120.	0.0044
100	838688.0	835542.0	0.5494	4560.C	0.0163	0.4136	2568.C	0.0108
101	838644.0	835772.0	0.4392	4896.C	0.0109	0.4227	8760.C	0.0103
102	839113.0	835748.0	0.3873	4080.C	0.0112	0.3132	8496.C	0.0078
103	839269.0	835776.0	0.4367	264.C	0.0080	0.4139	4080.C	0.0124
104	839300.0	835640.0	0.3667	264.C	0.0066	0.3080	4080.C	0.0080
105	839636.0	835352.0	0.1967	4440.C	0.0077	0.1650	4728.C	0.0031
106	839744.0	835378.0	0.2303	4440.C	0.0092	0.1999	5952.C	0.0039
107	839128.0	835597.0	0.0560	4080.C	0.0013	0.0228	264.C	0.0004
108	839148.9	835506.2	0.0134	4440.C	0.0004	0.0128	2904.C	0.0004
109	839175.0	835445.0	0.0523	4728.C	0.0010	0.0472	984.	0.0008
110	839203.0	835368.0	0.1042	984.	0.0017	0.0949	3120.	0.0018
111	838688.0	835542.0	0.3273	4560.C	0.0097	0.2622	1248.C	0.0070
112	838644.0	835772.0	0.3320	4896.C	0.0082	0.3016	8760.C	0.0072
113	839113.0	835748.0	0.1789	4080.C	0.0047	0.1074	8496.C	0.0027
114	839269.0	835776.0	0.2647	4080.C	0.0073	0.2142	264.C	0.0038
115	839300.0	835640.0	0.1637	4080.C	0.0040	0.1504	264.C	0.0027
116	839636.0	835352.0	0.1234	4440.C	0.0046	0.1127	4728.C	0.0021
117	839744.0	835378.0	0.1458	4440.C	0.0057	0.1066	2904.C	0.0039
118	839128.0	835597.0	0.0073	4080.C	0.0001	0.0038	6768.C	0.0001
119	839148.9	835506.2	0.0036	6768.C	0.0001	0.0035	672.C	0.0001
120	839175.0	835445.0	0.0105	4728.C	0.0002	0.0090	984.	0.0001
121	839203.0	835368.0	0.0368	984.	0.0006	0.0338	3120.	0.0006

DATE AT END OF RUN: 11/11/02 TIME AT END OF RUN: 14:31:17.26

ELAPSED TIME FOR THIS RUN: 0.16794E+04 SECONDS

OR 0 HOURS 27 MINUTES 59.41 SECONDS

Appendix 4i

FDM Output File for 1-hr TSP in day time (Construction)

1

FUGITIVE DUST MODEL (FDM)
VERSION 95279
OCT, 1995
DATE AT START OF RUN: 11/11/02 TIME AT START OF RUN: 11:57:18.62

RUN TITLE:

EIA for cement work/concrete batching plant --- TSP(CONSTRUCTION) Daytime METDAT

INPUT FILE NAME: C-TSP-D1.IN
OUTPUT FILE NAME: C-TSP-D1.OUT

CONVERGENCE OPTION 1=OFF, 2=ON 1
MET OPTION SWITCH, 1=CARDS, 2=PREPROCESSED 1
PLOT FILE OUTPUT, 1=NO, 2=YES 1
MET DATA PRINT SWITCH, 1=NO, 2=YES 1
POST-PROCESSOR OUTPUT, 1=NO, 2=YES 1
DEP. VEL./GRAV. SETL. VEL., 1=DEFAULT, 2=USER 1
PRINT 1-HOUR AVERAGE CONCEN, 1=NO, 2=YES 3
PRINT 3-HOUR AVERAGE CONCEN, 1=NO, 2=YES 1
PRINT 8-HOUR AVERAGE CONCEN, 1=NO, 2=YES 1
PRINT 24-HOUR AVERAGE CONCEN, 1=NO, 2=YES 1
PRINT LONG-TERM AVERAGE CONCEN, 1=NO, 2=YES 1
BYPASS RAMMET CALMS RECOGNITION, 1=NO, 2=YES 1
READ HOURLY EMISSION RATES, 1=NO, 2=YES 1
NUMBER OF SOURCES PROCESSED 34
NUMBER OF RECEPTORS PROCESSED 121
NUMBER OF PARTICLE SIZE CLASSES 9
NUMBER OF HOURS OF MET DATA PROCESSED 4380
LENGTH IN MINUTES OF 1-HOUR OF MET DATA 60.
ROUGHNESS LENGTH IN CM 100.00
SCALING FACTOR FOR SOURCE AND RECPTORS 1.0000
PARTICLE DENSITY IN G/CM**3 2.50
ANEMOMETER HEIGHT IN M 10.00

GENERAL PARTICLE SIZE CLASS INFORMATION

PARTICLE SIZE CLASS	GRAV. CHAR. DIA. (UM)	FRACTION SETTLING VELOCITY (M/SEC)	DEPOSITION VELOCITY (M/SEC)	IN EACH SIZE CLASS
1	0.500000	**	**	0.0400
2	1.500000	**	**	0.0700
3	2.250000	**	**	0.0400
4	2.750000	**	**	0.0300
5	3.500000	**	**	0.0700
6	4.500000	**	**	0.0500
7	5.500000	**	**	0.0400
8	8.000000	**	**	0.1700

9 20.000000 ** ** 0.4900

** COMPUTED BY FDM

1

RECEPTOR COORDINATES (X,Y,Z)

(838688., 835542., 2.) (838644., 835772., 2.) (839113., 835748., 2.)
(839269., 835776., 2.) (839300., 835640., 2.) (839636., 835352., 2.)
(839744., 835378., 2.) (839128., 835597., 2.) (839149., 835506., 2.)
(839175., 835445., 2.) (839203., 835368., 2.) (838688., 835542., 5.)
(838644., 835772., 5.) (839113., 835748., 5.) (839269., 835776., 5.)
(839300., 835640., 5.) (839636., 835352., 5.) (839744., 835378., 5.)
(839128., 835597., 5.) (839149., 835506., 5.) (839175., 835445., 5.)
(839203., 835368., 5.) (838688., 835542., 10.) (838644., 835772., 10.)
(839113., 835748., 10.) (839269., 835776., 10.) (839300., 835640., 10.)
(839636., 835352., 10.) (839744., 835378., 10.) (839128., 835597., 10.)
(839149., 835506., 10.) (839175., 835445., 10.) (839203., 835368., 10.)
(838688., 835542., 15.) (838644., 835772., 15.) (839113., 835748., 15.)
(839269., 835776., 15.) (839300., 835640., 15.) (839636., 835352., 15.)
(839744., 835378., 15.) (839128., 835597., 15.) (839149., 835506., 15.)
(839175., 835445., 15.) (839203., 835368., 15.) (838688., 835542., 20.)
(838644., 835772., 20.) (839113., 835748., 20.) (839269., 835776., 20.)
(839300., 835640., 20.) (839636., 835352., 20.) (839744., 835378., 20.)
(839128., 835597., 20.) (839149., 835506., 20.) (839175., 835445., 20.)
(839203., 835368., 20.) (838688., 835542., 30.) (838644., 835772., 30.)
(839113., 835748., 30.) (839269., 835776., 30.) (839300., 835640., 30.)
(839636., 835352., 30.) (839744., 835378., 30.) (839149., 835506., 30.)
(839165., 835497., 30.) (839175., 835445., 30.) (839203., 835368., 30.)
(838688., 835542., 40.) (838644., 835772., 40.) (839113., 835748., 40.)
(839269., 835776., 40.) (839300., 835640., 40.) (839636., 835352., 40.)
(839744., 835378., 40.) (839128., 835597., 40.) (839149., 835506., 40.)
(839175., 835445., 40.) (839203., 835368., 40.) (838688., 835542., 50.)
(838644., 835772., 50.) (839113., 835748., 50.) (839269., 835776., 50.)
(839300., 835640., 50.) (839636., 835352., 50.) (839744., 835378., 50.)
(839149., 835506., 50.) (839165., 835497., 50.) (839175., 835445., 50.)
(839203., 835368., 50.) (838688., 835542., 60.) (838644., 835772., 60.)
(839113., 835748., 60.) (839269., 835776., 60.) (839300., 835640., 60.)
(839636., 835352., 60.) (839744., 835378., 60.) (839128., 835597., 60.)
(839149., 835506., 60.) (839175., 835445., 60.) (839203., 835368., 60.)
(838688., 835542., 80.) (838644., 835772., 80.) (839113., 835748., 80.)
(839269., 835776., 80.) (839300., 835640., 80.) (839636., 835352., 80.)
(839744., 835378., 80.) (839128., 835597., 80.) (839149., 835506., 80.)
(839175., 835445., 80.) (839203., 835368., 80.) (838688., 835542., 100.)
(838644., 835772., 100.) (839113., 835748., 100.) (839269., 835776., 100.)
(839300., 835640., 100.) (839636., 835352., 100.) (839744., 835378., 100.)
(839128., 835597., 100.) (839149., 835506., 100.) (839175., 835445., 100.)
(839203., 835368., 100.) (

1

SOURCE INFORMATION

ENTERED EMIS. RATE (G/SEC) G/SEC/M OR TYPE	TOTAL EMISSION RATE (G/SEC/M**2)	WIND SPEED (G/SEC)	X1 FAC.	Y1 (M)	X2 (M)	Y2 (M)	HEIGHT (M)	WIDTH (M)	
1	0.024300000	0.02430	0.000	839034.	835531.	0.	0.	20.00	0.00
1	0.024300000	0.02430	0.000	839041.	835534.	0.	0.	11.00	0.00
1	0.024300000	0.02430	0.000	839030.	835541.	0.	0.	20.00	0.00

1	0.024300000	0.02430	0.000	839036.	835545.	0.	0.	15.00	0.00
1	0.024300000	0.02430	0.000	839059.	839541.	0.	0.	20.00	0.00
1	0.024300000	0.02430	0.000	839054.	835553.	0.	0.	20.00	0.00
1	0.024300000	0.02430	0.000	839035.	835512.	0.	0.	2.00	0.00
2	0.000174000	0.00186	0.000	839073.	835568.	839064.	835562.	0.50	3.50
2	0.000174000	0.01076	0.000	839064.	835562.	839002.	835564.	0.50	3.50
2	0.000174000	0.00893	0.000	839002.	835564.	838999.	835513.	0.50	3.50
2	0.000087150	0.00594	0.000	839000.	835529.	839062.	835557.	0.50	3.50
2	0.000087150	0.00158	0.000	839062.	835557.	839080.	835553.	0.50	3.50
2	0.000087150	0.00789	0.000	838999.	835513.	839080.	835553.	0.50	3.50
2	0.000087150	0.00096	0.000	839080.	835553.	839085.	835563.	0.50	3.50
1	0.023600001	0.02360	0.000	830120.	835515.	0.	0.	20.00	0.00
1	0.023600001	0.02360	0.000	839124.	835512.	0.	0.	20.00	0.00
1	0.009700000	0.00970	0.000	839053.	835520.	0.	0.	1.00	0.00
1	0.009700000	0.00970	0.000	839077.	835538.	0.	0.	5.40	0.00
1	0.009700000	0.00970	0.000	839092.	835522.	0.	0.	5.40	0.00
1	0.009700000	0.00970	0.000	839113.	835494.	0.	0.	1.00	0.00
1	0.009700000	0.00970	0.000	839142.	835514.	0.	0.	13.00	0.00
1	0.009700000	0.00970	0.000	839127.	835516.	0.	0.	17.00	0.00
1	0.009700000	0.00970	0.000	839127.	835516.	0.	0.	5.60	0.00
1	0.008300000	0.00830	0.000	839121.	835512.	0.	0.	6.70	0.00
1	0.009700000	0.00970	0.000	839039.	835518.	0.	0.	2.00	0.00
1	0.003600000	0.00360	0.000	839022.	835512.	0.	0.	1.00	0.00
1	0.003600000	0.00360	0.000	839100.	835493.	0.	0.	5.40	0.00
1	0.003600000	0.00360	0.000	839035.	835525.	0.	0.	1.00	0.00
2	0.000153000	0.01360	0.000	839064.	835562.	839141.	835518.	0.50	3.50
2	0.000125250	0.00774	0.000	839064.	835562.	839002.	835564.	0.50	3.50
2	0.000125250	0.00718	0.000	839002.	835564.	838987.	835509.	0.50	3.50
2	0.000063300	0.00563	0.000	839064.	835562.	839141.	835518.	0.50	3.50
3	0.000031133	0.01482	0.000	839022.	835534.	38.	12.	0.50	22.00
3	0.000002695	0.00050	0.000	839022.	835534.	18.	10.	0.50	22.00

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TOTAL EMISSIONS 0.40139E+00 GRAMS/SEC

LONG DISTANCE (50,000 M) MASS CONSERVATION CORRECTION FACTORS USED

1

TOP 50 TABLE FOR 1 HOUR AVERAGES

RANK RECEPTOR X-COORDINATE Y-COORDINATE ENDING HOUR CONCENTRATION
DEPOSITION

RANK	RECEPTOR	X-COORDINATE	Y-COORDINATE	ENDING HOUR	CONCENTRATION	DEPOSITION
1	20	839148.9	835506.2	3264	429.5560	7.8130
2	53	839148.9	835506.2	337	396.4103	6.9171
3	53	839148.9	835506.2	3264	386.0670	6.7875
4	53	839148.9	835506.2	3801	351.5504	6.4044
5	53	839148.9	835506.2	3468	332.6855	6.3357
6	53	839148.9	835506.2	1454	315.7179	6.0209
7	20	839148.9	835506.2	3276	299.5727	5.9588
8	20	839148.9	835506.2	337	283.3854	4.8524
9	8	839128.0	835597.0	433	278.2671	3.8965
10	53	839148.9	835506.2	3276	270.1490	5.2091
11	20	839148.9	835506.2	3801	250.1999	4.4624
12	20	839148.9	835506.2	3468	242.9615	4.6288
13	20	839148.9	835506.2	1454	230.5390	4.3954
14	20	839148.9	835506.2	2375	216.9129	4.1295
15	53	839148.9	835506.2	2375	209.8347	3.9927

16	42	839148.9	835506.2	3264	201.9305	3.9243
17	8	839128.0	835597.0	3153	197.9791	3.1585
18	20	839148.9	835506.2	4333	191.4773	3.4685
19	20	839148.9	835506.2	2363	190.8868	3.9426
20	8	839128.0	835597.0	4045	189.3951	2.5805
21	9	839148.9	835506.2	337	187.0770	2.9110
22	19	839128.0	835597.0	433	182.6465	2.5200
23	20	839148.9	835506.2	3193	179.0582	3.7840
24	8	839128.0	835597.0	97	178.5317	2.8504
25	9	839148.9	835506.2	2375	178.0480	3.4105
26	53	839148.9	835506.2	2363	174.0759	3.5984
27	8	839128.0	835597.0	4356	171.6331	2.9682
28	9	839148.9	835506.2	3264	170.8624	2.9188
29	20	839148.9	835506.2	2456	168.6308	4.2045
30	9	839148.9	835506.2	3468	167.7984	3.0786
31	9	839148.9	835506.2	3801	165.8006	2.7141
32	53	839148.9	835506.2	3193	163.6105	3.4653
33	8	839128.0	835597.0	2508	162.3041	3.0206
34	20	839148.9	835506.2	4237	161.8204	3.8021
35	20	839148.9	835506.2	120	161.4266	3.5089
36	8	839128.0	835597.0	648	160.9347	2.5065
37	9	839148.9	835506.2	2556	160.7847	2.5967
38	9	839148.9	835506.2	1454	159.9948	2.9397
39	9	839148.9	835506.2	2363	157.7482	3.2633
40	8	839128.0	835597.0	130	157.2900	2.6420
41	53	839148.9	835506.2	120	156.2343	3.4035
42	8	839128.0	835597.0	3061	156.1339	2.7341
43	41	839128.0	835597.0	4045	153.6512	2.8310
44	8	839128.0	835597.0	4297	152.7620	2.5747
45	9	839148.9	835506.2	3937	152.6696	2.4629
46	8	839128.0	835597.0	3804	149.8617	2.3595
47	42	839148.9	835506.2	2375	149.0603	2.9258
48	52	839128.0	835597.0	4045	148.9492	2.4603
49	8	839128.0	835597.0	2832	148.6978	2.4231
50	9	839148.9	835506.2	3193	147.7069	3.1215

1

HIGHEST AND SECOND HIGHEST VALUES FOR 1 HOUR AVERAGES

RECEPTOR X-COORDINATE Y-COORDINATE HIGHEST VALUE ENDING HOUR DEPOSITION
 SECOND HIGH ENDING HOUR DEPOSTION

1	838688.0	835542.0	74.3912	4044.	1.0419	65.8808	2326.	1.2095
2	838644.0	835772.0	49.9432	3660.	0.7067	47.8878	516.	0.8380
3	839113.0	835748.0	83.0690	1870.	1.4914	82.0517	300.	1.0810
4	839269.0	835776.0	78.3981	648.	1.0509	72.8892	3804.	0.9836
5	839300.0	835640.0	87.1012	3937.	1.1812	81.8990	4045.	1.1683
6	839636.0	835352.0	37.8932	3264.	0.5209	31.7542	3276.	0.5765
7	839744.0	835378.0	27.3783	337.	0.3448	26.7053	3468.	0.4600
8	839128.0	835597.0	278.2671	433.	3.8965	197.9791	3153.	3.1585
9	839148.9	835506.2	187.0770	337.	2.9110	178.0480	2375.	3.4105
10	839175.0	835445.0	137.9188	2556.	2.2743	132.7136	4333.	2.2669
11	839203.0	835368.0	69.2271	2556.	1.0140	64.9478	1798.	1.1615
12	838688.0	835542.0	72.4262	4044.	1.0097	63.6068	2326.	1.1552
13	838644.0	835772.0	49.2330	3660.	0.6900	46.8238	516.	0.8122
14	839113.0	835748.0	76.7113	1870.	1.3636	73.7013	300.	0.9542
15	839269.0	835776.0	75.3730	648.	0.9974	70.0164	3804.	0.9357

16	839300.0	835640.0	83.2432	3937.	1.1344	76.4202	4045.	1.0746
17	839636.0	835352.0	37.6508	3264.	0.5076	31.6156	3276.	0.5700
18	839744.0	835378.0	27.0632	337.	0.3363	26.6427	3468.	0.4558
19	839128.0	835597.0	182.6465	433.	2.5200	143.7404	130.	2.4018
20	839148.9	835506.2	429.5560	3264.	7.8130	299.5727	3276.	5.9588
21	839175.0	835445.0	109.3827	2556.	1.7733	105.1458	4333.	1.7609
22	839203.0	835368.0	64.0447	1798.	1.1429	63.3964	2556.	0.9265
23	838688.0	835542.0	62.3696	4044.	0.8759	52.7262	2326.	0.9288
24	838644.0	835772.0	43.6654	3660.	0.6063	40.2235	516.	0.6734
25	839113.0	835748.0	61.3899	1870.	1.0932	54.0554	300.	0.7271
26	839269.0	835776.0	62.8855	648.	0.8327	58.5154	3804.	0.7853
27	839300.0	835640.0	69.4411	3937.	0.9851	60.9105	4212.	0.8962
28	839636.0	835352.0	33.9370	3264.	0.4448	28.0133	3276.	0.4881
29	839744.0	835378.0	24.6572	337.	0.2991	23.8933	3468.	0.3944
30	839128.0	835597.0	114.1182	2975.	1.9984	113.0401	130.	1.8959
31	839148.9	835506.2	134.9306	2375.	2.4447	128.2272	484.	2.4543
32	839175.0	835445.0	81.2241	1798.	1.5022	69.4061	2556.	1.1769
33	839203.0	835368.0	57.9270	1798.	1.0207	47.7413	2556.	0.7238
34	838688.0	835542.0	49.4466	4044.	0.7010	40.5573	2326.	0.6984
35	838644.0	835772.0	35.8151	3660.	0.4933	32.2786	647.	0.4600
36	839113.0	835748.0	50.0793	1870.	0.9017	42.5575	2377.	0.7122
37	839269.0	835776.0	47.8736	648.	0.6365	44.6933	3804.	0.6053
38	839300.0	835640.0	54.4047	3937.	0.8013	48.0060	4212.	0.7369
39	839636.0	835352.0	28.5430	3264.	0.3625	23.2283	3276.	0.3905
40	839744.0	835378.0	21.1341	337.	0.2493	20.1675	3468.	0.3202
41	839128.0	835597.0	153.6512	4045.	2.8310	101.1174	4297.	1.8954
42	839148.9	835506.2	201.9305	3264.	3.9243	149.0603	2375.	2.9258
43	839175.0	835445.0	68.4804	1798.	1.2646	58.9593	2556.	1.0734
44	839203.0	835368.0	49.0377	1798.	0.8518	34.4990	2556.	0.5549
45	838688.0	835542.0	36.0079	4044.	0.5059	29.0857	2326.	0.4893
46	838644.0	835772.0	27.1805	3660.	0.3695	24.6215	647.	0.3487
47	839113.0	835748.0	38.0179	1870.	0.6667	34.2491	2377.	0.5641
48	839269.0	835776.0	33.2659	648.	0.4329	31.2025	3804.	0.4166
49	839300.0	835640.0	39.1876	3937.	0.5705	36.3286	2975.	0.5729
50	839636.0	835352.0	22.4502	3264.	0.2755	18.0718	3276.	0.2929
51	839744.0	835378.0	17.0811	337.	0.1954	16.0723	3468.	0.2452
52	839128.0	835597.0	148.9492	4045.	2.4603	103.4948	4297.	1.8091
53	839148.9	835506.2	396.4103	337.	6.9171	386.0670	3264.	6.7875
54	839175.0	835445.0	52.4645	1798.	0.9547	51.0218	2556.	0.8895
55	839203.0	835368.0	38.9462	1798.	0.6660	25.4467	469.	0.4317
56	838688.0	835542.0	19.0527	4141.	0.2709	15.4006	1357.	0.2479
57	838644.0	835772.0	12.8816	590.	0.1930	12.2078	3660.	0.1560
58	839113.0	835748.0	18.4042	2377.	0.2919	16.0603	2317.	0.2750
59	839269.0	835776.0	16.5071	3373.	0.2620	15.3815	130.	0.2158
60	839300.0	835640.0	20.9082	2975.	0.3142	18.0722	2918.	0.2946
61	839636.0	835352.0	11.3424	3264.	0.1282	9.0250	3276.	0.1357
62	839744.0	835378.0	9.3709	337.	0.1001	8.6256	3468.	0.1212
63	839148.9	835506.2	24.5983	2906.	0.5228	24.4492	2359.	0.5046
64	839165.0	835497.0	26.0817	484.	0.4635	25.2789	2359.	0.5232
65	839175.0	835445.0	24.9422	484.	0.4413	20.3743	1551.	0.4134
66	839203.0	835368.0	20.2910	1798.	0.3346	15.1095	484.	0.2646
67	838688.0	835542.0	11.4015	4141.	0.1552	9.3074	1357.	0.1456
68	838644.0	835772.0	8.8732	590.	0.1287	6.8416	1499.	0.0987
69	839113.0	835748.0	9.7964	1565.	0.1886	9.7889	3367.	0.1910
70	839269.0	835776.0	9.1953	3373.	0.1407	8.5681	130.	0.1145
71	839300.0	835640.0	10.0418	126.	0.1750	10.0036	2379.	0.1844
72	839636.0	835352.0	6.2529	2375.	0.0920	6.1177	2363.	0.1026
73	839744.0	835378.0	6.3498	2375.	0.0924	4.4622	2363.	0.0740
74	839128.0	835597.0	14.0390	2034.	0.2951	11.3007	126.	0.1991
75	839148.9	835506.2	9.5091	2906.	0.1994	9.3426	2359.	0.1903

76	839175.0	835445.0	15.2106	484.	0.2641	12.2541	2359.	0.2488
77	839203.0	835368.0	11.7802	484.	0.2038	10.4853	1551.	0.2086
78	838688.0	835542.0	5.9709	4141.	0.0775	5.0083	417.	0.0888
79	838644.0	835772.0	5.5350	590.	0.0776	4.2012	1499.	0.0584
80	839113.0	835748.0	7.4069	4229.	0.1386	7.3861	1565.	0.1409
81	839269.0	835776.0	5.8911	125.	0.1050	5.6677	833.	0.1066
82	839300.0	835640.0	8.0622	126.	0.1390	8.0363	2379.	0.1467
83	839636.0	835352.0	4.3594	2375.	0.0620	4.3025	2363.	0.0704
84	839744.0	835378.0	4.7315	2375.	0.0667	3.3379	2555.	0.0674
85	839148.9	835506.2	4.6569	2906.	0.0965	4.4972	2359.	0.0905
86	839165.0	835497.0	5.3205	2359.	0.1068	5.2236	2906.	0.1081
87	839175.0	835445.0	8.5300	484.	0.1455	6.9911	2359.	0.1401
88	839203.0	835368.0	8.6395	484.	0.1475	7.7379	1551.	0.1524
89	838688.0	835542.0	4.3130	417.	0.0760	4.3032	2358.	0.0817
90	838644.0	835772.0	3.5003	1351.	0.0612	3.4857	2614.	0.0638
91	839113.0	835748.0	5.3209	4229.	0.0986	5.2441	1565.	0.0991
92	839269.0	835776.0	4.8967	125.	0.0866	4.7386	833.	0.0885
93	839300.0	835640.0	6.1956	126.	0.1056	6.1786	2379.	0.1116
94	839636.0	835352.0	2.8207	2375.	0.0387	2.8086	2363.	0.0448
95	839744.0	835378.0	3.3167	2375.	0.0453	2.3556	2555.	0.0467
96	839128.0	835597.0	3.9122	2034.	0.0804	1.9811	126.	0.0333
97	839148.9	835506.2	2.0147	2906.	0.0411	1.9011	2359.	0.0377
98	839175.0	835445.0	4.5511	484.	0.0764	3.8183	2359.	0.0756
99	839203.0	835368.0	5.9948	484.	0.1009	5.3928	1551.	0.1052
100	838688.0	835542.0	2.9819	2358.	0.0559	2.9632	417.	0.0515
101	838644.0	835772.0	2.7847	1351.	0.0481	2.7748	2614.	0.0503
102	839113.0	835748.0	3.0123	2034.	0.0614	2.6882	2691.	0.0654
103	839269.0	835776.0	3.1376	2034.	0.0643	3.0699	125.	0.0534
104	839300.0	835640.0	3.2370	126.	0.0539	3.2305	2379.	0.0571
105	839636.0	835352.0	2.0281	2359.	0.0393	1.7304	2906.	0.0347
106	839744.0	835378.0	1.6287	2359.	0.0314	1.4283	2906.	0.0285
107	839128.0	835597.0	0.7880	2034.	0.0158	0.1776	2379.	0.0030
108	839148.9	835506.2	0.2448	2906.	0.0048	0.2148	2359.	0.0041
109	839175.0	835445.0	1.1328	484.	0.0184	0.9865	2359.	0.0191
110	839203.0	835368.0	2.4994	484.	0.0410	2.2511	1551.	0.0430
111	838688.0	835542.0	1.9154	2358.	0.0354	1.8453	417.	0.0317
112	838644.0	835772.0	2.0820	1351.	0.0356	2.0755	2614.	0.0372
113	839113.0	835748.0	1.6280	2034.	0.0328	1.5685	2691.	0.0379
114	839269.0	835776.0	2.4940	2034.	0.0508	1.6971	833.	0.0308
115	839300.0	835640.0	1.9732	2034.	0.0400	1.4573	126.	0.0237
116	839636.0	835352.0	1.8530	2359.	0.0356	1.4454	2906.	0.0288
117	839744.0	835378.0	1.5573	2359.	0.0299	1.2540	2906.	0.0249
118	839128.0	835597.0	0.1175	2034.	0.0023	0.0169	2459.	0.0004
119	839148.9	835506.2	0.0202	2906.	0.0004	0.0170	2218.	0.0003
120	839175.0	835445.0	0.2149	484.	0.0034	0.1927	2359.	0.0036
121	839203.0	835368.0	0.8819	484.	0.0141	0.7893	1551.	0.0148

DATE AT END OF RUN: 11/11/02 TIME AT END OF RUN: 12:06:34.80

ELAPSED TIME FOR THIS RUN: 0.55618E+03 SECONDS

OR 0 HOURS 9 MINUTES 16.18 SECONDS

Appendix 4j

Sample FDM Output File for 24-hr TSP (Operational Phase)

1

FUGITIVE DUST MODEL (FDM)
VERSION 95279
OCT, 1995
DATE AT START OF RUN: 11/04/02 TIME AT START OF RUN: 08:46:23.69

RUN TITLE:

EIA for cement work/concrete batching plant --- TSP(OPERATION)

INPUT FILE NAME: O-TSP-D1.IN

OUTPUT FILE NAME: O-TSP-D1.OUT

CONVERGENCE OPTION 1=OFF, 2=ON 1
MET OPTION SWITCH, 1=CARDS, 2=PREPROCESSED 1
PLOT FILE OUTPUT, 1=NO, 2=YES 1
MET DATA PRINT SWITCH, 1=NO, 2=YES 1
POST-PROCESSOR OUTPUT, 1=NO, 2=YES 1
DEP. VEL./GRAV. SETL. VEL., 1=DEFAULT, 2=USER 1
PRINT 1-HOUR AVERAGE CONCEN, 1=NO, 2=YES 1
PRINT 3-HOUR AVERAGE CONCEN, 1=NO, 2=YES 1
PRINT 8-HOUR AVERAGE CONCEN, 1=NO, 2=YES 1
PRINT 24-HOUR AVERAGE CONCEN, 1=NO, 2=YES 3
PRINT LONG-TERM AVERAGE CONCEN, 1=NO, 2=YES 1
BYPASS RAMMET CALMS RECOGNITION, 1=NO, 2=YES 1
READ HOURLY EMISSION RATES, 1=NO, 2=YES 1
NUMBER OF SOURCES PROCESSED 44
NUMBER OF RECEPTORS PROCESSED 121
NUMBER OF PARTICLE SIZE CLASSES 9
NUMBER OF HOURS OF MET DATA PROCESSED 8760
LENGTH IN MINUTES OF 1-HOUR OF MET DATA 60.
ROUGHNESS LENGTH IN CM 100.00
SCALING FACTOR FOR SOURCE AND RECPTORS 1.0000
PARTICLE DENSITY IN G/CM**3 2.50
ANEMOMETER HEIGHT IN M 10.00

GENERAL PARTICLE SIZE CLASS INFORMATION

PARTICLE SIZE CLASS	GRAV. CHAR. DIA. (UM)	SETTLING VELOCITY (M/SEC)	FRACTION DEPOSITION IN EACH CLASS
1	0.5000000	**	** 0.0400
2	1.5000000	**	** 0.0700
3	2.2500000	**	** 0.0400
4	2.7500000	**	** 0.0300
5	3.5000000	**	** 0.0700
6	4.5000000	**	** 0.0500
7	5.5000000	**	** 0.0400
8	8.0000000	**	** 0.1700
9	20.0000000	**	** 0.4900

** COMPUTED BY FDM

RECEPTOR COORDINATES (X,Y,Z)

(838688., 835542., 2.) (838644., 835772., 2.) (839113., 835748., 2.)
 (839269., 835776., 2.) (839300., 835640., 2.) (839636., 835352., 2.)
 (839744., 835378., 2.) (839128., 835597., 2.) (839149., 835506., 2.)
 (839175., 835445., 2.) (839203., 835368., 2.) (838688., 835542., 5.)
 (838644., 835772., 5.) (839113., 835748., 5.) (839269., 835776., 5.)
 (839300., 835640., 5.) (839636., 835352., 5.) (839744., 835378., 5.)
 (839128., 835597., 5.) (839149., 835506., 5.) (839175., 835445., 5.)
 (839203., 835368., 5.) (838688., 835542., 10.) (838644., 835772., 10.)
 (839113., 835748., 10.) (839269., 835776., 10.) (839300., 835640., 10.)
 (839636., 835352., 10.) (839744., 835378., 10.) (839128., 835597., 10.)
 (839149., 835506., 10.) (839175., 835445., 10.) (839203., 835368., 10.)
 (838688., 835542., 15.) (838644., 835772., 15.) (839113., 835748., 15.)
 (839269., 835776., 15.) (839300., 835640., 15.) (839636., 835352., 15.)
 (839744., 835378., 15.) (839128., 835597., 15.) (839149., 835506., 15.)
 (839175., 835445., 15.) (839203., 835368., 15.) (838688., 835542., 20.)
 (838644., 835772., 20.) (839113., 835748., 20.) (839269., 835776., 20.)
 (839300., 835640., 20.) (839636., 835352., 20.) (839744., 835378., 20.)
 (839128., 835597., 20.) (839149., 835506., 20.) (839175., 835445., 20.)
 (839203., 835368., 20.) (838688., 835542., 30.) (838644., 835772., 30.)
 (839113., 835748., 30.) (839269., 835776., 30.) (839300., 835640., 30.)
 (839636., 835352., 30.) (839744., 835378., 30.) (839149., 835506., 30.)
 (839165., 835497., 30.) (839175., 835445., 30.) (839203., 835368., 30.)
 (838688., 835542., 40.) (838644., 835772., 40.) (839113., 835748., 40.)
 (839269., 835776., 40.) (839300., 835640., 40.) (839636., 835352., 40.)
 (839744., 835378., 40.) (839128., 835597., 40.) (839149., 835506., 40.)
 (839175., 835445., 40.) (839203., 835368., 40.) (838688., 835542., 50.)
 (838644., 835772., 50.) (839113., 835748., 50.) (839269., 835776., 50.)
 (839300., 835640., 50.) (839636., 835352., 50.) (839744., 835378., 50.)
 (839149., 835506., 50.) (839165., 835497., 50.) (839175., 835445., 50.)
 (839203., 835368., 50.) (838688., 835542., 60.) (838644., 835772., 60.)
 (839113., 835748., 60.) (839269., 835776., 60.) (839300., 835640., 60.)
 (839636., 835352., 60.) (839744., 835378., 60.) (839128., 835597., 60.)
 (839149., 835506., 60.) (839175., 835445., 60.) (839203., 835368., 60.)
 (838688., 835542., 80.) (838644., 835772., 80.) (839113., 835748., 80.)
 (839269., 835776., 80.) (839300., 835640., 80.) (839636., 835352., 80.)
 (839744., 835378., 80.) (839128., 835597., 80.) (839149., 835506., 80.)
 (839175., 835445., 80.) (839203., 835368., 80.) (838688., 835542., 100.)
 (838644., 835772., 100.) (839113., 835748., 100.) (839269., 835776., 100.)
 (839300., 835640., 100.) (839636., 835352., 100.) (839744., 835378., 100.)
 (839128., 835597., 100.) (839149., 835506., 100.) (839175., 835445., 100.)
 (839203., 835368., 100.) (

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SOURCE INFORMATION

TYPE	ENTERED EMIS.	TOTAL	RATE (G/SEC)	SPEED	WIND	X1	Y1	X2	Y2	HEIGHT	WIDTH
	G/SEC/M OR	EMIS.									
	G/SEC/M**2)	(G/SEC)	FAC.	(M)	(M)	(M)	(M)	(M)	(M)	(M)	(M)
1	0.024300000	0.02430	0.000	839034.	835531.	0.	0.	20.00	0.00		
1	0.024300000	0.02430	0.000	839041.	835534.	0.	0.	11.00	0.00		
1	0.024300000	0.02430	0.000	839030.	835541.	0.	0.	20.00	0.00		
1	0.024300000	0.02430	0.000	839036.	835545.	0.	0.	15.00	0.00		
1	0.024300000	0.02430	0.000	839059.	839541.	0.	0.	20.00	0.00		
1	0.024300000	0.02430	0.000	839054.	835553.	0.	0.	20.00	0.00		

1	0.024300000	0.02430	0.000	839035.	835512.	0.	0.	2.00	0.00
2	0.000174000	0.00186	0.000	839073.	835568.	839064.	835562.	0.50	3.50
2	0.000174000	0.01076	0.000	839064.	835562.	839002.	835564.	0.50	3.50
2	0.000174000	0.00893	0.000	839002.	835564.	838999.	835513.	0.50	3.50
2	0.000087150	0.00594	0.000	839000.	835529.	839062.	835557.	0.50	3.50
2	0.000087150	0.00158	0.000	839062.	835557.	839080.	835553.	0.50	3.50
2	0.000087150	0.00789	0.000	838999.	835513.	839080.	835553.	0.50	3.50
2	0.000087150	0.00096	0.000	839080.	835553.	839085.	835563.	0.50	3.50
1	0.023600001	0.02360	0.000	830120.	835515.	0.	0.	20.00	0.00
1	0.023600001	0.02360	0.000	839124.	835512.	0.	0.	20.00	0.00
1	0.009700000	0.00970	0.000	839053.	835520.	0.	0.	1.00	0.00
1	0.009700000	0.00970	0.000	839077.	835538.	0.	0.	5.40	0.00
1	0.009700000	0.00970	0.000	839092.	835522.	0.	0.	5.40	0.00
1	0.009700000	0.00970	0.000	839113.	835494.	0.	0.	1.00	0.00
1	0.009700000	0.00970	0.000	839142.	835514.	0.	0.	13.00	0.00
1	0.009700000	0.00970	0.000	839127.	835516.	0.	0.	17.00	0.00
1	0.009700000	0.00970	0.000	839127.	835516.	0.	0.	5.60	0.00
1	0.008300000	0.00830	0.000	839121.	835512.	0.	0.	6.70	0.00
1	0.009700000	0.00970	0.000	839039.	835518.	0.	0.	2.00	0.00
1	0.003600000	0.00360	0.000	839022.	835512.	0.	0.	1.00	0.00
1	0.003600000	0.00360	0.000	839100.	835493.	0.	0.	5.40	0.00
1	0.003600000	0.00360	0.000	839035.	835525.	0.	0.	1.00	0.00
1	0.024300000	0.02430	0.000	839024.	835527.	0.	0.	20.00	0.00
1	0.024300000	0.02430	0.000	839019.	835539.	0.	0.	20.00	0.00
1	0.024300000	0.02430	0.000	839013.	835547.	0.	0.	20.00	0.00
1	0.023600001	0.02360	0.000	839010.	835539.	0.	0.	14.70	0.00
1	0.023600001	0.02360	0.000	839005.	835539.	0.	0.	20.00	0.00
1	0.023300000	0.02330	0.000	839011.	835536.	0.	0.	6.00	0.00
1	0.023300000	0.02330	0.000	839008.	835536.	0.	0.	6.00	0.00
1	0.023600001	0.02360	0.000	839009.	835547.	0.	0.	7.00	0.00
3	0.007200000	0.08640	0.000	838992.	835503.	3.	4.	2.00	0.00
3	0.002520000	0.06300	0.000	838987.	835497.	5.	5.	0.50	0.00
2	0.000153000	0.01360	0.000	839064.	835562.	839141.	835518.	0.50	3.50
2	0.000278250	0.01720	0.000	839064.	835562.	839002.	835564.	0.50	3.50
2	0.000278250	0.01595	0.000	839002.	835564.	838987.	835509.	0.50	3.50
2	0.000063300	0.00563	0.000	839064.	835562.	839141.	835518.	0.50	3.50
2	0.000063300	0.00391	0.000	839064.	835562.	839002.	835564.	0.50	3.50
2	0.000063300	0.00363	0.000	839002.	835564.	838987.	835509.	0.50	3.50

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TOTAL EMISSIONS 0.75154E+00 GRAMS/SEC

LONG DISTANCE (50,000 M) MASS CONSERVATION CORRECTION FACTORS USED

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TOP 50 TABLE FOR 24 HOUR AVERAGES

RANK RECEPTOR X-COORDINATE Y-COORDINATE ENDING HOUR CONCENTRATION
DEPOSITION

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1	8	839128.0	835597.0	8112C	77.4376 1.2054
2	8	839128.0	835597.0	7872C	76.1043 1.3245
3	8	839128.0	835597.0	4176C	74.4940 1.7235
4	9	839148.9	835506.2	7896C	70.4485 1.1028
5	20	839148.9	835506.2	2760C	70.0785 1.4207
6	9	839148.9	835506.2	3360C	69.3131 1.2994
7	8	839128.0	835597.0	840C	68.3882 1.3379

8	20	839148.9	835506.2	3360C	67.7095	1.2632
9	20	839148.9	835506.2	5376C	67.5317	1.2520
10	19	839128.0	835597.0	840C	65.4411	1.2846
11	8	839128.0	835597.0	3912C	64.8673	1.5164
12	8	839128.0	835597.0	5640C	64.2169	1.8937
13	8	839128.0	835597.0	4440C	63.7135	1.3991
14	9	839148.9	835506.2	4104C	63.4882	1.2528
15	8	839128.0	835597.0	8712C	61.6090	1.0158
16	20	839148.9	835506.2	24C	61.6081	1.0653
17	20	839148.9	835506.2	5496C	61.1582	1.0187
18	8	839128.0	835597.0	264C	59.8575	1.1683
19	8	839128.0	835597.0	4584	59.8153	1.6911
20	9	839148.9	835506.2	5952C	59.4563	1.3149
21	20	839148.9	835506.2	8448C	59.4305	1.1575
22	20	839148.9	835506.2	4104C	59.2016	1.1721
23	19	839128.0	835597.0	4176C	59.1134	1.4275
24	19	839128.0	835597.0	7872C	57.5681	0.9895
25	19	839128.0	835597.0	264C	57.3946	1.1233
26	8	839128.0	835597.0	5040C	57.3929	1.6074
27	8	839128.0	835597.0	3192C	57.2823	1.5399
28	9	839148.9	835506.2	2760C	56.6917	1.1787
29	19	839128.0	835597.0	8112C	56.4339	0.8599
30	30	839128.0	835597.0	840C	56.1093	1.1006
31	9	839148.9	835506.2	8448C	55.9781	1.0634
32	8	839128.0	835597.0	1200C	55.9747	0.8771
33	19	839128.0	835597.0	5640C	55.7948	1.7138
34	5	839300.0	835640.0	7872C	55.1145	0.9047
35	20	839148.9	835506.2	5952C	55.1043	1.2493
36	53	839148.9	835506.2	5376C	54.6273	0.9396
37	20	839148.9	835506.2	2904C	54.5302	1.5696
38	8	839128.0	835597.0	4776C	54.3906	1.5171
39	8	839128.0	835597.0	2880C	53.9097	1.4202
40	8	839128.0	835597.0	7752	53.6884	0.9289
41	20	839148.9	835506.2	240C	53.5676	0.9635
42	9	839148.9	835506.2	6408	53.3952	1.0910
43	9	839148.9	835506.2	240C	53.3094	0.9485
44	9	839148.9	835506.2	2904C	52.9705	1.5362
45	9	839148.9	835506.2	4176C	52.7876	1.3555
46	16	839300.0	835640.0	7872C	52.3310	0.8488
47	8	839128.0	835597.0	1272C	52.0594	0.7947
48	20	839148.9	835506.2	6408	51.9584	1.0680
49	19	839128.0	835597.0	3912C	51.7911	1.2418
50	53	839148.9	835506.2	3360C	51.7808	0.9740

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HIGHEST AND SECOND HIGHEST VALUES FOR 24 HOUR AVERAGES

RECEPTOR X-COORDINATE Y-COORDINATE HIGHEST VALUE ENDING HOUR DEPOSITION
 SECOND HIGH ENDING HOUR DEPOSTION

1	838688.0	835542.0	21.4366	5688.C	0.3834	19.7083	576.C	0.4499
2	838644.0	835772.0	11.8497	8760.C	0.2203	11.2726	3600.C	0.1679
3	839113.0	835748.0	20.0908	3024.C	0.6491	18.3838	2232.C	0.3291
4	839269.0	835776.0	17.8875	3048.	0.7051	15.3722	3024.C	0.4494
5	839300.0	835640.0	55.1145	7872.C	0.9047	38.9832	8712.C	0.6025
6	839636.0	835352.0	7.3957	5376.C	0.0948	5.6699	24.C	0.0753
7	839744.0	835378.0	5.1663	912.C	0.0782	5.0496	3360.C	0.0689

8	839128.0	835597.0	77.4376	8112.C	1.2054	76.1043	7872.C	1.3245
9	839148.9	835506.2	70.4485	7896.C	1.1028	69.3131	3360.C	1.2994
10	839175.0	835445.0	28.6336	5496.C	0.4441	27.3502	5376.C	0.3781
11	839203.0	835368.0	11.3673	2904.C	0.1989	9.9611	3000.	0.1437
12	838688.0	835542.0	20.5270	5688.C	0.3643	19.3240	576.C	0.4462
13	838644.0	835772.0	11.7184	8760.C	0.2189	11.0287	3600.C	0.1629
14	839113.0	835748.0	19.5365	3024.C	0.6496	17.3559	2232.C	0.3125
15	839269.0	835776.0	18.0332	3048.	0.7221	15.2308	3024.C	0.4539
16	839300.0	835640.0	52.3310	7872.C	0.8488	37.1793	8712.C	0.5723
17	839636.0	835352.0	7.3357	5376.C	0.0915	5.5943	24.C	0.0733
18	839744.0	835378.0	5.1522	912.C	0.0776	5.0776	3360.C	0.0686
19	839128.0	835597.0	65.4411	840.C	1.2846	59.1134	4176.C	1.4275
20	839148.9	835506.2	70.0785	2760.C	1.4207	67.7095	3360.C	1.2632
21	839175.0	835445.0	23.8012	5496.C	0.3575	22.0377	2904.C	0.4635
22	839203.0	835368.0	9.8643	2904.C	0.1693	9.2386	3000.	0.1307
23	838688.0	835542.0	17.0821	576.C	0.4027	16.9054	5688.C	0.2984
24	838644.0	835772.0	10.5679	8760.C	0.1979	9.4613	3600.C	0.1379
25	839113.0	835748.0	16.8809	3024.C	0.5887	14.0948	2232.C	0.2631
26	839269.0	835776.0	16.7028	3048.	0.6792	13.6527	3024.C	0.4217
27	839300.0	835640.0	42.7019	7872.C	0.6808	30.9859	8712.C	0.4787
28	839636.0	835352.0	6.5618	5376.C	0.0785	5.0233	24.C	0.0639
29	839744.0	835378.0	4.6393	912.C	0.0677	4.6242	3360.C	0.0611
30	839128.0	835597.0	56.1093	840.C	1.1006	49.5704	264.C	0.9692
31	839148.9	835506.2	36.8115	5952.C	0.8353	35.1358	2760.C	0.7236
32	839175.0	835445.0	17.1745	2904.C	0.3753	15.7042	5496.C	0.2441
33	839203.0	835368.0	7.4874	4704.C	0.1135	7.3452	3000.	0.1058
34	838688.0	835542.0	14.3079	576.C	0.3475	13.0421	5688.C	0.2338
35	838644.0	835772.0	9.0444	8760.C	0.1716	7.4923	3600.C	0.1089
36	839113.0	835748.0	14.0503	3024.C	0.5118	10.9660	2232.C	0.2151
37	839269.0	835776.0	14.8210	3048.	0.6139	11.5716	3024.C	0.3748
38	839300.0	835640.0	32.7714	7872.C	0.5195	24.7257	5640.C	0.6548
39	839636.0	835352.0	5.4962	5376.C	0.0628	4.2764	2760.C	0.0620
40	839744.0	835378.0	3.9923	3360.C	0.0518	3.9428	912.C	0.0556
41	839128.0	835597.0	46.8083	840.C	0.9196	41.6163	264.C	0.8145
42	839148.9	835506.2	36.7345	2760.C	0.7751	35.4632	5376.C	0.6867
43	839175.0	835445.0	14.8610	2904.C	0.3287	11.7904	5496.C	0.1979
44	839203.0	835368.0	6.0235	4704.C	0.0926	5.5898	3000.	0.0823
45	838688.0	835542.0	11.4039	576.C	0.2860	10.9050	6888.	0.4455
46	838644.0	835772.0	7.4018	8760.C	0.1436	5.5099	3600.C	0.0803
47	839113.0	835748.0	11.2327	3024.C	0.4232	8.0950	2232.C	0.1644
48	839269.0	835776.0	12.6480	3048.	0.5342	9.3086	3024.C	0.3186
49	839300.0	835640.0	23.4409	7872.C	0.3645	19.2178	5640.C	0.5245
50	839636.0	835352.0	4.3235	5376.C	0.0470	3.5385	2760.C	0.0512
51	839744.0	835378.0	3.2811	3360.C	0.0421	3.1694	912.C	0.0432
52	839128.0	835597.0	36.5722	840.C	0.7127	36.0120	4176.C	0.9009
53	839148.9	835506.2	54.6273	5376.C	0.9396	51.7808	3360.C	0.9740
54	839175.0	835445.0	12.0611	2904.C	0.2597	8.8596	5496.C	0.1448
55	839203.0	835368.0	4.4257	4704.C	0.0640	4.0748	4176.C	0.0729
56	838688.0	835542.0	7.0045	6888.	0.2918	6.2920	576.C	0.1726
57	838644.0	835772.0	4.5112	8760.C	0.0944	3.5113	6744.C	0.0800
58	839113.0	835748.0	6.0815	3024.C	0.2494	4.6027	4080.C	0.1868
59	839269.0	835776.0	8.2370	3048.	0.3633	5.4970	3312.	0.1334
60	839300.0	835640.0	10.6485	840.C	0.1914	9.5537	5640.C	0.2917
61	839636.0	835352.0	2.2187	5376.C	0.0217	2.1599	2760.C	0.0324
62	839744.0	835378.0	1.9364	3360.C	0.0250	1.8810	5952.C	0.0390
63	839148.9	835506.2	6.9738	4440.C	0.2900	6.9048	5952.C	0.1524
64	839165.0	835497.0	6.6748	5952.C	0.1445	6.3698	4440.C	0.2644
65	839175.0	835445.0	3.4413	2904.C	0.0815	3.2354	4728.C	0.0651
66	839203.0	835368.0	1.7567	3600.C	0.0292	1.5413	4728.C	0.0303
67	838688.0	835542.0	4.0616	6888.	0.1727	3.6077	2712.C	0.1487

68	838644.0	835772.0	2.6914	8760.C	0.0624	2.6238	6744.C	0.0600
69	839113.0	835748.0	3.2831	4080.C	0.1253	3.1409	3024.C	0.1350
70	839269.0	835776.0	4.7510	3048.	0.2184	3.8479	264.C	0.0676
71	839300.0	835640.0	5.4609	264.C	0.1000	5.4328	840.C	0.0948
72	839636.0	835352.0	1.6229	5952.C	0.0315	1.4342	4752.C	0.0314
73	839744.0	835378.0	1.5252	5952.C	0.0313	1.4566	4752.C	0.0334
74	839128.0	835597.0	5.2687	264.C	0.0985	3.3503	4080.C	0.0984
75	839148.9	835506.2	2.5717	4440.C	0.1029	1.8917	2904.C	0.0715
76	839175.0	835445.0	1.6891	4728.C	0.0336	1.1857	4440.C	0.0443
77	839203.0	835368.0	1.0693	4728.C	0.0211	0.9381	984.	0.0163
78	838688.0	835542.0	2.4068	4560.C	0.0680	2.2465	6888.	0.0971
79	838644.0	835772.0	1.8996	6744.C	0.0441	1.8321	5688.C	0.0616
80	839113.0	835748.0	2.3058	4080.C	0.0819	2.0964	8472.C	0.0446
81	839269.0	835776.0	2.6551	264.C	0.0472	2.5203	3048.	0.1191
82	839300.0	835640.0	3.1460	264.C	0.0572	2.2921	840.C	0.0387
83	839636.0	835352.0	1.1806	5952.C	0.0226	1.0382	4752.C	0.0225
84	839744.0	835378.0	1.1720	5952.C	0.0237	1.1174	4752.C	0.0254
85	839148.9	835506.2	1.0479	4440.C	0.0396	0.8434	2904.C	0.0301
86	839165.0	835497.0	1.1151	4440.C	0.0423	0.8855	2904.C	0.0317
87	839175.0	835445.0	0.8911	4728.C	0.0177	0.7182	984.	0.0123
88	839203.0	835368.0	0.7428	4728.C	0.0147	0.7175	984.	0.0123
89	838688.0	835542.0	1.8572	4560.C	0.0540	1.4448	1776.C	0.0459
90	838644.0	835772.0	1.3638	6744.C	0.0325	1.3395	8760.C	0.0333
91	839113.0	835748.0	1.6340	4080.C	0.0541	1.4290	8472.C	0.0310
92	839269.0	835776.0	1.8338	264.C	0.0331	1.2510	3048.	0.0602
93	839300.0	835640.0	1.8499	264.C	0.0336	1.2100	4176.C	0.0488
94	839636.0	835352.0	0.8120	5952.C	0.0154	0.7060	4752.C	0.0151
95	839744.0	835378.0	0.8576	5952.C	0.0172	0.8133	4752.C	0.0183
96	839128.0	835597.0	0.9284	4080.C	0.0242	0.8484	264.C	0.0155
97	839148.9	835506.2	0.4442	4440.C	0.0160	0.3696	2904.C	0.0125
98	839175.0	835445.0	0.4952	4728.C	0.0098	0.4204	984.	0.0071
99	839203.0	835368.0	0.5224	984.	0.0088	0.5161	4728.C	0.0102
100	838688.0	835542.0	1.0969	4560.C	0.0327	0.8315	2568.C	0.0217
101	838644.0	835772.0	0.9241	4896.C	0.0229	0.8850	8760.C	0.0214
102	839113.0	835748.0	0.8283	4080.C	0.0243	0.6341	8472.C	0.0138
103	839269.0	835776.0	0.9280	264.C	0.0170	0.7796	4080.C	0.0234
104	839300.0	835640.0	0.7679	264.C	0.0138	0.5920	4080.C	0.0156
105	839636.0	835352.0	0.4054	4440.C	0.0160	0.3413	5952.C	0.0065
106	839744.0	835378.0	0.4669	4440.C	0.0188	0.4087	5952.C	0.0081
107	839128.0	835597.0	0.2179	4080.C	0.0051	0.1205	264.C	0.0021
108	839148.9	835506.2	0.0672	4440.C	0.0023	0.0581	2904.C	0.0019
109	839175.0	835445.0	0.1465	4728.C	0.0029	0.1208	984.	0.0020
110	839203.0	835368.0	0.2418	984.	0.0040	0.2332	4728.C	0.0046
111	838688.0	835542.0	0.6087	4560.C	0.0181	0.5066	1248.C	0.0136
112	838644.0	835772.0	0.6801	4896.C	0.0168	0.6125	8760.C	0.0146
113	839113.0	835748.0	0.4054	4080.C	0.0108	0.2378	8472.C	0.0051
114	839269.0	835776.0	0.5182	4080.C	0.0145	0.4793	264.C	0.0086
115	839300.0	835640.0	0.3503	264.C	0.0062	0.3413	4080.C	0.0085
116	839636.0	835352.0	0.2546	4440.C	0.0096	0.2214	4728.C	0.0042
117	839744.0	835378.0	0.2962	4440.C	0.0116	0.2137	2904.C	0.0080
118	839128.0	835597.0	0.0464	4080.C	0.0010	0.0132	264.C	0.0002
119	839148.9	835506.2	0.0084	4440.C	0.0003	0.0078	2904.C	0.0002
120	839175.0	835445.0	0.0335	4728.C	0.0006	0.0261	984.	0.0004
121	839203.0	835368.0	0.0945	984.	0.0015	0.0906	4728.C	0.0017

DATE AT END OF RUN: 11/04/02 TIME AT END OF RUN: 08:54:58.18

ELAPSED TIME FOR THIS RUN: 0.51449E+03 SECONDS

OR 0 HOURS 8 MINUTES 34.49 SECONDS

Appendix 4k

Sample FDM Output File for 24-hr RSP (Operational Phase)

1

FUGITIVE DUST MODEL (FDM)
VERSION 95279
OCT, 1995
DATE AT START OF RUN: 11/04/02 TIME AT START OF RUN: 08:54:58.29

RUN TITLE:

EIA for cement work/concrete batching plant --- RSP(OPERATION)

INPUT FILE NAME: O-RSP-D1.IN

OUTPUT FILE NAME: O-RSP-D1.OUT

CONVERGENCE OPTION 1=OFF, 2=ON 1
MET OPTION SWITCH, 1=CARDS, 2=PREPROCESSED 1
PLOT FILE OUTPUT, 1=NO, 2=YES 1
MET DATA PRINT SWITCH, 1=NO, 2=YES 1
POST-PROCESSOR OUTPUT, 1=NO, 2=YES 1
DEP. VEL./GRAV. SETL. VEL., 1=DEFAULT, 2=USER 1
PRINT 1-HOUR AVERAGE CONCEN, 1=NO, 2=YES 1
PRINT 3-HOUR AVERAGE CONCEN, 1=NO, 2=YES 1
PRINT 8-HOUR AVERAGE CONCEN, 1=NO, 2=YES 1
PRINT 24-HOUR AVERAGE CONCEN, 1=NO, 2=YES 3
PRINT LONG-TERM AVERAGE CONCEN, 1=NO, 2=YES 1
BYPASS RAMMET CALMS RECOGNITION, 1=NO, 2=YES 1
READ HOURLY EMISSION RATES, 1=NO, 2=YES 1
NUMBER OF SOURCES PROCESSED 44
NUMBER OF RECEPTORS PROCESSED 121
NUMBER OF PARTICLE SIZE CLASSES 8
NUMBER OF HOURS OF MET DATA PROCESSED 8760
LENGTH IN MINUTES OF 1-HOUR OF MET DATA 60.
ROUGHNESS LENGTH IN CM 100.00
SCALING FACTOR FOR SOURCE AND RECPTORS 1.0000
PARTICLE DENSITY IN G/CM**3 2.50
ANEMOMETER HEIGHT IN M 10.00

GENERAL PARTICLE SIZE CLASS INFORMATION

PARTICLE SIZE CLASS	GRAV. CHAR. DIA. (UM)	FRACTION SETTLING VELOCITY (M/SEC)	FRACTION DEPOSITION VELOCITY (M/SEC)	IN EACH SIZE CLASS
1	0.5000000	**	**	0.0780
2	1.5000000	**	**	0.1370
3	2.2500000	**	**	0.0780
4	2.7500000	**	**	0.0590
5	3.5000000	**	**	0.1370
6	4.5000000	**	**	0.0980
7	5.5000000	**	**	0.0780
8	8.0000000	**	**	0.3300

** COMPUTED BY FDM

1

RECEPTOR COORDINATES (X,Y,Z)

(838688., 835542., 2.) (838644., 835772., 2.) (839113., 835748., 2.)
 (839269., 835776., 2.) (839300., 835640., 2.) (839636., 835352., 2.)
 (839744., 835378., 2.) (839128., 835597., 2.) (839149., 835506., 2.)
 (839175., 835445., 2.) (839203., 835368., 2.) (838688., 835542., 5.)
 (838644., 835772., 5.) (839113., 835748., 5.) (839269., 835776., 5.)
 (839300., 835640., 5.) (839636., 835352., 5.) (839744., 835378., 5.)
 (839128., 835597., 5.) (839149., 835506., 5.) (839175., 835445., 5.)
 (839203., 835368., 5.) (838688., 835542., 10.) (838644., 835772., 10.)
 (839113., 835748., 10.) (839269., 835776., 10.) (839300., 835640., 10.)
 (839636., 835352., 10.) (839744., 835378., 10.) (839128., 835597., 10.)
 (839149., 835506., 10.) (839175., 835445., 10.) (839203., 835368., 10.)
 (838688., 835542., 15.) (838644., 835772., 15.) (839113., 835748., 15.)
 (839269., 835776., 15.) (839300., 835640., 15.) (839636., 835352., 15.)
 (839744., 835378., 15.) (839128., 835597., 15.) (839149., 835506., 15.)
 (839175., 835445., 15.) (839203., 835368., 15.) (838688., 835542., 20.)
 (838644., 835772., 20.) (839113., 835748., 20.) (839269., 835776., 20.)
 (839300., 835640., 20.) (839636., 835352., 20.) (839744., 835378., 20.)
 (839128., 835597., 20.) (839149., 835506., 20.) (839175., 835445., 20.)
 (839203., 835368., 20.) (838688., 835542., 30.) (838644., 835772., 30.)
 (839113., 835748., 30.) (839269., 835776., 30.) (839300., 835640., 30.)
 (839636., 835352., 30.) (839744., 835378., 30.) (839149., 835506., 30.)
 (839165., 835497., 30.) (839175., 835445., 30.) (839203., 835368., 30.)
 (838688., 835542., 40.) (838644., 835772., 40.) (839113., 835748., 40.)
 (839269., 835776., 40.) (839300., 835640., 40.) (839636., 835352., 40.)
 (839744., 835378., 40.) (839128., 835597., 40.) (839149., 835506., 40.)
 (839175., 835445., 40.) (839203., 835368., 40.) (838688., 835542., 50.)
 (838644., 835772., 50.) (839113., 835748., 50.) (839269., 835776., 50.)
 (839300., 835640., 50.) (839636., 835352., 50.) (839744., 835378., 50.)
 (839149., 835506., 50.) (839165., 835497., 50.) (839175., 835445., 50.)
 (839203., 835368., 50.) (838688., 835542., 60.) (838644., 835772., 60.)
 (839113., 835748., 60.) (839269., 835776., 60.) (839300., 835640., 60.)
 (839636., 835352., 60.) (839744., 835378., 60.) (839128., 835597., 60.)
 (839149., 835506., 60.) (839175., 835445., 60.) (839203., 835368., 60.)
 (838688., 835542., 80.) (838644., 835772., 80.) (839113., 835748., 80.)
 (839269., 835776., 80.) (839300., 835640., 80.) (839636., 835352., 80.)
 (839744., 835378., 80.) (839128., 835597., 80.) (839149., 835506., 80.)
 (839175., 835445., 80.) (839203., 835368., 80.) (838688., 835542., 100.)
 (838644., 835772., 100.) (839113., 835748., 100.) (839269., 835776., 100.)
 (839300., 835640., 100.) (839636., 835352., 100.) (839744., 835378., 100.)
 (839128., 835597., 100.) (839149., 835506., 100.) (839175., 835445., 100.)
 (839203., 835368., 100.) (

1

SOURCE INFORMATION

ENTERED EMIS. RATE (G/SEC, EMISSION G/SEC/M OR TYPE	TOTAL RATE (G/SEC) RATE (G/SEC)**2)	WIND SPEED FAC.	X1 (M)	Y1 (M)	X2 (M)	Y2 (M)	HEIGHT (M)	WIDTH (M)
1	0.012393000	0.01239	0.000	839034.	835531.	0.	0.	20.00 0.00
1	0.012393000	0.01239	0.000	839041.	835534.	0.	0.	11.00 0.00
1	0.012393000	0.01239	0.000	839030.	835541.	0.	0.	20.00 0.00
1	0.012393000	0.01239	0.000	839036.	835545.	0.	0.	15.00 0.00
1	0.012393000	0.01239	0.000	839059.	839541.	0.	0.	20.00 0.00
1	0.012393000	0.01239	0.000	839054.	835553.	0.	0.	20.00 0.00
1	0.012393000	0.01239	0.000	839035.	835512.	0.	0.	2.00 0.00

2	0.000033408	0.00036	0.000	839073.	835568.	839064.	835562.	0.50	3.50
2	0.000033408	0.00207	0.000	839064.	835562.	839002.	835564.	0.50	3.50
2	0.000033408	0.00172	0.000	839002.	835564.	838999.	835513.	0.50	3.50
2	0.000016733	0.00114	0.000	839000.	835529.	839062.	835557.	0.50	3.50
2	0.000016733	0.00030	0.000	839062.	835557.	839080.	835553.	0.50	3.50
2	0.000016733	0.00152	0.000	838999.	835513.	839080.	835553.	0.50	3.50
2	0.000016733	0.00018	0.000	839080.	835553.	839085.	835563.	0.50	3.50
1	0.012036000	0.01204	0.000	830120.	835515.	0.	0.	20.00	0.00
1	0.012036000	0.01204	0.000	839124.	835512.	0.	0.	20.00	0.00
1	0.004947000	0.00495	0.000	839053.	835520.	0.	0.	1.00	0.00
1	0.004947000	0.00495	0.000	839077.	835538.	0.	0.	5.40	0.00
1	0.004947000	0.00495	0.000	839092.	835522.	0.	0.	5.40	0.00
1	0.004947000	0.00495	0.000	839113.	835494.	0.	0.	1.00	0.00
1	0.004947000	0.00495	0.000	839142.	835514.	0.	0.	13.00	0.00
1	0.004947000	0.00495	0.000	839127.	835516.	0.	0.	17.00	0.00
1	0.004947000	0.00495	0.000	839127.	835516.	0.	0.	5.60	0.00
1	0.004233000	0.00423	0.000	839121.	835512.	0.	0.	6.70	0.00
1	0.004947000	0.00495	0.000	839039.	835518.	0.	0.	2.00	0.00
1	0.001836000	0.00184	0.000	839022.	835512.	0.	0.	1.00	0.00
1	0.001836000	0.00184	0.000	839100.	835493.	0.	0.	5.40	0.00
1	0.001836000	0.00184	0.000	839035.	835525.	0.	0.	1.00	0.00
1	0.012393000	0.01239	0.000	839024.	835527.	0.	0.	20.00	0.00
1	0.012393000	0.01239	0.000	839019.	835539.	0.	0.	20.00	0.00
1	0.012393000	0.01239	0.000	839013.	835547.	0.	0.	20.00	0.00
1	0.012036000	0.01204	0.000	839010.	835539.	0.	0.	14.70	0.00
1	0.012036000	0.01204	0.000	839005.	835539.	0.	0.	20.00	0.00
1	0.011883000	0.01188	0.000	839011.	835536.	0.	0.	6.00	0.00
1	0.011883000	0.01188	0.000	839008.	835536.	0.	0.	6.00	0.00
1	0.012036000	0.01204	0.000	839009.	835547.	0.	0.	7.00	0.00
3	0.003672000	0.04406	0.000	838992.	835503.	3.	4.	2.00	0.00
3	0.001290000	0.03225	0.000	838987.	835497.	5.	5.	0.50	0.00
2	0.000029376	0.00261	0.000	839064.	835562.	839141.	835518.	0.50	3.50
2	0.000053424	0.00330	0.000	839064.	835562.	839002.	835564.	0.50	3.50
2	0.000053424	0.00306	0.000	839002.	835564.	838987.	835509.	0.50	3.50
2	0.000012154	0.00108	0.000	839064.	835562.	839141.	835518.	0.50	3.50
2	0.000012154	0.00075	0.000	839064.	835562.	839002.	835564.	0.50	3.50
2	0.000012154	0.00070	0.000	839002.	835564.	838987.	835509.	0.50	3.50

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TOTAL EMISSIONS 0.35229E+00 GRAMS/SEC

LONG DISTANCE (50,000 M) MASS CONSERVATION CORRECTION FACTORS USED

1

TOP 50 TABLE FOR 24 HOUR AVERAGES

RANK RECEPTOR X-COORDINATE Y-COORDINATE ENDING HOUR CONCENTRATION
DEPOSITION

RANK	RECEPTOR	X-COORDINATE	Y-COORDINATE	ENDING HOUR	CONCENTRATION	DEPOSITION
1	9	839148.9	835506.2	7896C	41.1156	0.1885
2	9	839148.9	835506.2	3360C	37.6461	0.2390
3	20	839148.9	835506.2	3360C	36.9360	0.2299
4	8	839128.0	835597.0	8112C	35.5496	0.1759
5	20	839148.9	835506.2	2760C	34.4637	0.2172
6	9	839148.9	835506.2	4104C	33.9172	0.2333
7	8	839128.0	835597.0	4176C	32.5732	0.2886
8	20	839148.9	835506.2	5376C	32.1420	0.1773

9	20	839148.9	835506.2	4104C	32.0811	0.2228
10	20	839148.9	835506.2	5496C	30.9207	0.1572
11	20	839148.9	835506.2	24C	30.4442	0.1393
12	20	839148.9	835506.2	8448C	30.0433	0.1800
13	8	839128.0	835597.0	4440C	30.0038	0.2400
14	53	839148.9	835506.2	5376C	29.9691	0.1525
15	8	839128.0	835597.0	840C	29.6807	0.1736
16	9	839148.9	835506.2	5952C	29.1964	0.2224
17	19	839128.0	835597.0	840C	29.1254	0.1714
18	19	839128.0	835597.0	8112C	28.9844	0.1444
19	9	839148.9	835506.2	5976C	28.2278	0.1919
20	19	839128.0	835597.0	4176C	28.0739	0.2620
21	20	839148.9	835506.2	240C	28.0527	0.1447
22	53	839148.9	835506.2	3360C	27.6906	0.1609
23	9	839148.9	835506.2	240C	27.6384	0.1405
24	9	839148.9	835506.2	3192C	27.4975	0.2174
25	8	839128.0	835597.0	3912C	27.4649	0.2325
26	20	839148.9	835506.2	5952C	27.3780	0.2169
27	9	839148.9	835506.2	5640C	27.2515	0.3044
28	53	839148.9	835506.2	2760C	27.2379	0.1650
29	9	839148.9	835506.2	5040C	26.9963	0.2672
30	9	839148.9	835506.2	4584	26.9395	0.2630
31	30	839128.0	835597.0	840C	26.7980	0.1581
32	9	839148.9	835506.2	8448C	26.7610	0.1594
33	9	839148.9	835506.2	2760C	26.6791	0.1792
34	9	839148.9	835506.2	5664C	26.6551	0.1997
35	5	839300.0	835640.0	7872C	26.6123	0.1303
36	8	839128.0	835597.0	7872C	26.4368	0.1400
37	8	839128.0	835597.0	264C	26.2655	0.1532
38	9	839148.9	835506.2	7872C	26.2129	0.1313
39	20	839148.9	835506.2	6408	26.2123	0.1865
40	9	839148.9	835506.2	6408	26.2106	0.1820
41	20	839148.9	835506.2	2904C	26.0659	0.3065
42	16	839300.0	835640.0	7872C	25.9690	0.1280
43	19	839128.0	835597.0	264C	25.7288	0.1510
44	8	839128.0	835597.0	1200C	25.2555	0.1167
45	9	839148.9	835506.2	4176C	25.1251	0.2678
46	9	839148.9	835506.2	1008C	25.0822	0.1153
47	9	839148.9	835506.2	4704C	25.0493	0.1440
48	9	839148.9	835506.2	4680C	24.8374	0.1618
49	19	839128.0	835597.0	4440C	24.7334	0.2145
50	9	839148.9	835506.2	8424C	24.7021	0.1204

1

HIGHEST AND SECOND HIGHEST VALUES FOR 24 HOUR AVERAGES

RECEPTOR X-COORDINATE Y-COORDINATE HIGHEST VALUE ENDING HOUR DEPOSITION
 SECOND HIGH ENDING HOUR DEPOSTION

1	838688.0	835542.0	11.1578	5688.C	0.0711	9.9738	576.C	0.0815
2	838644.0	835772.0	6.6711	3600.C	0.0373	6.5398	8760.C	0.0414
3	839113.0	835748.0	10.0316	3024.C	0.1388	9.6170	2232.C	0.0601
4	839269.0	835776.0	8.5071	3048.	0.1546	7.9414	3024.C	0.0986
5	839300.0	835640.0	26.6123	7872.C	0.1303	19.5734	8712.C	0.0901
6	839636.0	835352.0	4.4132	5376.C	0.0209	3.2846	24.C	0.0142
7	839744.0	835378.0	3.2770	3360.C	0.0176	2.9607	912.C	0.0150
8	839128.0	835597.0	35.5496	8112.C	0.1759	32.5732	4176.C	0.2886

9	839148.9	835506.2	41.1156	7896.C	0.1885	37.6461	3360.C	0.2390
10	839175.0	835445.0	16.9315	5376.C	0.0809	15.7333	5496.C	0.0797
11	839203.0	835368.0	6.5695	2904.C	0.0408	5.5437	3000.	0.0259
12	838688.0	835542.0	10.8923	5688.C	0.0701	9.8769	576.C	0.0816
13	838644.0	835772.0	6.5969	3600.C	0.0373	6.5305	8760.C	0.0418
14	839113.0	835748.0	9.7875	3024.C	0.1390	9.2506	2232.C	0.0587
15	839269.0	835776.0	8.5254	3048.	0.1570	7.9138	3024.C	0.0998
16	839300.0	835640.0	25.9690	7872.C	0.1280	19.0391	8712.C	0.0883
17	839636.0	835352.0	4.4598	5376.C	0.0212	3.2766	24.C	0.0143
18	839744.0	835378.0	3.3279	3360.C	0.0181	2.9700	912.C	0.0152
19	839128.0	835597.0	29.1254	840.C	0.1714	28.9844	8112.C	0.1444
20	839148.9	835506.2	36.9360	3360.C	0.2299	34.4637	2760.C	0.2172
21	839175.0	835445.0	14.1420	5376.C	0.0675	13.5662	5496.C	0.0690
22	839203.0	835368.0	5.8898	2904.C	0.0371	5.2678	3000.	0.0247
23	838688.0	835542.0	9.3239	5688.C	0.0609	8.9740	576.C	0.0759
24	838644.0	835772.0	6.0612	8760.C	0.0393	5.7875	3600.C	0.0327
25	839113.0	835748.0	8.5515	3024.C	0.1281	7.6889	2232.C	0.0503
26	839269.0	835776.0	8.0378	3048.	0.1505	7.2305	3024.C	0.0944
27	839300.0	835640.0	22.5199	7872.C	0.1110	16.5590	8712.C	0.0769
28	839636.0	835352.0	4.1509	5376.C	0.0197	3.0306	24.C	0.0132
29	839744.0	835378.0	3.1032	3360.C	0.0169	2.7584	912.C	0.0141
30	839128.0	835597.0	26.7980	840.C	0.1581	23.5908	264.C	0.1389
31	839148.9	835506.2	18.8321	5952.C	0.1527	18.3499	2760.C	0.1235
32	839175.0	835445.0	8.9258	5496.C	0.0455	8.7070	2904.C	0.0684
33	839203.0	835368.0	4.2463	3000.	0.0199	4.0061	4176.C	0.0241
34	838688.0	835542.0	7.7253	576.C	0.0674	7.4220	5688.C	0.0497
35	838644.0	835772.0	5.3352	8760.C	0.0354	4.6680	3600.C	0.0264
36	839113.0	835748.0	7.1489	3024.C	0.1128	6.0584	2232.C	0.0413
37	839269.0	835776.0	7.2537	3048.	0.1387	6.2347	3024.C	0.0855
38	839300.0	835640.0	18.2776	7872.C	0.0901	13.5058	8712.C	0.0628
39	839636.0	835352.0	3.6291	5376.C	0.0172	2.6782	2760.C	0.0146
40	839744.0	835378.0	2.7414	3360.C	0.0150	2.4207	912.C	0.0123
41	839128.0	835597.0	23.7372	840.C	0.1402	20.8297	264.C	0.1231
42	839148.9	835506.2	18.0912	2760.C	0.1162	17.5461	5952.C	0.1407
43	839175.0	835445.0	7.6672	2904.C	0.0598	6.4511	5496.C	0.0332
44	839203.0	835368.0	3.3266	4704.C	0.0156	3.2905	3000.	0.0154
45	838688.0	835542.0	6.3358	576.C	0.0573	5.6261	5688.C	0.0390
46	838644.0	835772.0	4.4759	8760.C	0.0306	3.4955	3600.C	0.0199
47	839113.0	835748.0	5.7751	3024.C	0.0953	4.5862	2232.C	0.0328
48	839269.0	835776.0	6.2816	3048.	0.1230	5.0967	3024.C	0.0744
49	839300.0	835640.0	13.8400	7872.C	0.0682	10.3508	5640.C	0.1158
50	839636.0	835352.0	2.9834	5376.C	0.0141	2.2762	2760.C	0.0126
51	839744.0	835378.0	2.3002	3360.C	0.0127	2.0091	912.C	0.0102
52	839128.0	835597.0	19.4170	840.C	0.1146	18.8510	7872.C	0.0990
53	839148.9	835506.2	29.9691	5376.C	0.1525	27.6906	3360.C	0.1609
54	839175.0	835445.0	6.5471	2904.C	0.0502	5.0906	5496.C	0.0262
55	839203.0	835368.0	2.7051	4704.C	0.0126	2.4754	3000.	0.0116
56	838688.0	835542.0	3.5961	576.C	0.0365	3.5151	6888.	0.0660
57	838644.0	835772.0	2.7834	8760.C	0.0209	1.9663	6744.C	0.0179
58	839113.0	835748.0	3.1584	3024.C	0.0589	2.4198	8472.C	0.0156
59	839269.0	835776.0	4.1772	3048.	0.0868	3.0191	3312.	0.0282
60	839300.0	835640.0	6.0039	840.C	0.0353	5.3552	7872.C	0.0263
61	839636.0	835352.0	1.6700	5376.C	0.0078	1.4383	2760.C	0.0083
62	839744.0	835378.0	1.4008	3360.C	0.0080	1.2001	240.C	0.0061
63	839148.9	835506.2	3.8896	5952.C	0.0316	3.5946	4440.C	0.0711
64	839165.0	835497.0	3.7809	5952.C	0.0302	3.2773	4440.C	0.0648
65	839175.0	835445.0	2.0464	2904.C	0.0190	1.7408	4728.C	0.0129
66	839203.0	835368.0	1.0066	3600.C	0.0060	0.9124	4704.C	0.0042
67	838688.0	835542.0	2.0581	6888.	0.0398	1.8736	2712.C	0.0332
68	838644.0	835772.0	1.5931	8760.C	0.0135	1.4865	6744.C	0.0137

69	839113.0	835748.0	1.6516	8472.C	0.0112	1.6309	4080.C	0.0290
70	839269.0	835776.0	2.4371	3048.	0.0538	2.1336	264.C	0.0122
71	839300.0	835640.0	3.2133	840.C	0.0188	3.0388	264.C	0.0182
72	839636.0	835352.0	0.9608	5952.C	0.0073	0.8477	4752.C	0.0076
73	839744.0	835378.0	0.8873	5952.C	0.0072	0.8561	4752.C	0.0081
74	839128.0	835597.0	2.9229	264.C	0.0173	1.7226	4080.C	0.0215
75	839148.9	835506.2	1.3364	4440.C	0.0254	1.0409	5952.C	0.0086
76	839175.0	835445.0	0.9110	4728.C	0.0067	0.6187	4440.C	0.0108
77	839203.0	835368.0	0.5736	4728.C	0.0042	0.4912	984.	0.0025
78	838688.0	835542.0	1.2480	4560.C	0.0146	1.1391	6888.	0.0226
79	838644.0	835772.0	1.0796	6744.C	0.0101	0.9907	8760.C	0.0091
80	839113.0	835748.0	1.1561	4080.C	0.0188	1.1044	8472.C	0.0079
81	839269.0	835776.0	1.4754	264.C	0.0086	1.3056	3048.	0.0301
82	839300.0	835640.0	1.7623	264.C	0.0105	1.4176	840.C	0.0083
83	839636.0	835352.0	0.7136	5952.C	0.0054	0.6256	4752.C	0.0056
84	839744.0	835378.0	0.6941	5952.C	0.0056	0.6681	4752.C	0.0064
85	839148.9	835506.2	0.5495	4440.C	0.0098	0.4399	2904.C	0.0069
86	839165.0	835497.0	0.5830	4440.C	0.0104	0.4600	2904.C	0.0073
87	839175.0	835445.0	0.4775	4728.C	0.0035	0.3800	984.	0.0019
88	839203.0	835368.0	0.3966	4728.C	0.0029	0.3806	984.	0.0019
89	838688.0	835542.0	0.9532	4560.C	0.0116	0.7351	1776.C	0.0096
90	838644.0	835772.0	0.7698	6744.C	0.0074	0.7165	8760.C	0.0066
91	839113.0	835748.0	0.8272	4080.C	0.0123	0.7494	8472.C	0.0055
92	839269.0	835776.0	1.0114	264.C	0.0060	0.6534	3048.	0.0155
93	839300.0	835640.0	1.0291	264.C	0.0061	0.6128	5976.C	0.0050
94	839636.0	835352.0	0.4996	5952.C	0.0038	0.4330	4752.C	0.0039
95	839744.0	835378.0	0.5161	5952.C	0.0042	0.4943	4752.C	0.0047
96	839128.0	835597.0	0.4991	4080.C	0.0054	0.4783	264.C	0.0028
97	839148.9	835506.2	0.2364	4440.C	0.0040	0.1958	2904.C	0.0029
98	839175.0	835445.0	0.2654	4728.C	0.0020	0.2261	984.	0.0012
99	839203.0	835368.0	0.2807	984.	0.0014	0.2762	4728.C	0.0020
100	838688.0	835542.0	0.5576	4560.C	0.0070	0.4291	2568.C	0.0044
101	838644.0	835772.0	0.4798	4896.C	0.0048	0.4641	8760.C	0.0041
102	839113.0	835748.0	0.4293	4080.C	0.0055	0.3396	8472.C	0.0025
103	839269.0	835776.0	0.5060	264.C	0.0030	0.3965	4080.C	0.0052
104	839300.0	835640.0	0.4231	264.C	0.0025	0.3063	4080.C	0.0033
105	839636.0	835352.0	0.2135	5952.C	0.0017	0.2120	4440.C	0.0040
106	839744.0	835378.0	0.2513	5952.C	0.0021	0.2444	4440.C	0.0048
107	839128.0	835597.0	0.1224	4080.C	0.0012	0.0714	264.C	0.0004
108	839148.9	835506.2	0.0371	4440.C	0.0006	0.0319	2904.C	0.0004
109	839175.0	835445.0	0.0806	4728.C	0.0006	0.0673	984.	0.0003
110	839203.0	835368.0	0.1332	984.	0.0007	0.1272	4728.C	0.0009
111	838688.0	835542.0	0.3103	4560.C	0.0039	0.2596	1248.C	0.0027
112	838644.0	835772.0	0.3564	4896.C	0.0036	0.3214	8760.C	0.0028
113	839113.0	835748.0	0.2155	4080.C	0.0024	0.1318	8472.C	0.0010
114	839269.0	835776.0	0.2673	4080.C	0.0032	0.2649	264.C	0.0016
115	839300.0	835640.0	0.1966	264.C	0.0011	0.1805	4080.C	0.0019
116	839636.0	835352.0	0.1335	4440.C	0.0024	0.1244	4728.C	0.0009
117	839744.0	835378.0	0.1555	4440.C	0.0030	0.1154	4728.C	0.0009
118	839128.0	835597.0	0.0273	4080.C	0.0002	0.0084	264.C	0.0001
119	839148.9	835506.2	0.0049	4440.C	0.0001	0.0045	2904.C	0.0001
120	839175.0	835445.0	0.0191	4728.C	0.0001	0.0151	984.	0.0001
121	839203.0	835368.0	0.0533	984.	0.0003	0.0505	4728.C	0.0004

DATE AT END OF RUN: 11/04/02 TIME AT END OF RUN: 09:02:59.22

ELAPSED TIME FOR THIS RUN: 0.48093E+03 SECONDS

OR 0 HOURS 8 MINUTES 0.93 SECONDS

Appendix 4I

Sample Caline 4 output file T1

CALINE4: CALIFORNIA LINE SOURCE DISPERSION MODEL
JUNE 1989 VERSION
PAGE 1

JOB: Cement works/concrete batching plant (20)
RUN: RSP (WORST CASE ANGLE)
POLLUTANT: RSP
(NOTE: OUTPUT IN MICRO-GRAMS/METER**3. IGNORE PPM LABEL)

I. SITE VARIABLES

U= 1.0 M/S Z0= 100. CM ALT= 0. (M)
BRG= WORST CASE VD= 0.1 CM/S
CLAS= 4 (D) VS= 0.7 CM/S
MIXH= 500. M AMB= 0.0 PPM
SIGTH= 14. DEGREES TEMP= 25.0 DEGREE (C)

II. LINK VARIABLES

LINK *	LINK COORDINATES (M) *	EF	H	W
DESCRIPTION*	X1 Y1 X2 Y2 *TYPE	VPH (G/MI)	(M)	(M)
AA.LINK AA	* 838276 835626 838295 835615 *	AG	500	0.3
AB.LINK AB	* 838295 835615 838312 835601 *	AG	500	0.3
AC.LINK AC	* 838312 835601 838327 835583 *	AG	500	0.3
AD.LINK AD	* 838327 835583 838350 835562 *	AG	500	0.3
AE.LINK AE	* 838350 835562 838367 835552 *	AG	500	0.3
AF.LINK AF	* 838367 835552 838384 835546 *	AG	500	0.3
AG.LINK AG	* 838384 835546 838425 835537 *	AG	500	0.3
AH.LINK AH	* 838425 835537 838462 835533 *	AG	500	0.3
AI.LINK AI	* 838462 835533 838483 835536 *	AG	500	0.3
AJ.LINK AJ	* 838483 835536 838502 835542 *	AG	500	0.3
AK.LINK AK	* 838502 835542 838533 835556 *	AG	500	0.3
AL.LINK AL	* 838533 835556 838555 835563 *	AG	500	0.3
AM.LINK AM	* 838555 835563 838586 835565 *	AG	500	0.3
AN.LINK AN	* 838586 835565 838612 835564 *	AG	500	0.3
AO.LINK AO	* 838612 835564 838654 835560 *	AG	500	0.3
AP.LINK AP	* 838654 835560 838671 835562 *	AG	500	0.3
AQ.LINK AQ	* 838671 835562 838685 835574 *	AG	500	0.3
AR.LINK AR	* 838685 835574 838694 835593 *	AG	500	0.3
AS.LINK AS	* 838694 835593 838708 835602 *	AG	500	0.3
AT.LINK AT	* 838708 835602 838724 835608 *	AG	500	0.3
AU.LINK AU	* 838724 835608 838740 835607 *	AG	500	0.3
AV.LINK AV	* 838740 835607 838764 835604 *	AG	500	0.3
AW.LINK AW	* 838764 835604 838778 835605 *	AG	500	0.3
AX.LINK AX	* 838778 835605 838812 835612 *	AG	500	0.3
AY.LINK AY	* 838812 835612 838845 835618 *	AG	500	0.3
AZ.LINK AZ	* 838845 835618 838866 835620 *	AG	500	0.3
BA.LINK BA	* 838866 835620 838888 835617 *	AG	500	0.3
BB.LINK BB	* 838888 835617 838917 835614 *	AG	500	0.3
BC.LINK BC	* 838917 835614 838932 835615 *	AG	500	0.3
BD.LINK BD	* 838932 835615 838955 835618 *	AG	500	0.3
BE.LINK BE	* 838955 835618 838976 835623 *	AG	500	0.3
BF.LINK BF	* 838976 835623 839003 835630 *	AG	500	0.3
BG.LINK BG	* 839003 835630 839029 835642 *	AG	270	0.3
BH.LINK BH	* 839029 835642 839065 835664 *	AG	270	0.3
BI.LINK BI	* 839065 835664 839110 835694 *	AG	270	0.3
BJ.LINK BJ	* 839112 835691 839067 835661 *	AG	460	0.3
BK.LINK BK	* 839067 835661 839031 835639 *	AG	460	0.3
BL.LINK BL	* 839031 835639 839004 835627 *	AG	460	0.3

BM.LINK BM * 839004 835627 838977 835620 * AG 770 0.3 0.0 9.5
BN.LINK BN * 838977 835620 838956 835615 * AG 770 0.3 0.0 9.5
BO.LINK BO * 838956 835615 838932 835611 * AG 770 0.3 0.0 9.5
BP.LINK BP * 838932 835611 838917 835610 * AG 770 0.3 0.0 9.5
BQ.LINK BQ * 838917 835610 838887 835613 * AG 770 0.3 0.0 9.5
BR.LINK BR * 838887 835613 838866 835617 * AG 770 0.3 0.0 9.5
BS.LINK BS * 838866 835617 838846 835615 * AG 770 0.3 0.0 9.5
BT.LINK BT * 838846 835615 838813 835609 * AG 770 0.3 0.0 9.5
BU.LINK BU * 838813 835609 838778 835601 * AG 770 0.3 0.0 9.5
BV.LINK BV * 838778 835601 838764 835601 * AG 770 0.3 0.0 9.5
BW.LINK BW * 838764 835601 838740 835603 * AG 770 0.3 0.0 9.5
BX.LINK BX * 838740 835603 838724 835604 * AG 770 0.3 0.0 9.5
BY.LINK BY * 838724 835604 838709 835599 * AG 770 0.3 0.0 9.5
BZ.LINK BZ * 838709 835599 838697 835590 * AG 770 0.3 0.0 9.5
CA.LINK CA * 838697 835590 838689 835572 * AG 770 0.3 0.0 9.5
CB.LINK CB * 838689 835572 838682 835564 * AG 770 0.3 0.0 9.5
CC.LINK CC * 838682 835564 838673 835559 * AG 770 0.3 0.0 9.5
CD.LINK CD * 838673 835559 838654 835557 * AG 770 0.3 0.0 9.5
CE.LINK CE * 838654 835557 838612 835560 * AG 770 0.3 0.0 9.5
CF.LINK CF * 838612 835560 838586 835562 * AG 770 0.3 0.0 9.5
CG.LINK CG * 838586 835562 838556 835559 * AG 770 0.3 0.0 9.5
CH.LINK CH * 838556 835559 838534 835553 * AG 770 0.3 0.0 9.5
CI.LINK CI * 838534 835553 838504 835539 * AG 770 0.3 0.0 9.5
CJ.LINK CJ * 838504 835539 838484 835533 * AG 770 0.3 0.0 9.5
CK.LINK CK * 838484 835533 838462 835530 * AG 770 0.3 0.0 9.5
CL.LINK CL * 838462 835530 838425 835534 * AG 770 0.3 0.0 9.5
CM.LINK CM * 838425 835534 838383 835542 * AG 770 0.3 0.0 9.5
CN.LINK CN * 838383 835542 838366 835549 * AG 770 0.3 0.0 9.5
CO.LINK CO * 838366 835549 838348 835560 * AG 770 0.3 0.0 9.5
CP.LINK CP * 838348 835559 838325 835580 * AG 770 0.3 0.0 9.5
CQ.LINK CQ * 838325 835580 838310 835598 * AG 770 0.3 0.0 9.5
CR.LINK CR * 838310 835598 838293 835612 * AG 770 0.3 0.0 9.5
CS.LINK CS * 838293 835612 838274 835623 * AG 770 0.3 0.0 9.5
CT.LINK CT * 839016 835630 839021 835619 * AG 250 0.4 0.0 9.5
CU.LINK CU * 839021 835619 839028 835611 * AG 250 0.4 0.0 9.5
CV.LINK CV * 839028 835611 839036 835605 * AG 250 0.4 0.0 9.5
CW.LINK CW * 839036 835605 839071 835594 * AG 250 0.4 0.0 9.5
CX.LINK CX * 839071 835594 839129 835574 * AG 250 0.4 0.0 9.5
CY.LINK CY * 839129 835574 839146 835566 * AG 250 0.4 0.0 9.5
CZ.LINK CZ * 839146 835566 839162 835555 * AG 250 0.4 0.0 9.5
DA.LINK DA * 839162 835555 839179 835538 * AG 250 0.4 0.0 9.5
DB.LINK DB * 839179 835538 839190 835522 * AG 250 0.4 0.0 9.5
DC.LINK DC * 839190 835522 839200 835505 * AG 250 0.4 0.0 9.5
DD.LINK DD * 839200 835505 839215 835473 * AG 250 0.4 0.0 9.5
DE.LINK DE * 839215 835473 839230 835445 * AG 250 0.4 0.0 9.5
DF.LINK DF * 839230 835445 839241 835427 * AG 250 0.4 0.0 9.5
DG.LINK DG * 839241 835427 839249 835416 * AG 230 0.3 0.0 9.5
DH.LINK DH * 839249 835416 839264 835400 * AG 230 0.3 0.0 9.5
DI.LINK DI * 839264 835400 839282 835385 * AG 230 0.3 0.0 9.5
DJ.LINK DJ * 839282 835385 839302 835371 * AG 230 0.3 0.0 9.5
DK.LINK DK * 839302 835371 839341 835343 * AG 140 0.4 0.0 9.5
DL.LINK DL * 839341 835343 839376 835317 * AG 140 0.4 0.0 9.5
DM.LINK DM * 839376 835317 839417 835288 * AG 140 0.4 0.0 9.5
DN.LINK DN * 839417 835288 839446 835272 * AG 140 0.4 0.0 9.5
DO.LINK DO * 839445 835269 839416 835285 * AG 90 0.4 0.0 9.5
DP.LINK DP * 839416 835285 839374 835315 * AG 90 0.4 0.0 9.5
DQ.LINK DQ * 839374 835315 839339 835340 * AG 90 0.4 0.0 9.5
DR.LINK DR * 839339 835340 839300 835368 * AG 90 0.4 0.0 9.5
DS.LINK DS * 839300 835368 839280 835382 * AG 90 0.3 0.0 9.5
DT.LINK DT * 839280 835382 839261 835399 * AG 90 0.3 0.0 9.5
DU.LINK DU * 839261 835399 839247 835414 * AG 90 0.3 0.0 9.5
DV.LINK DV * 839247 835414 839238 835426 * AG 90 0.3 0.0 9.5
DW.LINK DW * 839238 835426 839227 835443 * AG 90 0.3 0.0 9.5
DX.LINK DX * 839227 835443 839212 835472 * AG 150 0.3 0.0 9.5
DY.LINK DY * 839212 835472 839197 835503 * AG 150 0.3 0.0 9.5
DZ.LINK DZ * 839197 835503 839187 835521 * AG 150 0.3 0.0 9.5
EA.LINK EA * 839187 835521 839176 835536 * AG 150 0.3 0.0 9.5

EB.LINK EB	*	839176	835536	839160	835552	*	AG	150	0.3	0.0	9.5
EC.LINK EC	*	839160	835552	839145	835563	*	AG	150	0.3	0.0	9.5
ED.LINK ED	*	839145	835563	839127	835571	*	AG	150	0.3	0.0	9.5
EE.LINK EE	*	839127	835571	839070	835591	*	AG	220	0.4	0.0	9.5
EF.LINK EF	*	839070	835591	839035	835602	*	AG	220	0.4	0.0	9.5
EG.LINK EG	*	839035	835602	839026	835608	*	AG	220	0.4	0.0	9.5
EH.LINK EH	*	839026	835608	839018	835617	*	AG	220	0.4	0.0	9.5
EI.LINK EI	*	839018	835617	839013	835629	*	AG	220	0.4	0.0	9.5
EJ.LINK EJ	*	839302	835371	839289	835355	*	AG	50	0.5	0.0	12.4
EK.LINK EK	*	839289	835355	839277	835347	*	AG	50	0.5	0.0	12.4
EL.LINK EL	*	839277	835347	839250	835356	*	AG	50	0.5	0.0	12.4
EM.LINK EM	*	839250	835356	839235	835386	*	AG	50	0.5	0.0	12.4
EN.LINK EN	*	839238	835388	839212	835440	*	AG	50	0.5	0.0	19.6
EO.LINK EO	*	839209	835438	839189	835477	*	AG	50	0.5	0.0	12.0
EP.LINK EP	*	839189	835477	839177	835496	*	AG	50	0.5	0.0	12.0
EQ.LINK EQ	*	839181	835498	839150	835530	*	AG	50	0.5	0.0	19.6
ER.LINK ER	*	839148	835528	839129	835543	*	AG	50	0.5	0.0	12.0
ES.LINK ES	*	839129	835543	839116	835548	*	AG	50	0.5	0.0	13.0
ET.LINK ET	*	839118	835548	839130	835568	*	AG	50	0.5	0.0	13.0

III. RECEPTOR LOCATIONS

* COORDINATES (M)			
RECEPTOR	*	X	Y Z
-----*			
1. RECPT	1	* 838686	835532 1.5
2. RECPT	2	* 838649	835774 1.5
3. RECPT	3	* 839114	835742 1.5
4. RECPT	4	* 839293	835634 1.5
5. RECPT	5	* 839626	835351 1.5
6. RECPT	6	* 839738	835350 1.5
7. RECPT	7	* 839125	835585 1.5
8. RECPT	8	* 839150	835489 1.5
9. RECPT	9	* 839158	835434 1.5
10. RECPT	10	* 839196	835373 1.5
11. RECPT	11	* 838686	835532 5.0
12. RECPT	12	* 838649	835774 5.0
13. RECPT	13	* 839114	835742 5.0
14. RECPT	14	* 839293	835634 5.0
15. RECPT	15	* 839626	835351 5.0
16. RECPT	16	* 839738	835350 5.0
17. RECPT	17	* 839125	835585 5.0
18. RECPT	18	* 839150	835489 5.0
19. RECPT	19	* 839158	835434 5.0
20. RECPT	20	* 839196	835373 5.0
21. RECPT	21	* 838686	835532 10.0
22. RECPT	22	* 838649	835774 10.0
23. RECPT	23	* 839114	835742 10.0
24. RECPT	24	* 839293	835634 10.0
25. RECPT	25	* 839626	835351 10.0
26. RECPT	26	* 839738	835350 10.0
27. RECPT	27	* 839125	835585 10.0
28. RECPT	28	* 839150	835489 10.0
29. RECPT	29	* 839158	835434 10.0
30. RECPT	30	* 839196	835373 10.0
31. RECPT	31	* 838686	835532 15.0
32. RECPT	32	* 838649	835774 15.0
33. RECPT	33	* 839114	835742 15.0
34. RECPT	34	* 839293	835634 15.0
35. RECPT	35	* 839626	835351 15.0
36. RECPT	36	* 839738	835350 15.0
37. RECPT	37	* 839125	835585 15.0
38. RECPT	38	* 839150	835489 15.0
39. RECPT	39	* 839158	835434 15.0
40. RECPT	40	* 839196	835373 15.0
41. RECPT	41	* 838686	835532 20.0

42. RECPT 42 * 838649 835774 20.0
43. RECPT 43 * 839114 835742 20.0
44. RECPT 44 * 839293 835634 20.0
45. RECPT 45 * 839626 835351 20.0
46. RECPT 46 * 839738 835350 20.0
47. RECPT 47 * 839125 835585 20.0
48. RECPT 48 * 839150 835489 20.0
49. RECPT 49 * 839158 835434 20.0
50. RECPT 50 * 839196 835373 20.0
51. RECPT 51 * 838686 835532 30.0
52. RECPT 52 * 838649 835774 30.0
53. RECPT 53 * 839114 835742 30.0
54. RECPT 54 * 839293 835634 30.0
55. RECPT 55 * 839626 835351 30.0
56. RECPT 56 * 839738 835350 30.0
57. RECPT 57 * 839125 835585 30.0
58. RECPT 58 * 839150 835489 30.0
59. RECPT 59 * 839158 835434 30.0
60. RECPT 60 * 839196 835373 30.0
61. RECPT 61 * 838686 835532 40.0
62. RECPT 62 * 838649 835774 40.0
63. RECPT 63 * 839114 835742 40.0
64. RECPT 64 * 839293 835634 40.0
65. RECPT 65 * 839626 835351 40.0
66. RECPT 66 * 839738 835350 40.0
67. RECPT 67 * 839125 835585 40.0
68. RECPT 68 * 839150 835489 40.0
69. RECPT 69 * 839158 835434 40.0
70. RECPT 70 * 839196 835373 40.0
71. RECPT 71 * 838686 835532 50.0
72. RECPT 72 * 838649 835774 50.0
73. RECPT 73 * 839114 835742 50.0
74. RECPT 74 * 839293 835634 50.0
75. RECPT 75 * 839626 835351 50.0
76. RECPT 76 * 839738 835350 50.0
77. RECPT 77 * 839125 835585 50.0
78. RECPT 78 * 839150 835489 50.0
79. RECPT 79 * 839158 835434 50.0
80. RECPT 80 * 839196 835373 50.0
81. RECPT 81 * 838686 835532 60.0
82. RECPT 82 * 838649 835774 60.0
83. RECPT 83 * 839114 835742 60.0
84. RECPT 84 * 839293 835634 60.0
85. RECPT 85 * 839626 835351 60.0
86. RECPT 86 * 839738 835350 60.0
87. RECPT 87 * 839125 835585 60.0
88. RECPT 88 * 839150 835489 60.0
89. RECPT 89 * 839158 835434 60.0
90. RECPT 90 * 839196 835373 60.0
91. RECPT 91 * 838686 835532 80.0
92. RECPT 92 * 838649 835774 80.0
93. RECPT 93 * 839114 835742 80.0
94. RECPT 94 * 839293 835634 80.0
95. RECPT 95 * 839626 835351 80.0
96. RECPT 96 * 839738 835350 80.0
97. RECPT 97 * 839125 835585 80.0
98. RECPT 98 * 839150 835489 80.0
99. RECPT 99 * 839158 835434 80.0
100. RECPT 100 * 839196 835373 80.0
101. RECPT 101 * 838686 835532 100.0
102. RECPT 102 * 838649 835774 100.0
103. RECPT 103 * 839114 835742 100.0
104. RECPT 104 * 839293 835634 100.0
105. RECPT 105 * 839626 835351 100.0
106. RECPT 106 * 839738 835350 100.0
107. RECPT 107 * 839125 835585 100.0
108. RECPT 108 * 839150 835489 100.0

Appendix 4m

Contingency Plan for Silo Explosion Accident

1. Plant operator shall ring the emergency alarm immediately
2. Plant operator shall shut down all the process equipment / main supply / pressure relief valve within the depot immediately
3. Once the emergency alarm is ringing, all the on-site workers and drivers within the cement depot shall leave their workplace immediately according to the pre-determined routes
4. Plant operator shall report to the Plant Manager / Safety Officer immediately
5. Plant Manager/ Safety Officer shall inform HK Police and Fire Service Department immediately
6. Plant Manager / Safety Officer shall inform all barges that berthing along the shore to depart (if possible)
7. Plant Manager / Safety Officer shall inform the Estate Management offices (e.g. Casa Marina III, Sha Lan Villa, Fortune Garden etc) and arrange the nearby residents and workers to evacuate to a pre-determined safe place
8. Plant Manager / Safety Officer shall stop the road users to use Sam Mun Tsai Road
9. Plant Manager shall arrange the Plant Operators to operate the water spray system beside the dust collectors on top of the silos
10. The Plant Manager / Safety Officer shall notify EPD by fax or phone within 2 hours of the accident and submit a written report to EPD within 3 days of the accident.

Appendix 4n

Specification for the Dust Collectors

Dust Collectors for silos and unloading points

Dust Collector for Emission Points	EP1 and EP2	EP3 and EP4	EP5, EP6 and EP7 (back up)
Power of Suction Fan	4 kW	7.5 hp	7.5 hp
Fan Size	450 mm	450 mm	450mm
No. of Filter Bags	10	10	36
Total Area	10 m ²	10 m ²	24 m ²
Clean Device	Pulse jet self cleaning System	Pulse jet self cleaning System	Pulse jet self cleaning System
Compressed Air Required	HR at 5 bar	HR at 5 bar	HR at 5 bar
Electricity Supply	50 Hz	50 Hz	50 Hz
Dimension	1m × 0.6m × 2.09m	1m × 0.6m × 2.09m	1.425m × 1.425m × 1.9m
Efficiency	99%	99%	99%

Dust Collectors for the Barge unloading and unloading

Dust Collector for	Fore & Aft Screw Conveyor (2 nos.)	Receiving cement in the middle (1 no)
Power of Suction Fan	4 KW	7.5 kW
Fan Size	450 mm	500 mm
No. of Filter Bags	24	36
Total Area	16 m ²	24 m ²
Clean Device	Pulse jet self cleaning System	Pulse jet self cleaning System
Compressed Air Required	HR at 5 bar	HR at 5 bar
Electricity Supply	220V 50 Hz	220V 50 Hz
Dimension	0.97m × 1.36m × 2.85m	1.39m × 1.39m × 2.83m
Efficiency	99%	99%