



Symbols  
 --- Region Boundaries

Position	Name	Signature	Date	3686-370-01-τ.1a-1a			
				Turakurgan TPS Construction. 220 kV HVTL (stage 1)			
				Route Emission Materials	Stage	Page	Pages
					PDW	1	1
TL CPM	Dumbur L.N.			220 kV "Kyzyl-Ravat- Sardor" and "Crystal-Sardor" HVTL (Turakurgan TPS) Entry-Exit Routes Layout			
ERD Manag.	Asanov R.R.			"SREDAZENERGOPROJECT" OJSC			
Ch.Exp.	Tyo I.C.			Tashkent 2014			
2nd cat.Eng.	Uvarov P.A.			S 1:25 000			



Symbols

State Boundary



Position	Name	Signature	Date
TL CPM	Dumbur L.N.		
ERD Manag.	Asanov R.R.		
Chief Ex.	Tyo T.C.		
2nd cat.Eng.	Uvarov P.A.		

3686-370-01-Т.1а-2

Turakurgan TPS Construction. 220 kV HVTL (stage 1)

Route Emission Materials

Stage	Page	Pages
PDW	1	1

Layout of 220 kV "Sardor-Crystal" HVTL  
Bringing-in to Kyzyl Ravat  
S 1:10 000

"SREDAZENERGOPROJECT"  
OJSC  
Tashkent 2013

## Source Emissions by Substances

<p>Estimation:  “%” - Source is estimated by removing it from the background;  “+” - Source is estimated without removing it from the background;  “-“ – Source is not estimated and its is eliminated from the background  In case there is no mark, the source is not estimated.</p>	<p>Source type:  1- point;  2-linear;  3- fugitive;  4- combination of point sources for their estimation in one grid;  5- fugitive source in combination with transient emission capacity;  6- point source with hood or horizontal emission direction;  7- combination of point sources with hoods or horizontal emission direction;  8- Main highway</p>
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### Substance: 0123 Iron Oxide

Site No.	Shop No.	Sour. No.	Type	Estimation	Emission (g/s)	F	Summer			Winter		
							Cm/MAC	Xm	Um (m/s)	Cm/MAC	Xm	Um (m/s)
0	0	7	1	%	0,0290100	3	0,9169	18,8694	1,6552	0,8447	19,6665	1,8350
<b>Total:</b>					<b>0,0290100</b>		<b>0,9169</b>			<b>0,8447</b>		

### Substance: 0143 Manganese and Its Compounds

Site No.	Shop No.	Sour. No.	Type	Estimation	Emission (g/s)	F	Summer			Winter		
							Cm/MAC	Xm	Um (m/s)	Cm/MAC	Xm	Um (m/s)
0	0	7	1	%	0,0030600	3	3,8687	18,8694	1,6552	3,5642	19,6665	1,8350
<b>Total:</b>					<b>0,0030600</b>		<b>3,8687</b>			<b>3,5642</b>		

### Substance: 0301 Nitrogen (IV) Oxide (Nitrogen Dioxide)

Site No.	Shop No.	Sour. No.	Type	Estimation	Emission (g/s)	F	Summer			Winter		
							Cm/MAC	Xm	Um (m/s)	Cm/MAC	Xm	Um (m/s)
0	0	2	1	%	0,1131000	1	5,6126	37,7169	1,6543	5,1692	39,3173	1,8347
0	0	3	1	%	0,0453000	1	2,2480	37,7169	1,6543	2,0704	39,3173	1,8347
0	0	4	1	%	0,1373000	1	1,5260	77,7476	5,7764	1,5217	77,5891	5,8277
0	0	5	1	%	0,0453000	1	2,2480	37,7169	1,6543	2,0704	39,3173	1,8347
<b>Total:</b>					<b>0,3410000</b>		<b>11,6347</b>			<b>10,8317</b>		

### Substance: 0304 Nitrogen (II) Oxide (Nitrogen Oxide)

Site	Shop	Sour.	Type	Estimation	Emission	F	Summer			Winter		
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No.	No.	No.			(g/s)		Cm/MAC	Xm	Um (m/s)	Cm/MAC	Xm	Um (m/s)
0	0	2	1	%	0,0184000	1	0,1940	37,7169	1,6543	0,1787	39,3173	1,8347
0	0	3	1	%	0,0074000	1	0,0780	37,7169	1,6543	0,0719	39,3173	1,8347
0	0	4	1	%	0,0223000	1	0,0527	77,7476	5,7764	0,0525	77,5891	5,8277
0	0	5	1	%	0,0074000	1	0,0780	37,7169	1,6543	0,0719	39,3173	1,8347
<b>Total:</b>					<b>0,0555000</b>		<b>0,4028</b>			<b>0,3750</b>		

### Substance: 0328 Black Carbon

Site No.	Shop No.	Sour. No.	Type	Estimation	Emission (g/s)	F	Summer			Winter		
							Cm/MAC	Xm	Um (m/s)	Cm/MAC	Xm	Um (m/s)
0	0	2	1	%	0,0042000	1	0,1181	37,7169	1,6543	0,1088	39,3173	1,8347
0	0	3	1	%	0,0072000	1	0,2025	37,7169	1,6543	0,1865	39,3173	1,8347
0	0	4	1	%	0,0117000	1	0,0737	77,7476	5,7764	0,0735	77,5891	5,8277
0	0	5	1	%	0,0072000	1	0,2025	37,7169	1,6543	0,1865	39,3173	1,8347
<b>Total:</b>					<b>0,0303000</b>		<b>0,5967</b>			<b>0,5552</b>		

### Substance: 0330 Sulphur Dioxide

Site No.	Shop No.	Sour. No.	Type	Estimation	Emission (g/s)	F	Summer			Winter		
							Cm/MAC	Xm	Um (m/s)	Cm/MAC	Xm	Um (m/s)
0	0	2	1	%	0,0217000	1	0,1831	37,7169	1,6543	0,1686	39,3173	1,8347
0	0	3	1	%	0,0183000	1	0,1265	37,7169	1,6543	0,1165	39,3173	1,8347
0	0	4	1	%	0,0150000	1	0,0346	77,7476	5,7764	0,0345	77,5891	5,8277
0	0	5	1	%	0,1500000	1	0,1265	37,7169	1,6543	0,1165	39,3173	1,8347
<b>Total:</b>					<b>0,0700000</b>		<b>0,4707</b>			<b>0,4362</b>		

### Substance: 0337 Carbon Monoxide

Site No.	Shop No.	Sour. No.	Type	Estimation	Emission (g/s)	F	Summer			Winter		
							Cm/MAC	Xm	Um (m/s)	Cm/MAC	Xm	Um (m/s)
0	0	2	1	%	0,0471000	3	0,1192	18,8585	1,6543	0,1098	19,6586	1,8347
0	0	3	1	%	0,0683000	3	0,1729	18,8585	1,6543	0,1592	19,6586	1,8347
0	0	5	1	%	0,0683000	3	0,1729	18,8585	1,6543	0,1592	19,6586	1,8347
<b>Total:</b>					<b>0,1837000</b>		<b>0,4649</b>			<b>0,4282</b>		

### Substance: 0616 Xylene (Isomer Mixture)

Site No.	Shop No.	Sour. No.	Type	Estimation	Emission (g/s)	F	Summer			Winter		
							Cm/MAC	Xm	Um (m/s)	Cm/MAC	Xm	Um (m/s)
0	0	8	1	%	0,0144650	3	0,9144	18,8694	1,6552	0,8424	19,6665	1,8350
<b>Total:</b>					<b>0,0144650</b>		<b>0,9144</b>			<b>0,8424</b>		

**Substance: 0703 Benzopyrene (3,4 – Benzopyrene)**

Site No.	Shop No.	Sour. No.	Type	Estimation	Emission (g/s)	F	Summer			Winter		
							Cm/MAC	Xm	Um (m/s)	Cm/MAC	Xm	Um (m/s)
0	0	4	1	%	0,0000002	1	0,0208	77,7476	5,7764	0,0207	77,5891	5,8277
<b>Total:</b>					<b>0,0000002</b>		<b>0,0208</b>			<b>0,0207</b>		

**Substance: 1325 Formaldehyde**

Site No.	Shop No.	Sour. No.	Type	Estimation	Emission (g/s)	F	Summer			Winter		
							Cm/MAC	Xm	Um (m/s)	Cm/MAC	Xm	Um (m/s)
0	0	4	1	%	0,0025000	1	0,0675	77,7476	5,7764	0,0673	77,5891	5,8277
<b>Total:</b>					<b>0,0025000</b>		<b>0,0675</b>			<b>0,0673</b>		

**Substance: 2752 White Spirit**

Site No.	Shop No.	Sour. No.	Type	Estimation	Emission (g/s)	F	Summer			Winter		
							Cm/MAC	Xm	Um (m/s)	Cm/MAC	Xm	Um (m/s)
0	0	8	1	%	0,0107350	3	0,1357	18,8694	1,6552	0,1250	19,6665	1,8350
<b>Total:</b>					<b>0,0107350</b>		<b>0,1357</b>			<b>0,1250</b>		

**Substance: 2754 Saturated Hydrocarbons C12-C19**

Site No.	Shop No.	Sour. No.	Type	Estimation	Emission (g/s)	F	Summer			Winter		
							Cm/MAC	Xm	Um (m/s)	Cm/MAC	Xm	Um (m/s)
0	0	2	1	%	0,0147000	1	0,0620	37,7169	1,6543	0,0571	39,3173	1,8347
0	0	3	1	%	0,0583000	1	0,2459	37,7169	1,6543	0,2265	39,3173	1,8347
0	0	4	1	%	0,0600000	1	0,0567	77,7476	5,7764	0,0565	77,5891	5,8277
0	0	5	1	%	0,0583000	1	0,2459	37,7169	1,6543	0,2265	39,3173	1,8347
<b>Total:</b>					<b>0,1913000</b>		<b>0,6105</b>			<b>0,5666</b>		

**Substance: 2908 Inorganic Dust: 70-20% SiO2**

Site No.	Shop No.	Sour. No.	Type	Estimation	Emission (g/s)	F	Summer			Winter		
							Cm/MAC	Xm	Um (m/s)	Cm/MAC	Xm	Um (m/s)
0	0	1	1	%	0,0100000	3	0,4218	18,8585	1,6543	0,3885	19,6586	1,8347
0	0	3	1	%	0,0036000	3	0,1519	18,8585	1,6543	0,1399	19,6586	1,8347
0	0	6	3	%	0,0007000	3	0,2000	5,7000	0,5000	0,2000	5,7000	0,5000
<b>Total:</b>					<b>0,0143000</b>		<b>0,7737</b>			<b>0,7284</b>		

**Estimations are made for substances (sum groups)**

Code	Substance Name	Maximum Allowable Concentration			Ecological Coefficient	Background Concentration	
		Type	Reference Value	Estim. Indicators		Estimation	Interpret.
0123	Iron Oxide	d/a* MAC 10	0,04	0,04	1	No	No
0143	Manganese and Its Compounds	one-time MAC	0,01	0,01	1	No	No
0301	Nitrogen (IV) Oxide (Nitrogen Dioxide)	one-time MAC	0,085	0,085	1	No	No
0304	Nitrogen (II) Oxide	one-time MAC	0,4	0,4	1	No	No
0328	Black Carbon	one-time MAC	0,15	0,15	1	No	No
0330	Sulphur Dioxide	one-time MAC	0,5	0,5	1	No	No
0337	Carbon Monoxide	one-time MAC	5	5	1	No	No
0616	Xylene (Isomer Mixture)	one-time MAC	0,2	0,2	1	No	No
0703	Benzopyrene (3,4 – Benzopyrene)	d/a* MAC 10	0,000001	0,000001	1	No	No
1325	Formaldehyde	one-time MAC	0,035	0,035	1	No	No
2752	White Spirit	SRLI	1	1	1	No	No
2754	Saturated Hydrocarbons C12-C19	one-time MAC	1	1	1	No	No
2908	Inorganic Dust: 70-20% SiO <sub>2</sub>	one-time MAC	0,3	0,3	1	No	No

### Estimation Domains

#### Estimate Sites

No.	Type	Site's Full Description				Width, (m)	Step, (m)		Height, (m)	Notes
		1 <sup>st</sup> Site Middle Point Coordinates (m)		2 <sup>nd</sup> Site Middle Point Coordinates (m)			X	Y		
		X	Y	X	Y		X	Y		
1	Preset	0	1000	2000	1000	2000	100	100	2	

#### Estimate Points

No.	Point Coordinates (m)		Height (m)	Point Type	Notes
	X	Y			
1	900,00	1000,00	2	User Point	
2	1000,00	1100,00	2	User Point	
3	1000,00	900,00	2	User Point	
4	1100,00	1000,00	2	User Point	

### Substances Not Included in Estimates

### Estimate Appropriateness Criteria E3=0,1

Code	Name	Cm/MAC Amount
0703	Benzopyrene (3,4 –Benzopyrene)	0,020784
1325	Formaldehyde	0,06748

### Estimate Results and Substance Contributions (Estimate Points)

Point types:

- 0 –estimated user point;
- 1 – point at the protected area boundary
- 2 – point at the production area boundary
- 3 – point at the C33 boundary
- 4 – at the boundary of the residential zone
- 5 – point at the Building campus

#### Substance: 0123 Iron Oxide

No.	Coordin. X(m)	Coordin. Y(m)	Height (m)	Concentr. (MAC p.)	Wind Direction	Wind Speed	Background (MAC p.)	Background before eliminat.	Point Type
2	1000	1100	2	0,18	177	2,88	0,000	0,000	0
	Site 0	Shop 0	Source 7	MAC contribution in percentage			0,18	Contribution % 100,00	
4	1100	1000	2	0,16	279	2,88	0,000	0,000	0
	Site 0	Shop 0	Source 7	MAC contribution in percentage			0,16	Contribution % 100,00	
1	900	1000	2	0,13	82	2,88	0,000	0,000	0
	Site 0	Shop 0	Source 7	MAC contribution in percentage			0,13	Contribution % 100,00	
3	1000	900	2	0,12	2	2,88	0,000	0,000	0
	Site 0	Shop 0	Source 7	MAC contribution in percentage			0,12	Contribution % 100,00	

#### Substance: 0143 Manganese and Its Compounds

No.	Coordin. X(m)	Coordin. Y(m)	Height (m)	Concentr. (MAC p.)	Wind Direction	Wind Speed	Background (MAC p.)	Background before eliminat.	Point Type
2	1000	1100	2	0,16	177	2,88	0,000	0,000	0
	Site 0	Shop 0	Source 7	MAC contribution in percentage			0,16	Contribution % 100,00	
4	1100	1000	2	0,14	279	2,88	0,000	0,000	0
	Site 0	Shop 0	Source 7	MAC contribution in percentage			0,14	Contribution % 100,00	
1	900	1000	2	0,12	82	2,88	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage				Contribution %	

		0	0	7			0,12	100,00	
3	1000	900	2	0,11	2	2,88	0,000	0,000	0
		Site	Shop	Source	MAC contribution in percentage			Contribution %	
		0	0	7			0,11	100,00	

**Substance: 0301 Nitrogen (IV) Oxide (Nitrogen Dioxide)**

No.	Coordin. X(m)	Coordin. Y(m)	Height (m)	Concentr. (MAC p.)	Wind Direction	Wind Speed	Background (MAC p.)	Background before eliminat.	Point Type
2	1000	1100	2	0,20	179	2,19	0,000	0,000	0
		Site	Shop	Source	MAC contribution in percentage			Contribution %	
		0	0	2			0,10	51,96	
		0	0	3			0,04	19,44	
		0	0	5			0,04	19,44	

4	1100	1000	2	0,20	271	2,19	0,000	0,000	0
		Site	Shop	Source	MAC contribution in percentage			Contribution %	
		0	0	2			0,10	51,96	
		0	0	3			0,04	19,44	
		0	0	5			0,04	19,44	

1	900	1000	2	0,20	89	2,52	0,000	0,000	0
		Site	Shop	Source	MAC contribution in percentage			Contribution %	
		0	0	2			0,10	49,19	
		0	0	3			0,04	19,86	
		0	0	5			0,04	19,86	

3	1000	900	2	0,20	1	2,52	0,000	0,000	0
		Site	Shop	Source	MAC contribution in percentage			Contribution %	
		0	0	2			0,10	49,19	
		0	0	3			0,04	19,86	
		0	0	5			0,04	19,86	

**Substance: 0304 Nitrogen (II) Oxide**

No.	Coordin. X(m)	Coordin. Y(m)	Height (m)	Concentr. (MAC p.)	Wind Direction	Wind Speed	Background (MAC p.)	Background before eliminat.	Point Type
2	1000	1100	2	0,23	179	2,19	0,000	0,000	0
		Site	Shop	Source	MAC contribution in percentage			Contribution %	
		0	0	2			0,12	51,89	
		0	0	3			0,05	19,49	
		0	0	5			0,05	19,49	

4	1100	1000	2	0,23	271	2,19	0,000	0,000	0
		Site	Shop	Source	MAC contribution in percentage			Contribution %	
		0	0	2			0,12	51,89	
		0	0	3			0,05	19,49	
		0	0	5			0,05	19,49	

1	900	1000	2	0,23	89	2,52	0,000	0,000	0
		Site	Shop	Source	MAC contribution in percentage			Contribution %	
		0	0	2			0,11	49,12	
		0	0	3			0,05	19,92	
		0	0	5			0,05	19,92	



3	1000	900	2	0,23	1	2,52	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	2				0,11	49,12	
	0	0	3				0,05	19,92	
	0	0	5				0,05	19,92	

### Substance: 0328 Black Carbon

No.	Coordin. X(m)	Coordin. Y(m)	Height (m)	Concentr. (MAC p.)	Wind Direction	Wind Speed	Background (MAC p.)	Background before eliminat.	Point Type
1	900	1000	2	0,35	90	2,49	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	5				0,12	35,32	
	0	0	3				0,12	35,32	
	0	0	2				0,07	19,57	

3	1000	900	2	0,35	0	2,49	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	5				0,12	35,32	
	0	0	3				0,12	35,32	
	0	0	2				0,07	19,57	

2	1000	1100	2	0,34	180	2,49	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	5				0,12	34,71	
	0	0	3				0,12	34,71	
	0	0	2				0,07	20,79	

4	1100	1000	2	0,34	270	2,49	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	5				0,12	34,71	
	0	0	3				0,12	34,71	
	0	0	2				0,07	20,79	

### Substance: 0330 Sulphur Dioxide

No.	Coordin. X(m)	Coordin. Y(m)	Height (m)	Concentr. (MAC p.)	Wind Direction	Wind Speed	Background (MAC p.)	Background before eliminat.	Point Type
1	900	1000	2	0,28	90	2,29	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	2				0,11	38,58	
	0	0	3				0,08	28,09	
	0	0	5				0,08	28,09	

3	1000	900	2	0,28	0	2,29	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	2				0,11	38,58	
	0	0	3				0,08	28,09	
	0	0	5				0,08	28,09	

2	1000	1100	2	0,28	180	2,29	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	2				0,11	40,48	
	0	0	3				0,08	27,18	
	0	0	5				0,08	27,18	

4	1100	1000	2	0,28	270	2,29	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	2				0,11	40,48	
	0	0	3				0,08	27,18	
	0	0	5				0,08	27,18	

### Substance: 0337 Carbon Monoxide

No.	Coordin. X(m)	Coordin. Y(m)	Height (m)	Concentr. (MAC p.)	Wind Direction	Wind Speed	Background (MAC p.)	Background before eliminat.	Point Type
1	900	1000	2	0,13	90	2,88	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	5				0,05	37,95	
	0	0	3				0,05	37,95	
	0	0	2				0,03	24,09	

3	1000	900	2	0,13	0	2,88	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	5				0,05	37,95	
	0	0	3				0,05	37,95	
	0	0	2				0,03	24,09	

2	1000	1100	2	0,12	180	2,88	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	5				0,05	36,66	
	0	0	3				0,05	36,66	
	0	0	2				0,03	26,69	

4	1100	1000	2	0,12	270	2,88	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	2				0,05	36,66	
	0	0	3				0,05	36,66	
	0	0	5				0,03	26,69	

### Substance: 0616 Xylene (Isomers Mixture)

No.	Coordin. X(m)	Coordin. Y(m)	Height (m)	Concentr. (MAC p.)	Wind Direction	Wind Speed	Background (MAC p.)	Background before eliminat.	Point Type
2	1000	1100	2	0,22	177	2,88	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	8				0,22	100,00	

4	1100	1000	2	0,19	279	2,88	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	8				0,19	100,00	

1	900	1000	2	0,16	82	2,88	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	8				0,16	100,00	

3	1000	900	2	0,18	2	2,88	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	8				0,15	100,00	

### Substance: 2752 White Spirit

No.	Coordin. X(m)	Coordin. Y(m)	Height (m)	Concentr. (MAC p.)	Wind Direction	Wind Speed	Background (MAC p.)	Background before eliminat.	Point Type
2	1000	1100	2	0,05	177	2,88	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	8	0,05			100,00		
4	1100	1000	2	0,04	279	2,88	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	8	0,04			100,00		
1	900	1000	2	0,03	82	2,88	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	8	0,03			100,00		
3	1000	900	2	0,03	2	2,88	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	8	0,03			100,00		

### Substance: 2754 Saturated Hydrocarbons C12-C19

No.	Coordin. X(m)	Coordin. Y(m)	Height (m)	Concentr. (MAC p.)	Wind Direction	Wind Speed	Background (MAC p.)	Background before eliminat.	Point Type
1	900	1000	2	0,36	91	2,37	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	5	0,15			41,92		
	0	0	3	0,15			41,92		
	0	0	2	0,04			9,64		
3	1000	900	2	0,36	359	2,37	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	5	0,15			41,92		
	0	0	3	0,15			41,92		
	0	0	2	0,04			9,64		
2	1000	1100	2	0,35	181	2,37	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	5	0,15			41,56		
	0	0	3	0,15			41,56		
	0	0	2	0,04			10,34		
4	1100	1000	2	0,35	269	2,37	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		
	0	0	2	0,15			41,56		
	0	0	3	0,15			41,56		
	0	0	5	0,04			10,34		

### Substance: 2908 Inorganic Dust: 70-20% SiO2

No.	Coordin. X(m)	Coordin. Y(m)	Height (m)	Concentr. (MAC p.)	Wind Direction	Wind Speed	Background (MAC p.)	Background before eliminat.	Point Type
4	1100	1000	2	0,17	271	2,60	0,000	0,000	0
	Site	Shop	Source	MAC contribution in percentage			Contribution %		

0	0	1	0,12	71,83
0	0	3	0,04	23,24
0	0	6	0,04	4,93

2	1000	1100	2	0,17	179	2,60	0,000	0,000	0
---	------	------	---	------	-----	------	-------	-------	---

Site	Shop	Source	MAC contribution in percentage	Contribution %
0	0	1	0,12	71,45
0	0	3	0,04	23,56
0	0	6	0,01	5,00

3	1000	900	2	0,16	1	2,60	0,000	0,000	0
---	------	-----	---	------	---	------	-------	-------	---

Site	Shop	Source	MAC contribution in percentage	Contribution %
0	0	1	0,11	69,28
0	0	3	0,04	25,58
0	0	6	0,01	5,13

1	900	1000	2	0,16	90	2,60	0,000	0,000	0
---	-----	------	---	------	----	------	-------	-------	---

Site	Shop	Source	MAC contribution in percentage	Contribution %
0	0	1	0,11	68,37
0	0	3	0,04	26,43
0	0	6	0,01	5,20

Table 3.1

## Source Parameters of Emissions in the Process of 220 kV HVTL Construction

Shop, Site Name	Emission Sources	Working hours during construction	Emission Source Name	Sour. No. on the map	Emis. Sour. H, m	Pipe Diameter	Gas-Air Mixture Parameters			Source Coordinates on the sketch map		Emission Name	Pollutant Emissions						
							Volume m3/s	Speed m/s	Temp. degr.C	X1	Y1		g/s	mg/m3	t/year				
	Name																		
	1						2	3	4	5	6		7	8	9	10	11	12	13
Support Area	Excavator KRAZ	1232	Fugitive	1	2,0	0,50	1,000	5,09	35	1003	1002	Dust	0,0100	10,0	0,044				
		1232	Fugitive	2	2,0	0,50	1,000	5,09	35	1003	1003	Carbon monoxide	0,0471	47,1	0,209				
													Nitrogen Dioxide	0,1131	113,1	0,502			
	Bulldozer	1232	Fugitive	3	2,0	0,50	1,000	5,09	35	998	998		Nitrogen Oxide	0,0184	18,4	0,082			
													Hydrocarbons	0,0147	14,7	0,065			
													Black Carbon	0,0042	4,2	0,018			
													Sulphur Dioxide	0,0217	21,7	0,096			
													Dust	0,0036	3,6	0,016			
													Carbon monoxide	0,0683	68,3	0,303			
	Portable Power Plant	1232	Pipe	4	3,0	0,20	0,950	30,24	250	1005	1005		Nitrogen Dioxide	0,0453	45,3	0,201			
													Nitrogen Oxide	0,0074	7,4	0,033			
													Hydrocarbons	0,0583	58,3	0,259			
													Black Carbon	0,0072	7,2	0,032			
													Sulphur Dioxide	0,0150	15,0	0,067			
													Nitrogen Dioxide	0,1373	144,56	0,609			
													Nitrogen Oxide	0,0223	23,49	0,099			
Hydrocarbons	0,0600	63,16	0,266																
Crane	1232	Fugitive	5	2,0	0,50	1,000	5,09	35				Benzopyrene	2,2E-07	0,00	9,6E-07				
												Black Carbon	0,0117	12,28	0,052				
												Aldehydes	0,0025	2,63	0,011				
												Sulphur Dioxide	0,0183	19,30	0,081				
												Nitrogen Oxide	0,0683	68,33	0,303				
												Carbon Monoxide	0,0453	45,33	0,201				

Support Installation	Dump Welding	1232	Fugitive	6	2,0	8*8	1,000	5,09	35	1000	1013	Nitrogen Dioxide	0,0074	7,37	0,033
		240		7	2,0	1005				1015		Carbon Monoxide	0,0583	58,33	0,259
	Painting	240	8	2,0	0,50	1,000	5,09	35	1005	1015	Hydrocarbons	0,0072	7,22	0,032	
Black Carbon											0,0150	15,00	0,067		
Dust											0,0007		0,003		
												Iron Oxide	0,02901	29,01	0,025
												Manganese and its compounds	0,00306	3,06	0,003
												Xylene	0,014465	14,46	0,112
												White Spirit	0,010735	10,74	0,083
												<b>Total</b>	<b>0,9460</b>		<b>4,164</b>

Table P.3.2

## Source Parameters of Emissions in the Process of 220 kV HVTL Construction

Shop, Site Name	Emission Sources	Emission Source Name	Sour. No. on the map	Emis. Sour. H, m	Pipe Diameter	Gas-Air Mixture Parameters			Source Coordinates on the sketch map		Emission Name	Pollutant Emissions		
						Volume m <sup>3</sup> /s	Speed m/s	Temp. degr.C	X1	Y1				
	g/s											mg/m <sup>3</sup>	t/year	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Kyzyl-Ravat PS Operation Period	Transformers 2pcs.	Fugitive	1	2	0,56	0,312	1,27	35	2048	1131	Hydrocarbons Total	0,011111	35,61	1,2E-04
												0,011111		1,2E-04
Construction Period	Welding Works	Fugitive	2	2	0,56	0,312	1,27	35	2048	1131	Nitrogen Dioxide Iron Oxide Manganese and its Compounds Fluoride Compounds: Poorly Soluble Hydrogen fluoride 6-Valen.Chrome (in intersec.to Cr trioxide) Acetone Paint Aerosol Butyl Acetate Butyl Alcohol Xylene Toluene White Spirit Phenol			
	Painting Works	Fugitive	3	2	0,56	0,312	1,27	35	2048	1131				

	Suction Works	Fugitive	4	2	0,56	0,312	1,27	35	2048	1131	Cyclohexanone Ethyl Alcohol Ethylcellosolve Inorganic dust, sod.SIO2 20-70%			
											<b>Total</b>	<b>0,01918</b>		<b>0,5196</b>



## Environmental Pollution Level Iron Oxide

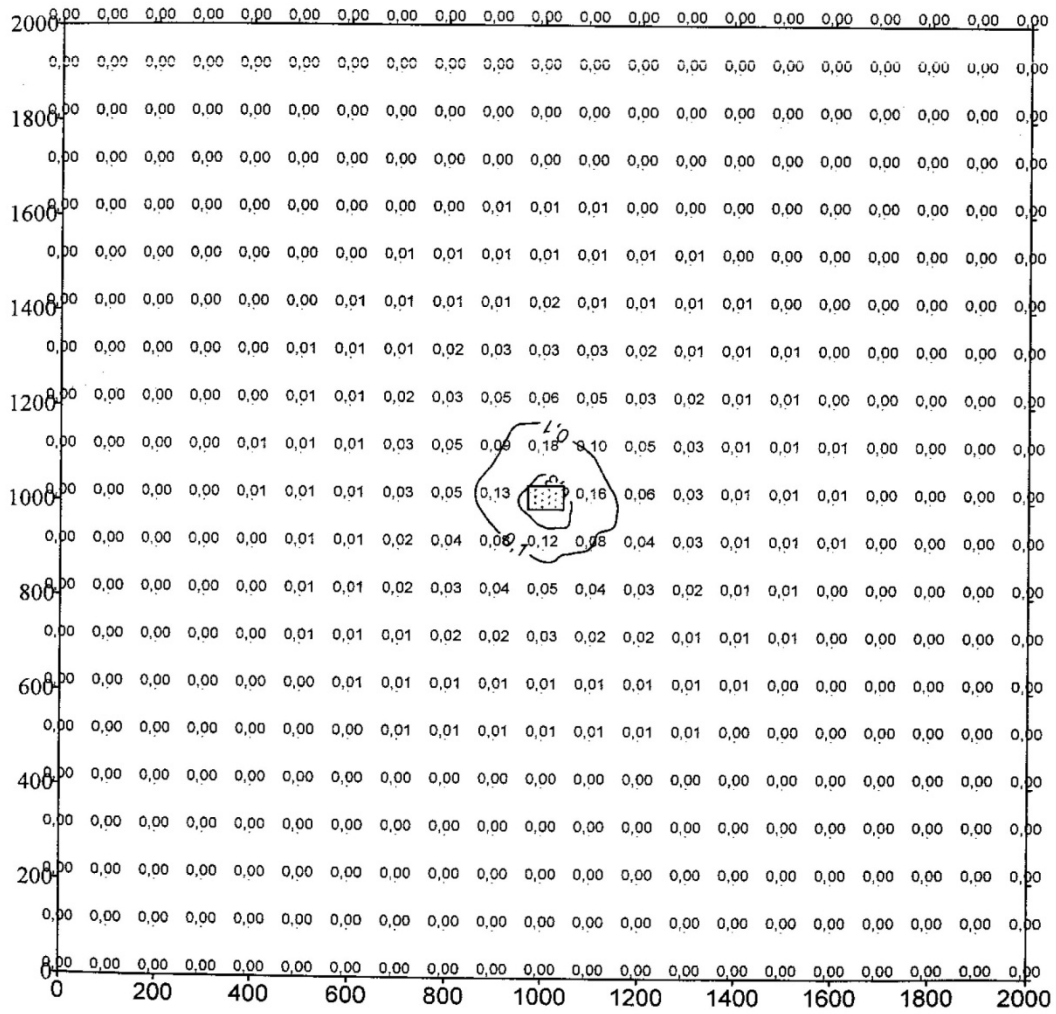


Figure 4.1

Environmental Pollution Level  
Manganese and its compounds

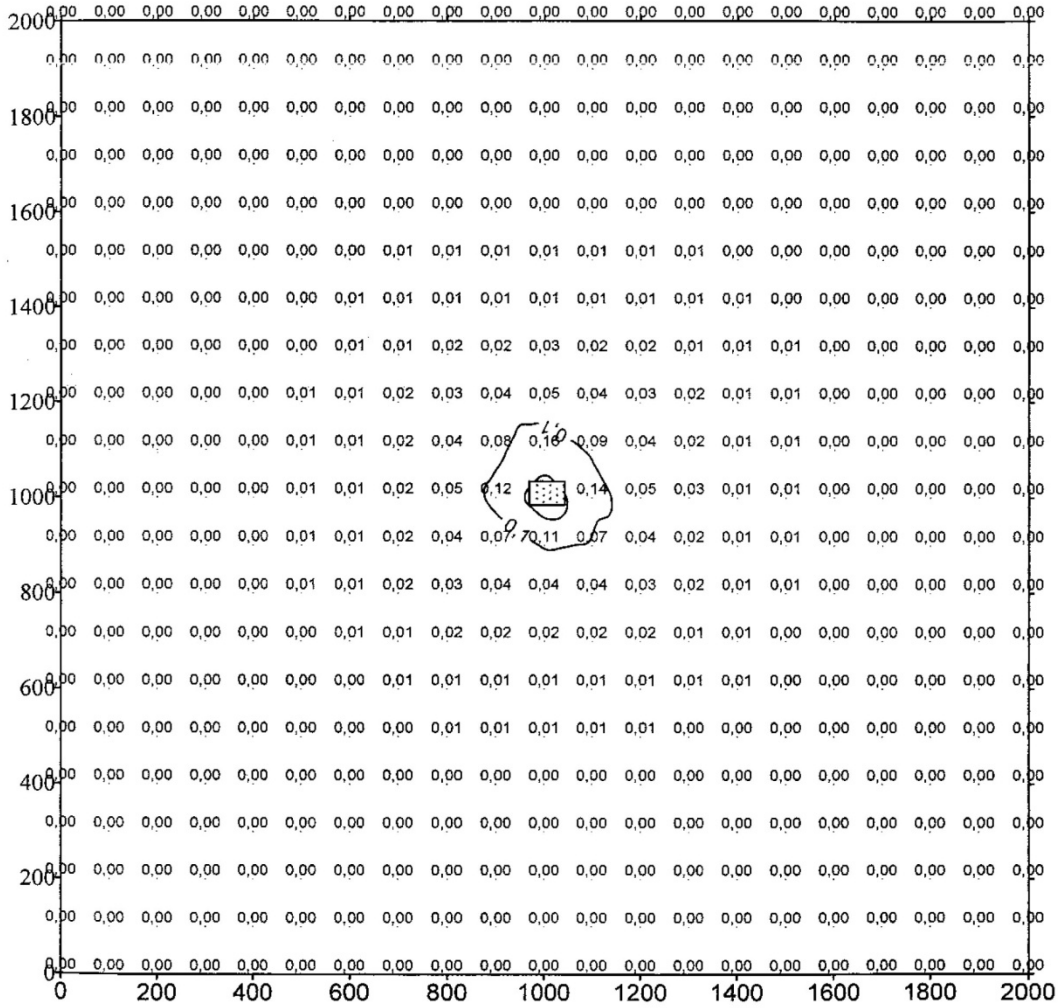


Figure 4.2

### Environmental Pollution Level Nitrogen Dioxide

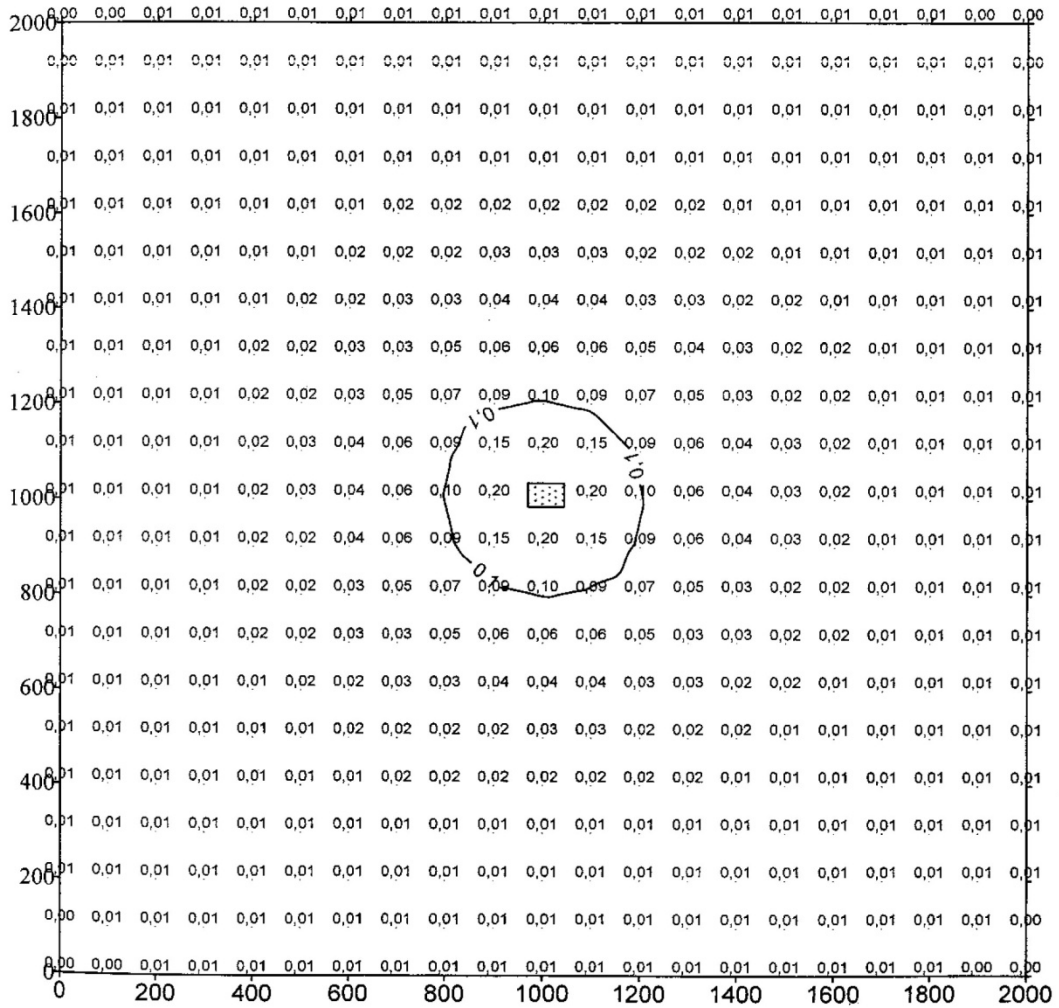


Figure 4.3

Environmental Pollution Level  
Nitrogen oxide

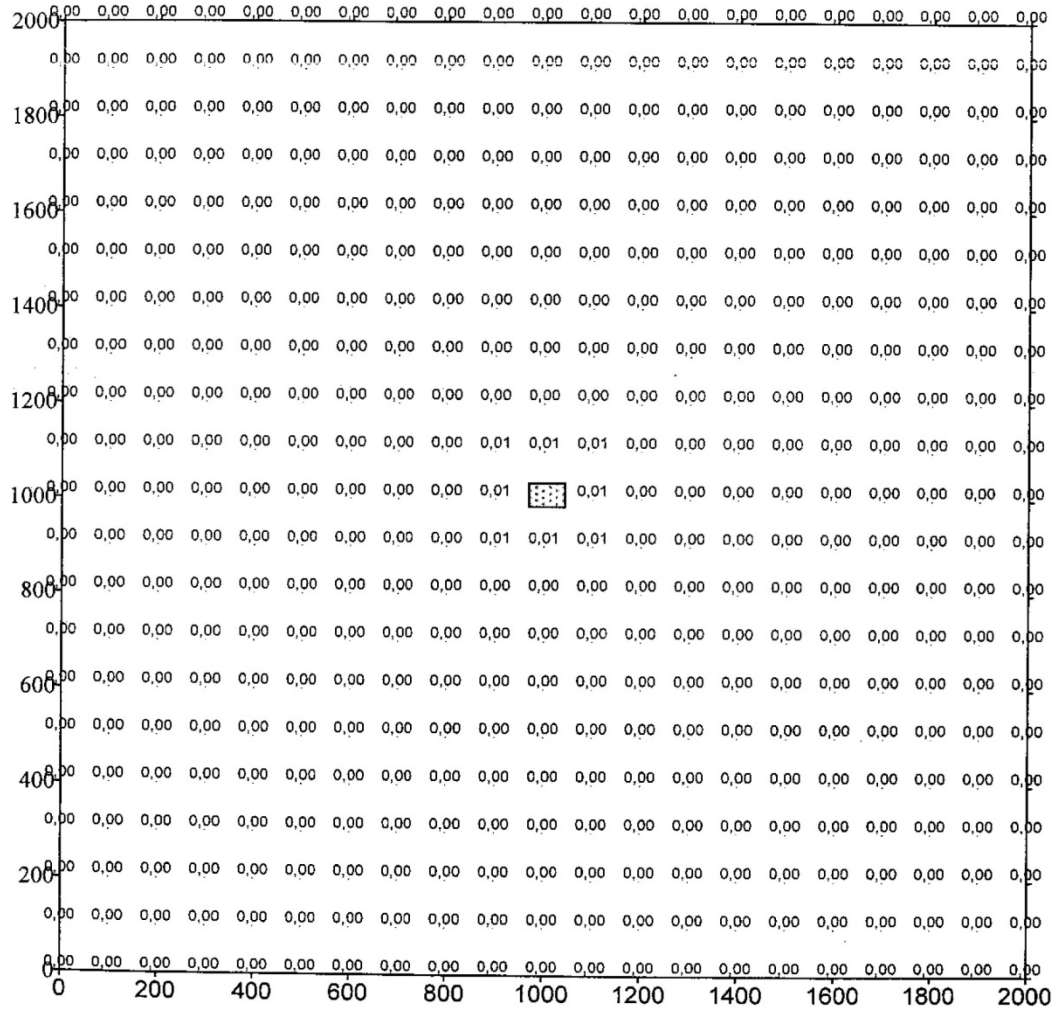


Figure 4.4

Environmental Pollution Level  
(Carbon) Black

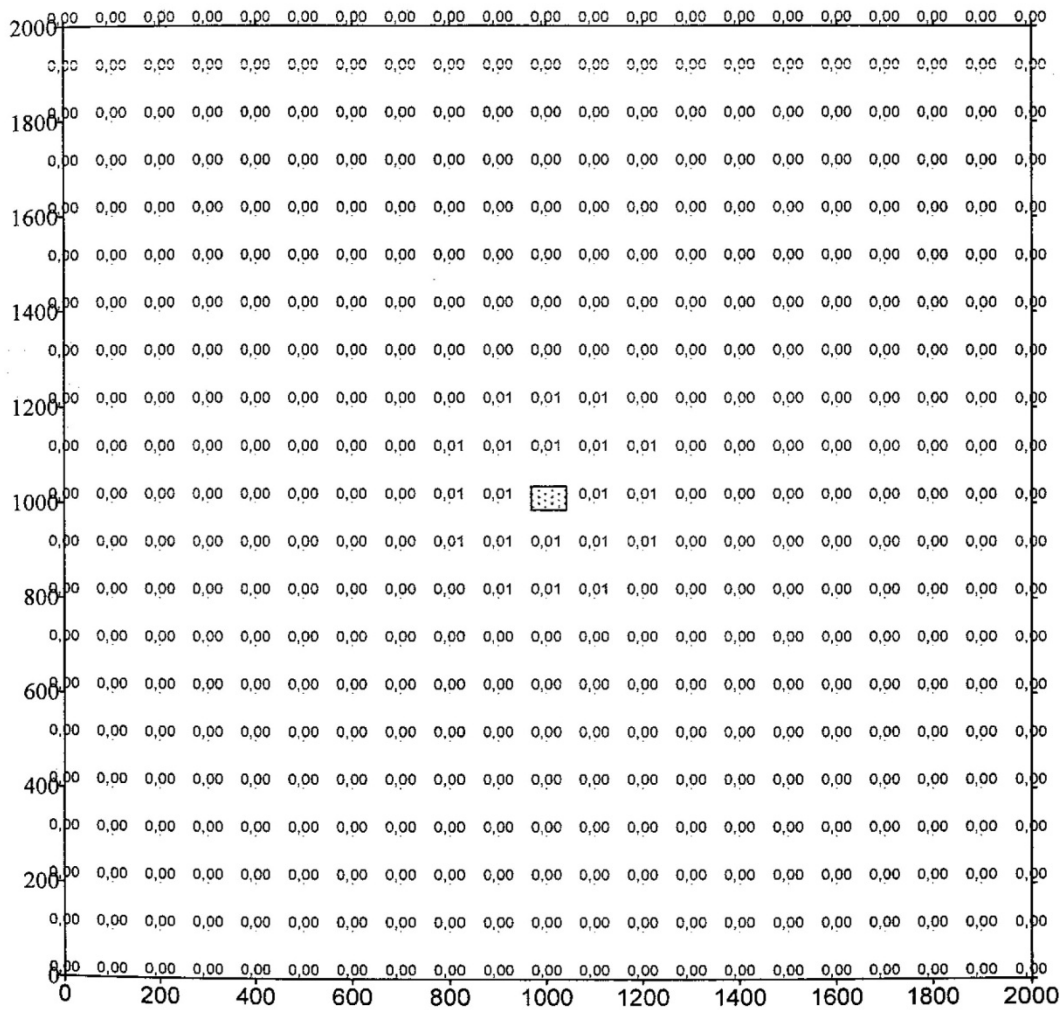


Figure 4.5

Environmental Pollution Level  
Sulfur dioxide

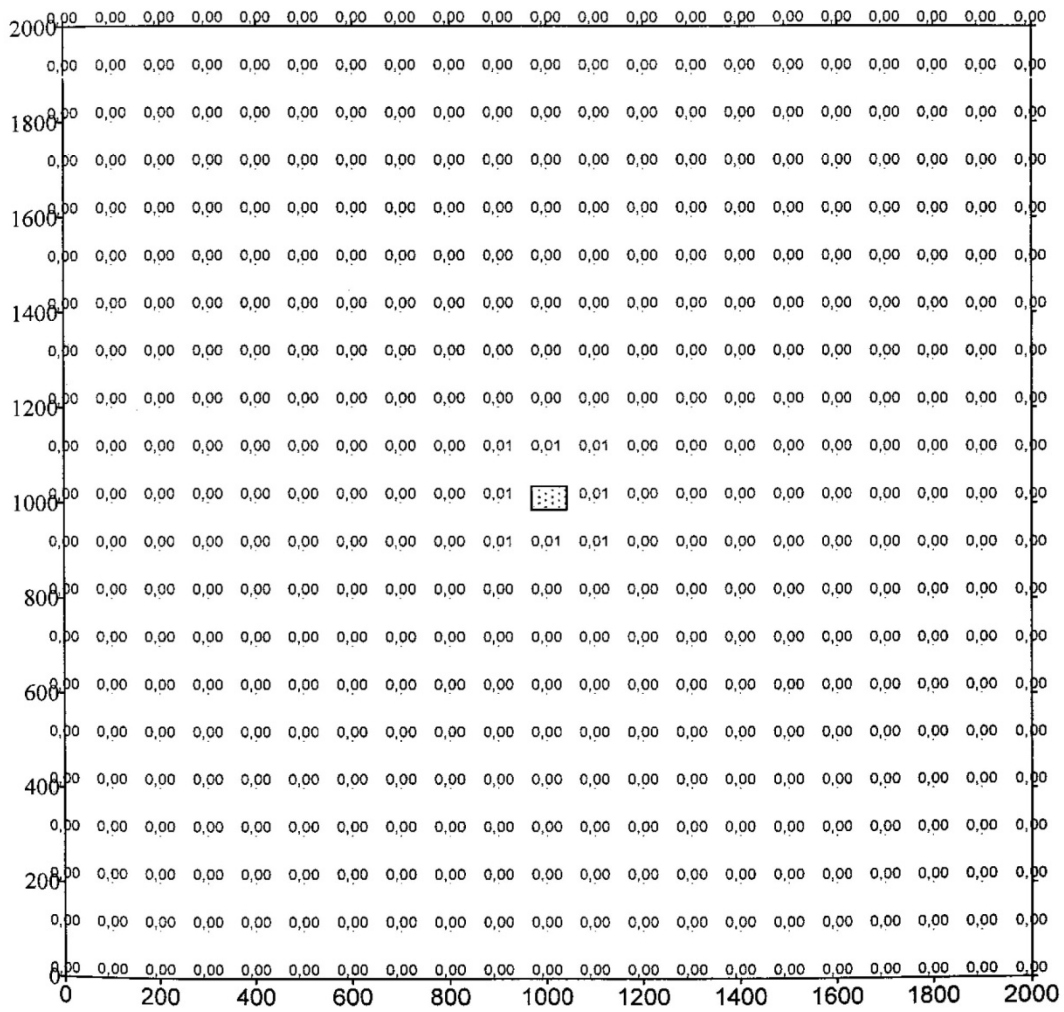


Figure 4.6

Environmental Pollution Level  
Carbonic oxide

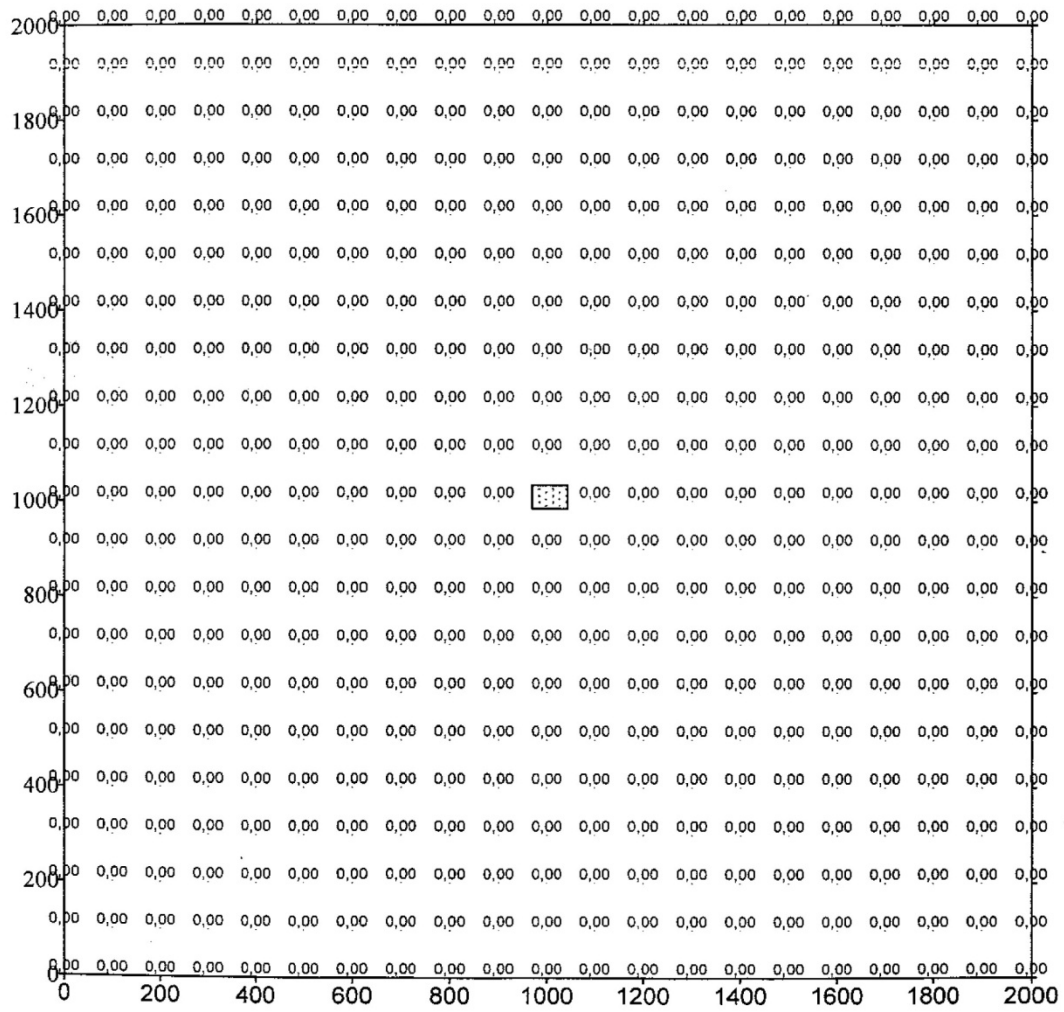


Figure 4.7

## Environmental Pollution Level Xylene

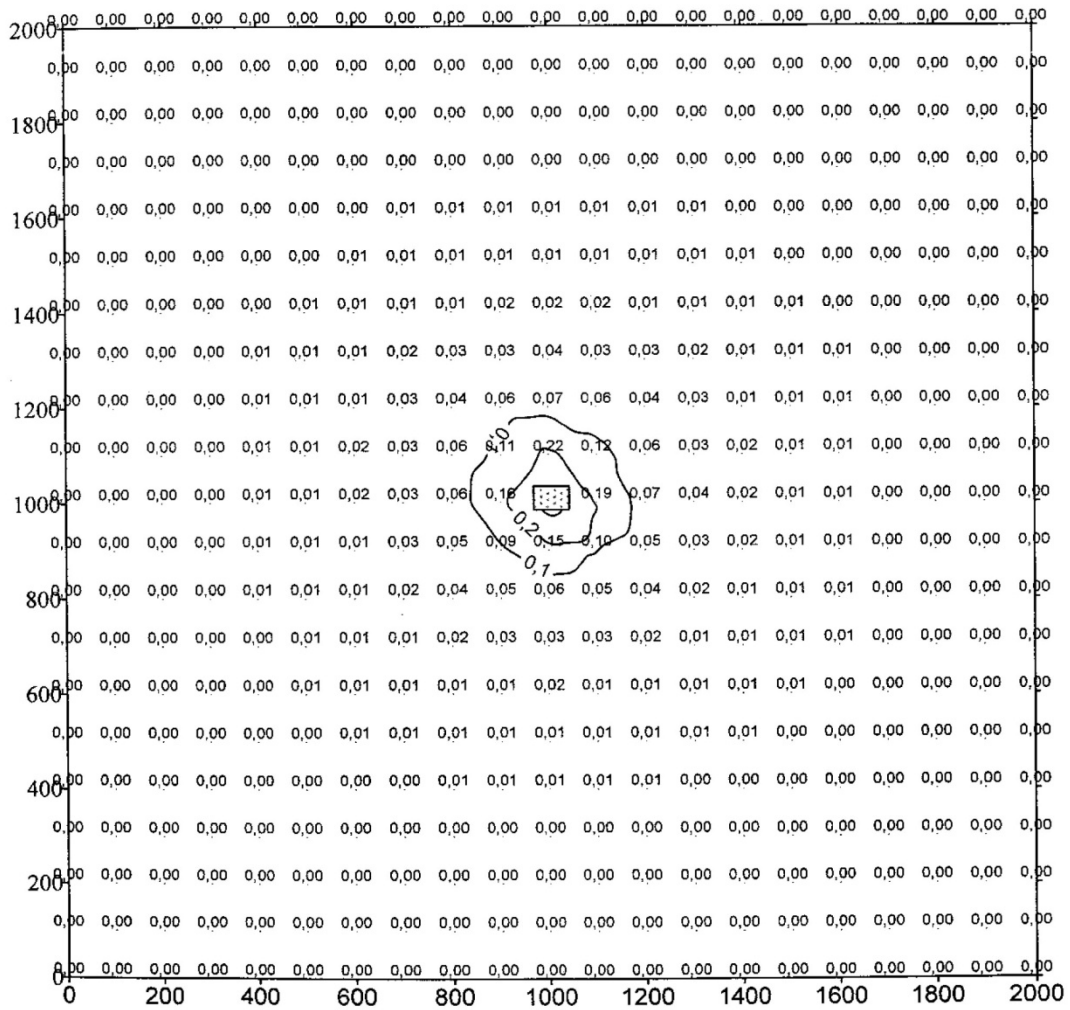


Figure 4.8



Environmental Pollution Level  
White Spirit

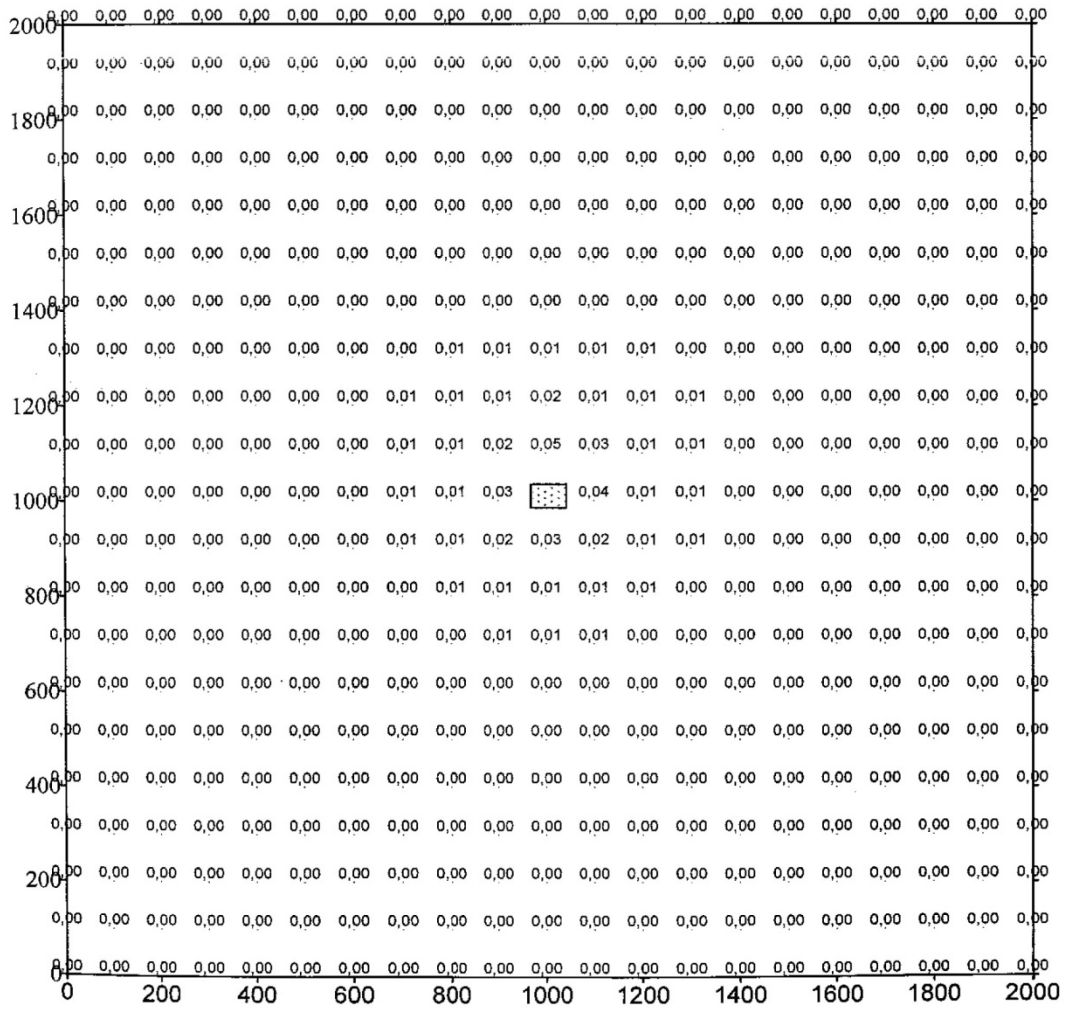


Figure 4.9

# Environmental Pollution Level Hydrocarbon

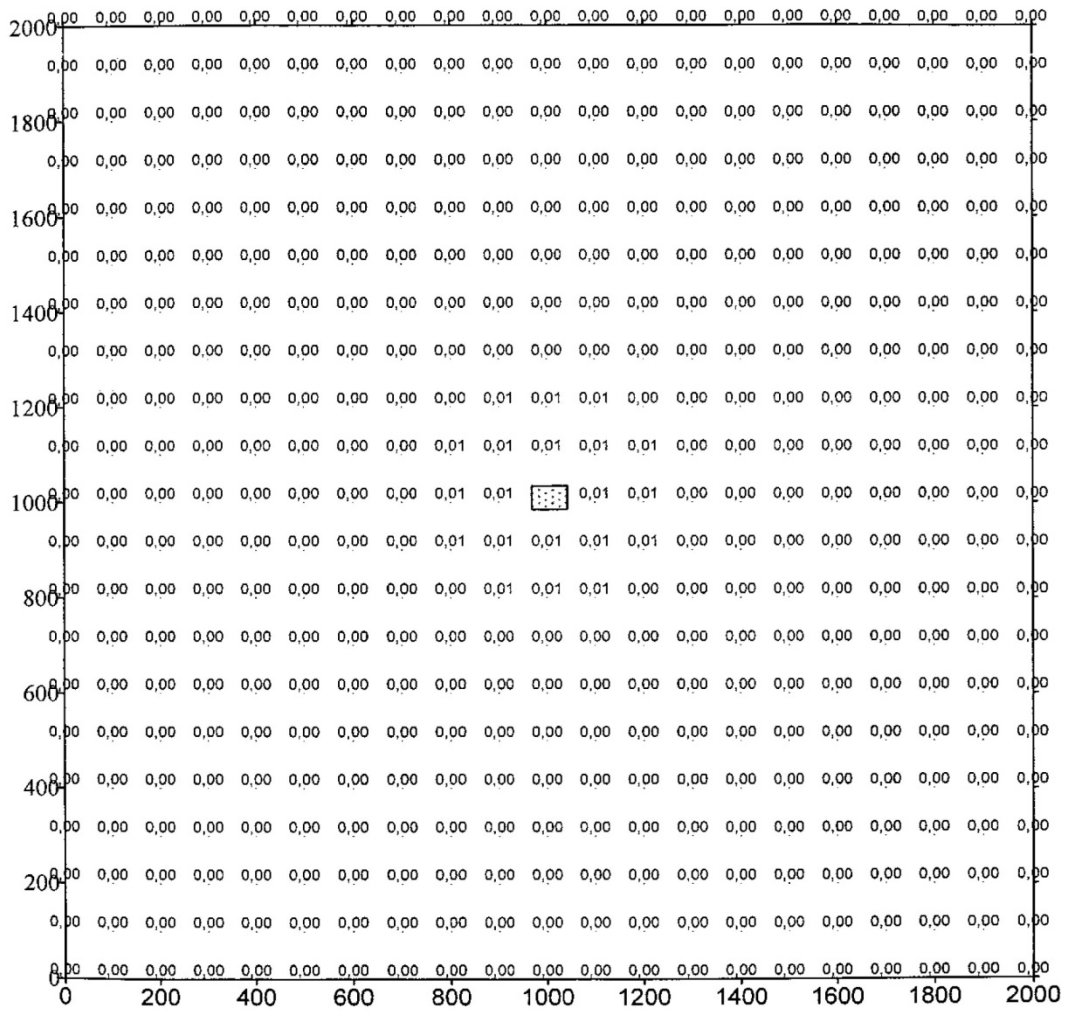


Figure 4.10

Environmental Pollution Level  
Inorganic Dust

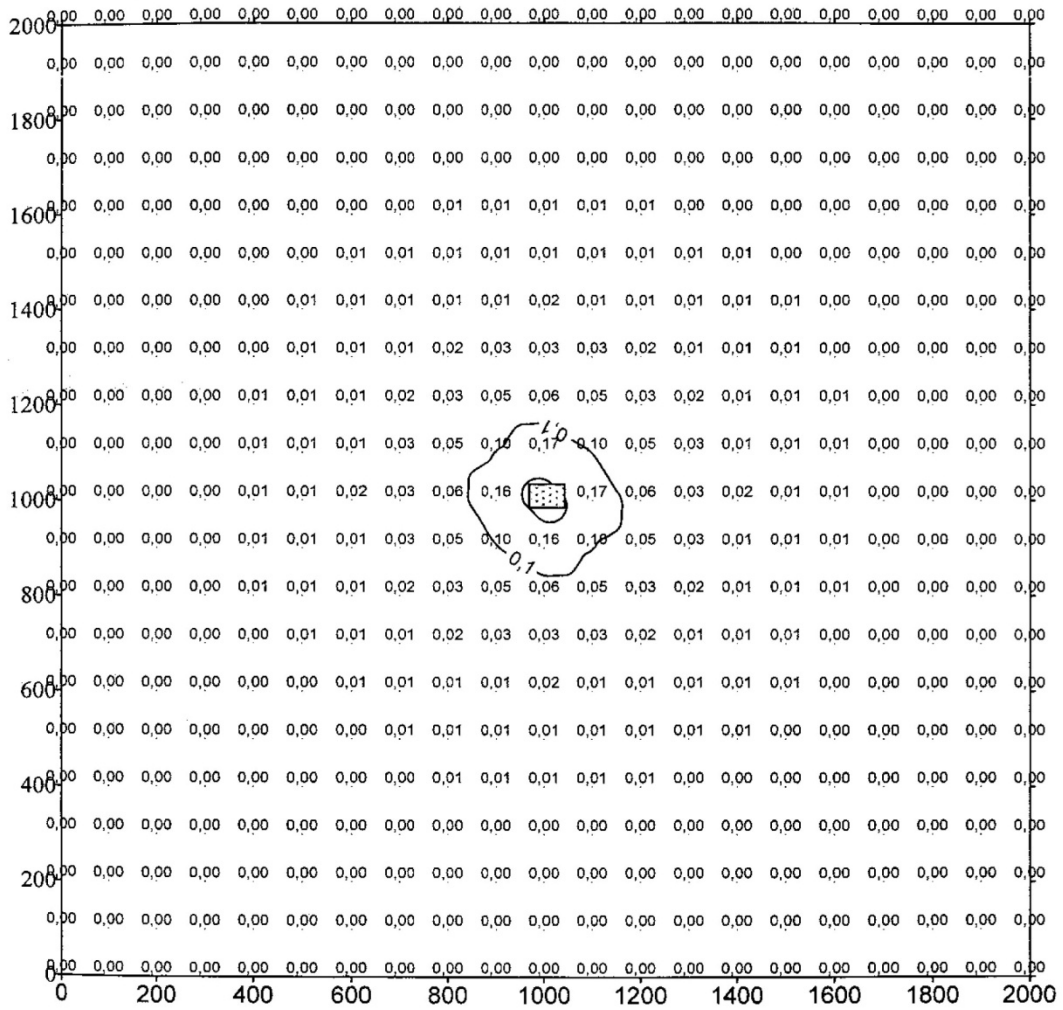


Figure 4.11

**ECOLOG UAPCP (UNIFIED ATMOSPHERE POLLUTION  
CALCULATION PROGRAM), version 3.00  
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**Series Number 12-34-5678, “Teploelectroproject” OJSC**

**Enterprise Number 106; Turakurgan TPS 220 kV HVTL Construction  
City HTVL Construction**

Initial data option: 1, construction

Estimate option: 1, construction

Estimates are made for summer

Estimate module: “OND-86 Standard”

Estimated Constants:  $E1=0,01$ ,  $E2=0,1$ ,  $S=999999,99$  sq.km.

## Emission Source Parameters

**Estimate:**

“%” - Source is estimated by removing it from the background;  
 “+” - Source is estimated without removing it from the background;  
 “-“ – Source is not estimated and its is eliminated from the background  
 In case there is no mark, the source is not estimated.

**Source type:**

- 1- point;
- 2-linear;
- 3- fugitive;
- 4- combination of point sources for their estimation in one grid;
- 5- fugitive source in combination with transient emission capacity;
- 6- point source with hood or horizontal emission direction;
- 7- combination of point sources with hoods or horizontal emission direction;
- 8- Main highway

Accoun. Estim.	Site No.	Shop No.	Sour. No.	Source Name	Opt.	Type	Sour. Height (m)	Outfall diameter (m)	GAM Volume (cub.m/s)	GAM Speed (m/s)	GAM Temp. (°C)	Rel. Coef.	X1-ax.Coord. (m)	Y1-ax.Coord. (m)	X2-ax.Coord. (m)	Y2-ax.Coord. (m)	Source Width (m)
%	0	0	1	Excavator	1	1	2,0	0,50	0,99942	5,09000	35	1,0	1003,0	1002,0	1003,0	1002,0	0,00
Sub.Code		Substance Name		Discharge (g/s)		Discharge (g/s)		F	Summer: Cm/MAC		Xm	Um	Winter: Cm/MAC		Xm	Um	
2908		Inorganic Dust:70-20% SiO2		0,0100000		0,0000000		3	0,422		18,9	1,7	0,388		19,7	1,8	
%	0	0	2	KRAZ	1	1	2,0	0,50	0,99942	5,09000	35	1,0	1003,0	1002,0	1003,0	1002,0	0,00
Sub.Code		Substance Name		Discharge (g/s)		Discharge (g/s)		F	Summer: Cm/MAC		Xm	Um	Winter: Cm/MAC		Xm	Um	
0301	Nitrogen (IV) Oxide (Nitr. Diox.)		0,1131000		0,0000000		1	5,613		37,7	1,7	5,169		39,3	1,8		
0304	Nitrogen (II) Oxide		0,0184000		0,0000000		1	0,194		37,7	1,7	0,179		39,3	1,8		
0328	Black Carbon		0,0042000		0,0000000		1	0,118		37,7	1,7	0,109		39,3	1,8		
0330	Sulphur Dioxide		0,0217000		0,0000000		1	0,183		37,7	1,7	0,169		39,3	1,8		
0337	Carbon Monoxide		0,0471000		0,0000000		3	0,119		18,9	1,7	0,110		19,7	1,8		
2754	Saturated Hydrocarbons C12-C19		0,0147000		0,0000000		1	0,062		37,7	1,7	0,057		39,3	1,8		
%	0	0	3	Bulldozer	1	1	2,0	0,50	0,99942	5,09000	35	1,0	998,0	998,0	998,0	998,0	0,00
Sub.Code		Substance Name		Discharge (g/s)		Discharge (g/s)		F	Summer: Cm/MAC		Xm	Um	Winter: Cm/MAC		Xm	Um	
0301	Nitrogen (IV) Oxide (Nitr. Diox.)		0,0453000		0,0000000		1	2,248		37,7	1,7	2,070		39,3	1,8		
0304	Nitrogen (II) Oxide		0,0074000		0,0000000		1	0,078		37,7	1,7	0,072		39,3	1,8		
0328	Black Carbon		0,0072000		0,0000000		1	0,202		37,7	1,7	0,186		39,3	1,8		
0330	Sulphur Dioxide		0,0150000		0,0000000		1	0,127		37,7	1,7	0,117		39,3	1,8		
0337	Carbon Monoxide		0,0683000		0,0000000		3	0,173		18,9	1,7	0,159		19,7	1,8		
2754	Saturated Hydrocarbons C12-C19		0,0583000		0,0000000		1	0,246		37,7	1,7	0,226		39,3	1,8		
2908	Inorganic Dust: 70-20% SiO2		0,0036000		0,0000000		3	0,152		18,9	1,7	0,140		19,7	1,8		
%	0	0	4	Portable Power	1	1	3,0	0,20	0,95002	30,24000	250	1,0	1005,0	1005,0	1005,0	1005,0	0,00

Plant																
Sub.Code	Substance Name	Discharge (g/s)	Discharge (g/s)	F	Summer:	Cm/MAC	Xm	Um	Winter:	Cm/MAC	Xm	Um				
0301	Nitrogen (IV) Oxide (Nitr. Diox.)	0,1373000	0,0000000	1		1,526	77,7	5,8		1,522	77,6	5,8				
0304	Nitrogen (II) Oxide	0,0223000	0,0000000	1		0,053	77,7	5,8		0,053	77,6	5,8				
0328	Black Carbon	0,0117000	0,0000000	1		0,074	77,7	5,8		0,073	77,6	5,8				
0330	Sulphur Dioxide	0,0183000	0,0000000	1		0,035	77,7	5,8		0,034	77,6	5,8				
0703	Benzopyrene (3,4-Benzopyrene)	0,0000002	0,0000000	1		0,021	77,7	5,8		0,021	77,6	5,8				
1325	Formaldehyde	0,0025000	0,0000000	1		0,067	77,7	5,8		0,067	77,6	5,8				
2754	Saturated Hydrocarbons C12-C19	0,0600000	0,0000000	1		0,057	77,7	5,8		0,057	77,6	5,8				

%	0	0	5	Crane	1	1	2,0	0,50	0,99942	5,09000	35	1,0	998,0	998,0	998,0	998,0	0,00
Sub.Code	Substance Name	Discharge (g/s)	Discharge (g/s)	F	Summer:	Cm/MAC	Xm	Um	Winter:	Cm/MAC	Xm	Um					
0301	Nitrogen (IV) Oxide (Nitr. Diox.)	0,0453000	0,0000000	1		2,248	37,7	1,7		2,070	39,3	1,8					
0304	Nitrogen (II) Oxide	0,0074000	0,0000000	1		0,078	37,7	1,7		0,072	39,3	1,8					
0328	Black Carbon	0,0072000	0,0000000	1		0,202	37,7	1,7		0,186	39,3	1,8					
0330	Sulphur Dioxide	0,0150000	0,0000000	1		0,127	37,7	1,7		0,117	39,3	1,8					
0337	Carbon Monoxide	0,0683000	0,0000000	3		0,173	18,9	1,7		0,159	19,7	1,8					
2754	Saturated Hydrocarbons C12-C19	0,0583000	0,0000000	1		0,246	37,7	1,7		0,226	39,3	1,8					