```
 2  332263 6247744   20.0   1.5       5  332265 6247624   16.0   1.5
 3  332259 6247645   21.5   1.5       6  332252 6247669   17.0   1.5

_____________________________________________________________________________

METEOROLOGICAL DATA : DECCW Randwick AWS Data BoM SydneyAP Clouds SydneyAP

---------------------------------------------------------------------

          HOURLY VARIABLE EMISSION FACTOR INFORMATION
          ------------------------------------------

The input emission rates specfied above will be multiplied by hourly varying
factors entered via the input file:
C:\Users\sdorairaj\Ausplume\New folder (2)\RandExVar.csv
For each stack source, hourly values within this file will be added to each
declared exit velocity (m/sec) and temperature (K).

Title of input hourly emission factor file is:
Variable Emissions,,

          HOURLY EMISSION FACTOR SOURCE TYPE ALLOCATION
          --------------------------------------------

Prefix V      allocated: VEX4T  VEX4P  VEX4BE VEX4BP

_____________________________________________________________________________


1      HIGHEST RECORDINGS FOR EACH RECEPTOR  (in microgram/m3)
       AVERAGING TIME = 1 HOUR;  SOURCE GROUP No. 1


 At the discrete receptors:

  1: 2.10E+00 @Hr10,08/06/07     4: 1.18E+00 @Hr16,31/08/08
  2: 1.23E+01 @Hr07,16/06/07     5: 5.53E+00 @Hr16,21/01/07
  3: 7.61E+00 @Hr15,17/01/07     6: 9.73E+00 @Hr16,05/02/07
 _____________________________________________________________________________


1      HIGHEST RECORDINGS FOR EACH RECEPTOR  (in microgram/m3)
       AVERAGING TIME = 1 HOUR;  SOURCE GROUP No. 2


At the discrete receptors:

  1: 1.00E+00 @Hr10,08/06/07     4: 5.66E-01 @Hr16,31/08/08
  2: 5.87E+00 @Hr07,16/06/07     5: 2.64E+00 @Hr16,21/01/07
  3: 3.64E+00 @Hr15,17/01/07     6: 4.65E+00 @Hr16,05/02/07
 _____________________________________________________________________________


1      HIGHEST RECORDINGS FOR EACH RECEPTOR  (in microgram/m3)
       AVERAGING TIME = 1 HOUR;  SOURCE GROUP No. 3
At the discrete receptors:

  1: 4.20E-01 @Hr10,08/06/07     4: 2.37E-01 @Hr16,31/08/08
  2: 2.46E+00 @Hr07,16/06/07     5: 1.11E+00 @Hr16,21/01/07
  3: 1.52E+00 @Hr15,17/01/07     6: 1.95E+00 @Hr16,05/02/07
 _____________________________________________________________________________


1      HIGHEST RECORDINGS FOR EACH RECEPTOR  (in microgram/m3)
       AVERAGING TIME = 1 HOUR;  SOURCE GROUP No. 4


 At the discrete receptors:

  1: 9.33E-02 @Hr10,08/06/07     4: 5.27E-02 @Hr16,31/08/08
  2: 5.46E-01 @Hr07,16/06/07     5: 2.46E-01 @Hr16,21/01/07
  3: 3.38E-01 @Hr15,17/01/07     6: 4.32E-01 @Hr16,05/02/07
 _____________________________________________________________________________


1      HIGHEST RECORDINGS FOR EACH RECEPTOR  (in microgram/m3)
       AVERAGING TIME = 24 HOURS;  SOURCE GROUP No. 1


 At the discrete receptors:

  1: 8.05E-01 @Hr24,08/06/07     4: 2.24E-01 @Hr24,11/06/08
```

2: 3.72E+00 @Hr24,16/06/07 5: 8.63E-01 @Hr24,12/01/07
3: 1.34E+00 @Hr24,12/01/07 6: 2.22E+00 @Hr24,02/01/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 24 HOURS; SOURCE GROUP No. 2

At the discrete receptors:

1: 3.84E-01 @Hr24,08/06/07 4: 1.07E-01 @Hr24,11/06/08
2: 1.78E+00 @Hr24,16/06/07 5: 4.12E-01 @Hr24,12/01/07
3: 6.40E-01 @Hr24,12/01/07 6: 1.06E+00 @Hr24,02/01/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 24 HOURS; SOURCE GROUP No. 3

At the discrete receptors:

1: 1.61E-01 @Hr24,08/06/07 4: 4.47E-02 @Hr24,11/06/08
2: 7.43E-01 @Hr24,16/06/07 5: 1.73E-01 @Hr24,12/01/07
3: 2.68E-01 @Hr24,12/01/07 6: 4.43E-01 @Hr24,02/01/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 24 HOURS; SOURCE GROUP No. 4

At the discrete receptors:

1: 3.58E-02 @Hr24,08/06/07 4: 9.94E-03 @Hr24,11/06/08
2: 1.65E-01 @Hr24,16/06/07 5: 3.83E-02 @Hr24,12/01/07
3: 5.95E-02 @Hr24,12/01/07 6: 9.85E-02 @Hr24,02/01/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 1

At the discrete receptors:

1: 9.44E-02 @Hr24,07/01/08 4: 1.89E-02 @Hr24,23/07/08
2: 4.74E-01 @Hr24,18/01/08 5: 2.14E-01 @Hr24,02/04/07
3: 3.51E-01 @Hr24,02/04/07 6: 4.90E-01 @Hr24,01/04/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 2

At the discrete receptors:

1: 4.51E-02 @Hr24,07/01/08 4: 9.03E-03 @Hr24,23/07/08
2: 2.26E-01 @Hr24,18/01/08 5: 1.02E-01 @Hr24,02/04/07
3: 1.68E-01 @Hr24,02/04/07 6: 2.34E-01 @Hr24,01/04/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 3

At the discrete receptors:

1: 1.89E-02 @Hr24,07/01/08 4: 3.78E-03 @Hr24,23/07/08
2: 9.47E-02 @Hr24,18/01/08 5: 4.28E-02 @Hr24,02/04/07
3: 7.02E-02 @Hr24,02/04/07 6: 9.81E-02 @Hr24,01/04/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 4

At the discrete receptors:

1: 4.20E-03 @Hr24,07/01/08 4: 8.40E-04 @Hr24,23/07/08

2: 2.11E-02 @Hr24,18/01/08 5: 9.51E-03 @Hr24,02/04/07
3: 1.56E-02 @Hr24,02/04/07 6: 2.18E-02 @Hr24,01/04/07

Former Gasworks Area – Fugitive

40913 Macdonaldtown Fomer Gasholder fugitive emissions

Concentration or deposition Concentration
Emission rate units grams/second
Concentration units microgram/m3
Units conversion factor 1.00E+06
Constant background concentration 0.00E+00
Terrain effects Egan method
Smooth stability class changes? No
Other stability class adjustments ("urban modes") None
Ignore building wake effects? No
Decay coefficient (unless overridden by met. file) 0.000
Anemometer height 10 m
Roughness height at the wind vane site 0.300 m

DISPERSION CURVES
Horizontal dispersion curves for sources <100m high Pasquill-Gifford
Vertical dispersion curves for sources <100m high Pasquill-Gifford
Horizontal dispersion curves for sources >100m high Briggs Rural
Vertical dispersion curves for sources >100m high Briggs Rural
Enhance horizontal plume spreads for buoyancy? Yes
Enhance vertical plume spreads for buoyancy? Yes
Adjust horizontal P-G formulae for roughness height? Yes
Adjust vertical P-G formulae for roughness height? Yes
Roughness height 0.800m
Adjustment for wind directional shear None

PLUME RISE OPTIONS
Gradual plume rise? Yes
Stack-tip downwash included? Yes
Building downwash algorithm: PRIME method.
Entrainment coeff. for neutral & stable lapse rates 0.60,0.60
Partial penetration of elevated inversions? No
Disregard temp. gradients in the hourly met. file? No

and in the absence of boundary-layer potential temperature gradients
given by the hourly met. file, a value from the following table
(in K/m) is used:

Wind Speed Category	Stability Class A	B	C	D	E	F
1	0.000	0.000	0.000	0.000	0.020	0.035
2	0.000	0.000	0.000	0.000	0.020	0.035
3	0.000	0.000	0.000	0.000	0.020	0.035
4	0.000	0.000	0.000	0.000	0.020	0.035
5	0.000	0.000	0.000	0.000	0.020	0.035
6	0.000	0.000	0.000	0.000	0.020	0.035

WIND SPEED CATEGORIES
Boundaries between categories (in m/s) are: 1.54, 3.09, 5.14, 8.23, 10.80

WIND PROFILE EXPONENTS: "Irwin Urban" values (unless overridden by met. file)

AVERAGING TIMES
1 hour
24 hours
90 days

40913 Macdonaldtown Fomer Gasholder fugitive emissions

SOURCE GROUPS

Group No.	Members
1	F4T
2	F4P
3	F4BEP F4BEV
4	F4BPP

1

40913 Macdonaldtown Fomer Gasholder fugitive emissions

SOURCE CHARACTERISTICS

INTEGRATED AREA SOURCE: F4T

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332296	6247695	18m	10m	10m	0deg	5m	0m

(Constant) emission rate = 2.70E-06 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: F4P

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332296	6247695	18m	10m	10m	0deg	5m	0m

(Constant) emission rate = 1.40E-06 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: F4BEP

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332296	6247695	18m	10m	10m	0deg	5m	0m

(Constant) emission rate = 5.40E-06 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: F4BPP

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332296	6247695	18m	10m	10m	0deg	5m	0m

(Constant) emission rate = 1.20E-06 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: F4BEV

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332296	6247695	18m	10m	10m	0deg	5m	0m

(Constant) emission rate = 1.30E-06 grams/second per square metre
No gravitational settling or scavenging.

1

40913 Macdonaldtown Fomer Gasholder fugitive emissions

RECEPTOR LOCATIONS

The Cartesian receptor grid has the following x-values (or eastings):
332119.m 332162.m 332202.m 332243.m 332285.m 332326.m 332370.m
332411.m 332452.m 332493.m 332533.m

and these y-values (or northings):
6247493.m 6247550.m 6247604.m 6247660.m 6247712.m 6247768.m 6247822.m
6247875.m 6247926.m 6247977.m 6248028.m

DISCRETE RECEPTOR LOCATIONS (in metres)

No.	X	Y	ELEVN	HEIGHT	No.	X	Y	ELEVN	HEIGHT
1	332244	6247859	26.0	1.5	4	332342	6247537	16.0	1.5
2	332263	6247744	20.0	1.5	5	332265	6247624	16.0	1.5
3	332259	6247645	21.5	1.5	6	332252	6247669	17.0	1.5

METEOROLOGICAL DATA : DECCW Randwick AWS Data BoM SydneyAP Clouds SydneyAP

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 1

At the discrete receptors:

1: 1.14E+00 @Hr19,29/07/07 4: 1.15E+00 @Hr01,16/05/07
2: 5.79E+00 @Hr22,20/03/08 5: 3.41E+00 @Hr02,27/01/07
3: 4.54E+00 @Hr18,26/05/07 6: 5.83E+00 @Hr24,15/02/07

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 2

At the discrete receptors:

1: 5.92E-01 @Hr19,29/07/07 4: 5.97E-01 @Hr01,16/05/07
2: 3.00E+00 @Hr22,20/03/08 5: 1.77E+00 @Hr02,27/01/07
3: 2.35E+00 @Hr18,26/05/07 6: 3.02E+00 @Hr24,15/02/07

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 3

At the discrete receptors:

1: 2.83E+00 @Hr19,29/07/07 4: 2.86E+00 @Hr01,16/05/07
2: 1.44E+01 @Hr22,20/03/08 5: 8.45E+00 @Hr02,27/01/07
3: 1.13E+01 @Hr18,26/05/07 6: 1.45E+01 @Hr24,15/02/07

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 4

At the discrete receptors:

1: 5.07E-01 @Hr19,29/07/07 4: 5.12E-01 @Hr01,16/05/07
2: 2.57E+00 @Hr22,20/03/08 5: 1.51E+00 @Hr02,27/01/07
3: 2.02E+00 @Hr18,26/05/07 6: 2.59E+00 @Hr24,15/02/07

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 24 HOURS; SOURCE GROUP No. 1

At the discrete receptors:

1: 8.67E-02 @Hr24,24/12/08 4: 1.28E-01 @Hr24,15/03/08
2: 5.33E-01 @Hr24,04/02/07 5: 5.67E-01 @Hr24,05/05/07
3: 6.15E-01 @Hr24,04/03/08 6: 8.30E-01 @Hr24,25/12/08

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 24 HOURS; SOURCE GROUP No. 2

At the discrete receptors:

1: 4.50E-02 @Hr24,24/12/08 4: 6.65E-02 @Hr24,15/03/08
2: 2.76E-01 @Hr24,04/02/07 5: 2.94E-01 @Hr24,05/05/07
3: 3.19E-01 @Hr24,04/03/08 6: 4.31E-01 @Hr24,25/12/08

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 24 HOURS; SOURCE GROUP No. 3

At the discrete receptors:

1: 2.15E-01 @Hr24,24/12/08 4: 3.18E-01 @Hr24,15/03/08
2: 1.32E+00 @Hr24,04/02/07 5: 1.41E+00 @Hr24,05/05/07
3: 1.53E+00 @Hr24,04/03/08 6: 2.06E+00 @Hr24,25/12/08

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 24 HOURS; SOURCE GROUP No. 4
At the discrete receptors:

1: 3.85E-02 @Hr24,24/12/08 4: 5.70E-02 @Hr24,15/03/08
2: 2.37E-01 @Hr24,04/02/07 5: 2.52E-01 @Hr24,05/05/07
3: 2.73E-01 @Hr24,04/03/08 6: 3.69E-01 @Hr24,25/12/08

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 1

At the discrete receptors:

1: 1.16E-02 @Hr24,14/01/08 4: 1.81E-02 @Hr24,31/05/08
2: 6.32E-02 @Hr24,25/04/07 5: 8.82E-02 @Hr24,17/05/07
3: 1.03E-01 @Hr24,30/12/08 6: 9.49E-02 @Hr24,01/04/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 2

At the discrete receptors:

1: 5.99E-03 @Hr24,14/01/08 4: 9.39E-03 @Hr24,31/05/08
2: 3.28E-02 @Hr24,25/04/07 5: 4.57E-02 @Hr24,17/05/07
3: 5.35E-02 @Hr24,30/12/08 6: 4.92E-02 @Hr24,01/04/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 3

At the discrete receptors:

1: 2.87E-02 @Hr24,14/01/08 4: 4.50E-02 @Hr24,31/05/08
2: 1.57E-01 @Hr24,25/04/07 5: 2.19E-01 @Hr24,17/05/07
3: 2.56E-01 @Hr24,30/12/08 6: 2.35E-01 @Hr24,01/04/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 4

At the discrete receptors:

1: 5.13E-03 @Hr24,14/01/08 4: 8.05E-03 @Hr24,31/05/08
2: 2.81E-02 @Hr24,25/04/07 5: 3.92E-02 @Hr24,17/05/07
3: 4.58E-02 @Hr24,30/12/08 6: 4.22E-02 @Hr24,01/04/07

Haulage Roads – Fugitive

40913 Macdonaldtown Haulage Roads

Concentration or deposition	Concentration
Emission rate units	grams/second
Concentration units	microgram/m3
Units conversion factor	1.00E+06
Constant background concentration	0.00E+00
Terrain effects	Egan method
Smooth stability class changes?	No
Other stability class adjustments ("urban modes")	None
Ignore building wake effects?	No
Decay coefficient (unless overridden by met. file)	0.000
Anemometer height	10 m
Roughness height at the wind vane site	0.300 m

DISPERSION CURVES

Horizontal dispersion curves for sources <100m high	Pasquill-Gifford
Vertical dispersion curves for sources <100m high	Pasquill-Gifford
Horizontal dispersion curves for sources >100m high	Briggs Rural
Vertical dispersion curves for sources >100m high	Briggs Rural
Enhance horizontal plume spreads for buoyancy?	Yes
Enhance vertical plume spreads for buoyancy?	Yes
Adjust horizontal P-G formulae for roughness height?	Yes
Adjust vertical P-G formulae for roughness height?	Yes
Roughness height	0.800m
Adjustment for wind directional shear	None

PLUME RISE OPTIONS

Gradual plume rise?	Yes
Stack-tip downwash included?	Yes
Building downwash algorithm:	PRIME method.
Entrainment coeff. for neutral & stable lapse rates	0.60,0.60
Partial penetration of elevated inversions?	No
Disregard temp. gradients in the hourly met. file?	No

and in the absence of boundary-layer potential temperature gradients
given by the hourly met. file, a value from the following table
(in K/m) is used:

Wind Speed Category	Stability Class A	B	C	D	E	F
1	0.000	0.000	0.000	0.000	0.020	0.035
2	0.000	0.000	0.000	0.000	0.020	0.035
3	0.000	0.000	0.000	0.000	0.020	0.035
4	0.000	0.000	0.000	0.000	0.020	0.035
5	0.000	0.000	0.000	0.000	0.020	0.035
6	0.000	0.000	0.000	0.000	0.020	0.035

WIND SPEED CATEGORIES
Boundaries between categories (in m/s) are: 1.54, 3.09, 5.14, 8.23, 10.80

WIND PROFILE EXPONENTS: "Irwin Urban" values (unless overridden by met. file)

AVERAGING TIMES
1 hour
24 hours
90 days

40913 Macdonaldtown Haulage Roads

SOURCE GROUPS

Group No.	Members
1	HAT
2	HAP

---

1 _____

40913 Macdonaldtown Haulage Roads

SOURCE CHARACTERISTICS

_____

INTEGRATED AREA SOURCE: HAT

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332312	6247672	16m	5m	60m	0deg	5m	0m

(Constant) emission rate = 2.86E-05 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: HAP

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332312	6247672	16m	5m	60m	0deg	5m	0m

(Constant) emission rate = 1.79E-05 grams/second per square metre
No gravitational settling or scavenging.

_____

1 _____

40913 Macdonaldtown Haulage Roads

RECEPTOR LOCATIONS

_____

The Cartesian receptor grid has the following x-values (or eastings):
332119.m 332162.m 332202.m 332243.m 332285.m 332326.m 332370.m
332411.m 332452.m 332493.m 332533.m

and these y-values (or northings):
6247493.m 6247550.m 6247604.m 6247660.m 6247712.m 6247768.m 6247822.m
6247875.m 6247926.m 6247977.m 6248028.m

DISCRETE RECEPTOR LOCATIONS (in metres)

No.	X	Y	ELEVN	HEIGHT	No.	X	Y	ELEVN	HEIGHT
1	332244	6247859	26.0	1.5	4	332342	6247537	16.0	1.5
2	332263	6247744	20.0	1.5	5	332265	6247624	16.0	1.5
3	332259	6247645	21.5	1.5	6	332252	6247669	17.0	1.5

_____

METEOROLOGICAL DATA : DECCW Randwick AWS Data BoM SydneyAP Clouds SydneyAP

_____

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 1
At the discrete receptors:

1: 3.43E+01 @Hr24,17/10/08 4: 3.76E+01 @Hr21,17/06/08
2: 8.13E+01 @Hr02,03/04/07 5: 7.81E+01 @Hr01,11/11/07
3: 7.76E+01 @Hr23,12/09/07 6: 6.99E+01 @Hr02,11/01/07

_____

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 2

At the discrete receptors:

1: 2.15E+01 @Hr24,17/10/08 4: 2.35E+01 @Hr21,17/06/08
2: 5.09E+01 @Hr02,03/04/07 5: 4.89E+01 @Hr01,11/11/07
3: 4.86E+01 @Hr23,12/09/07 6: 4.37E+01 @Hr02,11/01/07

_____

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 24 HOURS; SOURCE GROUP No. 1

At the discrete receptors:

1: 2.74E+00 @Hr24,24/12/08 4: 3.88E+00 @Hr24,08/05/07
2: 1.09E+01 @Hr24,04/02/07 5: 1.09E+01 @Hr24,04/03/08
3: 1.57E+01 @Hr24,25/12/08 6: 1.28E+01 @Hr24,25/12/08

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 24 HOURS; SOURCE GROUP No. 2

At the discrete receptors:

1: 1.72E+00 @Hr24,24/12/08 4: 2.43E+00 @Hr24,08/05/07
2: 6.83E+00 @Hr24,04/02/07 5: 6.79E+00 @Hr24,04/03/08
3: 9.83E+00 @Hr24,25/12/08 6: 7.99E+00 @Hr24,25/12/08

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 1

At the discrete receptors:

1: 3.59E-01 @Hr24,14/01/08 4: 6.02E-01 @Hr24,25/03/08
2: 1.26E+00 @Hr24,25/04/07 5: 2.15E+00 @Hr24,30/12/08
3: 2.22E+00 @Hr24,30/12/08 6: 1.93E+00 @Hr24,01/04/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 2

At the discrete receptors:

1: 2.25E-01 @Hr24,14/01/08 4: 3.77E-01 @Hr24,25/03/08
2: 7.91E-01 @Hr24,25/04/07 5: 1.35E+00 @Hr24,30/12/08
3: 1.39E+00 @Hr24,30/12/08 6: 1.21E+00 @Hr24,01/04/07

Bioremediation – Fugitive

1 _____

40913 Macdonaldtown Soil Bioremediation Fixed Sources

_____

Concentration or deposition Concentration
Emission rate units grams/second
Concentration units microgram/m3
Units conversion factor 1.00E+06
Constant background concentration 0.00E+00
Terrain effects Egan method
Smooth stability class changes? No
Other stability class adjustments ("urban modes") None
Ignore building wake effects? No
Decay coefficient (unless overridden by met. file) 0.000
Anemometer height 10 m
Roughness height at the wind vane site 0.300 m

DISPERSION CURVES
Horizontal dispersion curves for sources <100m high Pasquill-Gifford
Vertical dispersion curves for sources <100m high Pasquill-Gifford
Horizontal dispersion curves for sources >100m high Briggs Rural
Vertical dispersion curves for sources >100m high Briggs Rural
Enhance horizontal plume spreads for buoyancy? Yes
Enhance vertical plume spreads for buoyancy? Yes
Adjust horizontal P-G formulae for roughness height? Yes
Adjust vertical P-G formulae for roughness height? Yes
Roughness height 0.800m
Adjustment for wind directional shear None

PLUME RISE OPTIONS
Gradual plume rise? Yes
Stack-tip downwash included? Yes
Building downwash algorithm: PRIME method.
Entrainment coeff. for neutral & stable lapse rates 0.60,0.60
Partial penetration of elevated inversions? No
Disregard temp. gradients in the hourly met. file? No

and in the absence of boundary-layer potential temperature gradients
given by the hourly met. file, a value from the following table
(in K/m) is used:

Wind Speed Category	Stability Class A	B	C	D	E	F
1	0.000	0.000	0.000	0.000	0.020	0.035
2	0.000	0.000	0.000	0.000	0.020	0.035
3	0.000	0.000	0.000	0.000	0.020	0.035
4	0.000	0.000	0.000	0.000	0.020	0.035
5	0.000	0.000	0.000	0.000	0.020	0.035
6	0.000	0.000	0.000	0.000	0.020	0.035

WIND SPEED CATEGORIES
Boundaries between categories (in m/s) are: 1.54, 3.09, 5.14, 8.23, 10.80

WIND PROFILE EXPONENTS: "Irwin Urban" values (unless overridden by met. file)

AVERAGING TIMES
1 hour
24 hours
90 days

_____

_____

40913 Macdonaldtown Soil Bioremediation Fixed Sources

SOURCE GROUPS

_____

Group No.	Members
1	T2T
2	T2PM
3	T2BEP
4	T2BEV
5	T2BPP

40913 Macdonaldtown Soil Bioremediation Fixed Sources

SOURCE CHARACTERISTICS

INTEGRATED AREA SOURCE: T2T

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332338	6247714	17m	65m	15m	60deg	5m	0m

(Constant) emission rate = 2.70E-06 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: T2PM

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332338	6247714	17m	65m	15m	60deg	5m	0m

(Constant) emission rate = 1.40E-06 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: T2BEP

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332338	6247714	17m	65m	15m	60deg	5m	0m

(Constant) emission rate = 5.40E-06 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: T2BEV

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332338	6247714	17m	65m	15m	60deg	5m	0m

(Constant) emission rate = 1.30E-06 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: T2BPP

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332338	6247714	17m	65m	15m	60deg	5m	0m

(Constant) emission rate = 1.20E-06 grams/second per square metre
No gravitational settling or scavenging.

40913 Macdonaldtown Soil Bioremediation Fixed Sources

RECEPTOR LOCATIONS

The Cartesian receptor grid has the following x-values (or eastings):
332119.m 332162.m 332202.m 332243.m 332285.m 332326.m 332370.m
332411.m 332452.m 332493.m 332533.m

and these y-values (or northings):
6247493.m 6247550.m 6247604.m 6247660.m 6247712.m 6247768.m 6247822.m
6247875.m 6247926.m 6247977.m 6248028.m

DISCRETE RECEPTOR LOCATIONS (in metres)

No.	X	Y	ELEVN	HEIGHT	No.	X	Y	ELEVN	HEIGHT
1	332244	6247859	26.0	1.5	4	332342	6247537	16.0	1.5
2	332263	6247744	20.0	1.5	5	332265	6247624	16.0	1.5
3	332259	6247645	21.5	1.5	6	332252	6247669	17.0	1.5

METEOROLOGICAL DATA : DECCW Randwick AWS Data BoM SydneyAP Clouds SydneyAP

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 1

At the discrete receptors:

1: 8.19E+00 @Hr21,11/05/08 4: 1.15E+01 @Hr20,21/04/07
2: 1.84E+01 @Hr18,07/05/08 5: 1.24E+01 @Hr20,04/05/07
3: 1.29E+01 @Hr06,01/05/08 6: 1.35E+01 @Hr23,29/10/07

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 2

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 3

At the discrete receptors:

1: 1.64E+01 @Hr21,11/05/08 4: 2.31E+01 @Hr20,21/04/07
2: 3.69E+01 @Hr18,07/05/08 5: 2.49E+01 @Hr20,04/05/07
3: 2.59E+01 @Hr06,01/05/08 6: 2.70E+01 @Hr23,29/10/07

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 4

At the discrete receptors:

1: 3.94E+00 @Hr21,11/05/08 4: 5.55E+00 @Hr20,21/04/07
2: 8.88E+00 @Hr18,07/05/08 5: 5.98E+00 @Hr20,04/05/07
3: 6.23E+00 @Hr06,01/05/08 6: 6.50E+00 @Hr23,29/10/07

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 5

At the discrete receptors:

1: 3.64E+00 @Hr21,11/05/08 4: 5.12E+00 @Hr20,21/04/07
2: 8.20E+00 @Hr18,07/05/08 5: 5.52E+00 @Hr20,04/05/07
3: 5.75E+00 @Hr06,01/05/08 6: 6.00E+00 @Hr23,29/10/07

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 24 HOURS; SOURCE GROUP No. 1

At the discrete receptors:

1: 5.94E-01 @Hr24,29/11/07 4: 1.76E+00 @Hr24,16/03/07
2: 1.41E+00 @Hr24,21/02/08 5: 2.34E+00 @Hr24,25/12/08
3: 1.84E+00 @Hr24,25/12/08 6: 1.60E+00 @Hr24,10/11/08

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 24 HOURS; SOURCE GROUP No. 2

At the discrete receptors:

1: 3.08E-01 @Hr24,29/11/07 4: 9.14E-01 @Hr24,16/03/07
2: 7.31E-01 @Hr24,21/02/08 5: 1.21E+00 @Hr24,25/12/08
3: 9.55E-01 @Hr24,25/12/08 6: 8.32E-01 @Hr24,10/11/08

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 24 HOURS; SOURCE GROUP No. 3

At the discrete receptors:

1: 3.99E-02 @Hr24,08/01/08 4: 1.64E-01 @Hr24,16/05/07
2: 8.29E-02 @Hr24,09/05/08 5: 1.56E-01 @Hr24,01/04/07
3: 1.42E-01 @Hr24,01/04/07 6: 1.15E-01 @Hr24,14/04/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 3

At the discrete receptors:

1: 1.54E-01 @Hr24,08/01/08 4: 6.31E-01 @Hr24,16/05/07
2: 3.20E-01 @Hr24,09/05/08 5: 6.01E-01 @Hr24,01/04/07
3: 5.48E-01 @Hr24,01/04/07 6: 4.42E-01 @Hr24,14/04/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 4

At the discrete receptors:

1: 3.71E-02 @Hr24,08/01/08 4: 1.52E-01 @Hr24,16/05/07
2: 7.70E-02 @Hr24,09/05/08 5: 1.45E-01 @Hr24,01/04/07
3: 1.32E-01 @Hr24,01/04/07 6: 1.06E-01 @Hr24,14/04/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 5

At the discrete receptors:

1: 3.42E-02 @Hr24,08/01/08 4: 1.40E-01 @Hr24,16/05/07
2: 7.10E-02 @Hr24,09/05/08 5: 1.33E-01 @Hr24,01/04/07
3: 1.22E-01 @Hr24,01/04/07 6: 9.82E-02 @Hr24,14/04/07

Groundwater Treatment - fugitive

1

40913 Macdonaldtown Groundwater Treatment

Concentration or deposition	Concentration
Emission rate units	grams/second
Concentration units	microgram/m3
Units conversion factor	1.00E+06
Constant background concentration	0.00E+00
Terrain effects	Egan method
Smooth stability class changes?	No
Other stability class adjustments ("urban modes")	None
Ignore building wake effects?	No
Decay coefficient (unless overridden by met. file)	0.000
Anemometer height	10 m
Roughness height at the wind vane site	0.300 m

DISPERSION CURVES

Horizontal dispersion curves for sources <100m high	Pasquill-Gifford
Vertical dispersion curves for sources <100m high	Pasquill-Gifford
Horizontal dispersion curves for sources >100m high	Briggs Rural
Vertical dispersion curves for sources >100m high	Briggs Rural
Enhance horizontal plume spreads for buoyancy?	Yes
Enhance vertical plume spreads for buoyancy?	Yes
Adjust horizontal P-G formulae for roughness height?	Yes
Adjust vertical P-G formulae for roughness height?	Yes
Roughness height	0.800m
Adjustment for wind directional shear	None

PLUME RISE OPTIONS

Gradual plume rise?	Yes
Stack-tip downwash included?	Yes
Building downwash algorithm:	PRIME method.
Entrainment coeff. for neutral & stable lapse rates	0.60,0.60
Partial penetration of elevated inversions?	No
Disregard temp. gradients in the hourly met. file?	No

and in the absence of boundary-layer potential temperature gradients
given by the hourly met. file, a value from the following table
(in K/m) is used:

Wind Speed Category	Stability Class A	B	C	D	E	F
1	0.000	0.000	0.000	0.000	0.020	0.035
2	0.000	0.000	0.000	0.000	0.020	0.035
3	0.000	0.000	0.000	0.000	0.020	0.035
4	0.000	0.000	0.000	0.000	0.020	0.035
5	0.000	0.000	0.000	0.000	0.020	0.035
6	0.000	0.000	0.000	0.000	0.020	0.035

WIND SPEED CATEGORIES
Boundaries between categories (in m/s) are: 1.54, 3.09, 5.14, 8.23, 10.80

WIND PROFILE EXPONENTS: "Irwin Urban" values (unless overridden by met. file)

AVERAGING TIMES
1 hour
24 hours
90 days

40913 Macdonaldtown Groundwater Treatment

SOURCE GROUPS

Group No.	Members
1	WTBE
2	WTBP

---

1 _____

40913 Macdonaldtown Groundwater Treatment

SOURCE CHARACTERISTICS

_____

POINT SOURCE: WTBE

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed
332298	6247702	18m	2m	0.25m	25C	0.2m/s

No building wake effects.

Emission rates by hour of day in grams/second:

1 0.00E+00	2 0.00E+00	3 0.00E+00	4 0.00E+00
5 0.00E+00	6 0.00E+00	7 9.70E-05	8 9.70E-05
9 9.70E-05	10 9.70E-05	11 9.70E-05	12 9.70E-05
13 9.70E-05	14 9.70E-05	15 9.70E-05	16 9.70E-05
17 9.70E-05	18 0.00E+00	19 0.00E+00	20 0.00E+00
21 0.00E+00	22 0.00E+00	23 0.00E+00	24 0.00E+00

No gravitational settling or scavenging.

POINT SOURCE: WTBP

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed
332298	6247702	18m	2m	0.25m	25C	0.0m/s

No building wake effects.

Emission rates by hour of day in grams/second:

1 0.00E+00	2 0.00E+00	3 0.00E+00	4 0.00E+00
5 0.00E+00	6 0.00E+00	7 8.50E-06	8 8.50E-06
9 8.50E-06	10 8.50E-06	11 8.50E-06	12 8.50E-06
13 8.50E-06	14 8.50E-06	15 8.50E-06	16 8.50E-06
17 8.50E-06	18 0.00E+00	19 0.00E+00	20 0.00E+00
21 0.00E+00	22 0.00E+00	23 0.00E+00	24 0.00E+00

No gravitational settling or scavenging.

_____

1 _____

40913 Macdonaldtown Groundwater Treatment

RECEPTOR LOCATIONS

_____

The Cartesian receptor grid has the following x-values (or eastings):
332119.m 332162.m 332202.m 332243.m 332285.m 332326.m 332370.m
332411.m 332452.m 332493.m 332533.m

and these y-values (or northings):
6247493.m 6247550.m 6247604.m 6247660.m 6247712.m 6247768.m 6247822.m
6247875.m 6247926.m 6247977.m 6248028.m

DISCRETE RECEPTOR LOCATIONS (in metres)

No.	X	Y	ELEVN	HEIGHT	No.	X	Y	ELEVN	HEIGHT
1	332244	6247859	26.0	1.5	4	332342	6247537	16.0	1.5
2	332263	6247744	20.0	1.5	5	332265	6247624	16.0	1.5
3	332259	6247645	21.5	1.5	6	332252	6247669	17.0	1.5

_____

METEOROLOGICAL DATA : DECCW Randwick AWS Data BoM SydneyAP Clouds SydneyAP

_____

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 1

At the discrete receptors:

1: 1.03E-01 @Hr08,19/05/07 4: 9.83E-02 @Hr07,01/07/08
2: 6.35E-01 @Hr07,09/09/07 5: 3.21E-01 @Hr07,11/02/08
3: 4.55E-01 @Hr07,25/05/08 6: 6.19E-01 @Hr07,22/04/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 2

At the discrete receptors:

1: 9.05E-03 @Hr08,19/05/07 4: 8.61E-03 @Hr07,01/07/08
2: 5.56E-02 @Hr07,09/09/07 5: 2.80E-02 @Hr07,11/02/08
3: 3.98E-02 @Hr07,25/05/08 6: 5.39E-02 @Hr07,22/04/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 24 HOURS; SOURCE GROUP No. 1

At the discrete receptors:

1: 4.30E-03 @Hr24,19/05/07 4: 9.31E-03 @Hr24,11/06/08
2: 3.07E-02 @Hr24,08/09/07 5: 2.35E-02 @Hr24,25/06/07
3: 2.65E-02 @Hr24,26/05/08 6: 3.62E-02 @Hr24,22/04/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
AVERAGING TIME = 24 HOURS; SOURCE GROUP No. 2

At the discrete receptors:

1: 3.77E-04 @Hr24,19/05/07 4: 8.13E-04 @Hr24,11/06/08
2: 2.69E-03 @Hr24,08/09/07 5: 2.04E-03 @Hr24,25/06/07
3: 2.32E-03 @Hr24,26/05/08 6: 3.15E-03 @Hr24,22/04/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 1

At the discrete receptors:

1: 1.07E-03 @Hr24,04/07/08 4: 9.53E-04 @Hr24,23/07/08
2: 6.18E-03 @Hr24,04/06/08 5: 3.44E-03 @Hr24,04/04/07
3: 5.38E-03 @Hr24,04/04/07 6: 7.11E-03 @Hr24,02/04/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in microgram/m3)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 2

At the discrete receptors:

1: 9.40E-05 @Hr24,04/07/08 4: 8.33E-05 @Hr24,23/07/08
2: 5.40E-04 @Hr24,04/06/08 5: 2.99E-04 @Hr24,04/04/07
3: 4.71E-04 @Hr24,04/04/07 6: 6.18E-04 @Hr24,02/04/07

Odour Sources

1 _____

40913 Macdonaldtown Northern Gasholder Excavation

_____

Concentration or deposition Concentration
Emission rate units OUV/second
Concentration units Odour_Units
Units conversion factor 1.00E+00
Constant background concentration 0.00E+00
Terrain effects Egan method
Smooth stability class changes? No
Other stability class adjustments ("urban modes") None
Ignore building wake effects? No
Decay coefficient (unless overridden by met. file) 0.000
Anemometer height 10 m
Roughness height at the wind vane site 0.300 m

DISPERSION CURVES
Horizontal dispersion curves for sources <100m high Pasquill-Gifford
Vertical dispersion curves for sources <100m high Pasquill-Gifford
Horizontal dispersion curves for sources >100m high Briggs Rural
Vertical dispersion curves for sources >100m high Briggs Rural
Enhance horizontal plume spreads for buoyancy? Yes
Enhance vertical plume spreads for buoyancy? Yes
Adjust horizontal P-G formulae for roughness height? Yes
Adjust vertical P-G formulae for roughness height? Yes
Roughness height 0.800m
Adjustment for wind directional shear None

PLUME RISE OPTIONS
Gradual plume rise? Yes
Stack-tip downwash included? Yes
Building downwash algorithm: PRIME method.
Entrainment coeff. for neutral & stable lapse rates 0.60,0.60
Partial penetration of elevated inversions? No
Disregard temp. gradients in the hourly met. file? No

and in the absence of boundary-layer potential temperature gradients
given by the hourly met. file, a value from the following table
(in K/m) is used:

Wind Speed Category	Stability Class A	B	C	D	E	F
1	0.000	0.000	0.000	0.000	0.020	0.035
2	0.000	0.000	0.000	0.000	0.020	0.035
3	0.000	0.000	0.000	0.000	0.020	0.035
4	0.000	0.000	0.000	0.000	0.020	0.035
5	0.000	0.000	0.000	0.000	0.020	0.035
6	0.000	0.000	0.000	0.000	0.020	0.035

WIND SPEED CATEGORIES
Boundaries between categories (in m/s) are: 1.54, 3.09, 5.14, 8.23, 10.80

WIND PROFILE EXPONENTS: "Irwin Urban" values (unless overridden by met. file)

AVERAGING TIMES
1 hour

_____

_____

40913 Macdonaldtown Northern Gasholder Excavation

SOURCE GROUPS

_____

Group No.	Members
1	WTOU
2	VEX2OU
3	F2OU
4	VEX3OU
5	F3OU
6	VEX4OU
7	F4OU

8 T2OU
9 PWOU

---

1 ---

40913 Macdonaldtown Northern Gasholder Excavation

SOURCE CHARACTERISTICS

STACK SOURCE: WTOU

X(m)	Y(m)	Ground Elev.	Stack Height	Diameter	Temperature	Speed
332298	6247702	18m	2m	1.00m	27C	2.0m/s

No building wake effects.
(Constant) emission rate = 3.00E-01 OUV/second
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: VEX2OU

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332271	6247720	18m	50m	5m	0deg	5m	0m

(Constant) emission rate = 1.17E+00 OUV/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: F2OU

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332283	6247718	18m	10m	10m	0deg	5m	0m

(Constant) emission rate = 1.17E+00 OUV/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: VEX3OU

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332276	6247697	18m	20m	20m	0deg	5m	0m

(Constant) emission rate = 7.30E-02 OUV/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: F3OU

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332296	6247702	18m	10m	10m	0deg	5m	0m

(Constant) emission rate = 7.30E-02 OUV/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: VEX4OU

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332296	6247695	18m	15m	15m	0deg	5m	0m

(Constant) emission rate = 7.30E-02 OUV/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: F4OU

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332296	6247695	18m	10m	10m	0deg	5m	0m

(Constant) emission rate = 7.30E-02 OUV/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: T2OU

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332338	6247714	17m	65m	15m	60deg	5m	0m

(Constant) emission rate = 7.30E-02 OUV/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: PWOU

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332276	6247697	17m	20m	20m	0deg	5m	0m

(Constant) emission rate = 7.30E-02 OUV/second per square metre
No gravitational settling or scavenging.

1

40913 Macdonaldtown Northern Gasholder Excavation

RECEPTOR LOCATIONS

The Cartesian receptor grid has the following x-values (or eastings):
332119.m 332162.m 332202.m 332243.m 332285.m 332326.m 332370.m
332411.m 332452.m 332493.m 332533.m

and these y-values (or northings):
6247493.m 6247550.m 6247604.m 6247660.m 6247712.m 6247768.m 6247822.m
6247875.m 6247926.m 6247977.m 6248028.m

DISCRETE RECEPTOR LOCATIONS (in metres)

No.	X	Y	ELEVN	HEIGHT	No.	X	Y	ELEVN	HEIGHT
1	332244	6247859	26.0	1.5	4	332342	6247537	16.0	1.5
2	332263	6247744	20.0	1.5	5	332265	6247624	16.0	1.5
3	332259	6247645	21.5	1.5	6	332252	6247669	17.0	1.5

METEOROLOGICAL DATA : DECCW Randwick AWS Data BoM SydneyAP Clouds SydneyAP

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in Odour_Units)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 1

At the discrete receptors:

1: 9.98E-04 @Hr19,05/05/07 4: 3.47E-04 @Hr05,15/03/08
2: 1.71E-03 @Hr18,09/05/08 5: 5.36E-04 @Hr21,02/12/07
3: 1.56E-03 @Hr23,25/12/08 6: 1.02E-03 @Hr20,06/02/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in Odour_Units)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 2
At the discrete receptors:

1: 1.29E-01 @Hr19,29/07/07 4: 8.89E-02 @Hr01,16/05/07
2: 5.77E-01 0 @Hr22,02/03/08 5: 1.90E-01 @Hr05,01/03/07
3: 2.35E-01 @Hr03,28/05/07 6: 3.16E-01 @Hr18,26/05/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in Odour_Units)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 3

At the discrete receptors:

1: 6.29E-01 @Hr23,01/09/08 4: 3.97E-02 @Hr24,08/12/07
2: 4.97E-01 @Hr02,03/04/07 5: 1.11E-01 @Hr20,12/06/08
3: 1.50E-01 @Hr24,23/01/08 6: 2.16E-01 @Hr01,11/11/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in Odour_Units)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 4
At the discrete receptors:

1: 1.35E-01 @Hr01,10/12/08 4: 1.10E-01 @Hr24,30/01/07
2: 7.41E-01 @Hr03,07/07/07 5: 3.34E-01 @Hr20,05/05/07
3: 4.56E-01 @Hr02,15/03/07 6: 6.40E-01 @Hr04,23/01/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in Odour_Units)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 5

At the discrete receptors:

1: 3.28E-02 @Hr19,29/07/07 4: 2.92E-02 @Hr01,16/05/07
2: 1.77E-01 @Hr20,13/03/07 5: 8.24E-02 @Hr02,15/03/07
3: 1.10E-01 @Hr01,11/11/07 6: 1.44E-01 @Hr20,13/01/08

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in Odour_Units)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 6

At the discrete receptors:

1: 6.95E-02 @Hr19,29/07/07 4: 6.82E-02 @Hr21,02/06/07
2: 3.34E-01 @Hr20,13/03/07 5: 1.90E-01 @Hr23,19/04/07
3: 2.47E-01 @Hr04,18/02/07 6: 3.11E-01 @Hr22,02/09/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in Odour_Units)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 7

At the discrete receptors:

1: 3.09E-02 @Hr19,29/07/07 4: 3.11E-02 @Hr01,16/05/07
2: 1.56E-01 @Hr22,20/03/08 5: 9.21E-02 @Hr02,27/01/07
3: 1.23E-01 @Hr18,26/05/07 6: 1.58E-01 @Hr24,15/02/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in Odour_Units)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 8

At the discrete receptors:

1: 2.21E-01 @Hr21,11/05/08 4: 3.12E-01 @Hr20,21/04/07
2: 4.99E-01 @Hr18,07/05/08 5: 3.36E-01 @Hr20,04/05/07
3: 3.50E-01 @Hr06,01/05/08 6: 3.65E-01 @Hr23,29/10/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in Odour_Units)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 9

At the discrete receptors:

1: 1.35E-01 @Hr01,10/12/08 4: 1.10E-01 @Hr24,30/01/07
2: 7.41E-01 @Hr03,07/07/07 5: 3.34E-01 @Hr20,05/05/07
3: 4.56E-01 @Hr02,15/03/07 6: 6.40E-01 @Hr04,23/01/07

Dust Deposition

40913 Macdonaldtown Deposition with controls

Concentration or deposition Dry deposition only
Emission load units grams/second
Deposition units milligram/m2
Units conversion factor 1.00E+03
Plume depletion due to dry removal mechanisms included.
Smooth stability class changes? No
Other stability class adjustments ("urban modes") None
Ignore building wake effects? No
Decay coefficient (unless overridden by met. file) 0.000
Anemometer height 10 m
Roughness height at the wind vane site 0.300 m

DISPERSION CURVES
Horizontal dispersion curves for sources <100m high Pasquill-Gifford
Vertical dispersion curves for sources <100m high Pasquill-Gifford
Horizontal dispersion curves for sources >100m high Briggs Rural
Vertical dispersion curves for sources >100m high Briggs Rural
Enhance horizontal plume spreads for buoyancy? Yes
Enhance vertical plume spreads for buoyancy? Yes
Adjust horizontal P-G formulae for roughness height? Yes
Adjust vertical P-G formulae for roughness height? Yes
Roughness height 0.800m
Adjustment for wind directional shear None

PLUME RISE OPTIONS
Gradual plume rise? Yes
Stack-tip downwash included? Yes
Building downwash algorithm: PRIME method.
Entrainment coeff. for neutral & stable lapse rates 0.60,0.60
Partial penetration of elevated inversions? No
Disregard temp. gradients in the hourly met. file? No

and in the absence of boundary-layer potential temperature gradients
given by the hourly met. file, a value from the following table
(in K/m) is used:

Wind Speed Category	Stability Class A	B	C	D	E	F
1	0.000	0.000	0.000	0.000	0.020	0.035
2	0.000	0.000	0.000	0.000	0.020	0.035
3	0.000	0.000	0.000	0.000	0.020	0.035
4	0.000	0.000	0.000	0.000	0.020	0.035
5	0.000	0.000	0.000	0.000	0.020	0.035
6	0.000	0.000	0.000	0.000	0.020	0.035

WIND SPEED CATEGORIES
Boundaries between categories (in m/s) are: 1.54, 3.09, 5.14, 8.23, 10.80

WIND PROFILE EXPONENTS: "Irwin Urban" values (unless overridden by met. file)

AVERAGING TIMES
1 hour
24 hours
90 days

40913 Macdonaldtown Deposition with controls

SOURCE GROUPS

Group No.	Members
1	HATC3
2	F2T
3	F1T

40913 Macdonaldtown Deposition with controls

SOURCE CHARACTERISTICS

INTEGRATED AREA SOURCE: HATC3

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332312	6247672	16m	5m	60m	0deg	5m	0m

(Constant) emission rate = 2.86E-05 grams/second per square metre

Particle Mass fraction	Particle Size (micron)	Particle Density (g/cm3)
0.1500	2.5	2.65
0.3400	6.0	2.65
0.5100	10.0	2.65

INTEGRATED AREA SOURCE: F2T

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332283	6247718	16m	10m	10m	0deg	5m	0m

(Constant) emission rate = 7.00E-07 grams/second per square metre

Particle Mass fraction	Particle Size (micron)	Particle Density (g/cm3)
0.1500	2.5	2.65
0.3400	6.0	2.65
0.5100	10.0	2.65

INTEGRATED AREA SOURCE: F1T

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332214	6247685	16m	10m	10m	0deg	5m	0m

(Constant) emission rate = 7.00E-07 grams/second per square metre

Particle Mass fraction	Particle Size (micron)	Particle Density (g/cm3)
0.1500	2.5	2.65
0.3400	6.0	2.65
0.5100	10.0	2.65

40913 Macdonaldtown Deposition with controls

RECEPTOR LOCATIONS

The Cartesian receptor grid has the following x-values (or eastings):
332119.m 332162.m 332202.m 332243.m 332285.m 332326.m 332370.m
332411.m 332452.m 332493.m 332533.m

and these y-values (or northings):
6247493.m 6247550.m 6247604.m 6247660.m 6247712.m 6247768.m 6247822.m
6247875.m 6247926.m 6247977.m 6248028.m

DISCRETE RECEPTOR LOCATIONS (in metres)

No.	X	Y	ELEVN	HEIGHT	No.	X	Y	ELEVN	HEIGHT
1	332244	6247859	26.0	1.5	4	332342	6247537	16.0	1.5
2	332263	6247744	20.0	1.5	5	332265	6247624	16.0	1.5
3	332259	6247645	21.5	1.5	6	332252	6247669	17.0	1.5

METEOROLOGICAL DATA : DECCW Randwick AWS Data BoM SydneyAP Clouds SydneyAP

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in milligram/m2)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 1

At the discrete receptors:

1: 3.06E-01 @Hr24,17/10/08 4: 3.44E-01 @Hr21,17/06/08
2: 1.23E+00 @Hr22,02/03/08 5: 1.03E+00 @Hr01,17/11/07
3: 1.10E+00 @Hr02,15/01/07 6: 1.02E+00 @Hr06,01/05/08

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in milligram/m2)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 2

At the discrete receptors:

1: 3.80E-03 @Hr23,01/09/08 4: 1.90E-03 @Hr24,08/12/07
2: 5.93E-02 @Hr02,03/04/07 5: 8.15E-03 @Hr20,12/06/08
3: 1.22E-02 @Hr24,23/01/08 6: 1.95E-02 @Hr01,11/11/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in milligram/m2)
AVERAGING TIME = 1 HOUR; SOURCE GROUP No. 3

At the discrete receptors:

1: 2.58E-03 @Hr22,06/05/07 4: 1.84E-03 @Hr24,05/11/08
2: 1.71E-02 @Hr20,29/07/07 5: 1.30E-02 @Hr21,13/10/07
3: 2.23E-02 @Hr24,09/04/07 6: 4.56E-02 @Hr03,15/03/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in milligram/m2)
AVERAGING TIME = 24 HOURS; SOURCE GROUP No. 1

At the discrete receptors:

1: 1.10E+00 @Hr24,29/11/07 4: 1.31E+00 @Hr24,11/06/08
2: 1.04E+01 @Hr24,12/02/07 5: 5.56E+00 @Hr24,28/12/08
3: 7.83E+00 @Hr24,15/01/07 6: 7.75E+00 @Hr24,10/11/08

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in milligram/m2)
AVERAGING TIME = 24 HOURS; SOURCE GROUP No. 2

At the discrete receptors:

1: 1.21E-02 @Hr24,24/12/08 4: 6.25E-03 @Hr24,15/03/08
2: 8.27E-01 @Hr24,12/02/07 5: 3.85E-02 @Hr24,06/03/08
3: 6.39E-02 @Hr24,21/10/07 6: 1.03E-01 @Hr24,17/02/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in milligram/m2)
AVERAGING TIME = 24 HOURS; SOURCE GROUP No. 3

At the discrete receptors:

1: 1.05E-02 @Hr24,24/11/07 4: 7.46E-03 @Hr24,03/05/07
2: 6.52E-02 @Hr24,17/06/07 5: 4.49E-02 @Hr24,31/08/07
3: 9.44E-02 @Hr24,31/08/07 6: 3.39E-01 @Hr24,27/06/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in milligram/m2)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 1

At the discrete receptors:

1: 1.97E+01 @Hr24,09/01/08 4: 1.92E+01 @Hr24,25/03/08
2: 1.70E+02 @Hr24,04/02/08 5: 1.57E+02 @Hr24,02/04/07
3: 1.86E+02 @Hr24,01/04/07 6: 1.82E+02 @Hr24,01/04/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in milligram/m2)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 2
At the discrete receptors:

1: 2.44E-01 @Hr24,09/01/08 4: 8.79E-02 @Hr24,26/03/08
2: 1.06E+01 @Hr24,25/04/07 5: 8.64E-01 @Hr24,19/03/08
3: 1.59E+00 @Hr24,04/04/07 6: 2.93E+00 @Hr24,04/04/07

---

1 HIGHEST RECORDINGS FOR EACH RECEPTOR (in milligram/m2)
90-DAY RUNNING AVERAGES; SOURCE GROUP No. 3

At the discrete receptors:

1: 1.61E-01 @Hr24,18/12/07 4: 1.49E-01 @Hr24,07/07/07
2: 8.00E-01 @Hr24,25/11/08 5: 9.29E-01 @Hr24,07/07/07
3: 2.18E+00 @Hr24,07/07/07 6: 1.02E+01 @Hr24,12/08/07

Appendix E

Uncontrolled (Worst Case) Conditions

AUSPLUME Modelling Results and Modelling Files Outputs

Table E1: Summary of Emission Rates Used for Worst Case Conditions

Source	Constituent	Emission Factor	Comments
Excavation and Stockpiling – Surface Soils	TSP	$2.81*10^{-2}*U^{1.3}$ kg/t	An excavation rate of 500m^3/day has been adopted in the modelling.
	PM_{10}	$1.33*10^{-2}*U^{1.3}$ kg/t	An excavation rate of 500m^3/day has been adopted in the modelling.
	Benzene	$1.18*10^{-8}*U^{1.3}$ kg/t (max) $6.74*10^{-9}*U^{1.3}$ kg/t (mean) Vapour emission rate as per **Appendix C**	Using the maximum and mean benzene concentration recorded for surface soils, ash, coke and gravels
	Benzo(a)pyrene	$9.53*10^{-6}*U^{1.3}$ kg/t (max) $8.77*10^{-7}*U^{1.3}$ kg/t (mean) Vapour emission rate as per **Appendix C**	Using the maximum and mean benzo(a)pyrene concentration recorded for surface soils, ash, coke and gravels
Excavation and Stockpiling – Fill Materials behind Northern Retaining Wall	TSP	$2.81*10^{-2}*U^{1.3}$ kg/t	An excavation rate of 300m^3/day has been adopted in the modelling.
	PM_{10}	$1.33*10^{-2}*U^{1.3}$ kg/t	An excavation rate of 300m^3/day has been adopted in the modelling.
	Benzene	$4.22*10^{-7}*U^{1.3}$ kg/t (max) $3.37*10^{-8}*U^{1.3}$ kg/t (mean) Vapour emission rate as per **Appendix C**	Using the maximum and mean benzene concentration recorded for gravels, sand and demolition wastes
	Benzo(a)pyrene	$4.22*10^{-6}*U^{1.3}$ kg/t (max) $5.14*10^{-7}*U^{1.3}$ kg/t (mean) Vapour emission rate as per **Appendix C**	Using the maximum and mean benzo(a)pyrene concentration recorded for gravels, sand and demolition wastes
	Odour	7.3 OU/m^2.s	Based on comparison of impacted soils to coal tar in **Section 5.9**
Excavation and Stockpiling – Northern Gasholder	TSP	$2.81*10^{-2}*U^{1.3}$ kg/t	An excavation rate of 100m^3/day has been adopted in the modelling.
	PM_{10}	$1.33*10^{-2}*U^{1.3}$ kg/t	An excavation rate of 100m^3/day has been adopted in the modelling.
	Benzene	$4.22*10^{-7}*U^{1.3}$ kg/t (max)	Using the maximum and mean benzene concentration recorded for gravels, sand and

Source	Constituent	Emission Factor	Comments
		$3.37*10^{-8}*U^{1.3}$ kg/t (mean) Vapour emission rate as per **Appendix C**	demolition wastes
	Benzo(a)pyrene	$4.22*10^{-6}*U^{1.3}$ kg/t (max) $5.14*10^{-7}*U^{1.3}$ kg/t (mean) Vapour emission rate as per **Appendix C**	Using the maximum and mean benzo(a)pyrene concentration recorded for gravels, sand and demolition wastes
	Odour	7.3 $OU/m^2.s$	Based on comparison of impacted soils to coal tar in **Section 5.9**
Excavation and Stockpiling – Former Gasworks Area	TSP	$2.81*10^{-2}*U^{1.3}$ kg/t	An excavation rate of $200m^3$/day has been adopted in the modelling.
	PM_{10}	$1.33*10^{-2}*U^{1.3}$ kg/t	An excavation rate of $200m^3$/day has been adopted in the modelling.
	Benzene	$5.62*10^{-7}*U^{1.3}$ kg/t (max) $3.93*10^{-8}*U^{1.3}$ kg/t (mean) Vapour emission rate as per **Appendix C**	Using the highest of the maximum and mean benzene concentration recorded for each of the soil types assessed for the site.
	Benzo(a)pyrene	$1.25*10^{-5}*U^{1.3}$ kg/t (max) $5.90*10^{-7}*U^{1.3}$ kg/t (mean) Vapour emission rate as per **Appendix C**	Using the highest of the maximum and mean benzo(a)pyrene concentration recorded for each of the soil types assessed for the site.
	Odour	7.3 $OU/m^2.s$	Based on comparison of impacted soils to coal tar in **Section 5.9**
Haulage Site Roads	TSP	0.177 kg/km (loaded trucks) 0.109 kg/km (unloaded trucks)	Maximum excavation rate will result in 65 return trips over longest length of roadway during a 10 hour day. A roadway length of 65m has been adopted for the modelling, with roadway use distributed over the duration of the modelling.
	PM_{10}	0.105 kg/km (loaded trucks) $7.09*10^{-2}$ kg/km (unloaded trucks)	Maximum excavation rate will result in 65 return trips over longest length of roadway during a 10 hour day. A roadway length of 65m has been adopted for the modelling, with roadway use distributed over the duration of the modelling.
Stockpiles (Fugitive Emissions) Surface Soil and Hotspots	TSP	0.85 tonnes/ha.year	Requires to be based on likely extent of stockpiling with this stage. This has been assumed to be an area of 10m * 10m for the purposes of modelling. Surplus soils would generally be rapidly removed from the site.

Source	Constituent	Emission Factor	Comments
Remediation	PM_{10}	0.43 tonnes/ha.year	Requires to be based on likely extent of stockpiling with this stage. This has been assumed to be an area of 10m * 10m for the purposes of modelling. Surplus soils would generally be rapidly removed from the site.
	Benzene	$3.57*10^{-6}$ tonnes/ha.year (max) $2.04*10^{-7}$ tonnes/ha.year (mean) Vapour emission rate as per **Appendix C**	Using the maximum and mean benzene concentration recorded for surface soils, ash, coke and gravels
	Benzo(a)pyrene	$2.88*10^{-4}$ tonnes/ha.year (max) $2.65*10^{-5}$ tonnes/ha.year (mean) Vapour emission rate as per **Appendix C**	Using the maximum and mean benzo(a)pyrene concentration recorded for surface soils, ash, coke and gravels
Stockpiles (fugitive emissions) – Fill Materials behind Northern Retaining Wall	TSP	0.85 tonnes/ha.year	Requires to be based on likely extent of stockpiling with this stage. This has been assumed to be an area of 10m * 10m for the purposes of modelling. Surplus soils would generally be rapidly removed from the site.
	PM_{10}	0.43 tonnes/ha.year	Requires to be based on likely extent of stockpiling with this stage. This has been assumed to be an area of 10m * 10m for the purposes of modelling. Surplus soils would generally be rapidly removed from the site.
	Benzene	$1.26*10^{-5}$ tonnes/ha.year (max) $1.02*10^{-6}$ tonnes/ha.year (mean) Vapour emission rate as per **Appendix C**	Using the maximum and mean benzene concentration recorded for gravels, sand and demolition wastes
	Benzo(a)pyrene	$1.28*10^{-4}$ tonnes/ha.year (max) $1.55*10^{-5}$ tonnes/ha.year (mean) Vapour emission rate as per **Appendix A**	Using the maximum and mean benzo(a)pyrene concentration recorded for gravels, sand and demolition wastes
	Odour	7.3 $OU/m^2.s$	Requires to be based on likely extent of stockpiling with this stage. This can be assumed to be 10m * 10m. Based on comparison of impacted soils to coal tar in

Source	Constituent	Emission Factor	Comments
			Section 5.9.
Stockpiles (fugitive emissions) – Northern Gasholder	TSP	0.85 tonnes/ha.year	Requires to be based on likely extent of stockpiling with this stage. This has been assumed to be an area of 10m * 10m for the purposes of modelling. Surplus soils would generally be rapidly removed from the site.
	PM_{10}	0.43 tonnes/ha.year	Requires to be based on likely extent of stockpiling with this stage. This has been assumed to be an area of 10m * 10m for the purposes of modelling. Surplus soils would generally be rapidly removed from the site.
	Benzene	$1.26*10^{-5}$ tonnes/ha.year (max) $1.02*10^{-6}$ tonnes/ha.year (mean) Vapour emission rate as per **Appendix C**	Using the maximum and mean benzene concentration recorded for gravels, sand and demolition wastes
	Benzo(a)pyrene	$1.28*10^{-4}$ tonnes/ha.year (max) $1.55*10^{-5}$ tonnes/ha.year (mean) Vapour emission rate as per **Appendix C**	Using the maximum and mean benzo(a)pyrene concentration recorded for gravels, sand and demolition wastes
	Odour	7.3 $OU/m^2.s$	Requires to be based on likely extent of stockpiling with this stage. This can be assumed to be 10m * 10m. Based on comparison of impacted soils to coal tar in **Section 5.9**.
Stockpiles (fugitive emissions) – Former Gasworks Area	TSP	0.85 tonnes/ha.year	Requires to be based on likely extent of stockpiling with this stage. This has been assumed to be an area of 10m * 10m for the purposes of modelling. Surplus soils would generally be rapidly removed from the site.
	PM_{10}	0.43 tonnes/ha.year	Requires to be based on likely extent of stockpiling with this stage. This has been assumed to be an area of 10m * 10m for the purposes of modelling. Surplus soils would generally be rapidly removed from the site.
	Benzene	$1.70*10^{-5}$ tonnes/ha.year (max) $1.19*10^{-6}$ tonnes/ha.year (mean) Vapour emission rate as per **Appendix C**	Using the highest of the maximum and mean benzene concentration recorded for each of the soil types assessed for the site.

Source	Constituent	Emission Factor	Comments
	Benzo(a)pyrene	$3.77*10^{-4}$ tonnes/ha.year (max) $1.79*10^{-5}$ tonnes/ha.year (mean) Vapour emission rate as per **Appendix C**	Using the highest of the maximum and mean benzo(a)pyrene concentration recorded for each of the soil types assessed for the site.
	Odour	7.3 OU/m^2.s	Requires to be based on likely extent of stockpiling with this stage. This can be assumed to be 10m * 10m. Based on comparison of impacted soils to coal tar in **Section 5.9**.
Stabilisation / Immobilisation of Soils	TSP	$4.8*10^{-2} + 2.81*10^{-2}*U^{1.3}$ kg/t	Requires to be based on soil treatment rate. Assumed to be 100m^3/day for the purposes of modelling.
	PM_{10}	$2.4*10^{-2} + 1.33*10^{-2}*U^{1.3}$ kg/t	Requires to be based on soil treatment rate. Assumed to be 100m^3/day for the purposes of modelling.
	Benzene	$5.62*10^{-7}*U^{1.3}$ kg/t (max) $3.93*10^{-8}*U^{1.3}$ kg/t (mean) Vapour emission rate as per **Appendix C**	Using the highest of the maximum and mean benzene concentration recorded for each of the soil types assessed for the site.
	Benzo(a)pyrene	$1.25*10^{-5}*U^{1.3}$ kg/t (max) $5.90*10^{-7}*U^{1.3}$ kg/t (mean) Vapour emission rate as per **Appendix C**	Using the highest of the maximum and mean benzo(a)pyrene concentration recorded for each of the soil types assessed for the site.
	Odour	7.3 OU/m^2.s	Based on comparison of impacted soils to coal tar in **Section 5.9**
Bioremediation of Soils	TSP	0.85 tonnes/ha.year	Requires to be based on likely extent of stockpiling with this stage. This has been assumed to be an area of 1,000m^2 in the western portion of the site for the purposes of modelling.
	PM_{10}	0.43 tonnes/ha.year	Requires to be based on likely extent of stockpiling with this stage. This has been assumed to be an area of 1,000m^2 in the western portion of the site for the purposes of modelling.
	Benzene	$1.70*10^{-5}$ tonnes/ha.year (max) $1.19*10^{-6}$ tonnes/ha.year (mean)	Using the highest of the maximum and mean benzene concentration recorded for each of the soil types assessed for the site.

Source	Constituent	Emission Factor	Comments
		Vapour emission rate as per **Appendix C**	
	Benzo(a)pyrene	$3.77*10^{-4}$ tonnes/ha.year (max) $1.79*10^{-5}$ tonnes/ha.year (mean) Vapour emission rate as per **Appendix C**	Using the highest of the maximum and mean benzo(a)pyrene concentration recorded for each of the soil types assessed for the site.
	Odour	7.3 OU/m^2.s	Requires to be based on likely extent of stockpiling with this stage. This has been assumed to be an area of 1,000m^2 in the western portion of the site for the purposes of modelling. Based on comparison of impacted soils to coal tar in **Section 5.9**.
Groundwater Treatment / Transfer	Odour	0.3 OU/m^2.s	As per estimate rate for pooled water. Area of water column exposed to air needs to be considered. Conservative assumption is 1m^2.
	Benzene	Vapour emission rate as per **Appendix C**	Calculated in **Appendix C**.
	Benzo(a)pyrene	Vapour emission rate as per **Appendix C**	Calculated in **Appendix C**.
Pooled Groundwater	Odour	0.3 OU/m^2.s	As per estimated rate for pooled water. Pooled water assumed to be present across area of the northern gasholder (20m * 20m) for the purposes of modelling.
	Benzene	Vapour emission rate as per **Appendix C**	Calculated in **Appendix C**.
	Benzo(a)pyrene	Vapour emission rate as per **Appendix C**	Calculated in **Appendix C**.

Table E.2: Summary of Modelling Parameters – Surface Soils Excavation

Source ID / Type	Pollutant	AUSPLUME ID	Type	X Length	Y Length	Angle	X Co-Ord	Y Co-Ord	Elevation	Time of Occurrence	Emission Rate ($g/m^2/s$)
Surface soils, excavation and stockpiling	TSP	VEX1T	Area	30m	20m	45	332314	6247685	16.5	7am – 5pm (10 hours)	$8.5*10^{-4} * U^{1.3}$
	PM_{10}	VEX1P	Area	30m	20m	45	332314	6247685	16.5	7am – 5pm (10 hours)	$4.0*10^{-4} * U^{1.3}$
	Benzene (max)	VEX1BE	Area	30m	20m	45	332314	6247685	16.5	7am – 5pm (10 hours)	Particulates $3.6*10^{-9} * U^{1.3}$
	B(a)P (max)	VEX1BP	Area	30m	20m	45	332314	6247685	16.5	7am – 5pm (10 hours)	Particulates $2.9*10^{-7} * U^{1.3}$
Surface soils, fugitive emissions from stockpiles	TSP	F1T	Area	10m	10m	0	332314	6247685	16.5	Continuous	$2.7*10^{-6}$
	PM_{10}	F1P	Area	10m	10m	0	332314	6247685	16.5	Continuous	$1.4*10^{-6}$
	Benzene (max)	F1BEP F1BEV	Area	10m	10m	0	332314	6247685	16.5	Continuous	Particulates $1.1 * 10^{-11}$ Vapours $2.7 * 10^{-11}$
	B(a)P (max)	F1BPP	Area	10m	10m	0	332314	6247685	16.5	Continuous	Particulates $9.1*10^{-10}$

Table E.3: Summary of Modelling Parameters – Fill Materials Behind Retaining Wall Excavation

Source ID / Type	Pollutant	AUSPLUME ID	Type	X Length	Y Length	Angle	X Co-Ord	Y Co-Ord	Elevation	Time of Occurrence	Emission Rate ($g/m^2/s$ or $OU/m^2/s$)
Fill materials behind retaining wall, excavation and stockpiling	TSP	VEX2T	Area	50	5	80	332271	6247720	18	7am – 5pm (10 hours)	$1.2*10^{-3} * U^{1.3}$
	PM_{10}	VEX2P	Area	50	5	80	332271	6247720	18	7am – 5pm (10 hours)	$5.8*10^{-4} * U^{1.3}$
	Benzene (max)	VEX2BE	Area	50	5	80	332271	6247720	18	7am – 5pm (10 hours)	Particulates $1.8*10^{-8} * U^{1.3}$
	B(a)P (max)	VEX2BP	Area	50	5	80	332271	6247720	18	7am – 5pm (10 hours)	Particulates $1.8*10^{-7} * U^{1.3}$
	Odour	VEX2OU	Area	50	5	80	332271	6247720	18	Continuous	7.3
Fill materials behind retaining wall, fugitive emissions from stockpiles	TSP	F2T	Area	10	10	0	332283	6247718	17.5	Continuous	$2.7*10^{-6}$
	PM_{10}	F2P	Area	10	10	0	332283	6247718	17.5	Continuous	$1.4*10^{-6}$
	Benzene (max)	F2BEP F2BEV	Area	10	10	0	332283	6247718	17.5	Continuous	Particulates $4.1*10^{-11}$ Vapours $9.7*10^{-11}$
	B(a)P (max)	F2BPP	Area	10	10	0	332283	6247718	17.5	Continuous	Particulates $4.1*10^{-10}$
	Odour	F2OU	Area	10	10	0	332283	6247718	17.5	Continuous	7.3

Table E.4: Summary of Modelling Parameters – Northern Gasholder Excavation

Source ID / Type	Pollutant	AUSPLUME ID	Type	X Length	Y Length	Angle	X Co-Ord	Y Co-Ord	Elevation	Time of Occurrence	Emission Rate (g/m2/s or OU/m2/s)
Northern Gasholder, excavation and stockpiling	TSP	VEX3T	Area	20	20	0	332276	6247697	17.5	7am – 5pm (10 hours)	$2.5*10^{-4} * U^{1.3}$
	PM_{10}	VEX3P	Area	20	20	0	332276	6247697	17.5	7am – 5pm (10 hours)	$1.2*10^{-4} * U^{1.3}$
	Benzene (max)	VEX3BE	Area	20	20	0	332276	6247697	17.5	7am – 5pm (10 hours)	Particulates $3.8*10^{-9} * U^{1.3}$
	B(a)P (max)	VEX3BP	Area	20	20	0	332276	6247697	17.5	7am – 5pm (10 hours)	Particulates $3.8*10^{-8} * U^{1.3}$
	Odour	VEX3OU	Area	20	20	0	332276	6247697	17.5	Continuous	7.3
Northern gasholder, fugitive emissions from stockpiles	TSP	F3T	Area	10	10	0	332296	6247702	17.5	Continuous	$2.7*10^{-6}$
	PM_{10}	F3P	Area	10	10	0	332296	6247702	17.5	Continuous	$1.4*10^{-6}$
	Benzene (max)	F3BEP F3BEV	Area	10	10	0	332296	6247702	17.5	Continuous	Particulates $4.1*10^{-11}$ Vapours $9.7*10^{-11}$
	B(a)P (max)	F3BPP	Area	10	10	0	332296	6247702	17.5	Continuous	Particulates $4.1*10^{-10}$
	Odour	F3OU	Area	10	10	0	332296	6247702	17.5	Continuous	7.3

Table E.5: Summary of Modelling Parameters – Former Gasworks Area Excavation

Source ID / Type	Pollutant	AUSPLUME ID	Type	X Length	Y Length	Angle	X Co-Ord	Y Co-Ord	Elevation	Time of Occurrence	Emission Rate ($g/m^2/s$ or $OU/m^2/s$)
Former gasworks area, excavation and stockpiling	TSP	VEX4T	Area	15	15	0	332296	6247695	17.5	7am – 5pm (10 hours)	$9.0*10^{-4} * U^{1.3}$
	PM_{10}	VEX4P	Area	15	15	0	332296	6247695	17.5	7am – 5pm (10 hours)	$4.3*10^{-4} * U^{1.3}$
	Benzene (max)	VEX4BE	Area	15	15	0	332296	6247695	17.5	7am – 5pm (10 hours)	Particulates $1.8*10^{-8} * U^{1.3}$
	B(a)P (max)	VEX4BP	Area	15	15	0	332296	6247695	17.5	7am – 5pm (10 hours)	Particulates $4.0*10^{-7} * U^{1.3}$
	Odour	VEX4OU	Area	15	15	0	332296	6247695	17.5	Continuous	7.3
Former gasworks area, fugitive emissions from stockpiles	TSP	F4T	Area	10	10	0	332296	6247695	17.5	Continuous	$2.7*10^{-6}$
	PM_{10}	F4P	Area	10	10	0	332296	6247695	17.5	Continuous	$1.4*10^{-6}$
	Benzene (max)	F4BEP F4BEV	Area	10	10	0	332296	6247695	17.5	Continuous	Particulates $5.4*10^{-11}$ Vapours $1.3*10^{-10}$
	B(a)P (max)	F4BPP	Area	10	10	0	332296	6247695	17.5	Continuous	Particulates $1.2*10^{-9}$
	Odour	F4OU	Area	10	10	0	332296	6247695	17.5	Continuous	7.3

Table E.6: Summary of Modelling Parameters – Haulage Roads Within Site

Source ID / Type	Pollutant	AUSPLUME ID	Type	X Length	Y Length	Angle	X Co-Ord	Y Co-Ord	Elevation	Time of Occurrence	Emission Rate ($g/m^2/s$)
Haulage roads	TSP	HAT	Area	5	60	0	332312	6247672	16	7am – 5pm (10 hours)	$1.1*10^{-4}$
	PM_{10}	HAP	Area	5	60	0	332312	6247672	16	7am – 5pm (10 hours)	$6.9*10^{-5}$

Table E.7: Summary of Modelling Parameters – Soil Treatment / Remediation Activities

Source ID / Type	Pollutant	AUSPLUME ID	Type	X Length	Y Length	Angle	X Co-Ord	Y Co-Ord	Elevation	Time of Occurrence	Emission Rate ($g/m^2/s$ or $OU/m^2/s$)
Bioremediation of soils[2]	TSP	T2T	Area	65	15	60	332338	6247714	17	Continuous	$2.7*10^{-6}$
	PM_{10}	T2PM	Area	65	15	60	332338	6247714	17	Continuous	$1.4*10^{-6}$
	Benzene (max)	T2BEP T2BEV	Area	65	15	60	332338	6247714	17	Continuous	Particulates $5.4*10^{-11}$ Vapours $1.3*10^{-10}$
	B(a)P (max)	T2BPP	Area	65	15	60	332338	6247714	17	Continuous	Particulates $1.2*10^{-9}$
	Odour	T2OU	Area	65	15	60	332338	6247714	17	Continuous	7.3

Note: 1. Emissions consequent of concrete dusts

2. Also accounts for potential emissions from stockpiled soils associated with the stabilisation / immobilisation works

Table E.8: Summary of Modelling Parameters – Groundwater Emissions and Water Treatment

Source ID / Type	Pollutant	AUSPLUME ID	Type	X Length	Y Length	Angle	X Co-Ord	Y Co-Ord	Elevation	Time of Occurrence	Emission Rate (g/s, $g/m^2/s$, OU/s or $OU/m^2/s$)

Groundwater treatment	Benzene (max)	WTBE	Point	-	-	-	332298	6247702	17.5	Continuous during working hours	$9.7*10^{-3}$
	B(a)P (max)	WTBP	Point	-	-	-	332298	6247702	17.5	Continuous during working hours	$8.0*10^{-5}$
	Odour	WTOU	Point	-	-	-	332298	6247702	17.5	Continuous during working hours	0.3
Pooled water evaporation	Benzene (max)	PWBE	Area	20	20	0	332276	6247697	15	Continuous	$7.8*10^{-5} * U^{0.8}/T^{1.47}$
	B(a)P (max)	PWBP	Area	20	20	0	332276	6247697	15	Continuous	$1.6*10^{-5} * U^{0.8}/T^{1.47}$
	Odour	PWOU	Area	20	20	0	332276	6247697	15	Continuous	0.3

Table E.9: Summary of Worse Air Pollutant Levels with Assumption of No Site Controls (µg/m^3 or OU)

Scenario	Pollutant	Averaging Time	Criteria	Receptor ID					
				1	2	3	4	5	6
Surface soils remediation	TSP	Annual	90	1.67E+01	4.83E+01	7.14E+01	7.60E+00	6.52E+01	6.08E+01
	PM_{10}	24 hour	50	**7.82E+01**	**1.98E+02**	**1.59E+02**	3.61E+01	**1.23E+02**	**1.37E+02**
	PM_{10}	Annual	30	7.85E+00	2.27E+01	**3.36E+01**	3.56E+00	**3.06E+01**	2.86E+01
	Benzene	1 hour	29	1.77E-03	6.21E-03	6.29E-03	1.98E-03	5.42E-03	6.13E-03
	Benzo(a)pyrene	1 hour	0.4	1.92E-01	**6.71E-01**	**6.79E-01**	2.15E-01	**5.85E-01**	**6.61E-01**
Fill materials behind northern retaining wall remediation	TSP	Annual	90	1.41E+01	**1.22E+02**	**2.06E+02**	2.14E+01	**1.40E+02**	**2.37E+02**
	PM_{10}	24 hour	50	4.06E+01	**3.79E+02**	**5.50E+02**	**8.75E+01**	**3.64E+02**	**6.27E+02**
	PM_{10}	Annual	30	6.83E+00	**5.90E+01**	**9.99E+01**	1.04E+01	**6.76E+01**	**1.15E+02**
	Benzene	1 hour	29	2.00E-02	1.33E-01	7.96E-02	1.89E-02	6.80E-02	6.82E-02
	Benzo(a)pyrene	1 hour	0.4	2.04E-02	1.36E-01	8.04E-02	1.91E-02	6.86E-02	6.97E-02
	Odour	1 second	2 OU	**1.20E+01**	**6.70E+01**	**2.41E+01**	**8.02E+00**	**1.88E+01**	**3.32E+01**
Northern gasholder remediation	TSP	Annual	90	5.30E+00	**4.69E+01**	1.61E+01	9.15E-01	8.22E+00	**3.37E+01**
	PM_{10}	24 hour	50	1.73E+01	**1.92E+02**	3.04E+01	4.56E+00	1.82E+01	**5.74E+01**
	PM_{10}	Annual	30	2.55E+00	**2.24E+01**	7.74E+00	4.40E-01	3.95E+00	**1.61E+01**
	Benzene	1 hour	29	1.73E-03	1.53E-02	6.46E-03	8.22E-04	3.80E-03	1.02E-02
	Benzo(a)pyrene	1 hour	0.4	1.73E-02	1.53E-01	6.49E-02	8.28E-03	3.82E-02	1.02E-01
	Odour	1 second	2 OU	**1.68E+01**	**9.18E+01**	**5.66E+01**	**1.39E+01**	**1.16E+01**	**7.84E+01**
Former gasworks area remediation	TSP	Annual	90	9.45E+00	4.75E+01	3.52E+01	1.91E+00	2.15E+01	4.91E+01
	PM_{10}	24 hour	50	3.84E+01	**1.78E+02**	**6.43E+01**	1.14E+01	4.15E+01	**1.06E+02**
	PM_{10}	Annual	30	4.52E+00	2.26E+01	1.69E+01	9.12E-01	1.02E+01	2.34E+01

Scenario	Pollutant	Averaging Time	Criteria	Receptor ID					
				1	2	3	4	5	6
	Benzene	1 hour	29	4.49E-03	2.60E-02	1.63E-02	2.66E-03	1.19E-02	2.10E-02
	Benzo(a)pyrene	1 hour	0.4	9.38E-02	5.72E-02	3.58E-02	5.32E-02	2.48E-01	4.58E-02
	Odour	1 second	2 OU	**1.00E+01**	**4.90E+01**	**3.70E+01**	**9.93E+00**	**2.82E+01**	**4.69E+01**
Haulage roads	TSP	Annual	90	1.38E+00	4.86E+00	8.54E+00	2.32E+00	8.28E+00	7.43E+00
	PM_{10}	24 hour	50	6.62E+00	2.63E+01	3.79E+01	9.36E+00	2.62E+01	3.08E+01
	PM_{10}	Annual	30	1.76E+01	2.17E+01	1.49E+01	5.37E+00	1.34E+01	1.50E+01
Soil treatment	TSP	Annual	90	1.37E+01	5.03E+01	5.01E+01	1.11E+01	4.19E+01	5.47E+01
	PM_{10}	24 hour	50	**5.77E+01**	**2.19E+02**	**1.37E+02**	3.68E+01	**1.25E+02**	**1.95E+02**
	PM_{10}	Annual	30	6.84E+00	2.51E+01	2.53E+01	5.65E+00	2.13E+01	2.75E+01
	Benzene	1 hour	29	1.03E-02	4.08E-02	2.10E-02	7.98E-03	1.71E-02	2.56E-02
	Benzo(a)pyrene	1 hour	0.4	5.88E-02	2.67E-01	1.11E-01	2.84E-02	8.63E-02	1.33E-01
	Odour	1 second	2 OU	**3.58E+01**	**1.06E+02**	**3.50E+01**	**4.15E+01**	**5.69E+01**	**7.19E+01**
Groundwater pooling and treatment	Benzene	1 hour	29	4.50E+01	**3.74E+02**	**1.76E+02**	2.60E+01	**1.08E+02**	**2.67E+02**
	Benzo(a)pyrene	1 hour	0.4	**7.21E+00**	**6.42E+01**	**2.71E+01**	**3.40E+00**	**1.59E+01**	**4.26E+01**
	Odour	1 second	2 OU	5.53E-01	**3.05E+00**	1.88E+00	4.54E-01	1.37E+00	**2.63E+00**

BOLD denotes exceedance of criteria at receptor location

The maximum levels as modelled using the 2 years of meteorological data have only been reported, and consequently include the worst case scenarios only.

Assessment criteria were not exceeded for site activities relating to haul road useage, however exceedances of at least one of the adopted assessment criteria were identified for the remainder of activities that may occur on the site. These are summarised as the following:

Surface Soils Excavation and Stockpiling

- Particulate assessment criteria were exceeded for all receptors adopting a 24 hour averaging period. When the maximum 90 day concentrations are compared to the annual averaging period criteria exceedances were noted at two of the four receptor locations;
- Exceedance of benzo(a)pyrene criteria at four of six receptor locations based on the maximum concentration of benzo(a)pyrene potentially present in all soils on the site.

Retaining Wall Soil Excavation and Stockpiling

- Particulate assessment criteria adopting both the 24 hour and 90 day assessment criteria were exceeded at the majority of receptor locations; and
- Significant exceedances of odour criteria were determined at all receptor locations based on potential odour emissions from impacted retaining wall fill being 7.3Ou/m^2, which as discussed in **Section 5.9** is considered to be the appropriate to soils present in the source zone and tar impacted soil zones.

Northern Gasworks Soil Excavation and Stockpiling

- Particulate assessment criteria adopting both the 24 hour and 90 day assessment criteria were exceeded at two of the six receptor locations; and
- Significant exceedances of odour criteria were determined at all receptor locations based on potential odour emissions from the Northern Gasholder fill being 7.3Ou/m^2, which as discussed in **Section 5.9** is considered to be the worst case condition applicable to soils present in the source zone and tar impacted soil zones.

Gasworks Area Soil Excavation and Stockpiling

- Particulate assessment criteria adopting the 24 hour assessment criteria were exceeded at half of the receptor locations; and
- Significant exceedances of odour criteria were determined at all receptor locations based on potential odour emissions from the Gasworks area being 7.3Ou/m^2, which as discussed in **Section 5.9** is considered to be the appropriate for soils present in the source zone and tar impacted soil zones.

Soils Treatment On-Site by Immobilisation / Stabilisation

- Exceedance of the particulate assessment criteria for a 24 hour averaging period at five of the six receptor locations. It is noted that as a worst case assessment the modelling has assumed that bioremediation and stabilisation will occur on the site, and that stabilisation will results in fugitive emissions of cement;

- Significant exceedances of odour assessment criteria at all receptor locations, from soil treatment activities on worst case odour emissions from coal tar impacted soils; and
- Exceedance of benzo(a)pyrene criteria at all receptor locations based on the maximum concentration of benzo(a)pyrene potentially present in soils on the site.

Overall the results of the dispersion modelling indicate that where significant quantities of coal tar impacted soils are exposed to the atmosphere there is a high potential for malodorous impacts at adjoining properties.

With respect to the results of modelling of particulate levels, assessed as TSP and PM_{10} concentrations and generally based on annual levels, it noted that many of the sources assessed are short term in nature with durations substantially less than a year. For the purposes of the screening exercise conducted with this modelling it was assumed that each of these sources will be continuous throughout the modelling period, with the maximum 90 day (three month) concentration reported and compared to the 'annual' criteria. This approach was applied to ensure worst conditions were assessed. Further no correction factor has been applied to account for no work occurring on Sundays for the duration of the project.

The modelling has assumed other additional worst case conditions including maximum concentrations of constituents, worst case meteorological conditions, and no air quality controls in place during the site works.

Summarised Modelling Outputs

Surface Soils Excavation – Worse Case – Variable Emissions

1

40913 Macdonaldtown VEX1 surface soils variable emissions

Concentration or deposition	Concentration
Emission rate units	grams/second
Concentration units	microgram/m3
Units conversion factor	1.00E+06
Constant background concentration	0.00E+00
Terrain effects	Egan method
Smooth stability class changes?	No
Other stability class adjustments ("urban modes")	None
Ignore building wake effects?	No
Decay coefficient (unless overridden by met. file)	0.000
Anemometer height	10 m
Roughness height at the wind vane site	0.300 m

DISPERSION CURVES

Horizontal dispersion curves for sources <100m high	Pasquill-Gifford
Vertical dispersion curves for sources <100m high	Pasquill-Gifford
Horizontal dispersion curves for sources >100m high	Briggs Rural
Vertical dispersion curves for sources >100m high	Briggs Rural
Enhance horizontal plume spreads for buoyancy?	Yes
Enhance vertical plume spreads for buoyancy?	Yes
Adjust horizontal P-G formulae for roughness height?	Yes
Adjust vertical P-G formulae for roughness height?	Yes
Roughness height	0.800m
Adjustment for wind directional shear	None

PLUME RISE OPTIONS

Gradual plume rise?	Yes
Stack-tip downwash included?	Yes
Building downwash algorithm:	PRIME method.
Entrainment coeff. for neutral & stable lapse rates	0.60,0.60
Partial penetration of elevated inversions?	No
Disregard temp. gradients in the hourly met. file?	No

and in the absence of boundary-layer potential temperature gradients
given by the hourly met. file, a value from the following table
(in K/m) is used:

Wind Speed Category	Stability Class A	B	C	D	E	F
1	0.000	0.000	0.000	0.000	0.020	0.035
2	0.000	0.000	0.000	0.000	0.020	0.035
3	0.000	0.000	0.000	0.000	0.020	0.035
4	0.000	0.000	0.000	0.000	0.020	0.035
5	0.000	0.000	0.000	0.000	0.020	0.035
6	0.000	0.000	0.000	0.000	0.020	0.035

WIND SPEED CATEGORIES
Boundaries between categories (in m/s) are: 1.54, 3.09, 5.14, 8.23, 10.80

WIND PROFILE EXPONENTS: "Irwin Urban" values (unless overridden by met. file)

AVERAGING TIMES
1 hour
24 hours
90 days

40913 Macdonaldtown VEX1 surface soils variable emissions

SOURCE GROUPS

Group No.	Members
1	VEX1T
2	VEX1P
3	VEX1BE
4	VEX1BP

1 _____

40913 Macdonaldtown VEX1 surface soils variable emissions

SOURCE CHARACTERISTICS

_____

INTEGRATED AREA SOURCE: VEX1T

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332314	6247685	17m	30m	20m	45deg	5m	0m

(Constant) emission rate = 8.50E-04 grams/second per square metre

Hourly multiplicative factors will be used with
this emission factor.
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: VEX1P

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332314	6247685	17m	30m	20m	45deg	5m	0m

(Constant) emission rate = 4.00E-04 grams/second per square metre

Hourly multiplicative factors will be used with
this emission factor.
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: VEX1BE

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332314	6247685	17m	30m	20m	45deg	5m	0m

(Constant) emission rate = 3.60E-06 grams/second per square metre

Hourly multiplicative factors will be used with
this emission factor.
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: VEX1BP

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332314	6247685	17m	30m	20m	45deg	5m	0m

(Constant) emission rate = 2.90E-06 grams/second per square metre

Hourly multiplicative factors will be used with
this emission factor.
No gravitational settling or scavenging.

_____

1 _____

40913 Macdonaldtown VEX1 surface soils variable emissions

RECEPTOR LOCATIONS

_____

The Cartesian receptor grid has the following x-values (or eastings):
332119.m 332162.m 332202.m 332243.m 332285.m 332326.m 332370.m
332411.m 332452.m 332493.m 332533.m

and these y-values (or northings):
6247493.m 6247550.m 6247604.m 6247660.m 6247712.m 6247768.m 6247822.m
6247875.m 6247926.m 6247977.m 6248028.m

DISCRETE RECEPTOR LOCATIONS (in metres)

No.	X	Y	ELEVN	HEIGHT	No.	X	Y	ELEVN	HEIGHT
1	332244	6247859	26.0	1.5	4	332342	6247537	16.0	1.5
2	332263	6247744	20.0	1.5	5	332265	6247624	16.0	1.5
3	332259	6247645	21.5	1.5	6	332252	6247669	17.0	1.5

_____

METEOROLOGICAL DATA : DECCW Randwick AWS Data BoM SydneyAP Clouds SydneyAP

Surface Soils Excavation – Worse Case – Other Emissions
1

40913 Macdonaldtown VEX1 fugitive emissions

Concentration or deposition	Concentration
Emission rate units	grams/second
Concentration units	microgram/m3
Units conversion factor	1.00E+06
Constant background concentration	0.00E+00
Terrain effects	Egan method
Smooth stability class changes?	No
Other stability class adjustments ("urban modes")	None
Ignore building wake effects?	No
Decay coefficient (unless overridden by met. file)	0.000
Anemometer height	10 m
Roughness height at the wind vane site	0.300 m

DISPERSION CURVES

Horizontal dispersion curves for sources <100m high	Pasquill-Gifford
Vertical dispersion curves for sources <100m high	Pasquill-Gifford
Horizontal dispersion curves for sources >100m high	Briggs Rural
Vertical dispersion curves for sources >100m high	Briggs Rural
Enhance horizontal plume spreads for buoyancy?	Yes
Enhance vertical plume spreads for buoyancy?	Yes
Adjust horizontal P-G formulae for roughness height?	Yes
Adjust vertical P-G formulae for roughness height?	Yes
Roughness height	0.800m
Adjustment for wind directional shear	None

PLUME RISE OPTIONS

Gradual plume rise?	Yes
Stack-tip downwash included?	Yes
Building downwash algorithm:	PRIME method.
Entrainment coeff. for neutral & stable lapse rates	0.60,0.60
Partial penetration of elevated inversions?	No
Disregard temp. gradients in the hourly met. file?	No

and in the absence of boundary-layer potential temperature gradients
given by the hourly met. file, a value from the following table
(in K/m) is used:

Wind Speed Category	Stability Class A	B	C	D	E	F
1	0.000	0.000	0.000	0.000	0.020	0.035
2	0.000	0.000	0.000	0.000	0.020	0.035
3	0.000	0.000	0.000	0.000	0.020	0.035
4	0.000	0.000	0.000	0.000	0.020	0.035
5	0.000	0.000	0.000	0.000	0.020	0.035
6	0.000	0.000	0.000	0.000	0.020	0.035

WIND SPEED CATEGORIES
Boundaries between categories (in m/s) are: 1.54, 3.09, 5.14, 8.23, 10.80

WIND PROFILE EXPONENTS: "Irwin Urban" values (unless overridden by met. file)

AVERAGING TIMES
1 hour
24 hours
90 days

40913 Macdonaldtown VEX1 fugitive emissions

SOURCE GROUPS

Group No.	Members
1	F1T
2	F1P
3	F1BEP
4	F1BEV
5	F1BPP

1

40913 Macdonaldtown VEX1 fugitive emissions

SOURCE CHARACTERISTICS

INTEGRATED AREA SOURCE: F1T

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332314	6247685	17m	30m	20m	45deg	5m	0m

(Constant) emission rate = 2.70E-06 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: F1P

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332314	6247685	17m	30m	20m	45deg	5m	0m

(Constant) emission rate = 1.40E-06 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: F1BEP

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332314	6247685	17m	30m	20m	45deg	5m	0m

(Constant) emission rate = 1.10E-06 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: F1BEV

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332314	6247685	17m	30m	20m	45deg	5m	0m

(Constant) emission rate = 1.10E-06 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: F1BPP

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332314	6247685	17m	30m	20m	45deg	5m	0m

(Constant) emission rate = 9.10E-06 grams/second per square metre
No gravitational settling or scavenging.

1

40913 Macdonaldtown VEX1T

RECEPTOR LOCATIONS

The Cartesian receptor grid has the following x-values (or eastings):
332119.m 332162.m 332202.m 332243.m 332285.m 332326.m 332370.m
332411.m 332452.m 332493.m 332533.m

and these y-values (or northings):
6247493.m 6247550.m 6247604.m 6247660.m 6247712.m 6247768.m 6247822.m
6247875.m 6247926.m 6247977.m 6248028.m

DISCRETE RECEPTOR LOCATIONS (in metres)

No.	X	Y	ELEVN	HEIGHT	No.	X	Y	ELEVN	HEIGHT
1	332244	6247859	26.0	1.5	4	332342	6247537	16.0	1.5
2	332263	6247744	20.0	1.5	5	332265	6247624	16.0	1.5
3	332259	6247645	21.5	1.5	6	332252	6247669	17.0	1.5

METEOROLOGICAL DATA : DECCW Randwick AWS Data BoM SydneyAP Clouds SydneyAP

1

40913 Macdonaldtown Retaining Walls - excavation and stockpiling

Concentration or deposition	Concentration
Emission rate units	grams/second
Concentration units	microgram/m3
Units conversion factor	1.00E+06
Constant background concentration	0.00E+00
Terrain effects	Egan method
Smooth stability class changes?	No
Other stability class adjustments ("urban modes")	None
Ignore building wake effects?	No
Decay coefficient (unless overridden by met. file)	0.000
Anemometer height	10 m
Roughness height at the wind vane site	0.300 m

DISPERSION CURVES

Horizontal dispersion curves for sources <100m high	Pasquill-Gifford
Vertical dispersion curves for sources <100m high	Pasquill-Gifford
Horizontal dispersion curves for sources >100m high	Briggs Rural
Vertical dispersion curves for sources >100m high	Briggs Rural
Enhance horizontal plume spreads for buoyancy?	Yes
Enhance vertical plume spreads for buoyancy?	Yes
Adjust horizontal P-G formulae for roughness height?	Yes
Adjust vertical P-G formulae for roughness height?	Yes
Roughness height	0.800m
Adjustment for wind directional shear	None

PLUME RISE OPTIONS

Gradual plume rise?	Yes
Stack-tip downwash included?	Yes
Building downwash algorithm:	PRIME method.
Entrainment coeff. for neutral & stable lapse rates	0.60,0.60
Partial penetration of elevated inversions?	No
Disregard temp. gradients in the hourly met. file?	No

and in the absence of boundary-layer potential temperature gradients
given by the hourly met. file, a value from the following table
(in K/m) is used:

Wind Speed Category	Stability Class A	B	C	D	E	F
1	0.000	0.000	0.000	0.000	0.020	0.035
2	0.000	0.000	0.000	0.000	0.020	0.035
3	0.000	0.000	0.000	0.000	0.020	0.035
4	0.000	0.000	0.000	0.000	0.020	0.035
5	0.000	0.000	0.000	0.000	0.020	0.035
6	0.000	0.000	0.000	0.000	0.020	0.035

WIND SPEED CATEGORIES
Boundaries between categories (in m/s) are: 1.54, 3.09, 5.14, 8.23, 10.80

WIND PROFILE EXPONENTS: "Irwin Urban" values (unless overridden by met. file)

AVERAGING TIMES
1 hour
24 hours
90 days

40913 Macdonaldtown Retaining Walls - excavation and stockpiling

SOURCE GROUPS

Group No.	Members
1	VEX2T
2	VEX2P
3	VEX2BE
4	VEX2BP

1

40913 Macdonaldtown Retaining Walls - excavation and stockpiling

SOURCE CHARACTERISTICS

INTEGRATED AREA SOURCE: VEX2T

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332271	6247720	18m	50m	5m	80deg	10m	0m

(Constant) emission rate = 1.20E-03 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: VEX2P

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332271	6247720	18m	50m	5m	80deg	10m	0m

(Constant) emission rate = 5.80E-04 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: VEX2BE

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332271	6247720	18m	50m	5m	80deg	10m	0m

(Constant) emission rate = 1.80E-06 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: VEX2BP

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332271	6247720	18m	50m	5m	80deg	10m	0m

(Constant) emission rate = 1.80E-06 grams/second per square metre
No gravitational settling or scavenging.

1

40913 Macdonaldtown Retaining Walls - excavation and stockpiling

RECEPTOR LOCATIONS

The Cartesian receptor grid has the following x-values (or eastings):
332119.m 332162.m 332202.m 332243.m 332285.m 332326.m 332370.m
332411.m 332452.m 332493.m 332533.m

and these y-values (or northings):
6247493.m 6247550.m 6247604.m 6247660.m 6247712.m 6247768.m 6247822.m
6247875.m 6247926.m 6247977.m 6248028.m

DISCRETE RECEPTOR LOCATIONS (in metres)

No.	X	Y	ELEVN	HEIGHT	No.	X	Y	ELEVN	HEIGHT
1	332244	6247859	26.0	1.5	4	332342	6247537	16.0	1.5
2	332263	6247744	20.0	1.5	5	332265	6247624	16.0	1.5
3	332259	6247645	21.5	1.5	6	332252	6247669	17.0	1.5

METEOROLOGICAL DATA : DECCW Randwick AWS Data BoM SydneyAP Clouds SydneyAP

Fill Materials Behind Retaining Wall – Worse Case – Other Emissions
1

40913 Macdonaldtown Retaining Walls - excavation and stockpiling

Concentration or deposition Concentration
Emission rate units grams/second
Concentration units microgram/m3
Units conversion factor 1.00E+06
Constant background concentration 0.00E+00
Terrain effects Egan method
Smooth stability class changes? No
Other stability class adjustments ("urban modes") None
Ignore building wake effects? No
Decay coefficient (unless overridden by met. file) 0.000
Anemometer height 10 m
Roughness height at the wind vane site 0.300 m

DISPERSION CURVES
Horizontal dispersion curves for sources <100m high Pasquill-Gifford
Vertical dispersion curves for sources <100m high Pasquill-Gifford
Horizontal dispersion curves for sources >100m high Briggs Rural
Vertical dispersion curves for sources >100m high Briggs Rural
Enhance horizontal plume spreads for buoyancy? Yes
Enhance vertical plume spreads for buoyancy? Yes
Adjust horizontal P-G formulae for roughness height? Yes
Adjust vertical P-G formulae for roughness height? Yes
Roughness height 0.800m
Adjustment for wind directional shear None

PLUME RISE OPTIONS
Gradual plume rise? Yes
Stack-tip downwash included? Yes
Building downwash algorithm: PRIME method.
Entrainment coeff. for neutral & stable lapse rates 0.60,0.60
Partial penetration of elevated inversions? No
Disregard temp. gradients in the hourly met. file? No

and in the absence of boundary-layer potential temperature gradients
given by the hourly met. file, a value from the following table
(in K/m) is used:

Wind Speed Category	Stability Class A	B	C	D	E	F
1	0.000	0.000	0.000	0.000	0.020	0.035
2	0.000	0.000	0.000	0.000	0.020	0.035
3	0.000	0.000	0.000	0.000	0.020	0.035
4	0.000	0.000	0.000	0.000	0.020	0.035
5	0.000	0.000	0.000	0.000	0.020	0.035
6	0.000	0.000	0.000	0.000	0.020	0.035

WIND SPEED CATEGORIES
Boundaries between categories (in m/s) are: 1.54, 3.09, 5.14, 8.23, 10.80

WIND PROFILE EXPONENTS: "Irwin Urban" values (unless overridden by met. file)

AVERAGING TIMES
1 hour
24 hours
90 days

40913 Macdonaldtown Retaining Walls - excavation and stockpiling

SOURCE GROUPS

Group No.	Members
1	F2T
2	F2P
3	F2BEP F2BPP
4	F2BEV

1 _____

40913 Macdonaldtown Retaining Walls - excavation and stockpiling

SOURCE CHARACTERISTICS

_____

INTEGRATED AREA SOURCE: F2T

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332283	6247718	18m	10m	10m	0deg	10m	0m

(Constant) emission rate = 2.70E-06 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: F2P

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332283	6247718	18m	10m	10m	0deg	10m	0m

(Constant) emission rate = 1.40E-06 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: F2BEP

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332271	6247720	18m	50m	5m	80deg	10m	0m

(Constant) emission rate = 4.10E-06 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: F2BPP

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332271	6247720	18m	50m	5m	80deg	10m	0m

(Constant) emission rate = 4.10E-06 grams/second per square metre
No gravitational settling or scavenging.

INTEGRATED AREA SOURCE: F2BEV

X0(m)	Y0(m)	Ground El	Length X	Length Y	Or. Angle	Ver. spread	Height
332283	6247718	18m	10m	10m	0deg	10m	0m

(Constant) emission rate = 9.70E-06 grams/second per square metre
No gravitational settling or scavenging.

_____

1 _____

40913 Macdonaldtown Retaining Walls - excavation and stockpiling

RECEPTOR LOCATIONS

_____

The Cartesian receptor grid has the following x-values (or eastings):
332119.m 332162.m 332202.m 332243.m 332285.m 332326.m 332370.m
332411.m 332452.m 332493.m 332533.m

and these y-values (or northings):
6247493.m 6247550.m 6247604.m 6247660.m 6247712.m 6247768.m 6247822.m
6247875.m 6247926.m 6247977.m 6248028.m

DISCRETE RECEPTOR LOCATIONS (in metres)

No.	X	Y	ELEVN	HEIGHT	No.	X	Y	ELEVN	HEIGHT
1	332244	6247859	26.0	1.5	4	332342	6247537	16.0	1.5
2	332263	6247744	20.0	1.5	5	332265	6247624	16.0	1.5
3	332259	6247645	21.5	1.5	6	332252	6247669	17.0	1.5

_____

METEOROLOGICAL DATA : DECCW Randwick AWS Data BoM SydneyAP Clouds SydneyAP

_____