

**Balmoral South Iron Ore Project,
Cape Preston, WA**

**Mineralogy Pty Ltd
Reverse Osmosis Concentrate outfall Modeling**

**Diffuser type used is the InvisiHead Outfall system
Designed and manufactured by
American Eco Systems, LLC
Nutley, New Jersey**

<http://www.amecosys.com/elmosa>

E-Mail: Elmosa@amecosys.com

Modeling Software: The US EPA Visual Plume

June 2009

/ Windows UM3. 6/15/2009 4:19:37 PM

Case 1; ambient file C:\Plumes\Australia outfall.001.db; Diffuser table record 1: -----

Depth	Amb-cur	Amb-dir	Amb-sal	Amb-tem	Amb-pol	Decay	Far-spd	Far-dir	Disprsn
m	m/s	deg	psu	C	kg/kg	s-1	m/s	deg	m0.67/s2
0.0	0.04	320.0	37.0	30.0	0.037	0.0	2.1416E+8	2.1416E+8	0.0003
7.0	0.04	320.0	37.0	30.0	0.037	0.0	2.1416E+8	2.1416E+8	0.0003

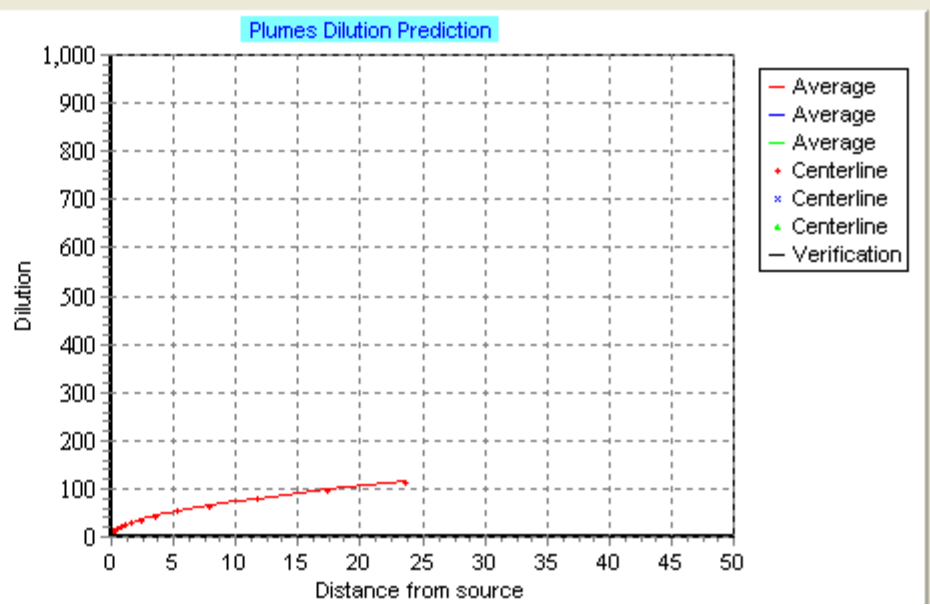
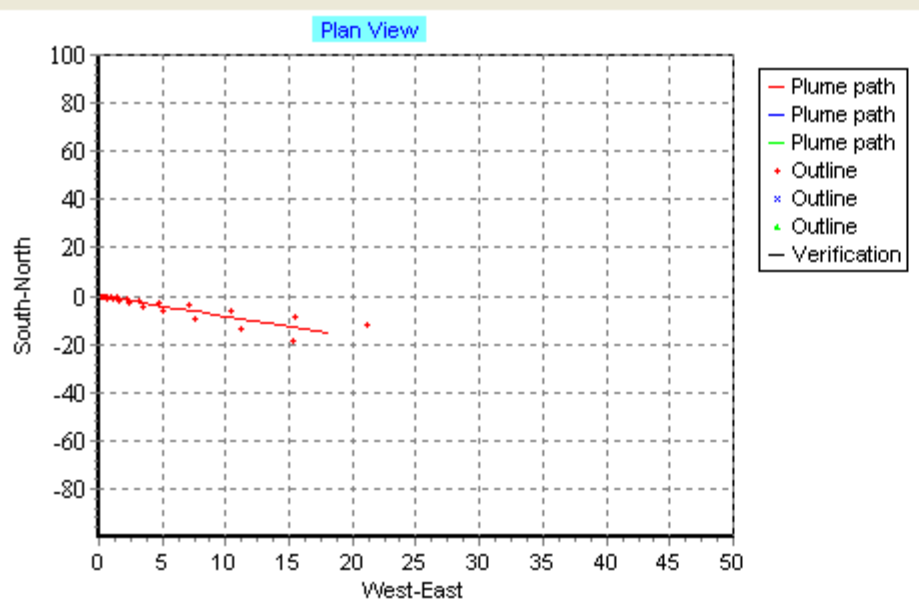
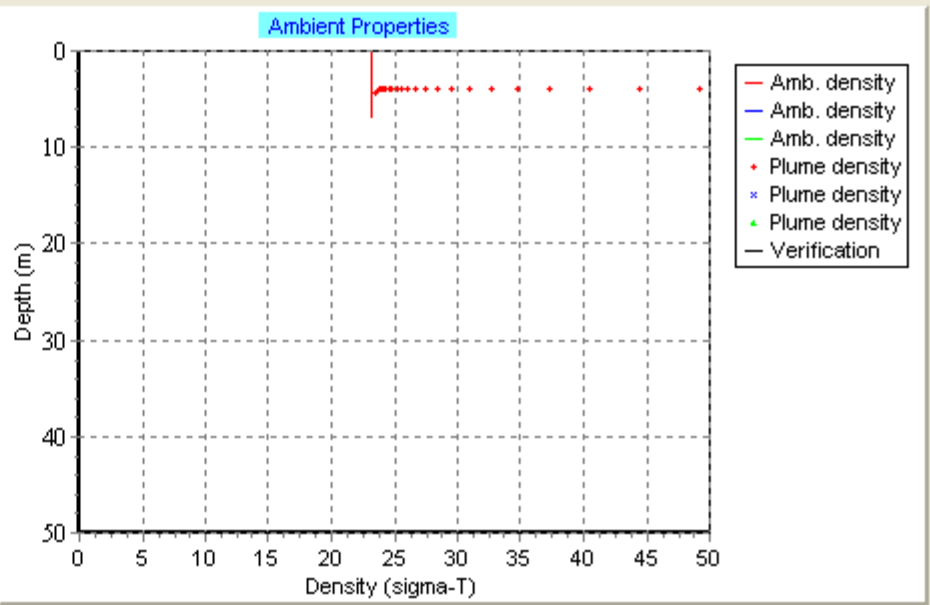
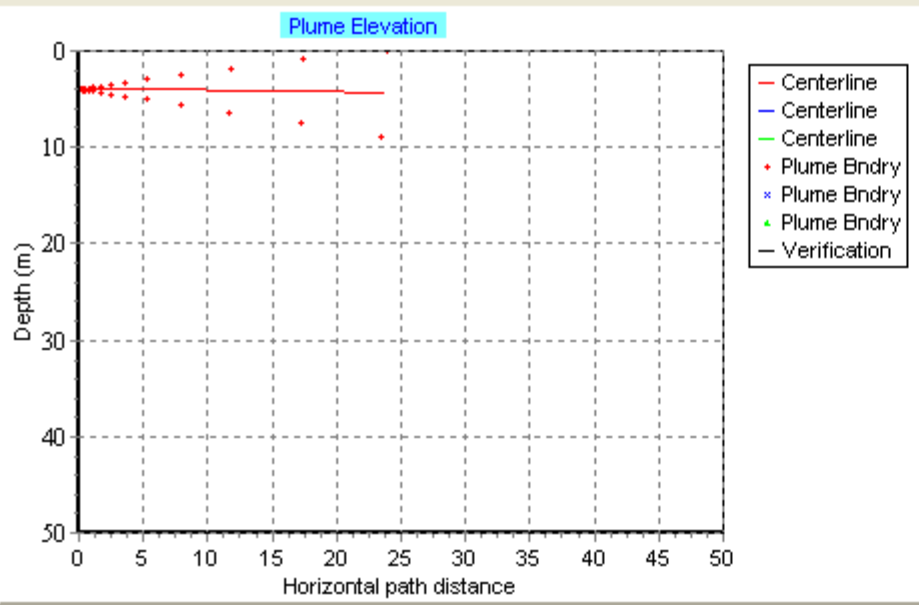
P-dia	P-elev	V-angle	H-angle	Ports	Spacing	AcuteMZ	ChrcMZ	P-depth	Ttl-flw	Eff-sal	Temp	Polutnt
(m)	(m)	(deg)	(deg)	()	(m)	(m)	(m)	(m)	(m3/s)	(psu)	(C)	(kg/kg)
5.00E-4	3.0	0.0	320.0	56549.0	2.50E-4	10.0	100.0	4.0	1.1372	78.82	32.0	0.07882

Froude number: -8415.1

Step	Depth	Amb-cur	P-dia	Polutnt	Dilutn	x-posn	y-posn
	(m)	(m/s)	(m)	(kg/kg)	()	(m)	(m)
0	4.0	0.04	0.0005	0.0788	1.0	0.0	0.0;
100	4.0	0.04	0.0398	0.0428	7.44	0.0773	-0.0649;
161	4.0	0.04	0.444	0.0387	24.97	0.878	-0.737; max dilution reached
200	4.011	0.04	2.06	0.0378	54.09	4.093	-3.435;
216	4.054	0.04	3.856	0.0376	74.27	7.678	-6.443; acute zone,
227	4.157	0.04	5.922	0.0375	92.35	11.82	-9.917; bottom hit,
238	4.455	0.04	9.078	0.0374	114.8	18.16	-15.24; surface,

4:19:37 PM. amb fills: 2

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- To File
- Verify



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/ Windows UM3. 6/15/2009 4:40:14 PM

Case 1; ambient file C:\Plumes\Australia outfall.001.db; Diffuser table record 1: -----

Depth	Amb-cur	Amb-dir	Amb-sal	Amb-tem	Amb-pol	Decay	Far-spd	Far-dir	Disprsn
m	m/s	deg	psu	C	kg/kg	s-1	m/s	deg	m0.67/s2
0.0	0.04	320.0	37.0	30.0	0.037	0.0	2.1416E+8	2.1416E+8	0.0003
7.0	0.04	320.0	37.0	30.0	0.037	0.0	2.1416E+8	2.1416E+8	0.0003

P-dia	P-elev	V-angle	H-angle	Ports	Spacing	AcuteMZ	ChrcMZ	P-depth	Ttl-flw	Eff-sal	Temp	Polutnt
(m)	(m)	(deg)	(deg)	()	(m)	(m)	(m)	(m)	(m3/s)	(psu)	(C)	(kg/kg)
5.00E-4	3.0	3.0	320.0	56549.0	2.50E-4	10.0	100.0	4.0	1.1372	78.82	32.0	0.07882

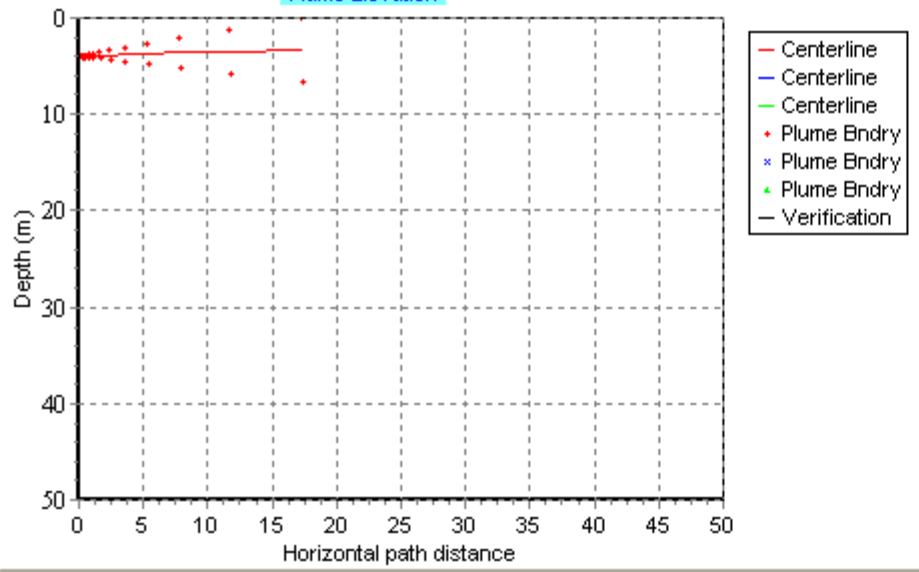
Froude number: -8415.1

Step	Depth	Amb-cur	P-dia	Polutnt	Dilutn	x-posn	y-posn
	(m)	(m/s)	(m)	(kg/kg)	()	(m)	(m)
0	4.0	0.04	0.0005	0.0788	1.0	0.0	0.0;
100	3.995	0.04	0.0398	0.0428	7.44	0.0772	-0.0648;
161	3.941	0.04	0.444	0.0387	24.97	0.877	-0.736; max dilution reached
200	3.736	0.04	2.061	0.0378	54.09	4.084	-3.427;
216	3.539	0.04	3.858	0.0376	74.27	7.662	-6.429; acute zone,
230	3.324	0.04	6.665	0.0374	98.0	13.27	-11.14; surface,

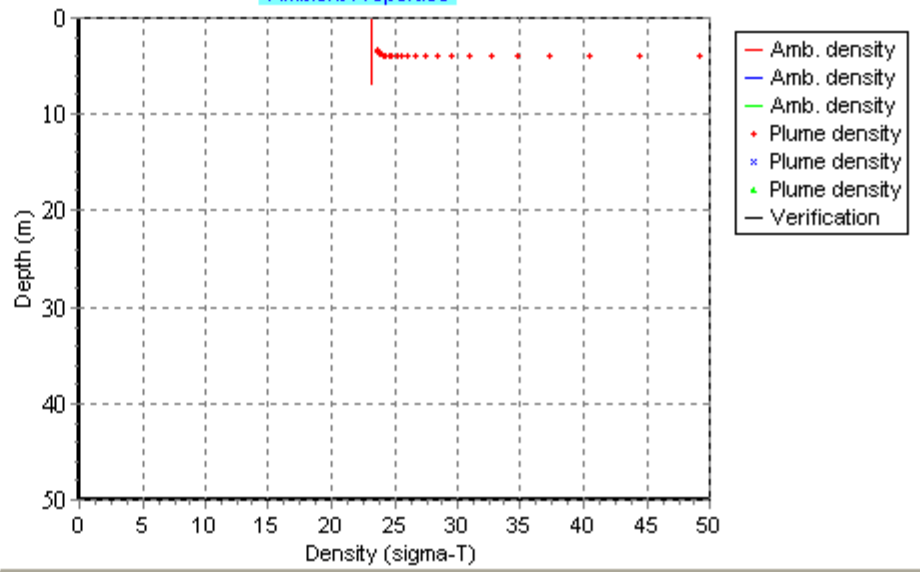
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- Scale
- Thick
- To File
- Verify

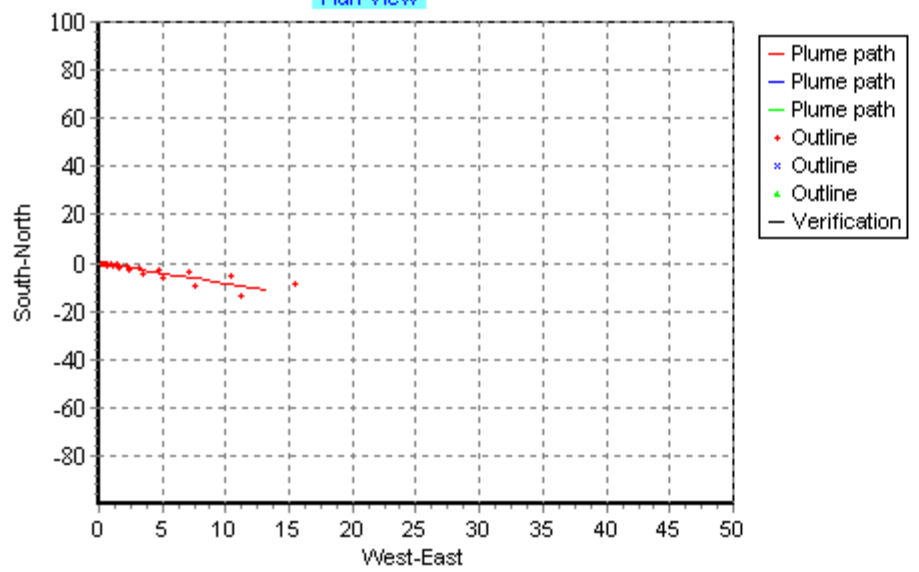
Plume Elevation



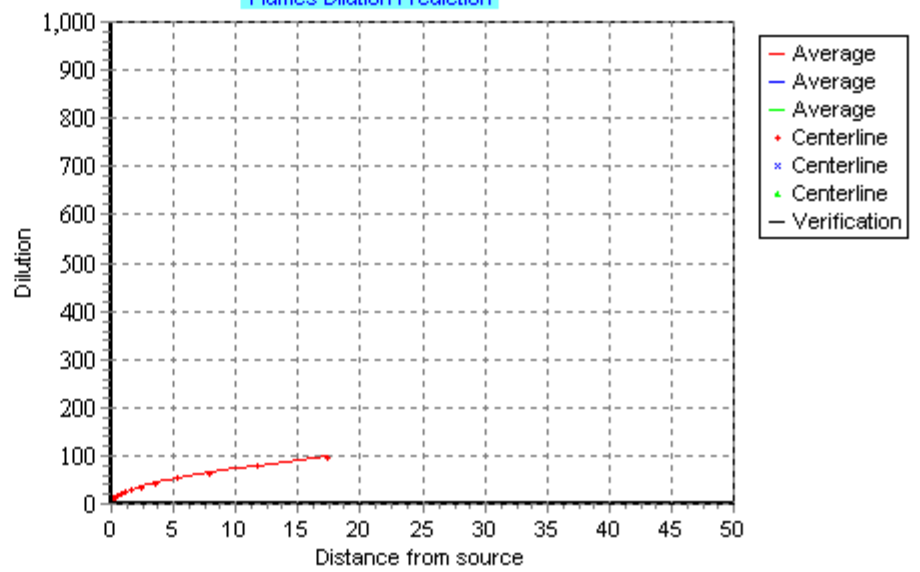
Ambient Properties



Plan View



Plumes Dilution Prediction



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/ Windows UM3. 6/15/2009 9:23:18 PM

Case 1; ambient file C:\Plumes\Australasian Resources Ltd RO Outfall Project.001.db; Diffuser table record 1: -----

Depth	Amb-cur	Amb-dir	Amb-sal	Amb-tem	Amb-pol	Decay	Far-spd	Far-dir	Disprsn
m	m/s	deg	psu	C	kg/kg	s-1	m/s	deg	m0.67/s2
0.0	0.04	320.0	37.0	30.0	0.037	0.0	2.1416E+8	2.1416E+8	0.0003
7.0	0.04	320.0	37.0	30.0	0.037	0.0	2.1416E+8	2.1416E+8	0.0003

P-dia	P-elev	V-angle	H-angle	Ports	Spacing	AcuteMZ	ChrcMZ	P-depth	Ttl-flw	Eff-sal	Temp	Polutnt
(m)	(m)	(deg)	(deg)	()	(m)	(m)	(m)	(m)	(m3/s)	(psu)	(C)	(kg/kg)
5.00E-4	1.5	0.0	320.0	56549.0	2.50E-4	10.0	100.0	5.5	1.1372	78.82	32.0	0.07882

Froude number: -8410.9

Step	Depth	Amb-cur	P-dia	Polutnt	Dilutn	x-posn	y-posn
	(m)	(m/s)	(m)	(kg/kg)	()	(m)	(m)
0	5.5	0.04	0.0005	0.0788	1.0	0.0	0.0;
100	5.5	0.04	0.0398	0.0428	7.44	0.0774	-0.0649;
161	5.5	0.04	0.444	0.0387	24.97	0.879	-0.737; max dilution reached
200	5.511	0.04	2.061	0.0378	54.09	4.095	-3.436;
210	5.53	0.04	3.05	0.0377	65.94	6.068	-5.092; bottom hit,
216	5.554	0.04	3.857	0.0376	74.27	7.681	-6.445; acute zone,
249	6.808	0.04	13.88	0.0373	142.8	27.84	-23.36; surface,

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/ Windows UM3. 6/15/2009 10:01:41 PM
Case 1; ambient file C:\Plumes\Australasian Resources Ltd RO Outfall Project.001.db; Diffuser table record 1: -----
  Depth  Amb-cur  Amb-dir  Amb-sal  Amb-tem  Amb-pol  Decay  Far-spd  Far-dir  Disprsn
    m      m/s      deg      psu      C        kg/kg   s-1    m/s      deg      m0.67/s2
  0.0     0.04     320.0    37.0     30.0     0.037   0.0    2.1416E+8 2.1416E+8 0.0003
  7.0     0.04     320.0    37.0     30.0     0.037   0.0    2.1416E+8 2.1416E+8 0.0003
  P-dia  P-elev  V-angle  H-angle  Ports  Spacing  AcuteMZ  ChrcMZ  P-depth  Ttl-flw  Eff-sal  Temp  Polutnt
  (m)    (m)    (deg)   (deg)   ( )    (m)     (m)     (m)     (m)     (m3/s)  (psu)  (C)  (kg/kg)
5.00E-4 4.0     5.0     320.0   56549.0 2.50E-4 10.0    100.0    3.0     1.1372  78.82  32.0 0.07882
Froude number: -8410.9
  Depth  Amb-cur  P-dia  Polutnt  Dilutn  x-posn  y-posn
  (m)    (m/s)   (m)    (kg/kg)  ( )     (m)     (m)
Step    0      3.0     0.04   0.0005   0.0788  1.0     0.0     0.0;
100     2.991  0.04   0.0398  0.0428  7.44    0.0771 -0.0647;
161     2.901  0.04   0.444   0.0387  24.97   0.875   -0.734; max dilution reached
200     2.552  0.04   2.062   0.0378  54.09   4.073   -3.418;
217     2.169  0.04   4.015   0.0376  75.75   7.948   -6.669; acute zone,
219     2.109  0.04   4.342   0.0375  78.81   8.597   -7.214; surface,
:
10:01:41 PM. amb fills: 2
    
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/ Windows UM3. 6/15/2009 10:01:41 PM
Case 1; ambient file C:\Plumes\Australasian Resources Ltd RO Outfall Project.001.db; Diffuser table record 1: -----
  Depth  Amb-cur  Amb-dir  Amb-sal  Amb-tem  Amb-pol  Decay  Far-spd  Far-dir  Disprsn
    m      m/s      deg      psu      C        kg/kg    s-1     m/s      deg      m0.67/s2
  0.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8 2.1416E+8 0.0003
  7.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8 2.1416E+8 0.0003
  P-dia  P-elev  V-angle  H-angle  Ports  Spacing  AcuteMZ  ChrcMZ  P-depth  Ttl-flw  Eff-sal  Temp  Polutnt
  (m)    (m)    (deg)   (deg)   ( )    (m)     (m)     (m)     (m)     (m3/s)  (psu)  (C)  (kg/kg)
5.00E-4 4.0     5.0     320.0   56549.0 2.50E-4 10.0    100.0    3.0     1.1372  78.82  32.0 0.07882
Froude number: -8410.9
  Depth  Amb-cur  P-dia  Polutnt  Dilutn  x-posn  y-posn
  (m)    (m/s)   (m)    (kg/kg)  ( )     (m)     (m)
Step    0      3.0     0.04   0.0005   1.0     0.0     0.0;
100     2.991  0.04   0.0398  7.44    0.0771 -0.0647;
161     2.901  0.04   0.444   0.0387  24.97   0.875  -0.734; max dilution reached
200     2.552  0.04   2.062   0.0378  54.09   4.073  -3.418;
217     2.169  0.04   4.015   0.0376  75.75   7.948  -6.669; acute zone,
219     2.109  0.04   4.342   0.0375  78.81   8.597  -7.214; surface,
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10:01:41 PM. amb fills: 2
    
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Help

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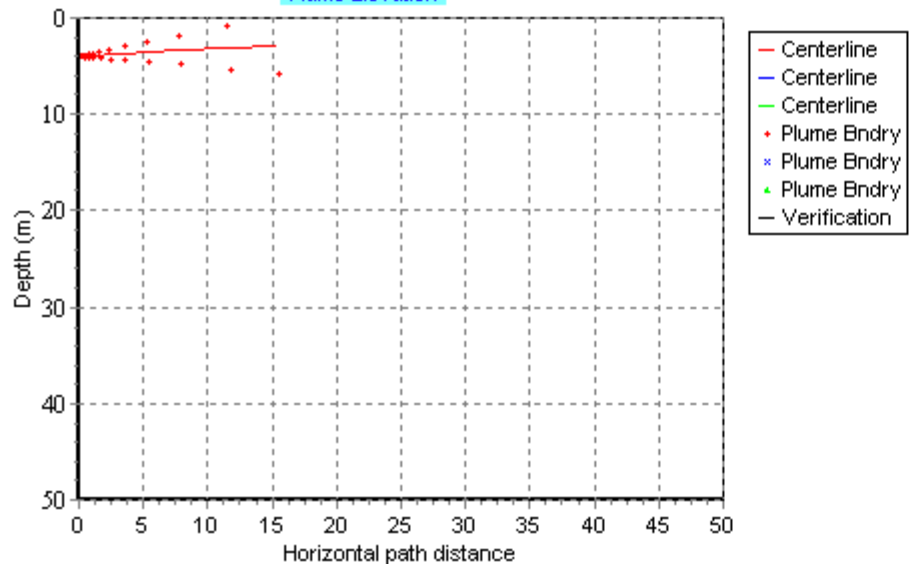
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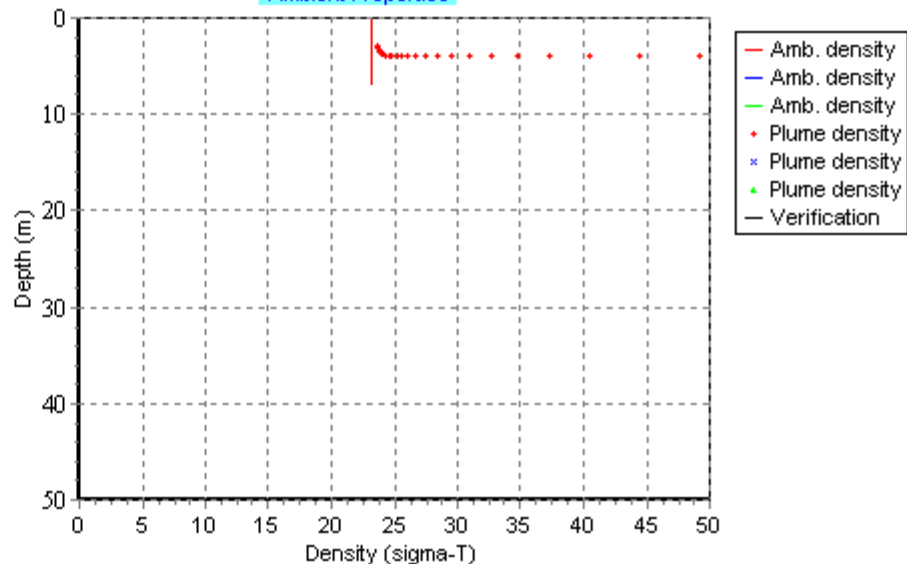
To File

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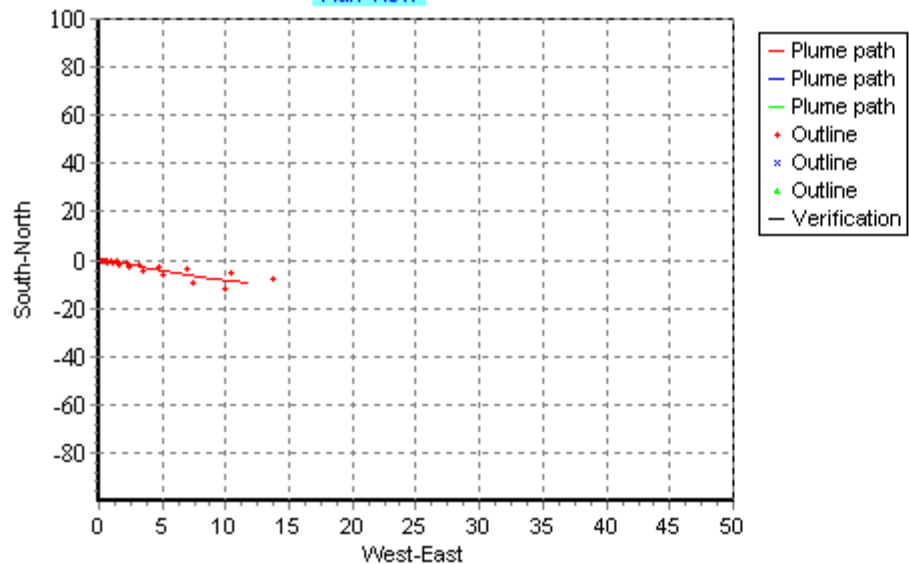
Plume Elevation



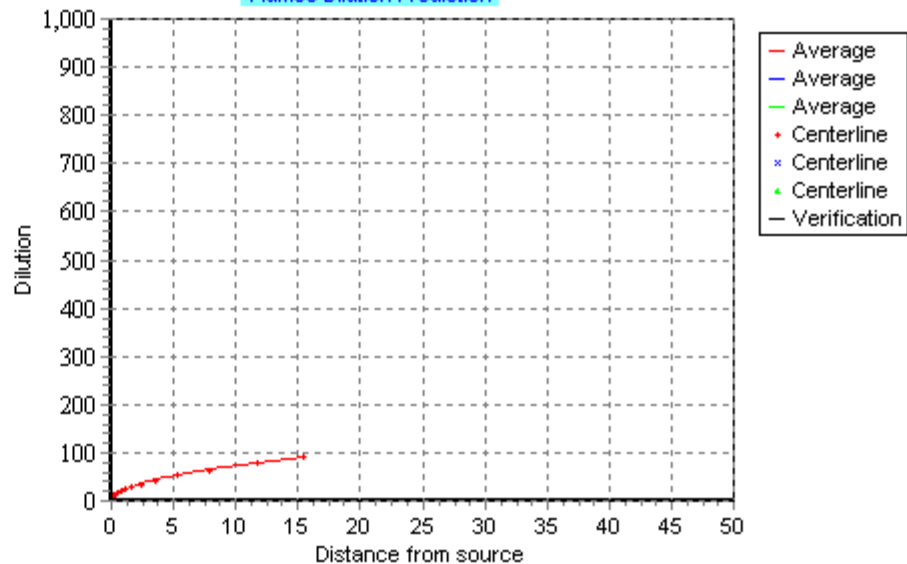
Ambient Properties



Plan View



Plumes Dilution Prediction



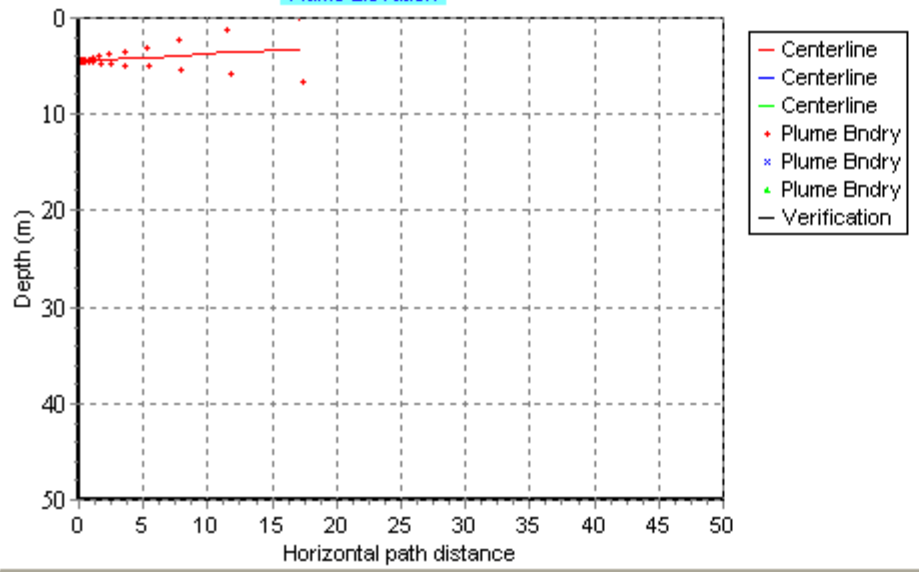
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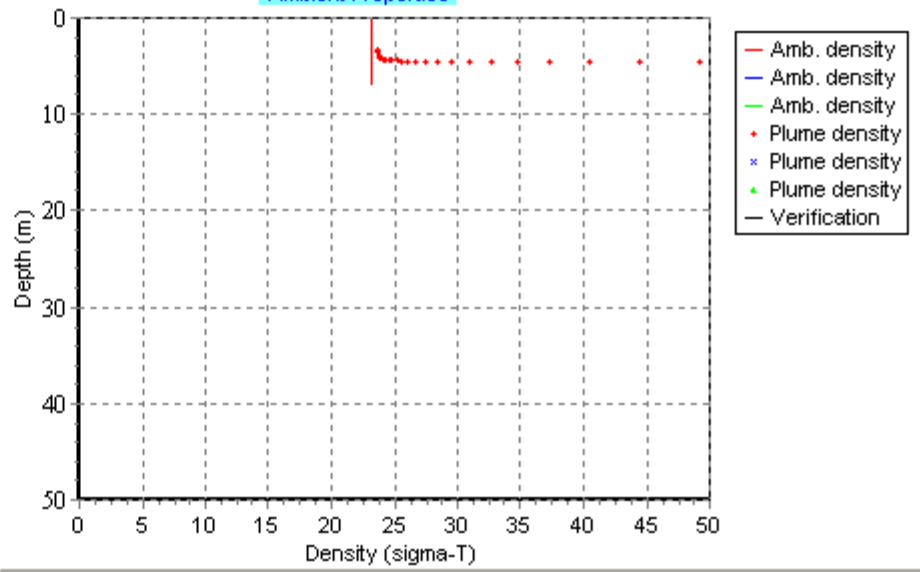
/ Windows UM3. 6/15/2009 9:59:08 PM
Case 1; ambient file C:\Plumes\Australasian Resources Ltd RO Outfall Project.001.db; Diffuser table record 1: -----
  Depth  Amb-cur  Amb-dir  Amb-sal  Amb-tem  Amb-pol  Decay  Far-spd  Far-dir  Disprsn
    m      m/s      deg      psu      C        kg/kg    s-1     m/s      deg      m0.67/s2
  0.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8 2.1416E+8 0.0003
  7.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8 2.1416E+8 0.0003
  P-dia  P-elev  V-angle  H-angle  Ports  Spacing  AcuteMZ  ChrcMZ  P-depth  Ttl-flw  Eff-sal  Temp  Polutnt
  (m)    (m)    (deg)   (deg)   ( )    (m)     (m)     (m)     (m)     (m3/s)  (psu)  (C)  (kg/kg)
5.00E-4 3.0     5.0     320.0   56549.0 2.50E-4 10.0    100.0    4.0     1.1372  78.82  32.0  0.07882
Froude number: -8410.9
  Depth  Amb-cur  P-dia  Polutnt  Dilutn  x-posn  y-posn
  (m)    (m/s)   (m)    (kg/kg)  ( )     (m)     (m)
Step    0      4.0     0.04   0.0005   1.0     0.0     0.0;
100     3.991  0.04   0.0398  7.44    0.0771 -0.0647;
161     3.901  0.04   0.444   0.0387  24.97   0.875  -0.734; max dilution reached
200     3.552  0.04   2.062   0.0378  54.09   4.073  -3.418;
217     3.169  0.04   4.015   0.0376  75.75   7.948  -6.669; acute zone,
227     2.843  0.04   5.936   0.0375  92.35   11.77  -9.876; surface,
:
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- Thick
- To File
- Verify

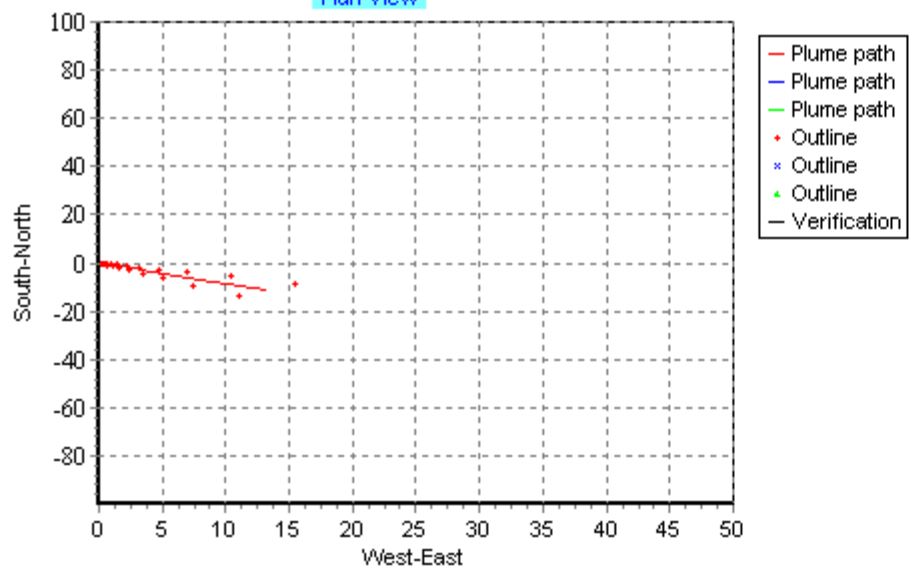
Plume Elevation



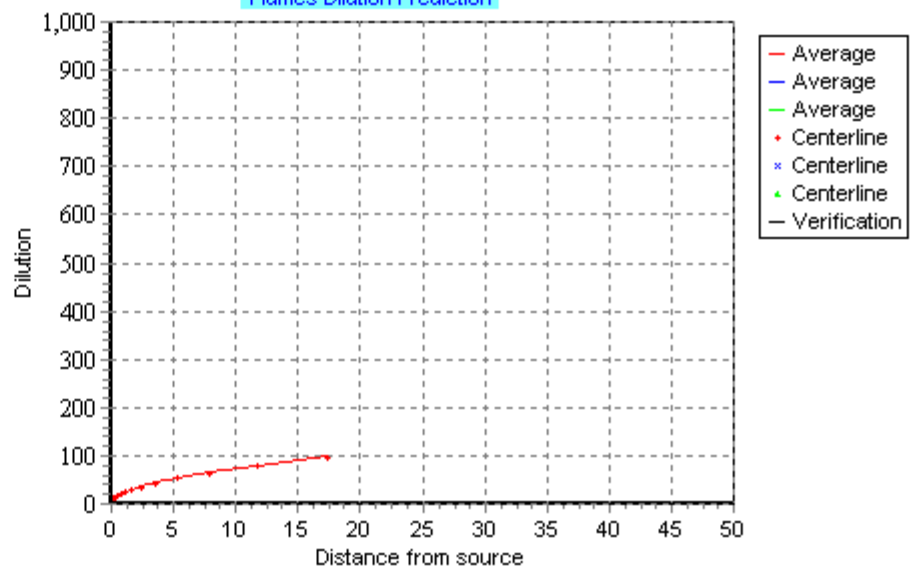
Ambient Properties



Plan View



Plumes Dilution Prediction

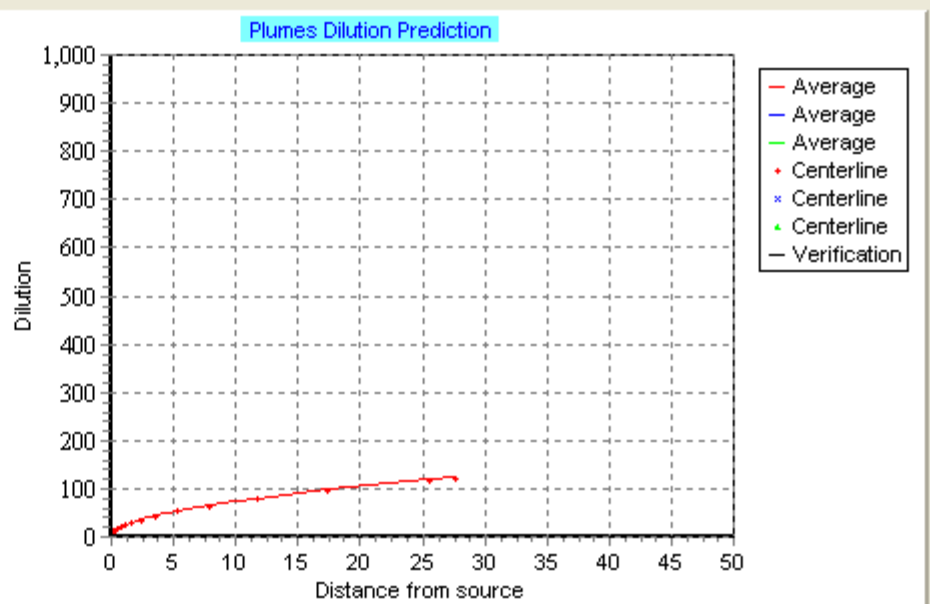
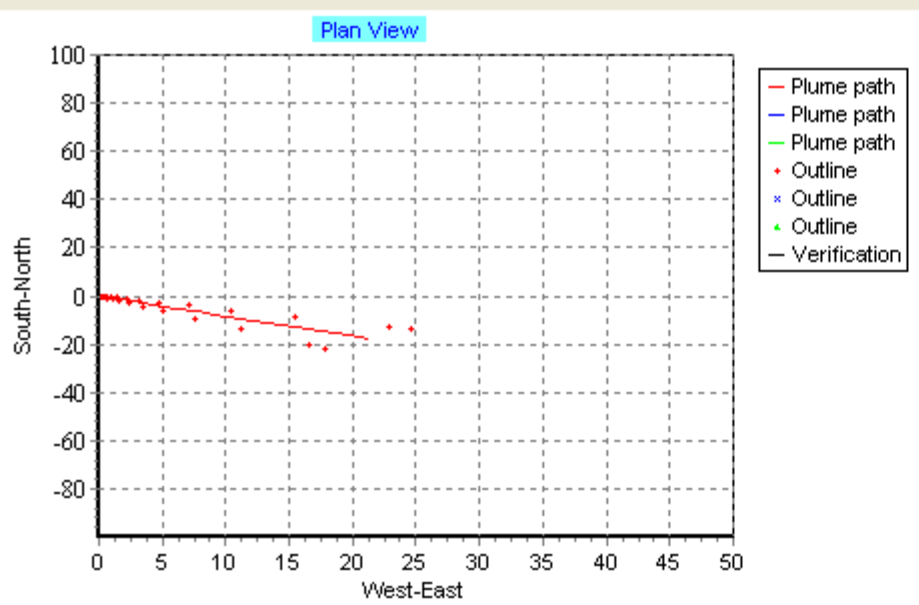
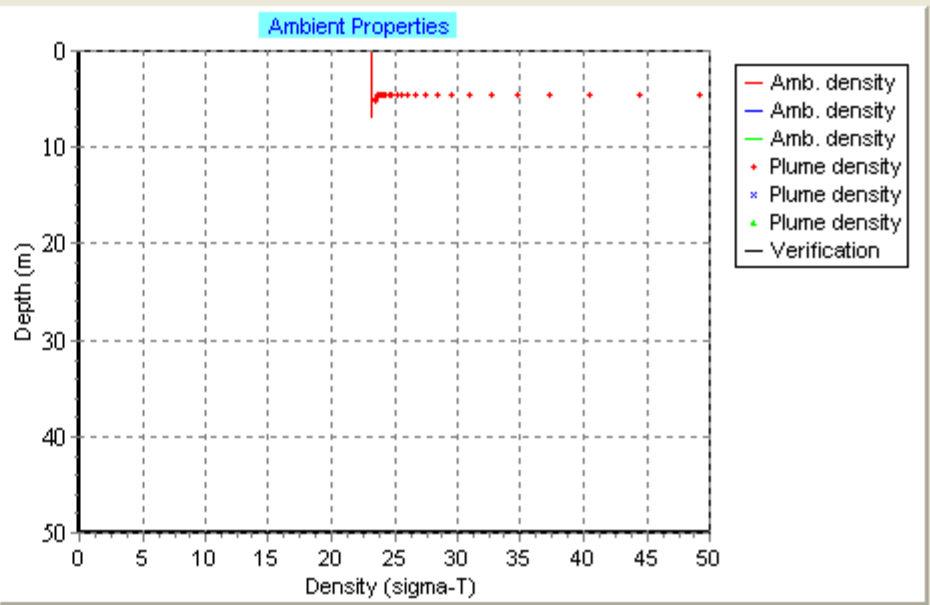
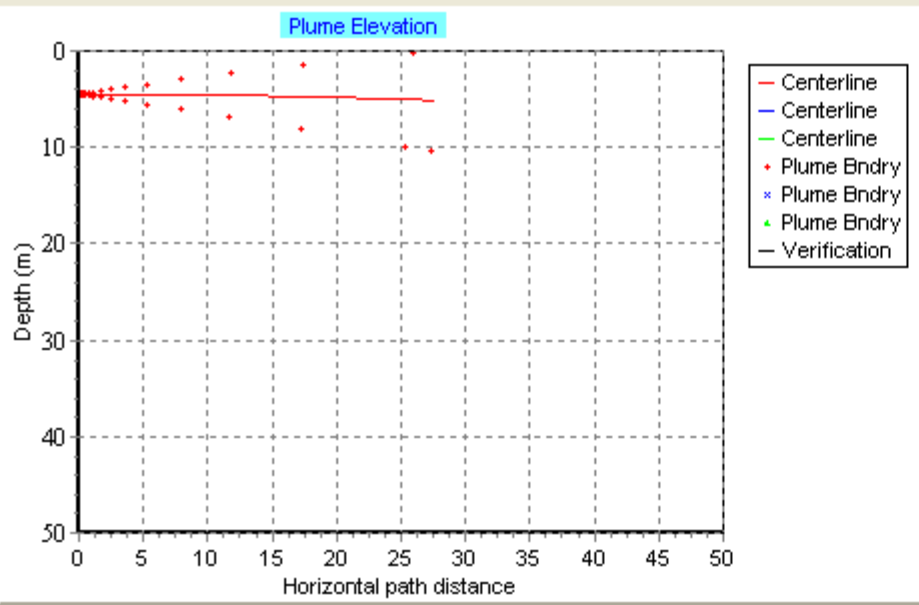


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Case 1; ambient file C:\Plumes\Australasian Resources Ltd RO Outfall Project.001.db; Diffuser table record 1: -----
  Depth  Amb-cur  Amb-dir  Amb-sal  Amb-tem  Amb-pol  Decay  Far-spd  Far-dir  Disprsn
    m      m/s      deg      psu      C        kg/kg   s-1    m/s      deg      m0.67/s2
  0.0     0.04     320.0    37.0     30.0     0.037   0.0    2.1416E+8 2.1416E+8 0.0003
  7.0     0.04     320.0    37.0     30.0     0.037   0.0    2.1416E+8 2.1416E+8 0.0003
  P-dia  P-elev  V-angle  H-angle  Ports  Spacing  AcuteMZ  ChrcMZ  P-depth  Ttl-flw  Eff-sal  Temp  Polutnt
  (m)    (m)    (deg)   (deg)   ( )    (m)     (m)     (m)     (m)     (m3/s)  (psu)  (C)  (kg/kg)
5.00E-4 2.5    5.0     320.0   56549.0 2.50E-4 10.0    100.0    4.5    1.1372  78.82  32.0 0.07882
Froude number: -8410.9
  Depth  Amb-cur  P-dia  Polutnt  Dilutn  x-posn  y-posn
  (m)    (m/s)   (m)    (kg/kg)  ( )     (m)     (m)
Step    0      4.5     0.04   0.0005   1.0     0.0     0.0;
100     4.491  0.04   0.0398  7.44    0.0771 -0.0647;
161     4.401  0.04   0.444   0.0387  24.97   0.875  -0.734; max dilution reached
200     4.052  0.04   2.062   0.0378  54.09   4.073  -3.418;
217     3.669  0.04   4.015   0.0376  75.75   7.948  -6.669; acute zone,
230     3.234  0.04   6.673   0.0374  98.0    13.24  -11.11; surface,
:
9:57:38 PM. amb fills: 2
    
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- To File
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  Depth  Amb-cur  Amb-dir  Amb-sal  Amb-tem  Amb-pol  Decay  Far-spd  Far-dir  Disprsn
    m      m/s      deg      psu      C         kg/kg    s-1     m/s      deg      m0.67/s2
  0.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8  2.1416E+8  0.0003
  7.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8  2.1416E+8  0.0003
  P-dia  P-elev  V-angle  H-angle  Ports  Spacing  AcuteMZ  ChrcMZ  P-depth  Ttl-flw  Eff-sal  Temp  Polutnt
  (m)    (m)    (deg)   (deg)   ( )    (m)     (m)     (m)     (m)     (m3/s)  (psu)  (C)  (kg/kg)
5.00E-4  2.5    0.0     320.0   56549.0  2.50E-4  10.0    100.0    4.5     1.1372  78.82  32.0  0.07882
Froude number: -8410.9
  Depth  Amb-cur  P-dia  Polutnt  Dilutn  x-posn  y-posn
  (m)    (m/s)   (m)    (kg/kg)  ( )     (m)     (m)
Step    0      4.5     0.04   0.0005  1.0     0.0     0.0;
100     4.5     0.04   0.0398  7.44    0.0774  -0.0649;
161     4.5     0.04   0.444   0.0387  24.97   0.879  -0.737; max dilution reached
200     4.511   0.04   2.061   0.0378  54.09   4.095  -3.436;
216     4.554   0.04   3.857   0.0376  74.27   7.681  -6.445; acute zone,
222     4.597   0.04   4.875   0.0375  83.64   9.72   -8.156; bottom hit,
242     5.17    0.04   10.6    0.0373  124.3   21.23  -17.81; surface,
:
9:54:22 PM. amb fills: 2
    
```

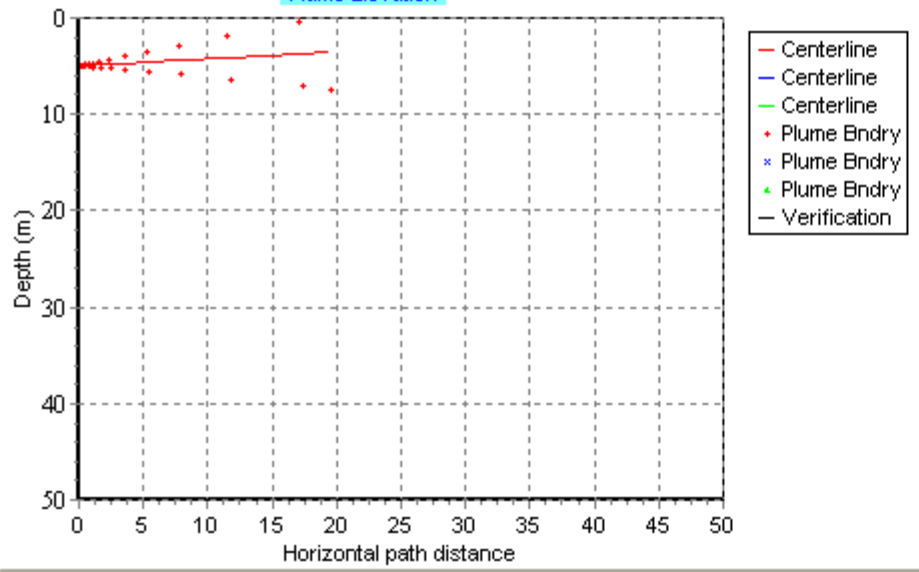
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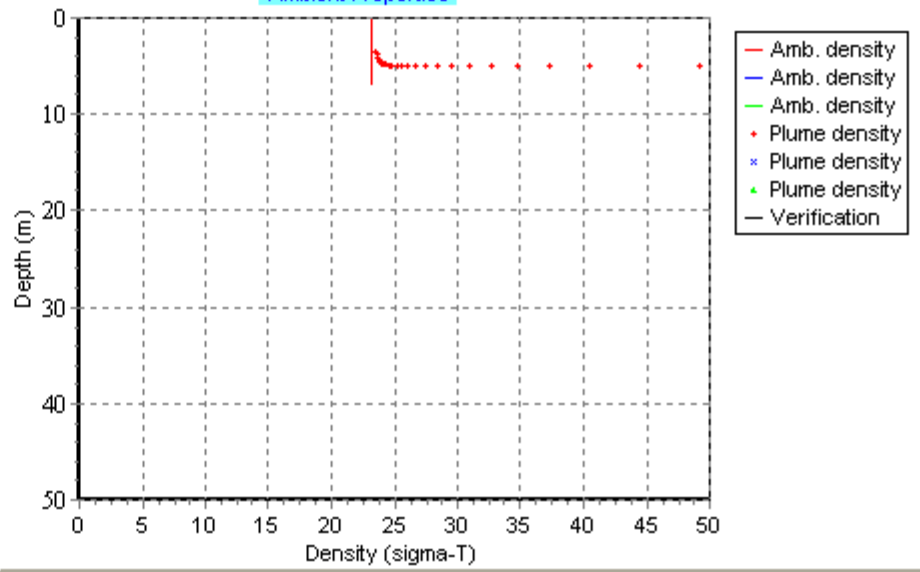
/ Windows UM3. 6/15/2009 9:52:04 PM
Case 1; ambient file C:\Plumes\Australasian Resources Ltd RO Outfall Project.001.db; Diffuser table record 1: -----
  Depth  Amb-cur  Amb-dir  Amb-sal  Amb-tem  Amb-pol  Decay  Far-spd  Far-dir  Disprsn
    m      m/s      deg      psu      C      kg/kg    s-1     m/s      deg      m0.67/s2
  0.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8  2.1416E+8  0.0003
  7.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8  2.1416E+8  0.0003
  P-dia  P-elev  V-angle  H-angle  Ports  Spacing  AcuteMZ  ChrcMZ  P-depth  Ttl-flw  Eff-sal  Temp  Polutnt
  (m)    (m)    (deg)   (deg)   ( )    (m)     (m)     (m)     (m)     (m3/s)  (psu)  (C)  (kg/kg)
5.00E-4  2.0    10.0    320.0   56549.0  2.50E-4  10.0    100.0    5.0     1.1372  78.82  32.0  0.07882
Froude number: -8410.9
  Depth  Amb-cur  P-dia  Polutnt  Dilutn  x-posn  y-posn
  (m)    (m/s)   (m)    (kg/kg)  ( )     (m)     (m)
Step    0      5.0     0.04    0.0005   1.0     0.0     0.0;
100     4.982  0.04    0.0398   7.44    0.0762  -0.0639;
161     4.803  0.04    0.444    0.0387  24.97   0.864   -0.725; max dilution reached
200     4.098  0.04    2.063    0.0378  54.09   4.021   -3.374;
217     3.287  0.04    4.021    0.0376  75.75   7.846   -6.583; acute zone,
225     2.711  0.04    5.501    0.0375  88.76   10.74   -9.014; surface,
:
9:52:04 PM. amb fills: 2
    
```

- Help
- Clear +
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- Ctrl Verify
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- Series
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- gm
- Scale
- Thick
- To File
- Verify

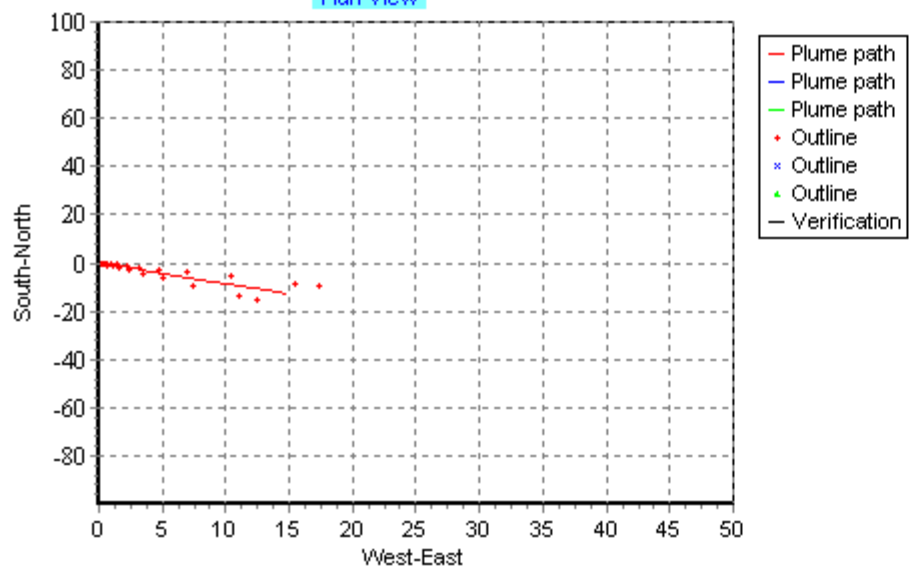
Plume Elevation



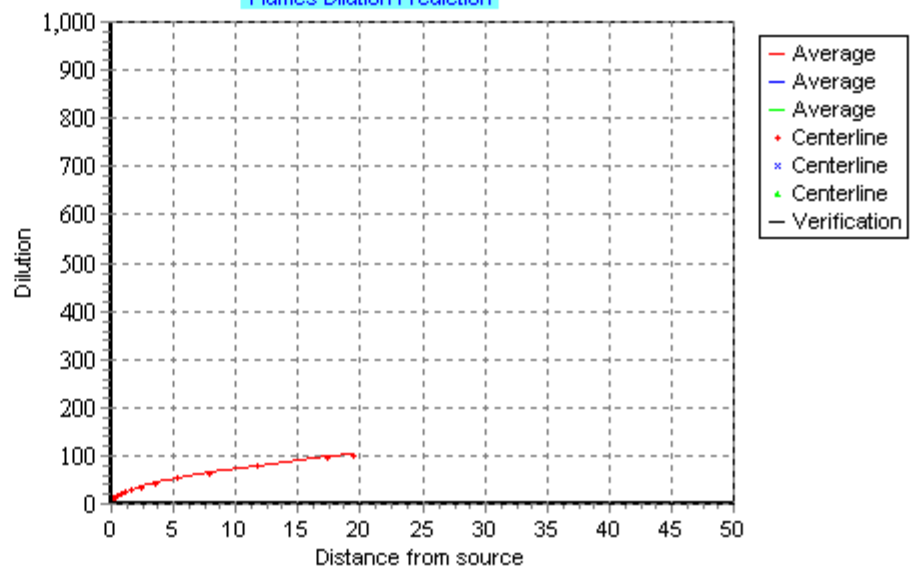
Ambient Properties



Plan View



Plumes Dilution Prediction



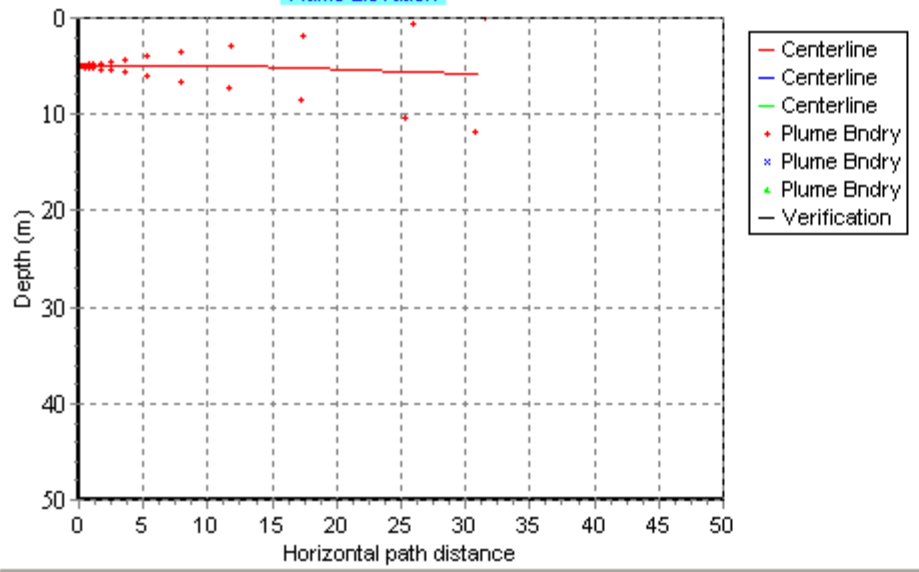
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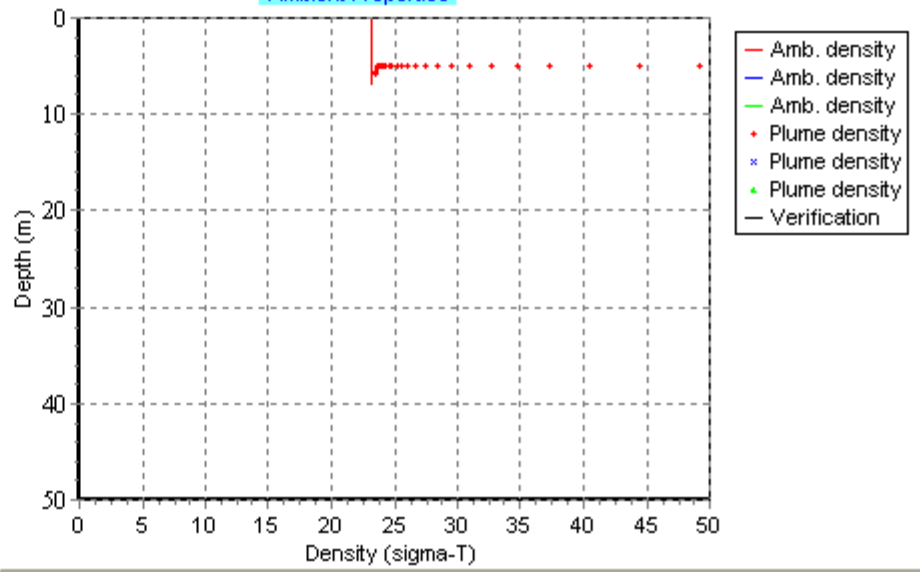
/ Windows UM3. 6/15/2009 9:50:29 PM
Case 1; ambient file C:\Plumes\Australasian Resources Ltd RO Outfall Project.001.db; Diffuser table record 1: -----
  Depth  Amb-cur  Amb-dir  Amb-sal  Amb-tem  Amb-pol  Decay  Far-spd  Far-dir  Disprsn
    m      m/s      deg      psu      C        kg/kg    s-1     m/s      deg      m0.67/s2
  0.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8  2.1416E+8  0.0003
  7.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8  2.1416E+8  0.0003
  P-dia  P-elev  V-angle  H-angle  Ports  Spacing  AcuteMZ  ChrcMZ  P-depth  Ttl-flw  Eff-sal  Temp  Polutnt
  (m)    (m)    (deg)   (deg)   ( )    (m)     (m)     (m)     (m)     (m3/s)  (psu)  (C)  (kg/kg)
5.00E-4  2.0    5.0     320.0   56549.0  2.50E-4  10.0    100.0    5.0     1.1372  78.82  32.0  0.07882
Froude number: -8410.9
  Depth  Amb-cur  P-dia  Polutnt  Dilutn  x-posn  y-posn
  (m)    (m/s)   (m)    (kg/kg)  ( )     (m)     (m)
Step    0      5.0     0.04    0.0005   1.0     0.0     0.0;
100     4.991  0.04    0.0398   7.44    0.0771  -0.0647;
161     4.901  0.04    0.444    0.0387  24.97   0.875   -0.734; max dilution reached
200     4.552  0.04    2.062    0.0378  54.09   4.073   -3.418;
217     4.169  0.04    4.015    0.0376  75.75   7.948   -6.669; acute zone,
230     3.734  0.04    6.673    0.0374  98.0    13.24   -11.11; bottom hit,
233     3.624  0.04    7.502    0.0374  104.0   14.89   -12.5; surface,
:
9:50:29 PM. amb fills: 2
    
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- Help
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- Scale
- Thick
- To File
- Verify

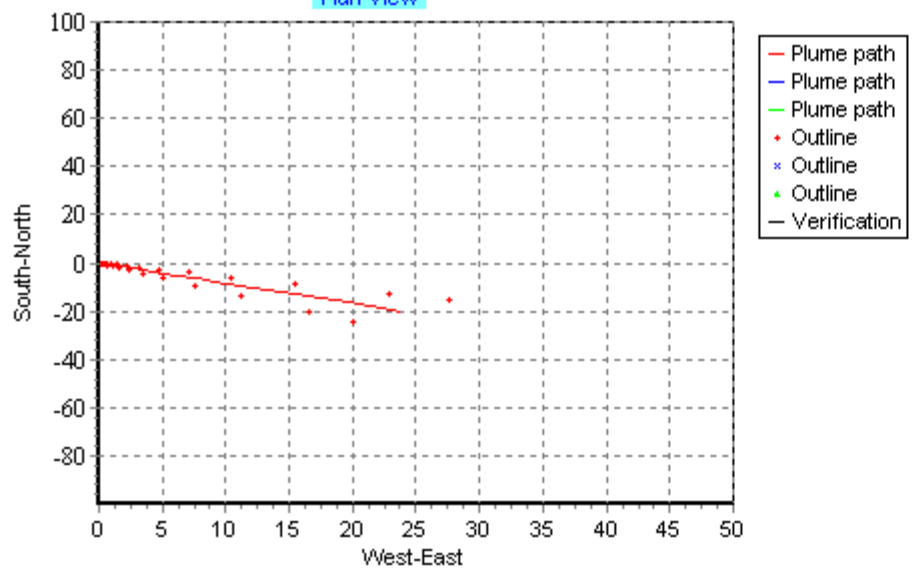
Plume Elevation



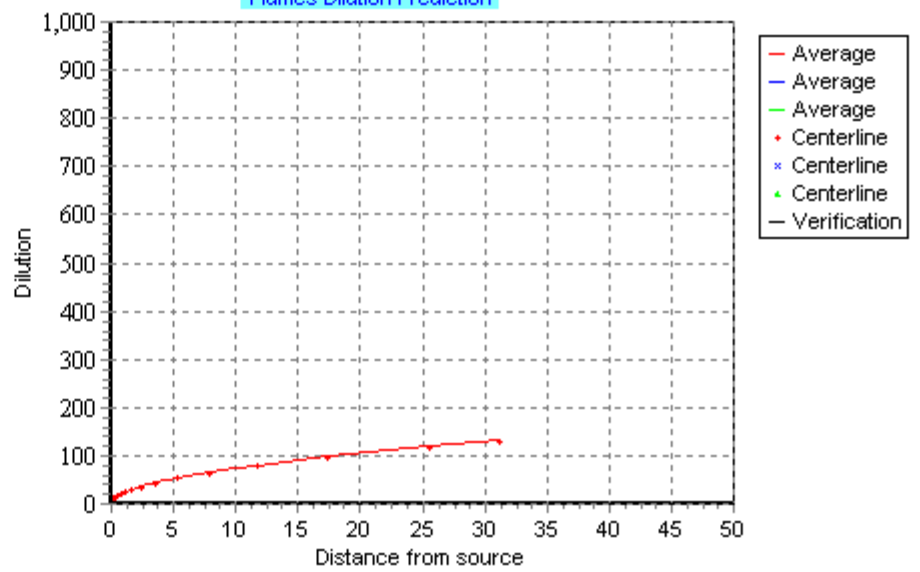
Ambient Properties



Plan View



Plumes Dilution Prediction



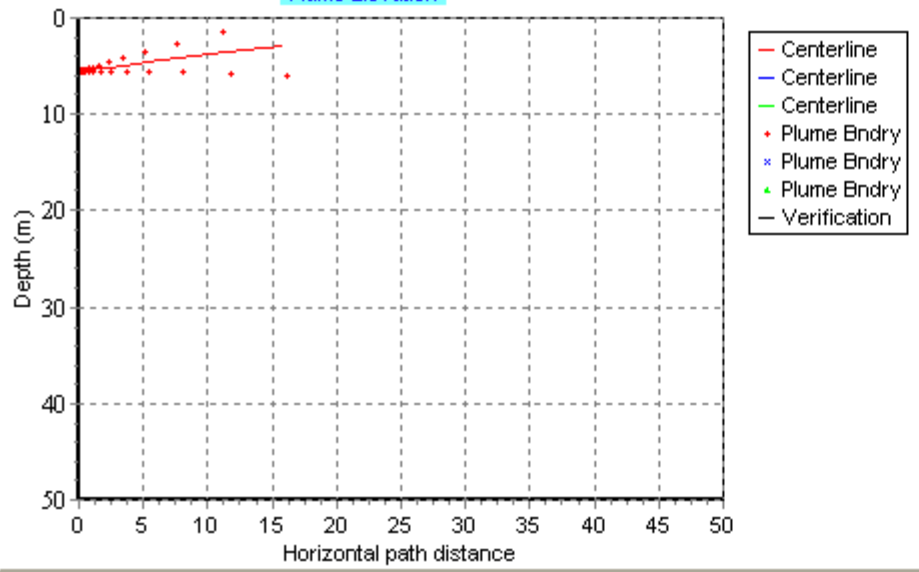
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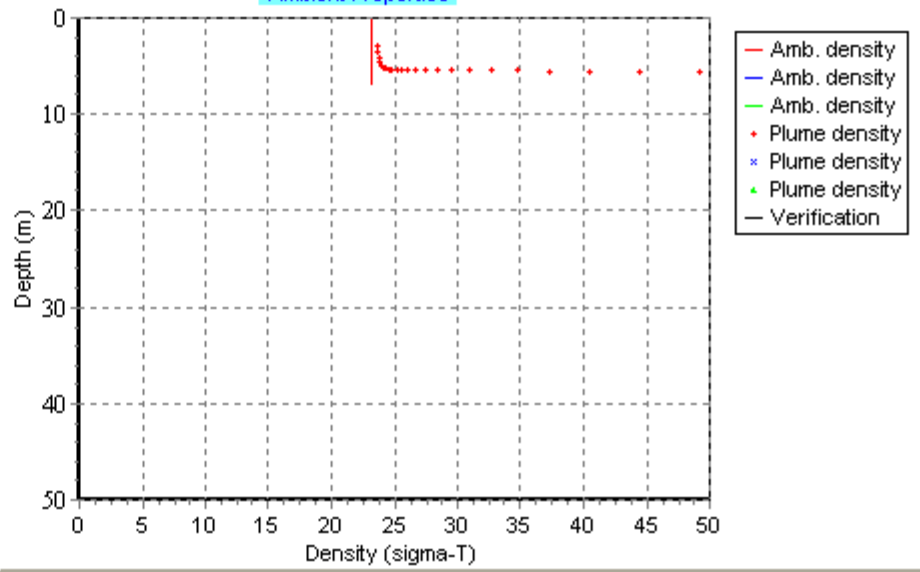
/ Windows UM3. 6/15/2009 9:48:39 PM
Case 1; ambient file C:\Plumes\Australasian Resources Ltd RO Outfall Project.001.db; Diffuser table record 1: -----
  Depth  Amb-cur  Amb-dir  Amb-sal  Amb-tem  Amb-pol  Decay  Far-spd  Far-dir  Disprsn
    m      m/s      deg      psu      C         kg/kg    s-1     m/s      deg      m0.67/s2
  0.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8  2.1416E+8  0.0003
  7.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8  2.1416E+8  0.0003
  P-dia  P-elev  V-angle  H-angle  Ports  Spacing  AcuteMZ  ChrcMZ  P-depth  Ttl-flw  Eff-sal  Temp  Polutnt
  (m)    (m)    (deg)   (deg)   ( )    (m)     (m)     (m)     (m)     (m3/s)  (psu)  (C)   (kg/kg)
5.00E-4 2.0     0.0     320.0   56549.0 2.50E-4 10.0    100.0    5.0     1.1372  78.82  32.0  0.07882
Froude number: -8410.9
  Depth  Amb-cur  P-dia  Polutnt  Dilutn  x-posn  y-posn
  (m)    (m/s)   (m)    (kg/kg)  ( )     (m)     (m)
Step    0      5.0     0.04   0.0005  1.0     0.0     0.0;
100     5.0     0.04   0.0398  7.44    0.0774  -0.0649;
161     5.0     0.04   0.444   0.0387  24.97   0.879   -0.737; max dilution reached
200     5.011   0.04   2.061   0.0378  54.09   4.095   -3.436;
216     5.054   0.04   3.857   0.0376  74.27   7.681   -6.445; acute zone,
217     5.06    0.04   4.011   0.0376  75.75   7.989   -6.703; bottom hit,
245     5.893   0.04   11.9    0.0373  131.9   23.85   -20.01; surface,
:
9:48:39 PM. amb fills: 2
    
```

- Help
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- Scale
- Thick
- To File
- Verify

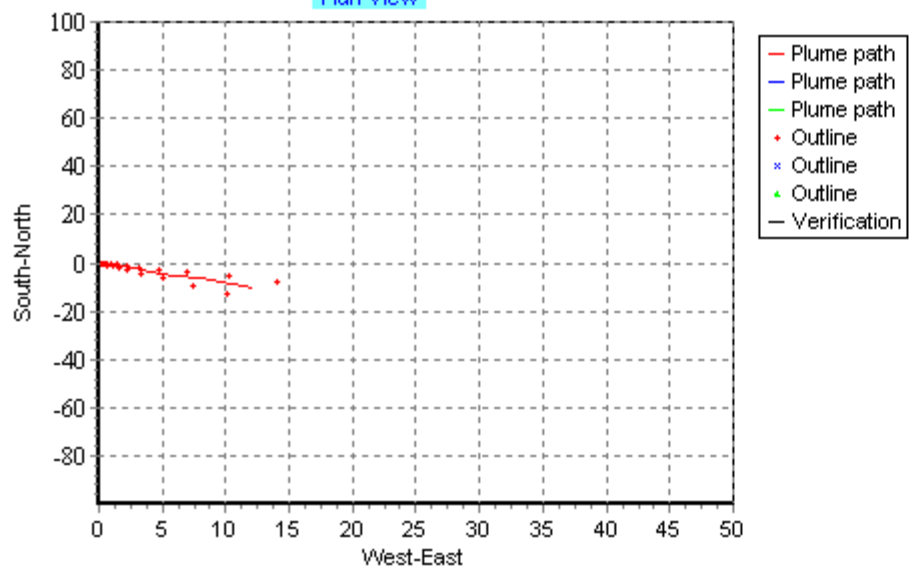
Plume Elevation



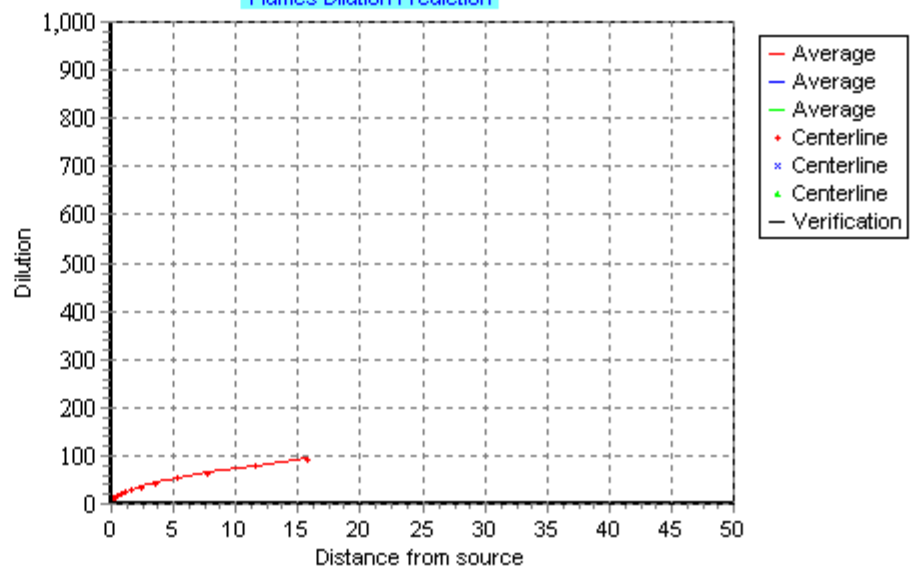
Ambient Properties



Plan View



Plumes Dilution Prediction



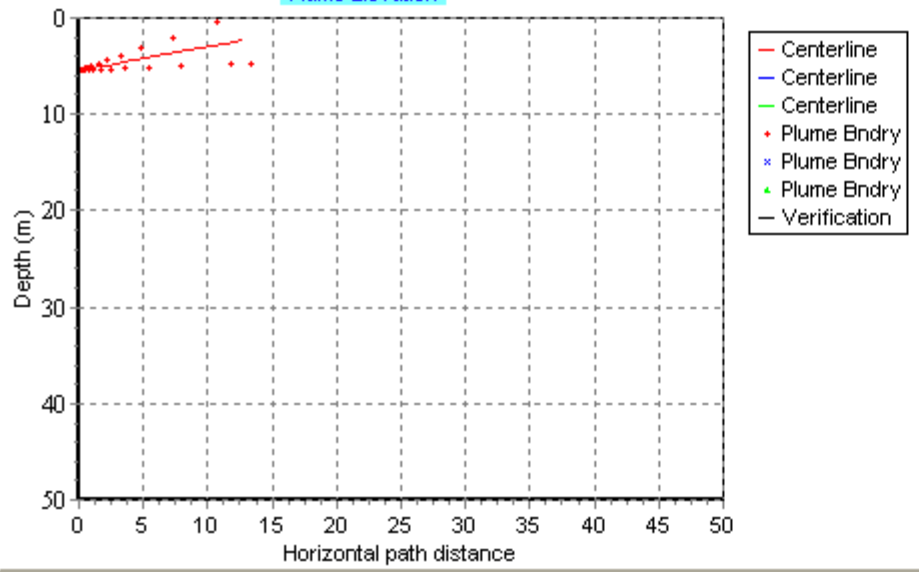
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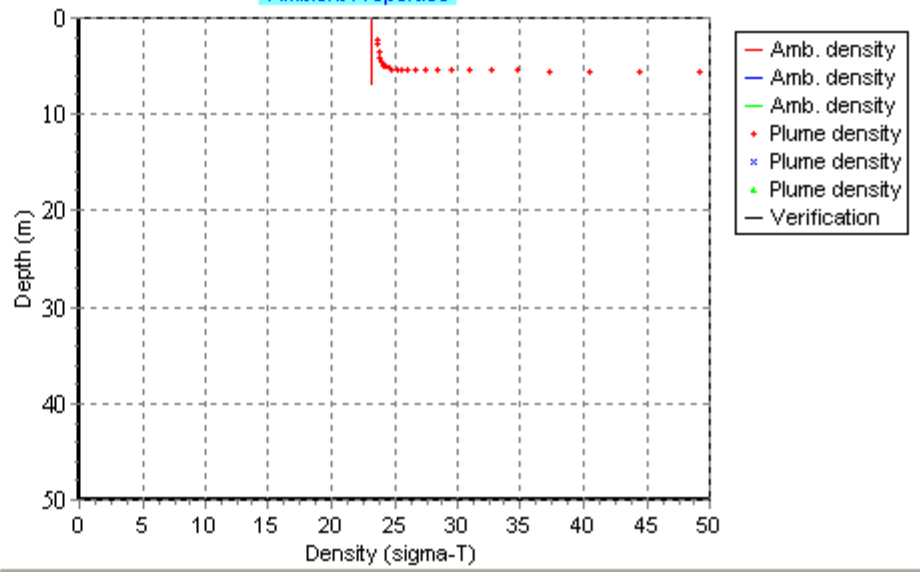
/ Windows UM3. 6/15/2009 9:46:56 PM
Case 1; ambient file C:\Plumes\Australasian Resources Ltd RO Outfall Project.001.db; Diffuser table record 1: -----
  Depth  Amb-cur  Amb-dir  Amb-sal  Amb-tem  Amb-pol  Decay  Far-spd  Far-dir  Disprsn
    m      m/s      deg      psu      C        kg/kg   s-1     m/s      deg      m0.67/s2
  0.0     0.04     320.0    37.0     30.0     0.037   0.0     2.1416E+8 2.1416E+8 0.0003
  7.0     0.04     320.0    37.0     30.0     0.037   0.0     2.1416E+8 2.1416E+8 0.0003
  P-dia  P-elev  V-angle  H-angle  Ports  Spacing  AcuteMZ  ChrcMZ  P-depth  Ttl-flw  Eff-sal  Temp  Polutnt
  (m)    (m)    (deg)   (deg)   ( )    (m)     (m)     (m)     (m)     (m3/s)  (psu)  (C)  (kg/kg)
5.00E-4 1.5    10.0    320.0   56549.0 2.50E-4 10.0    100.0    5.5    1.1372  78.82  32.0  0.07882
Froude number: -8410.9
  Depth  Amb-cur  P-dia  Polutnt  Dilutn  x-posn  y-posn
  (m)    (m/s)   (m)    (kg/kg)  ( )     (m)     (m)
Step    0      5.5     0.04   0.0005   0.0788  1.0     0.0     0.0;
100     5.482  0.04   0.0398  0.0428  7.44    0.0762 -0.0639;
161     5.303  0.04   0.444   0.0387  24.97   0.864   -0.725; max dilution reached
200     4.598  0.04   2.063   0.0378  54.09   4.021   -3.374;
217     3.787  0.04   4.021   0.0376  75.75   7.846   -6.583; acute zone,
228     2.955  0.04   6.187   0.0375  94.2    12.09   -10.14; surface,
:
9:46:56 PM. amb fills: 2
    
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- Help
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- Thick
- To File
- Verify

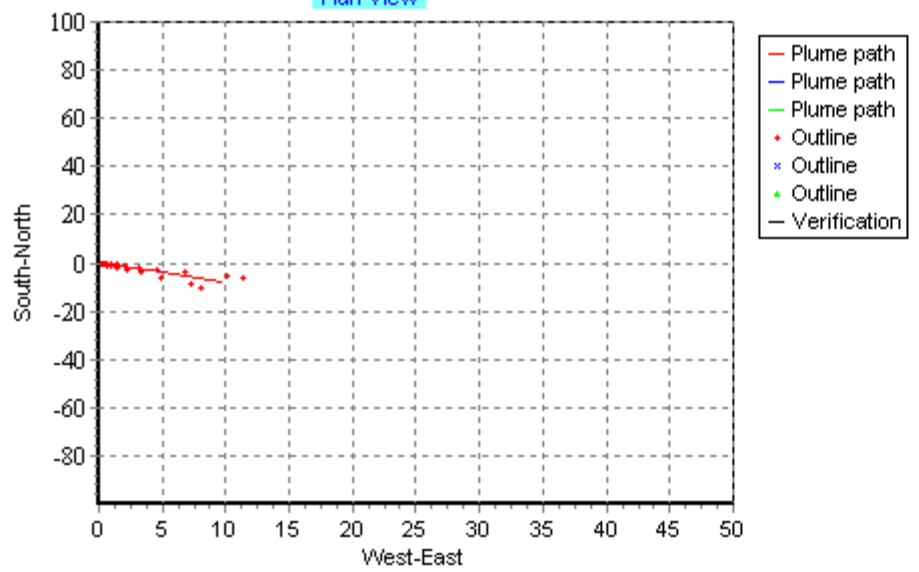
Plume Elevation



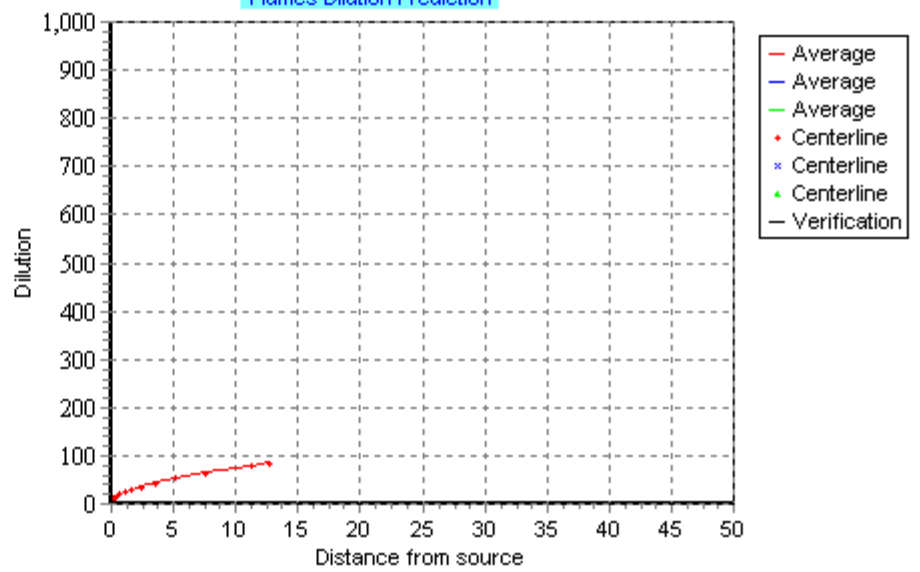
Ambient Properties



Plan View



Plumes Dilution Prediction



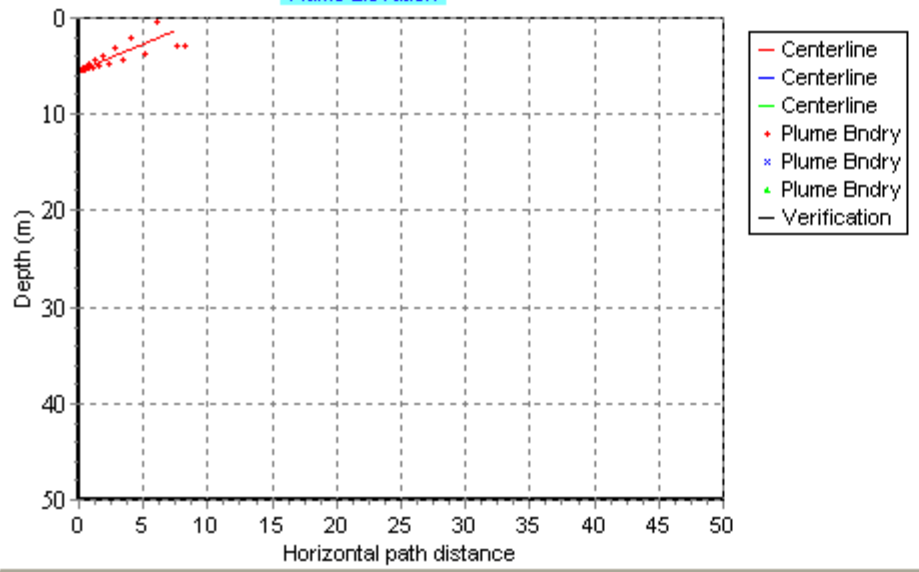
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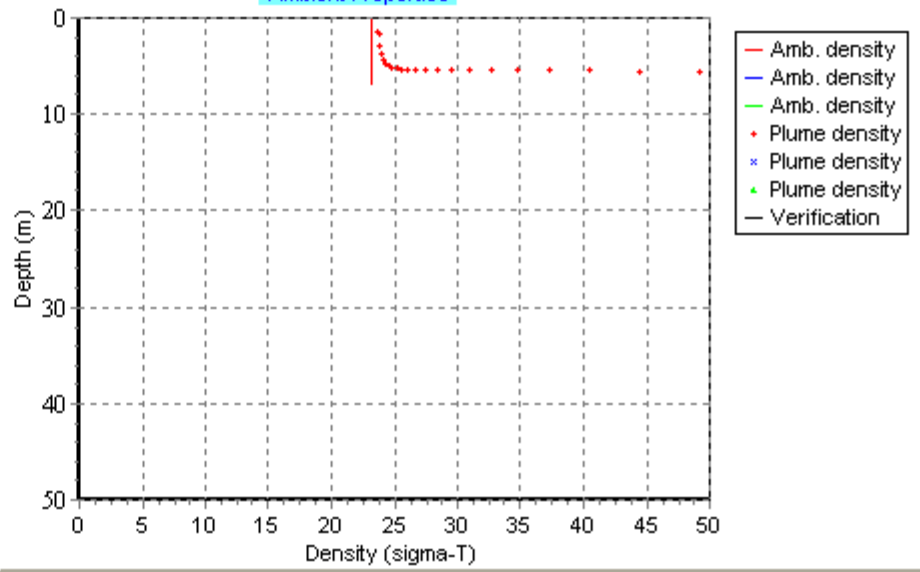
/ Windows UM3. 6/15/2009 9:44:40 PM
Case 1; ambient file C:\Plumes\Australasian Resources Ltd RO Outfall Project.001.db; Diffuser table record 1: -----
  Depth  Amb-cur  Amb-dir  Amb-sal  Amb-tem  Amb-pol  Decay  Far-spd  Far-dir  Disprsn
    m      m/s      deg      psu      C        kg/kg    s-1     m/s      deg      m0.67/s2
  0.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8 2.1416E+8 0.0003
  7.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8 2.1416E+8 0.0003
  P-dia  P-elev  V-angle  H-angle  Ports  Spacing  AcuteMZ  ChrcMZ  P-depth  Ttl-flw  Eff-sal  Temp  Polutnt
  (m)    (m)    (deg)   (deg)   ( )    (m)     (m)     (m)     (m)     (m3/s)  (psu)  (C)  (kg/kg)
5.00E-4 1.5    15.0    320.0   56549.0 2.50E-4 10.0    100.0    5.5    1.1372  78.82  32.0 0.07882
Froude number: -8410.9
  Depth  Amb-cur  P-dia  Polutnt  Dilutn  x-posn  y-posn
  (m)    (m/s)   (m)    (kg/kg)  ( )     (m)     (m)
Step    0      5.5     0.04    0.0005   1.0     0.0     0.0;
100     5.474  0.04    0.0398   7.44    0.0747  -0.0627;
161     5.206  0.04    0.444    0.0387  24.97   0.847   -0.711; max dilution reached
200     4.152  0.04    2.065    0.0378  54.09   3.94    -3.306;
217     2.921  0.04    4.027    0.0376  75.75   7.688   -6.451; acute zone,
223     2.275  0.04    5.097    0.0375  85.31   9.733   -8.167; surface,
:
9:44:40 PM. amb fills: 2
    
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- Help
- Clear +
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- Thick
- To File
- Verify

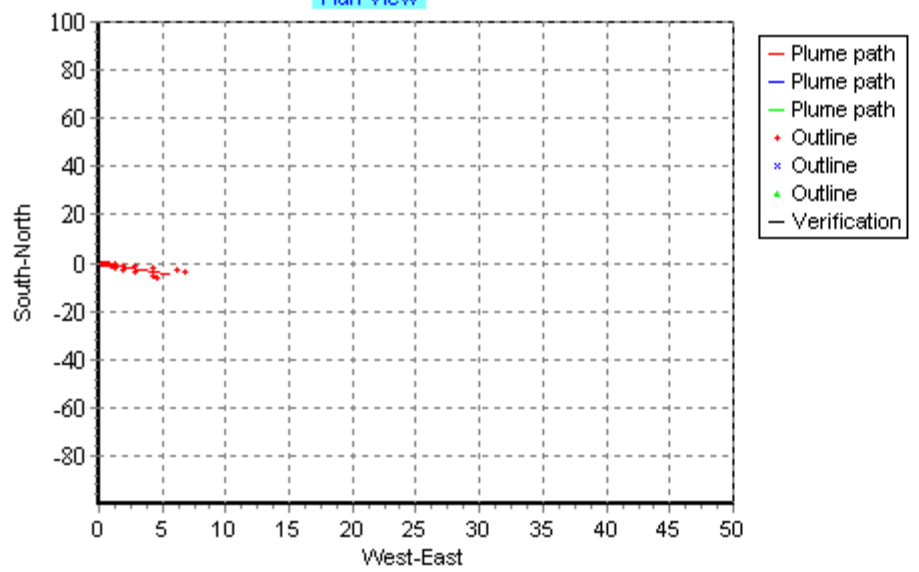
Plume Elevation



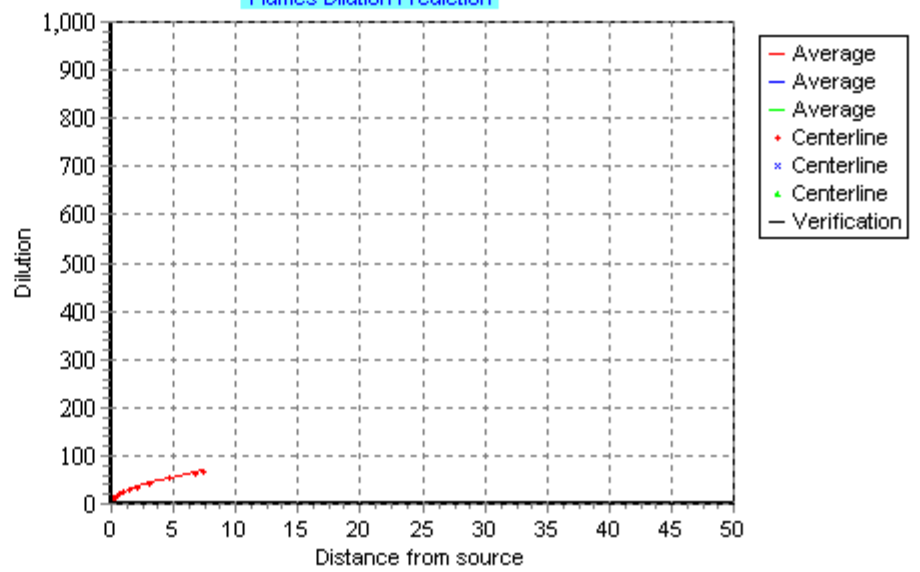
Ambient Properties



Plan View



Plumes Dilution Prediction



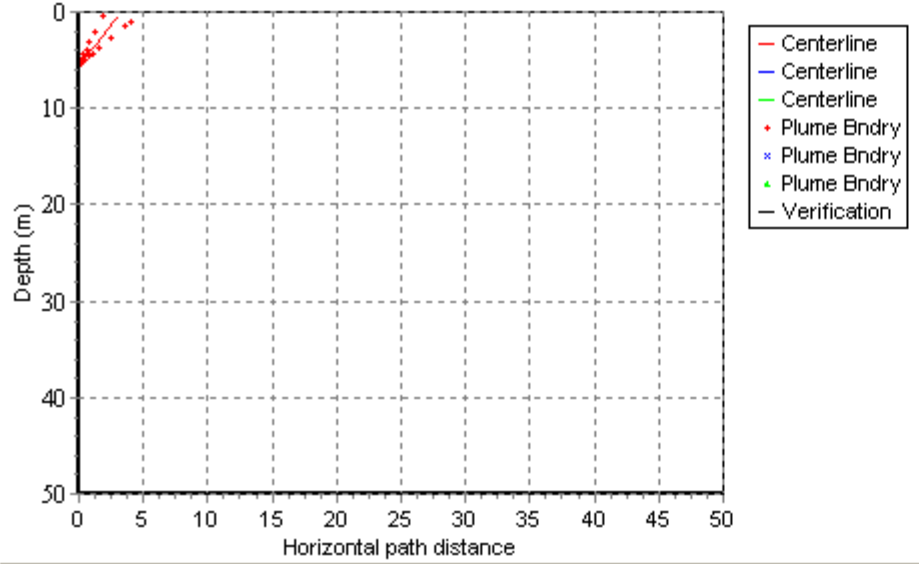
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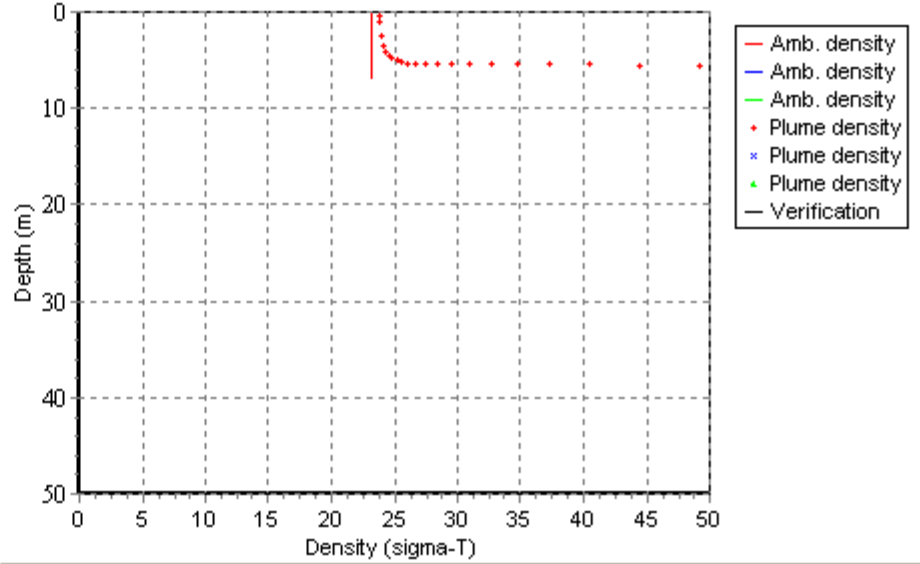
/ Windows UM3. 6/15/2009 9:43:20 PM
Case 1; ambient file C:\Plumes\Australasian Resources Ltd RO Outfall Project.001.db; Diffuser table record 1: -----
  Depth  Amb-cur  Amb-dir  Amb-sal  Amb-tem  Amb-pol  Decay  Far-spd  Far-dir  Disprsn
    m      m/s      deg      psu      C         kg/kg    s-1     m/s      deg      m0.67/s2
  0.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8 2.1416E+8 0.0003
  7.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8 2.1416E+8 0.0003
  P-dia  P-elev  V-angle  H-angle  Ports Spacing AcuteMZ ChrcMZ P-depth Ttl-flw Eff-sal  Temp Polutnt
  (m)    (m)    (deg)   (deg)   ( )    (m)    (m)    (m)    (m)    (m3/s) (psu)  (C) (kg/kg)
5.00E-4 1.5    30.0    320.0   56549.0 2.50E-4 10.0   100.0   5.5    1.1372 78.82  32.0 0.07882
Froude number: -8410.9
  Depth  Amb-cur  P-dia  Polutnt  Dilutn  x-posn  y-posn
  (m)    (m/s)   (m)    (kg/kg)  ( )     (m)     (m)
Step    0      5.5     0.04    0.0005   1.0     0.0     0.0;
100     5.45    0.04    0.0398   7.44    0.0669  -0.0562;
161     4.932   0.04    0.445    0.0387  24.97   0.759  -0.637; max dilution reached
200     2.891   0.04    2.071    0.0378  54.09   3.53   -2.962;
212     1.352   0.04    3.324    0.0376  68.61   5.661  -4.75; surface.
:
9:43:20 PM. amb fills: 2
    
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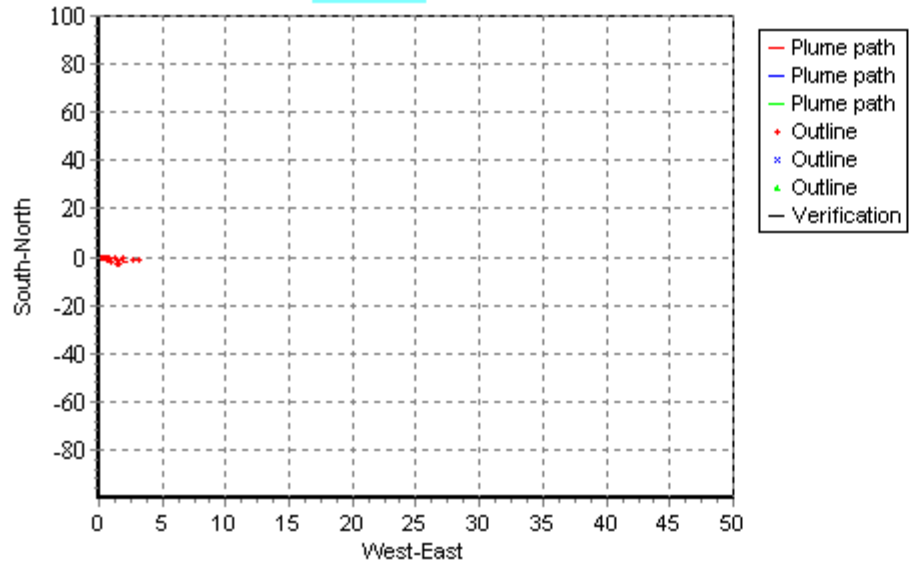
Plume Elevation



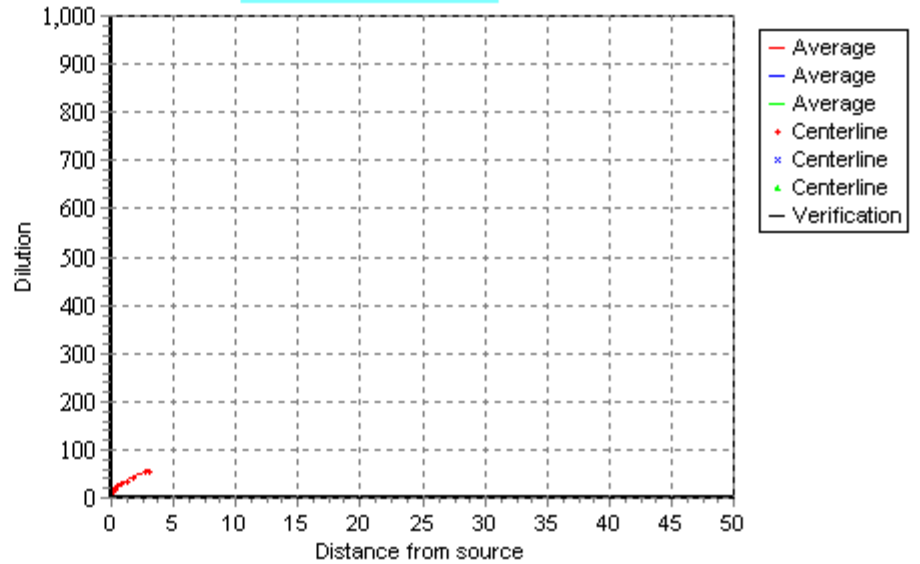
Ambient Properties



Plan View



Plumes Dilution Prediction



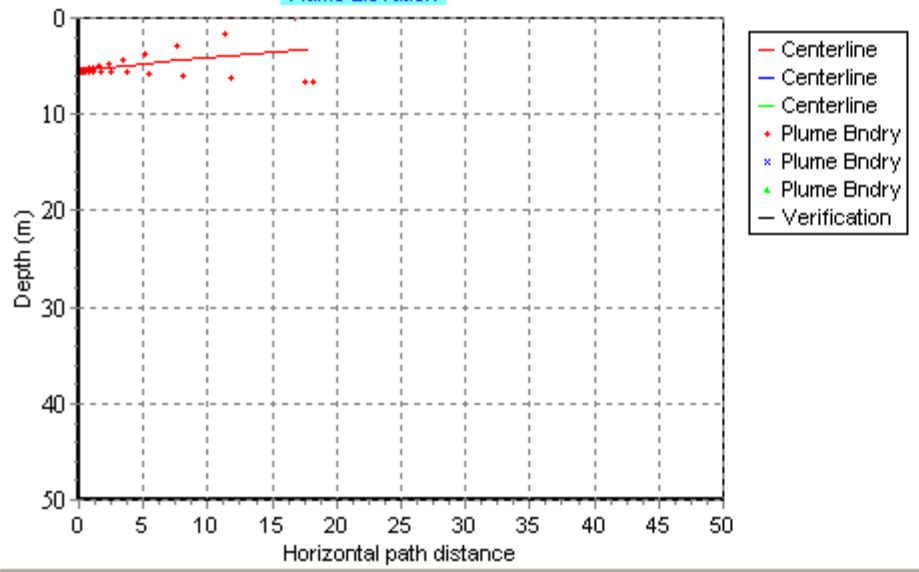
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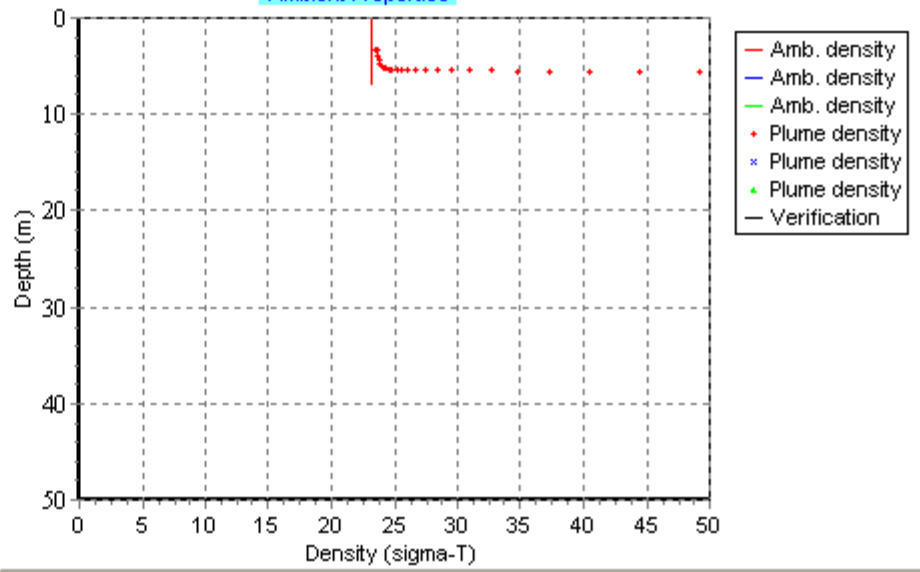
/ Windows UM3. 6/15/2009 9:41:01 PM
Case 1: ambient file C:\Plumes\Australasian Resources Ltd RO Outfall Project.001.db; Diffuser table record 1: -----
  Depth    Amb-cur    Amb-dir    Amb-sal    Amb-tem    Amb-pol    Decay    Far-spd    Far-dir    Disprsn
    m      m/s      deg      psu      C      kg/kg      s-1      m/s      deg      m0.67/s2
  0.0      0.04     320.0     37.0      30.0     0.037     0.0      2.1416E+8  2.1416E+8  0.0003
  7.0      0.04     320.0     37.0      30.0     0.037     0.0      2.1416E+8  2.1416E+8  0.0003
  P-dia    P-elev    V-angle    H-angle    Ports Spacing AcuteMZ ChrcMZ P-depth Ttl-flo Eff-sal    Temp Polutnt
  (m)      (m)      (deg)     (deg)     ( )      (m)      (m)      (m)      (m)      (m3/s)    (psu)    (C) (kg/kg)
5.00E-4    1.5      60.0     320.0     56549.0  2.50E-4    10.0     100.0     5.5      1.1372    78.82    32.0 0.07882
Froude number: -8410.9
  Depth    Amb-cur    P-dia    Polutnt    Dilutn    x-posn    y-posn
  (m)      (m/s)     (m)      (kg/kg)    ( )      (m)      (m)
Step      (m)      (m/s)     (m)      (kg/kg)    ( )      (m)      (m)
0         5.5      0.04     0.0005     0.0788    1.0      0.0      0.0;
100      5.413   0.04     0.0398     0.0428    7.44     0.0387   -0.0325;
161      4.517   0.04     0.446      0.0387    24.97    0.44     -0.369; max dilution reached
200      0.965   0.04     2.089      0.0378    54.09    2.064    -1.732;
203      0.402   0.04     2.353      0.0378    57.4     2.326    -1.951; axial vel  2.704 surface.
:
9:41:01 PM. amb fills: 2
    
```

- Help
- Clear +
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- Ctrl Verify
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- 4-pl
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- Scale
- Thick
- To File
- Verify

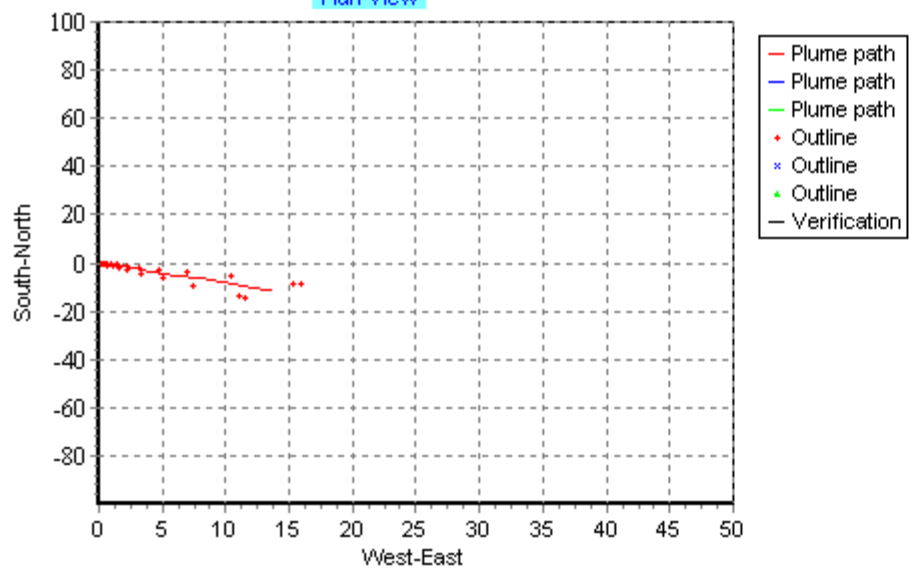
Plume Elevation



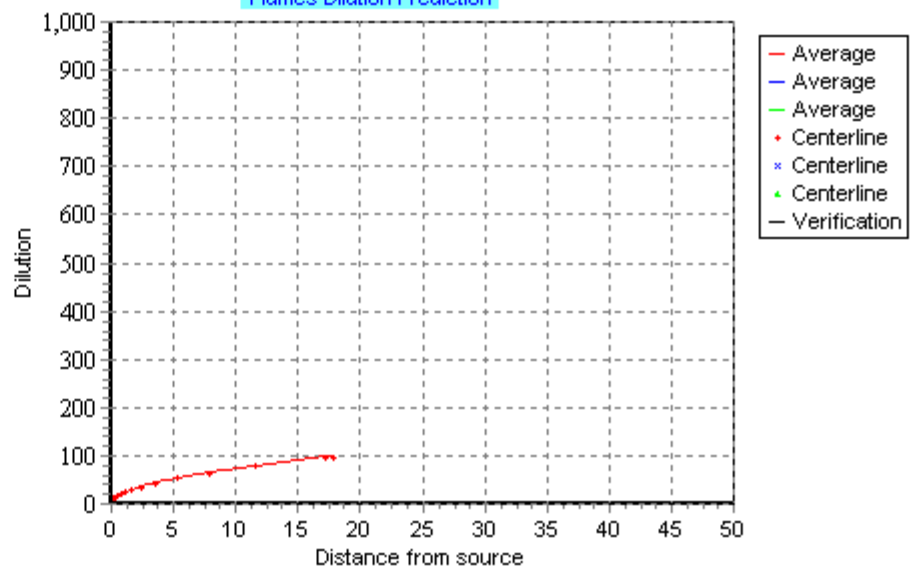
Ambient Properties



Plan View



Plumes Dilution Prediction



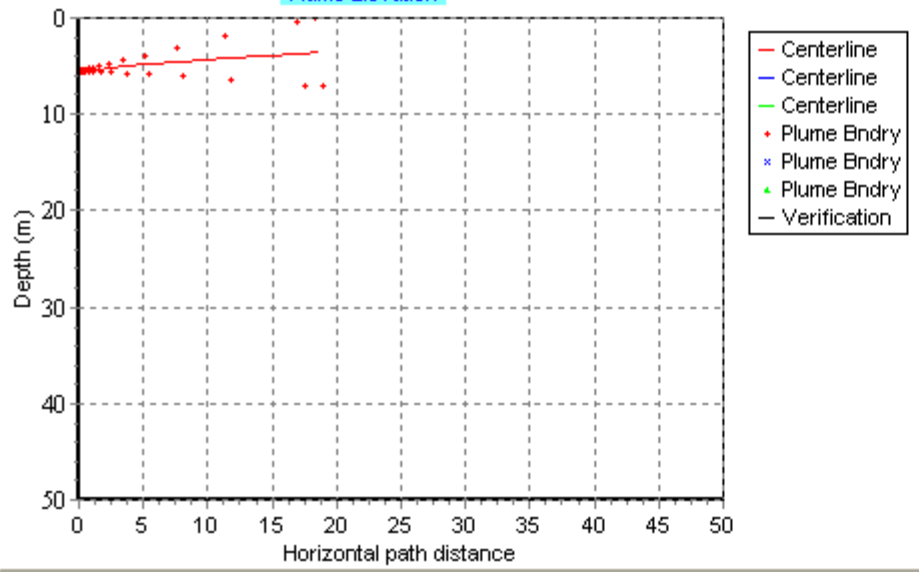
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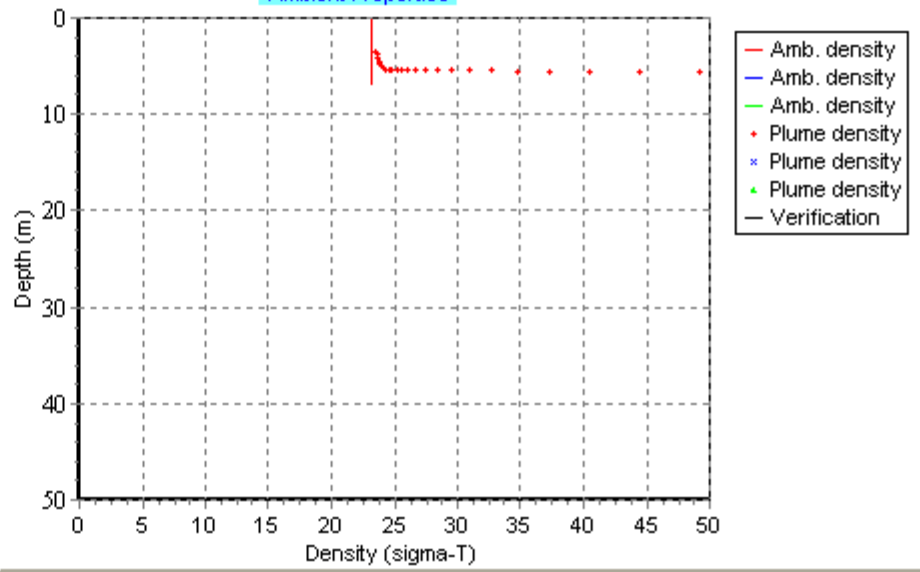
/ Windows UM3. 6/15/2009 9:38:17 PM
Case 1: ambient file C:\Plumes\Australasian Resources Ltd RO Outfall Project.001.db; Diffuser table record 1: -----
  Depth  Amb-cur  Amb-dir  Amb-sal  Amb-tem  Amb-pol  Decay  Far-spd  Far-dir  Disprsn
    m      m/s      deg      psu      C        kg/kg   s-1    m/s      deg      m0.67/s2
  0.0     0.04     320.0    37.0     30.0     0.037   0.0    2.1416E+8  2.1416E+8  0.0003
  7.0     0.04     320.0    37.0     30.0     0.037   0.0    2.1416E+8  2.1416E+8  0.0003
  P-dia  P-elev  V-angle  H-angle  Ports  Spacing  AcuteMZ  ChrcMZ  P-depth  Ttl-flw  Eff-sal  Temp  Polutnt
  (m)    (m)    (deg)   (deg)   ( )    (m)     (m)     (m)     (m)     (m3/s)  (psu)  (C)   (kg/kg)
5.00E-4  1.5    8.0    320.0  56549.0  2.50E-4  10.0    100.0    5.5    1.1372  78.82  32.0  0.07882
Froude number: -8410.9
  Depth  Amb-cur  P-dia  Polutnt  Dilutn  x-posn  y-posn
  (m)    (m/s)   (m)    (kg/kg)  ( )     (m)     (m)
Step    0      5.5    0.0005  0.0788  1.0     0.0     0.0;
100    5.486  0.04  0.0398  0.0428  7.44    0.0766 -0.0643;
161    5.342  0.04  0.444  0.0387  24.97   0.869  -0.729; max dilution reached
200    4.779  0.04  2.063  0.0378  54.09   4.046  -3.395;
217    4.138  0.04  4.018  0.0376  75.75   7.893  -6.623; acute zone,
231    3.284  0.04  6.95  0.0374  99.96   13.68  -11.48; surface,
:
9:38:17 PM. amb fills: 2
    
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- Help
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- Thick
- To File
- Verify

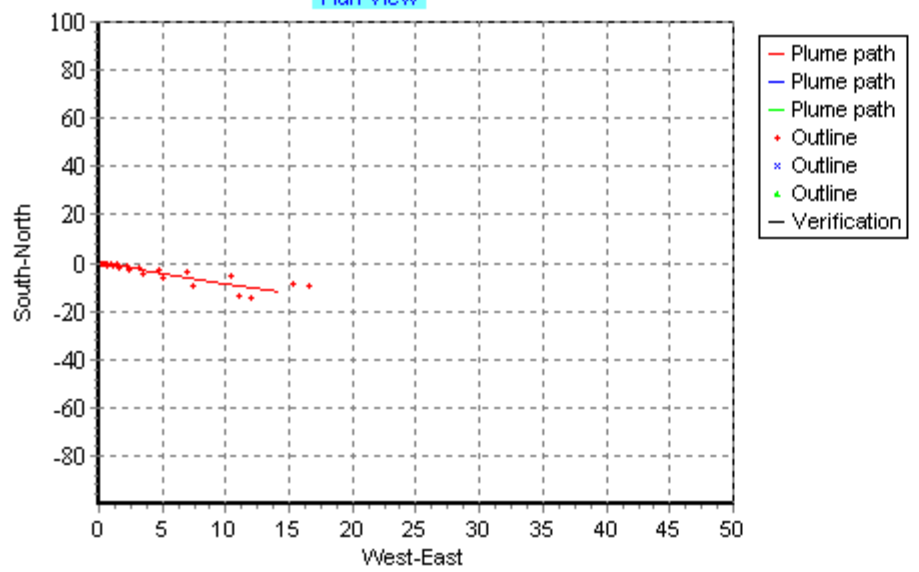
Plume Elevation



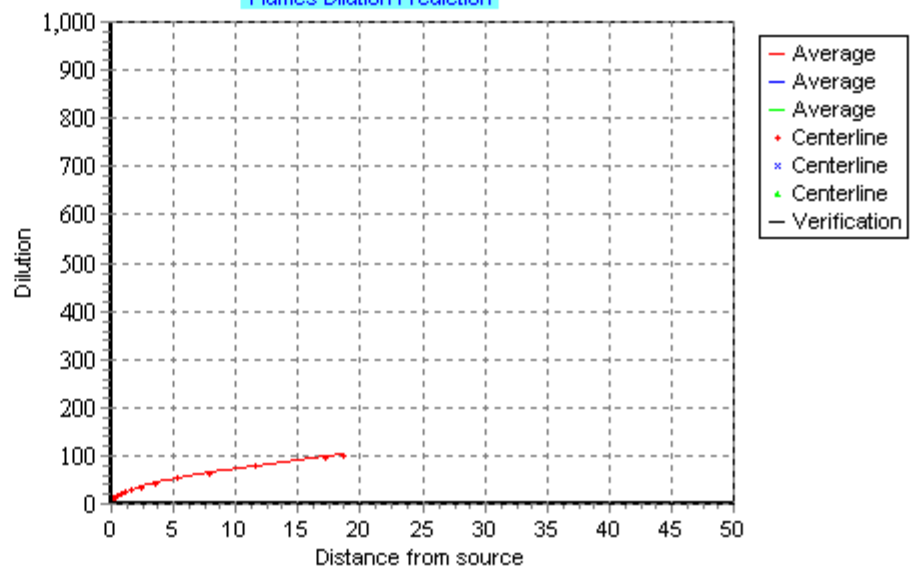
Ambient Properties



Plan View



Plumes Dilution Prediction



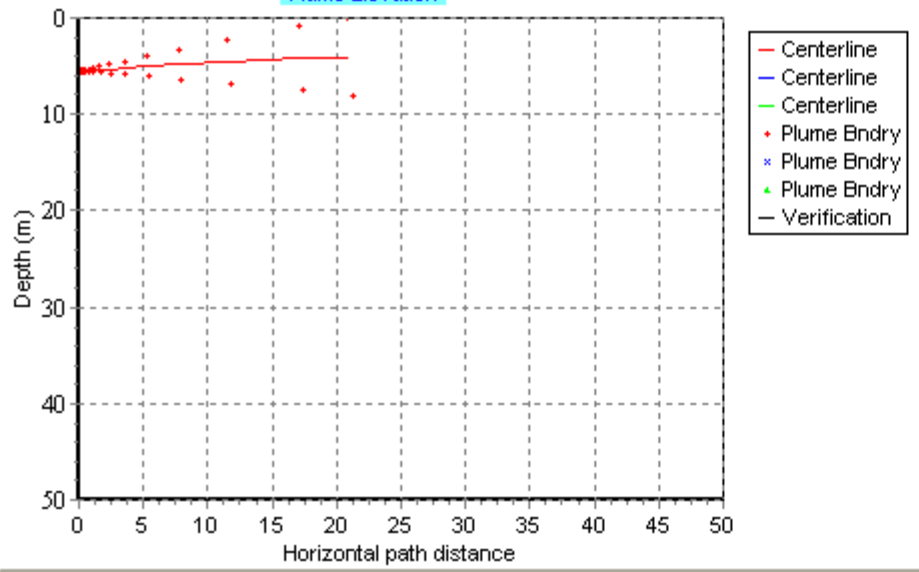
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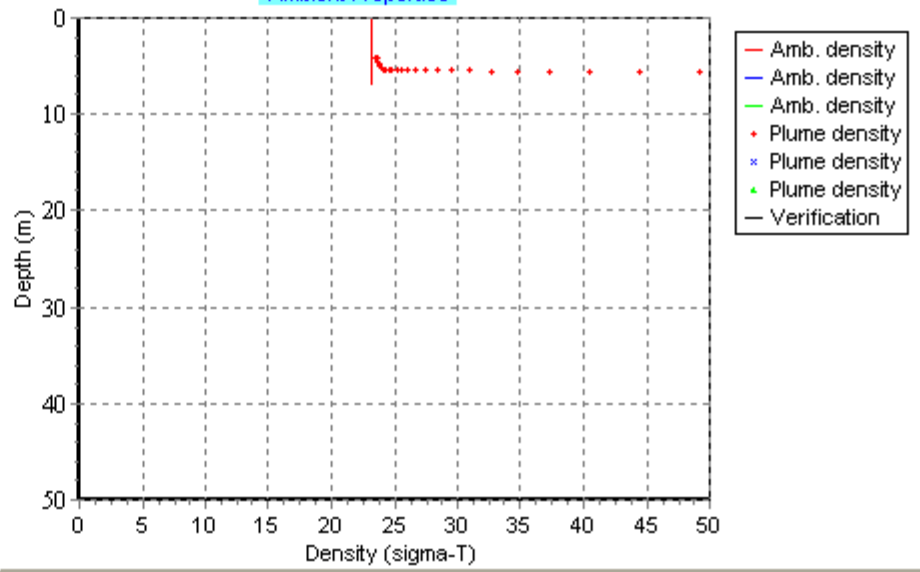
/ Windows UM3. 6/15/2009 9:36:16 PM
Case 1; ambient file C:\Plumes\Australasian Resources Ltd RO Outfall Project.001.db; Diffuser table record 1: -----
  Depth  Amb-cur  Amb-dir  Amb-sal  Amb-tem  Amb-pol  Decay  Far-spd  Far-dir  Disprsn
    m      m/s      deg      psu      C        kg/kg    s-1     m/s      deg      m0.67/s2
  0.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8 2.1416E+8 0.0003
  7.0     0.04     320.0    37.0     30.0     0.037    0.0     2.1416E+8 2.1416E+8 0.0003
  P-dia  P-elev  V-angle  H-angle  Ports  Spacing  AcuteMZ  ChrnMZ  P-depth  Ttl-flw  Eff-sal  Temp  Polutnt
  (m)    (m)    (deg)   (deg)   ( )    (m)     (m)     (m)     (m)     (m3/s)  (psu)  (C)  (kg/kg)
5.00E-4 1.5    7.0    320.0  56549.0 2.50E-4 10.0    100.0    5.5    1.1372  78.82  32.0  0.07882
Froude number: -8410.9
  Depth  Amb-cur  P-dia  Polutnt  Dilutn  x-posn  y-posn
  (m)    (m/s)   (m)    (kg/kg)  ( )     (m)     (m)
Step    0      5.5     0.04   0.0005   1.0     0.0     0.0;
100     5.488  0.04   0.0398  7.44    0.0768  -0.0644;
161     5.361  0.04   0.444   0.0387  24.97   0.871  -0.731; max dilution reached
200     4.87   0.04   2.063   0.0378  54.09   4.056  -3.403;
217     4.314  0.04   4.017   0.0376  75.75   7.914  -6.64; acute zone,
231     3.588  0.04   6.946   0.0374  99.96   13.71  -11.51; bottom hit,
232     3.526  0.04   7.223   0.0374  102.0   14.26  -11.97; surface,
:
9:36:16 PM. amb fills: 2
    
```

- Help
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- Thick
- To File
- Verify

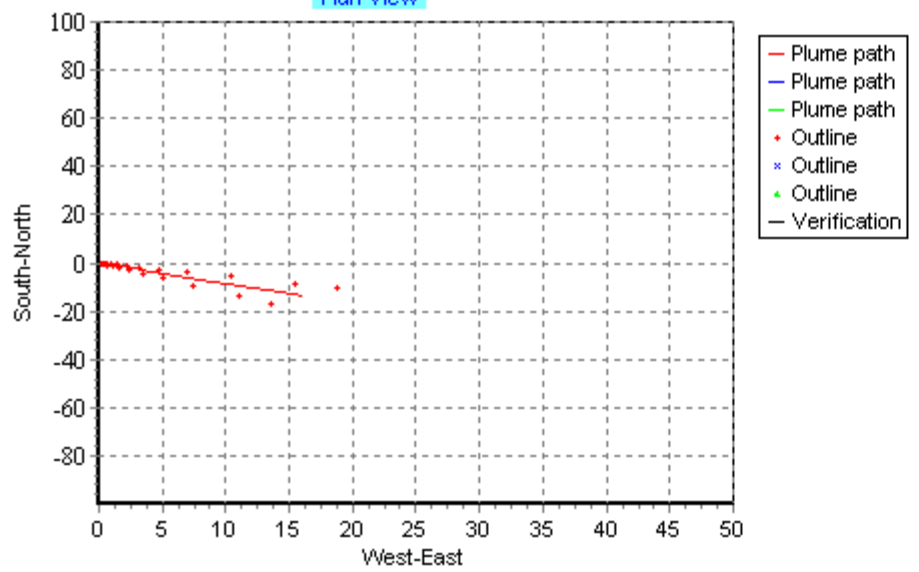
Plume Elevation



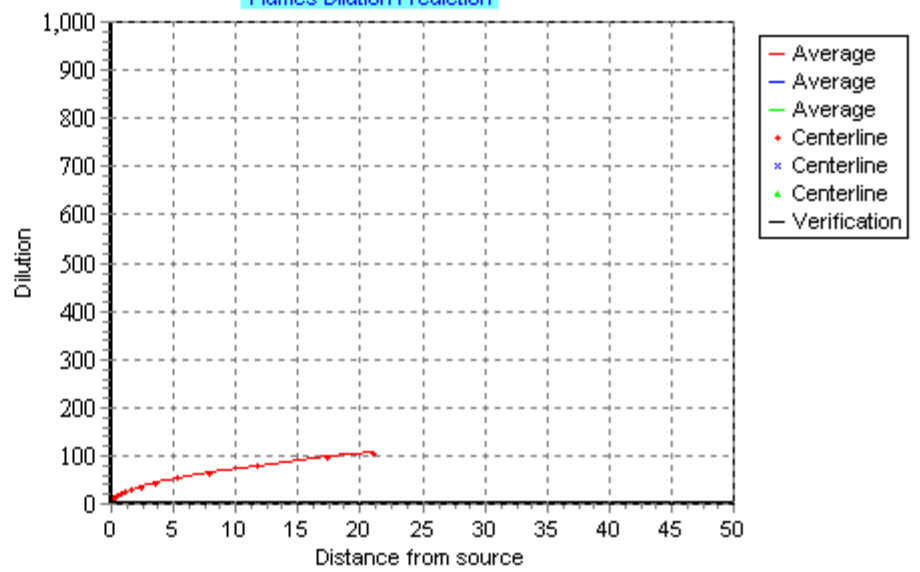
Ambient Properties



Plan View



Plumes Dilution Prediction

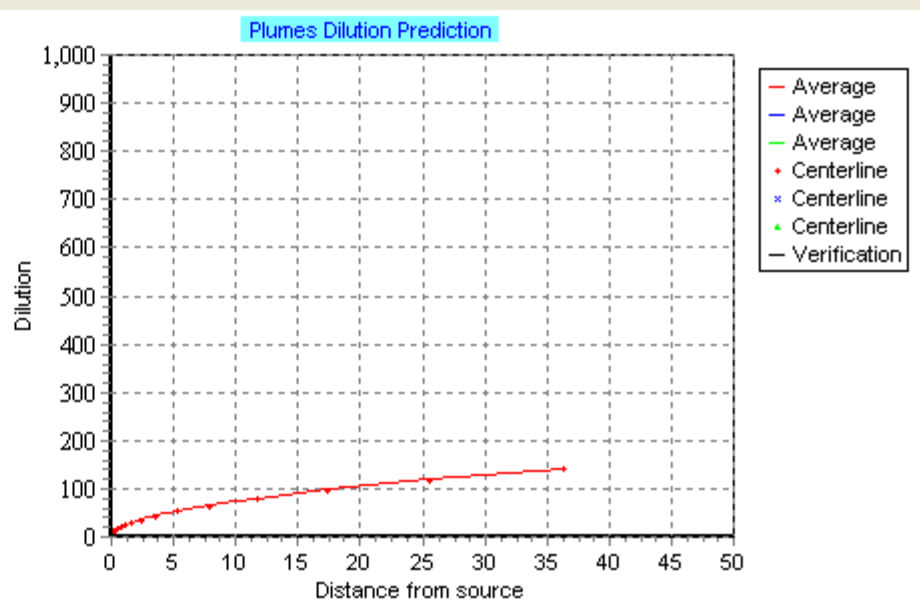
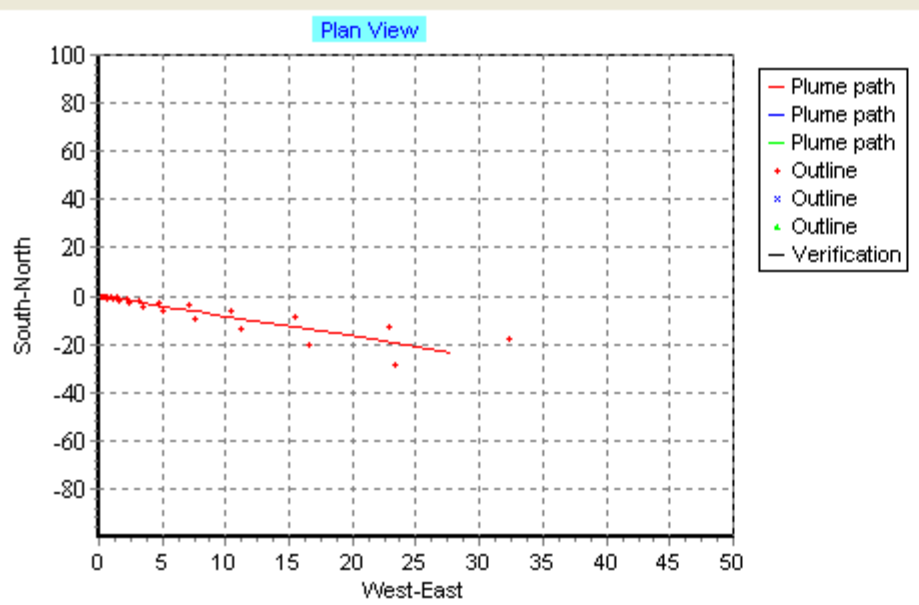
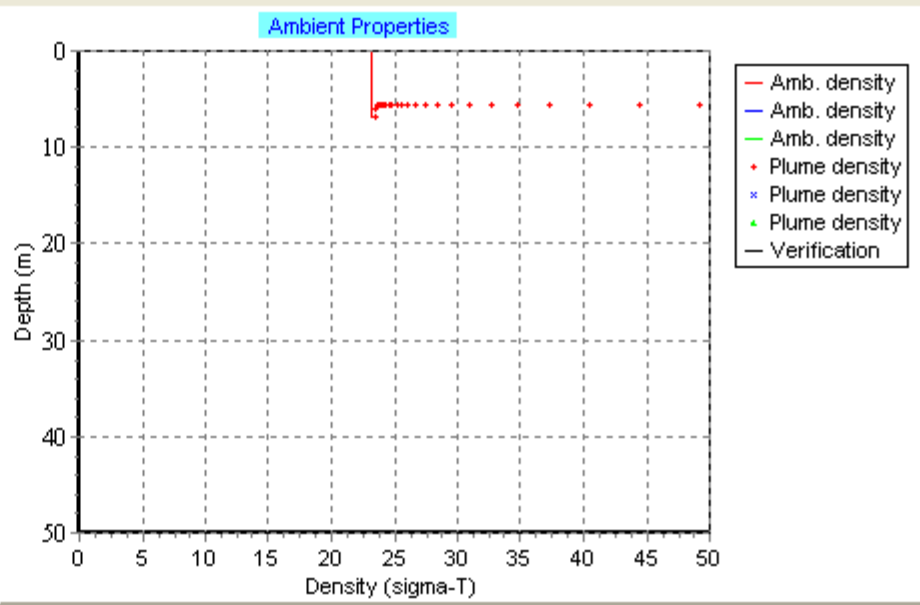
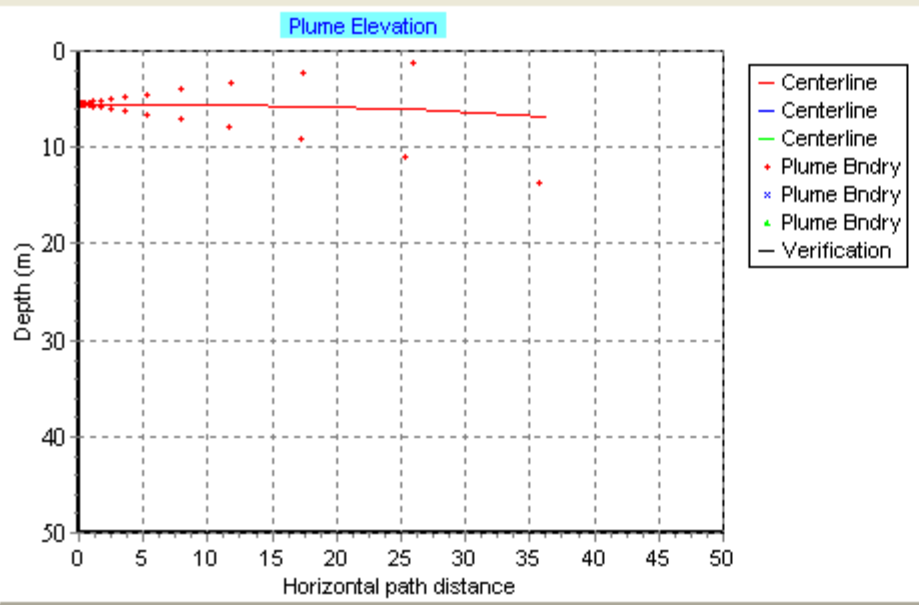


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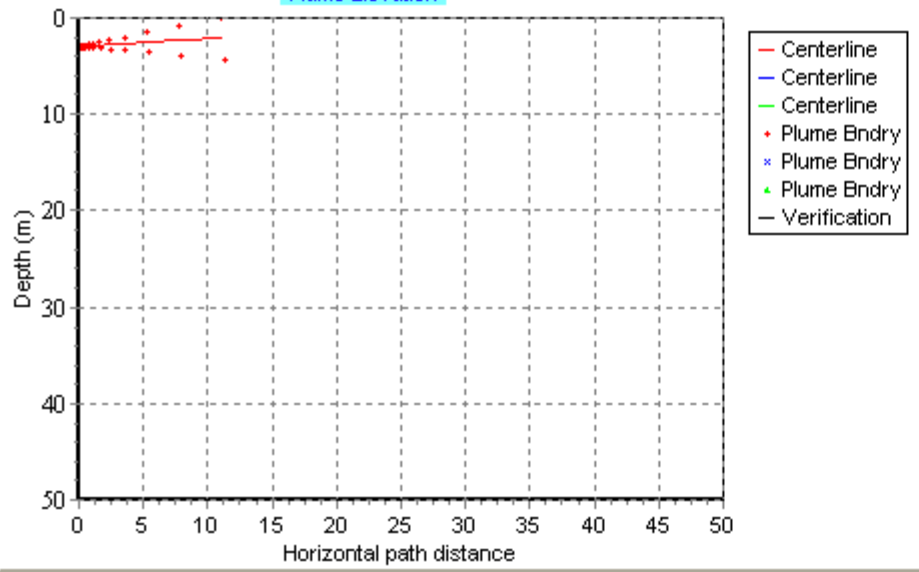
/ Windows UM3. 6/15/2009 9:27:14 PM
Case 1; ambient file C:\Plumes\Australasian Resources Ltd RO Outfall Project.001.db; Diffuser table record 1: -----
  Depth  Amb-cur  Amb-dir  Amb-sal  Amb-tem  Amb-pol  Decay  Far-spd  Far-dir  Disprsn
    m      m/s      deg      psu      C        kg/kg   s-1     m/s      deg      m0.67/s2
  0.0     0.04     320.0    37.0     30.0     0.037   0.0     2.1416E+8 2.1416E+8 0.0003
  7.0     0.04     320.0    37.0     30.0     0.037   0.0     2.1416E+8 2.1416E+8 0.0003
  P-dia  P-elev  V-angle  H-angle  Ports  Spacing  AcuteMZ  ChrcMZ  P-depth  Ttl-flw  Eff-sal  Temp  Polutnt
  (m)    (m)    (deg)   (deg)   ( )    (m)     (m)     (m)     (m)     (m3/s)  (psu)  (C)   (kg/kg)
5.00E-4 1.5    5.0     320.0   56549.0 2.50E-4 10.0    100.0    5.5     1.1372  78.82  32.0  0.07882
Froude number: -8410.9
  Depth  Amb-cur  P-dia  Polutnt  Dilutn  x-posn  y-posn
  (m)    (m/s)   (m)    (kg/kg)  ( )     (m)     (m)
Step    0      5.5     0.04    0.0005   1.0     0.0     0.0;
100     5.491  0.04    0.0398   7.44    0.0771 -0.0647;
161     5.401  0.04    0.444    0.0387  24.97  0.875  -0.734; max dilution reached
200     5.052  0.04    2.062    0.0378  54.09  4.073  -3.418;
217     4.669  0.04    4.015    0.0376  75.75  7.948  -6.669; acute zone,
223     4.482  0.04    5.077    0.0375  85.31  10.06  -8.441; bottom hit,
235     4.051  0.04    8.11     0.0374  108.2  16.11  -13.52; surface,
:
9:27:15 PM. amb fills: 2
    
```

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- Thick
- To File
- Verify

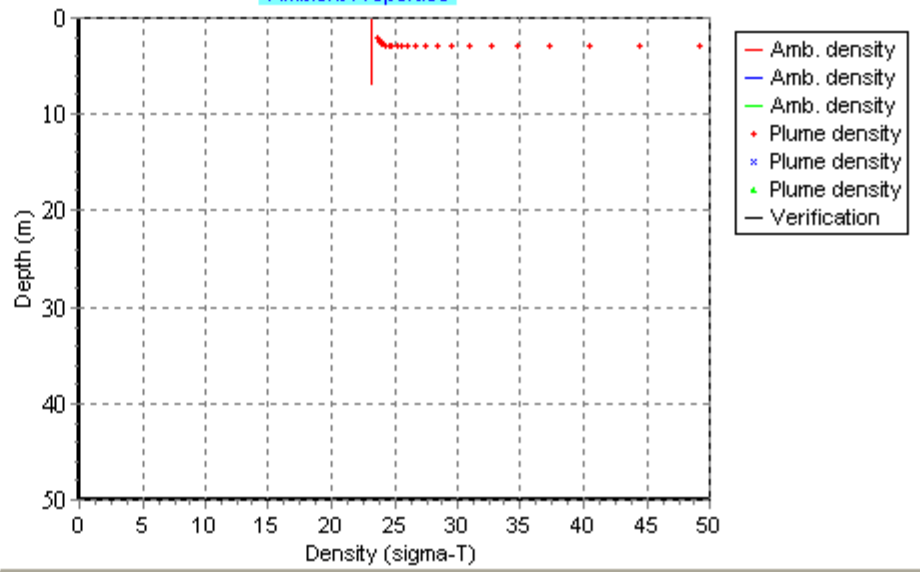


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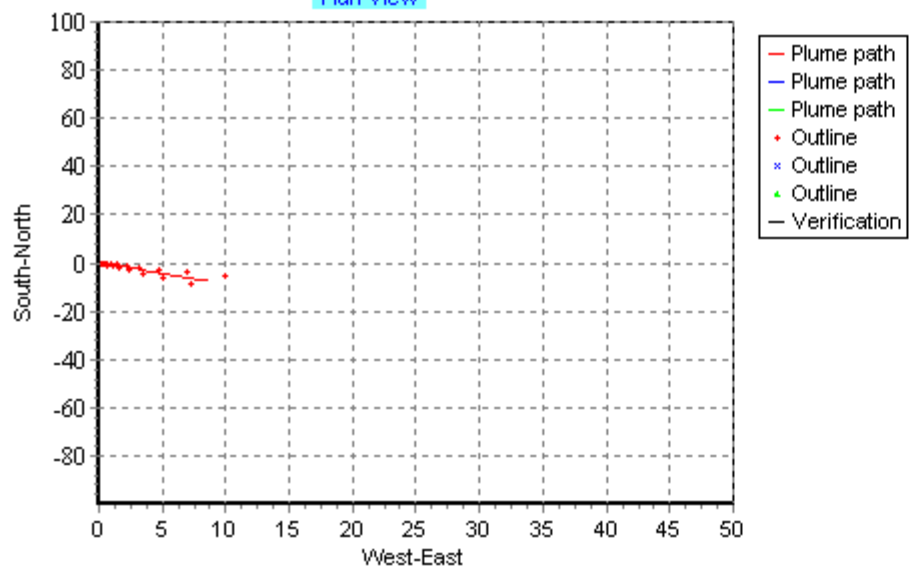
Plume Elevation



Ambient Properties



Plan View



Plumes Dilution Prediction

