1239344

CLASS 1 MODIFICATIONS TO HANFORD FACILITY RCRA PERMIT

SECTION 4 OF 7

Attachment A
Detailed Calculations

CALCULATION SHEET

BY: E. Berrios
DATE: 11/23/05

SUBJECT: WTP Air Emissions Hazardous Organic Constituents Feed Concentrations

PROJECT.RPP-WTP
JOB NO.:24590
CALC NO..24590-WTP-M4C-FRP-00006
SHEET REV: B
SHEET NO.. A-2

	A	B	C	D	E	F	G	H	I	J	K
1											
2											
3	**Table 1 - LAW Anticipated TOC Weight Percent per WTP Phase I Batch**										
4											
5	LAW	LAW-1	LAW-2	LAW-3	LAW-4	LAW-5	LAW-6	LAW-7	LAW-8		
6	density (g/cc)	1.39E+00	1.47E+00	1.38E+00	1.49E+00	1.41E+00	1.39E+00	1.31E+00	1.31E+00		
7	Na (mol/L)	6.83	9.19	8.39	9.85	6.94	6.93	7	6.99		
8	TOC (mol/mol Na)	2.90E-02	2.95E-02	6.19E-02	3.02E-02	2.42E-02	2.41E-02	2.07E-01	2.06E-01		
9	TOC wt%	0.17%	0.22%	0.45%	0.24%	0.14%	0.14%	1.33%	1.32%		
10	0.5 mol TOC/mol Na contract limit	2.94%	3.75%	3.66%	3.98%	2.96%	2.99%	3.20%	3.19%		
11											
12											Maximum
13	LAW	LAW-9	LAW-10	LAW-11	LAW-12	LAW-13	LAW-14	LAW-15	LAW-16	LAW-17	Batch
14	density (g/cc)	1.32E+00	1.44E+00	1.38E+00	1.46E+00	1.41E+00	1.35E+00	1.52E+00	1.39E+00	1.40E+00	1.38E+00
15	Na (mol/L)	6.8	7	8.16	9.69	8.66	6.98	7	6.99	7	8.16E+00
16	TOC (mol/mol Na)	2.19E-02	2.71E-02	3.13E-01	4.96E-02	2.93E-02	1.79E-02	9.91E-03	3.08E-02	2.97E-02	3.13E-01
17	TOC wt%	0.14%	0.16%	2.22%	0.39%	0.22%	0.11%	0.05%	0.19%	0.18%	2.22%
18	0.5 mol TOC/mol Na contract limit	3.10%	2.93%	3.55%	3.97%	3.68%	3.10%	2.77%	3.01%	3.00%	3.55%

CALCULATION SHEET

BY: E. Berrios
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PROJECT:RPP-WTP
JOB NO.:24590
CALC NO.:24590-WTP-M4C-FRP-00006
SHEET REV: B
SHEET NO.: A-3

SUBJECT: WTP Air Emissions Hazardous Organic Constituents Feed Concentrations

	A	B	C	D	E	F
1						
2						
3	**Table 2 - HLW Anticipated Supernate TOC Weight Percent per WTP Phase I Batch**					
4	HLW liquids	HLW-1	HLW-2	HLW-3	HLW-4	Maximum
5	density (g/cc)	1.09	1.28	1.48	1.22	1.48
6	Na (mol/L)	1.37	4.44	8.56	3.84	8.56
7	TOC (mol/mol Na)	2.90E-02	8.76E-03	2.28E-02	2.15E-02	2.28E-02
8	TOC wt%	0.04%	0.04%	0.16%	0.08%	0.16%
9	0.5 mol TOC/mol Na contract limit	0.75%	2.08%	3.47%	1.89%	3.47%

CALCULATION SHEET

BY: E. Berrios
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PROJECT:RPP-WTP
JOB NO.:24590
CALC NO.:24590-WTP-M4C-FRP-00006
SHEET REV: B
SHEET NO.: A-4

SUBJECT: WTP Air Emissions Hazardous Organic Constituents Feed Concentrations

	A	B	C	D	E	F
1						
2						
3	**Table 3 - HLW Anticipated Solids TOC Weight Percent per WTP Phase I Batch**					
4	HLW solids	HLW-1	HLW-2	HLW-3	HLW-4	Maximum
5	density (g/cc)	3	3	3	3	3
6	Na (g/g solids)	0.127	0.0484	0.0818	0.119	
7	Na (mol/l)	16.6	6.31	10.67	15.52	15.52
8	TOC (g/g solids)	9.59E-03	9.59E-04	4.59E-03	1.71E-02	
9	TOC (mol/l)	2.4	0.23975	1.1475	4.275	
10	TOC (mol/mol Na)	1.45E-01	3.80E-02	1.08E-01	2.75E-01	2.75E-01
11	TOC wt%	0.96%	0.10%	0.46%	1.71%	1.71%
12	1.1 mol TOC/mol Na contract limit	7.30%	2.78%	4.70%	6.84%	6.84%

CALCULATION SHEET

BY E. Berrios
DATE 11/23/05

PROJECT RPP-WTP
JOB NO 24590
CALC NO 24590-WTP-M4C-FRP-00006
SHEET REV B
SHEET NO . A-5

SUBJECT. WTP Air Emissions Hazardous Organic Constituents Feed Concentrations

	A	B	C	D	E	F	G	H	I
1				spg	1.38E+00		Assumed TOC %		2 5%
2				Target C	3460	mg/L	Assumed Accounted		90 0%
3	**Table 4 Organic Constituent Feed Concentration Calculation**			MW C	12.011		Ratio		189
4	CAS #	COPC	Chemical Formula	MW	Carbons	mg/L	Eq Conc (mgC/L)	Ratioed Eq Conc (mg C/L)	Rat Conc (mg/L)
5	100-00-5	p-Nitrochlorobenzene	C6H4ClNO2	157 56	6	0 2	9.15E-02	1 73E+01	40
6	100-21-0	p-Phthalic acid	C8H6O4	166.13	8	0.3	1.74E-01	3 29E+01	60
7	100-41-4	Ethyl benzene	C8H10	106 16	8	0.02	1 81E-02	3.43E+00	4
8	100-42-5	Styrene	C8H8	104.14	8	0.02	1 85E-02	3 49E+00	4
9	10061-01-5	cis-1,3-Dichloropropene	C3H4Cl2	110.97	3	0 02	6.49E-03	1 23E+00	4
10	10061-02-6	trans-1,3-Dichloropropene	C3H4Cl2	110.97	3	0.02	6 49E-03	1.23E+00	4
11	101-55-3	4-Bromophenylphenyl ether	C12H9BrO	249.11	12	0.3	1.74E-01	3.29E+01	60
12	101-84-8	Diphenyl ether	C12H10O	170.21	12	0 066	5.59E-02	1 06E+01	10
13	106-35-4	3-Heptanone	C7H14O	114 19	7	0.02	1.47E-02	2.79E+00	4
14	106-42-3	p-Xylene (Dimethyl benzene)	C8H10	106.16	8	0 04	3.62E-02	6 85E+00	10
15	106-46-7	1,4-Dichlorobenzene	C6H4Cl2	147.01	6	0.02	9 80E-03	1.86E+00	4
16	106-88-7	1,2-Epoxybutane	C4H8O	72.12	4	0.066	4.40E-02	8.32E+00	10
17	106-93-4	Ethylene dibromide (Dibromethane)	C2H4Br2	187.88	2	0.02	2.56E-03	4 84E-01	4
18	106-97-8	Butane	C4H10	58 123	4	0 04	3.31E-02	6 26E+00	10
19	106-99-0	1,3-Butadiene	C4H6	54.091	4	0.02	1.78E-02	3 36E+00	4
20	107-02-8	Acrolein	C3H4O	56.06	3	0.03	1.93E-02	3 65E+00	10
21	107-05-1	3-Chloropropene (Allyl chloride)	C3H5Cl	76 526	3	0.02	9.42E-03	1.78E+00	4
22	107-06-2	1,2-Dichloroethane (Ethylene chloride)	C2H4Cl2	98 96	2	0.02	4.85E-03	9.19E-01	4
23	107-12-0	Propionitrile	C3H5N	55.079	3	0.05	3.27E-02	6 19E+00	10
24	107-13-1	Acrylonitrile	C3H3N	53.06	3	0.1	6.79E-02	1 29E+01	20
25	107-18-6	2-Propene-1-ol	C3H6O	58 08	3	0.3	1 86E-01	3.52E+01	60
26	107-31-3	Formic acid, methyl ester	C2H4O2	60.05	2	0.3	1.20E-01	2 27E+01	60
27	107-66-4	Dibutylphosphate	C8H19O4P	210.21	8	0.3	1 37E-01	2.60E+01	60
28	107-87-9	2-Pentanone	C5H10O	86.133	5	0.1	6.97E-02	1.32E+01	20
29	108-03-2	1-Nitropropane	C3H7NO2	89.09	3	0 3	1 21E-01	2.30E+01	60
30	108-05-4	Vinyl acetate	C4H6O2	86.09	4	0 3	1.67E-01	3.17E+01	60
31	108-10-1	Hexone (4-Methyl-2-pentanone or MIBK)	C6H12O	100.16	6	0.04	2.88E-02	5.45E+00	10
32	108-20-3	Bis(isopropyl)ether	C6H14O	102.18	6	0 066	4 65E-02	8 81E+00	10
33	108-38-3	m-Xylene (Dimethyl benzene)	C8H10	106.16	8	0.04	3 62E-02	6.85E+00	10
34	108-39-4	m-Cresol	C7H8O	108.13	7	0 066	5.13E-02	9.72E+00	10
35	108-87-2	Methylcyclohexane	C7H14O	98.188	7	0.04	3.43E-02	6.48E+00	10
36	108-88-3	Toluene	C7H8	92.13	7	0.02	1.83E-02	3.46E+00	4
37	108-90-7	Chlorobenzene	C6H5Cl	112.56	6	0.02	1.28E-02	2 42E+00	4
38	108-93-0	Cyclohexanol	C6H12O	100.16	6	0.066	4.75E-02	8.99E+00	10
39	108-94-1	Cyclohexanone	C6H10O	98.2	6	0 07	5.14E-02	9.73E+00	10
40	108-95-2	Phenol	C6H6O	94.11	6	0 3	2.30E-01	4.35E+01	60
41	109-66-0	n-Pentane	C5H12	72.15	5	0.06	4.99E-02	9.46E+00	10
42	109-99-9	Tetrahydrofuran	C4H8O	72.1	4	0 02	1.33E-02	2.52E+00	4
43	110-12-3	5-Methyl-2-hexanone	C7H14O	114.19	7	0.02	1.47E-02	2.79E+00	4
44	110-43-0	2-Heptanone	C7H14O	114.19	7	0 02	1.47E-02	2.79E+00	4
45	110-54-3	n-Hexane	C6H14	86.177	6	0.04	3.35E-02	6 33E+00	10
46	110-62-3	n-Valeraldehyde	C5H10O	86 13	5	0.3	2 09E-01	3.96E+01	60
47	110-82-7	Cyclohexane	C6H12	84.161	6	0.03	2.57E-02	4 86E+00	10
48	110-83-8	Cyclohexene	C6H10	82.145	6	0.02	1.75E-02	3 32E+00	4
49	110-86-1	Pyridine	C5H5N	79.1	5	0.092	6.98E-02	1 32E+01	20
50	111-65-9	n-Octane	C8H18	114 23	8	0.04	3.36E-02	6 37E+00	10
51	111-76-2	Ethylene glycol monobutyl ether	C6H14O2	118	6	0.3	1.83E-01	3 47E+01	60
52	111-84-2	n-Nonane	C9H20	128.26	9	0 04	3.37E-02	6.38E+00	10
53	117-81-7	Bis(2-ethylhexyl)phthalate (DEHP)	C24H38O4	390.56	24	0 3	2.21E-01	4.19E+01	60
54	117-84-0	n-Dioctyl phthalate	C24H38O4	390.56	24	0.3	2.21E-01	4.19E+01	60
55	120-12-7	Anthracene	C14H10	178.22	14	0 3	2.83E-01	5 36E+01	60
56	120-82-1	1,2,4-Trichlorobenzene	C6H3Cl3	181.46	6	0.03	1.19E-02	2 26E+00	10
57	120-83-2	2,4-Dichlorophenol	C6H4Cl2O	163.01	6	0.3	1.33E-01	2.51E+01	60
58	121-44-8	Triethylamine	C6H15N	101.19	6	0 066	4.70E-02	8.90E+00	10
59	121-69-7	Dimethylaniline	C8H11N	121.18	8	0.066	5 23E-02	9.91E+00	10
60	122-39-4	N,N-Diphenylamine	C12H11N	169.23	12	0.1	8.52E-02	1.61E+01	20
61	123-19-3	4-Heptanone	C7H14O	114.19	7	0 02	1.47E-02	2.79E+00	4
62	123-38-6	n-Propionaldehyde	C3H6O	58 08	3	0.09	5.58E-02	1 08E+01	20
63	123-51-3	3-Methyl-1-butanol	C5H12O	88 15	5	0 066	4.50E-02	8.51E+00	10
64	123-86-4	Acetic acid n-butyl ester	C6H12O2	116.16	6	0.001	6 20E-04	1.17E-01	0 2
65	123-91-1	1,4-Dioxane	C4H8O2	88.1	4	0 01	5.45E-03	1 03E+00	2
66	126-73-8	Tributyl phosphate	C12H27O4P	266.32	12	0.2	1.08E-01	2 05E+01	40
67	126-98-7	2-Methyl-2-propenenitrile (Methacrylonitrile)	C4H5N	67 09	4	0 04	2.86E-02	5.42E+00	10

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PROJECT RPP-WTP
JOB NO. 24590
CALC NO 24590-WTP-M4C-FRP-00006
SHEET REV. B
SHEET NO A-6

SUBJECT: WTP Air Emissions Hazardous Organic Constituents Feed Concentrations

	A	B	C	D	E	F	G	H	I
1				spg	1.38E+00		Assumed TOC %		2.5%
2				Target C	3460	mg/L	Assumed Accounted		90.0%
3	**Table 4 Organic Constituent Feed Concentration Calculation**			MW C	12.011		Ratio		189
4	CAS #	COPC	Chemical Formula	MW	Carbons	mg/L	Eq Conc (mgC/L)	Ratioed Eq Conc (mg C/L)	Rat. Conc (mg/L)
68	127-18-4	Perchloroethylene (tetrachloroethylene)	C2CL4	165.85	2	0.02	2.90E-03	5.48E-01	4
69	127-19-5	N,N-Dimethylacetamide	C4H9NO	87.12	4	0.066	3.64E-02	6.89E+00	10
70	128-37-0	2,6-Bis(tert-butyl)-4-methylphenol	C15H24O	220.35	15	0.1	8.18E-02	1.55E+01	20
71	129-00-0	Pyrene	C16H10	202.24	16	0.3	2.85E-01	5.40E+01	60
72	1321-64-8	Pentachloronaphthalene	C10H3Cl5	300.4	10	0.3	1.20E-01	2.27E+01	60
73	1321-65-9	Trichloronaphthalene	C10H5Cl3	231.51	10	0.3	1.56E-01	2.95E+01	60
74	132-64-9	Dibenzofuran	C12H8O	168.19	12	0.3	2.57E-01	4.87E+01	60
75	1335-87-1	Hexachloronaphthalene	C10H2Cl6	334.84	10	0.3	1.08E-01	2.04E+01	60
76	1335-88-2	Tetrachloronaphthalene	C10H4Cl4	265.95	10	0.3	1.35E-01	2.57E+01	60
77	1336-36-3	Polychlorinated biphenyls (PCBs)		322	12	0.0023	1.03E-03	1.95E-01	0.4
78	141-78-6	Acetic acid ethyl ester (Ethyl acetate)	C4H8O2	88.1	4	0.001	5.45E-04	1.03E-01	0.2
79	141-79-7	4-Methyl-3-penten-2-one	C6H10O	98.16	6	0.3	2.20E-01	4.17E+01	60
80	142-82-5	n-Heptane	C7H16	100.2	7	0.05	4.20E-02	7.94E+00	10
81	156-60-5	trans-1,2-Dichloroethylene	C2H2Cl2	96.95	2	0.066	1.64E-02	3.10E+00	10
82	1634-04-4	Methyl tert-butyl ether	C5H12O	88.15	5	0.066	4.50E-02	8.51E+00	10
83	189-55-9	Dibenzo[a,i]pyrene	C24H14	302.37	24	0.3	2.86E-01	5.42E+01	60
84	189-64-0	Dibenzo[a,h]pyrene	C24H14	302.37	24	0.3	2.86E-01	5.42E+01	60
85	191-24-2	Benzo(g,h,i)perylene	C22H12	276.34	22	0.3	2.87E-01	5.43E+01	60
86	191-30-0	Benzo[a,i]pyrene	C24H14	302.37	24	0.3	2.86E-01	5.42E+01	60
87	192-65-4	Dibenzo[a,e]pyrene	C24H14	302.37	24	0.3	2.86E-01	5.42E+01	60
88	193-39-5	Indeno(1,2,3-cd)pyrene	C22H12	276.34	22	0.3	2.87E-01	5.43E+01	60
89	206-44-0	Fluoranthene	C16H10	202.26	16	0.3	2.85E-01	5.40E+01	60
90	208-96-8	Acenaphthylene	C12H8	152.21	12	0.3	2.84E-01	5.38E+01	60
91	2234-13-1	Octachloronaphthalene	C10Cl8	403.73	10	0.001	2.98E-04	5.63E-02	0.2
92	224-42-0	Dibenz[a,j]acridine	C21H13N	279.34	21	0.3	2.71E-01	5.13E+01	60
93	226-36-8	Dibenz[a,h]acridine	C21H13N	279.34	21	0.3	2.71E-01	5.13E+01	60
94	25551-13-7	Trimethyl benzene	C9H12	120.19	9	0.066	5.94E-02	1.12E+01	10
95	26140-60-3	Terphenyls	C18H14	230.31	18	0.3	2.82E-01	5.33E+01	60
96	27154-33-2	Trichlorofluoroethane	C2H2Cl3F	151.4	2	0.066	1.05E-02	1.98E+00	10
97	287-92-3	Cyclopentane	C5H10	70.134	5	0.03	2.57E-02	4.86E+00	10
98	3697-24-3	5-Methylchrysene	C19H14	242.32	19	0.3	2.83E-01	5.35E+01	60
99	3825-26-1	Ammonium perfluorooctanoate	C8H4F15NO2	431.1	8	0.3	6.69E-02	1.27E+01	60
100	4170-30-3	2-Butenaldehyde (2-Butenal or Crotonaldehyde)	C4H6O	70.091	4	0.07	4.80E-02	9.08E+00	10
101	50-00-0	Formaldehyde	CH2O	30.03	1	0.066	2.64E-02	5.00E+00	10
102	50-32-8	Benzo(a)pyrene	C20H12	252.3	20	0.2	1.90E-01	3.61E+01	38
103	53-70-3	Dibenzo(a,h)anthracene	C22H14	278.33	22	0.2	1.90E-01	3.59E+01	38
104	540-59-0	1,2-Dichloroethylene	C2H2Cl2	96.94	2	0.066	1.64E-02	3.10E+00	10
105	540-84-1	2,2,4-Trimethylpentane	C8H18	114.23	8	0.066	5.55E-02	1.05E+01	10
106	541-73-1	1,3-Dichlorobenzene	C6H4Cl2	147.01	6	0.02	9.80E-03	1.86E+00	4
107	56-23-5	Carbon tetrachloride	CCl4	153.84	1	0.02	1.56E-03	2.96E-01	4
108	563-80-4	3-Methyl-2-butanone	C5H10O	86.133	5	0.03	2.09E-02	3.96E+00	10
109	56-49-5	3-Methylcholanthrene	C21H16	268.36	21	0.3	2.82E-01	5.34E+01	60
110	57-14-7	1,1-Dimethylhydrazine	C2H8N2	60.099	2	0.3	1.20E-01	2.27E+01	60
111	58-90-2	2,3,4,6-Tetrachlorophenol	C6H2Cl4O	231.9	6	0.3	9.32E-02	1.77E+01	60
112	591-78-6	2-Hexanone	C6H12O	100.16	6	0.04	2.88E-02	5.45E+00	10
113	59-50-7	4-Chloro-3-methylphenol	C7H7ClO	142.58	7	0.3	1.77E-01	3.35E+01	60
114	59-89-2	N-Nitrosomorpholine	C4H8N2O2	116.12	4	0.3	1.24E-01	2.35E+01	60
115	602-87-9	5-Nitroacenaphthene	C12H9NO2	199.21	12	0.3	2.17E-01	4.11E+01	60
116	60-29-7	Ethyl ether	C4H10O	74.12	4	0.3	1.94E-01	3.68E+01	60
117	603-34-9	Triphenylamine	C18H15N	245.32	18	0.3	2.64E-01	5.01E+01	60
118	60-34-4	Methylhydrazine	CH6N2	46.072	1	0.066	1.72E-02	3.26E+00	10
119	60-35-5	Acetamide	C2H5NO	59.07	2	0.066	2.68E-02	5.08E+00	10
120	621-64-7	Di-n-Propylnitrosamine (N-Nitroso-di-n-propylamine)	C6H14N2O	130.19	6	0.3	1.66E-01	3.14E+01	60
121	624-83-9	Methyl isocyanate	C2H3NO	57.052	2	0.066	2.78E-02	5.26E+00	10
122	627-13-4	Nitric acid, propyl ester	C3H7NO3	105.09	3	0.025	8.57E-03	1.62E+00	5
123	62-75-9	N-Nitroso-N,N-dimethylamine (Dimethylnitrosamine)	C2H6N2O	74.1	2	0.3	9.73E-02	1.84E+01	60
124	630-20-6	1,1,1,2-Tetrachloroethane	C2H2Cl4	167.85	2	0.066	9.45E-03	1.79E+00	10
125	64-17-5	Ethyl alcohol	C2H6O	46.069	2	0.07	3.65E-02	6.91E+00	10
126	67-56-1	Methyl alcohol (Methanol)	CH4O	32.04	1	0.066	2.47E-02	4.68E+00	10
127	67-63-0	2-Propyl alcohol (Isopropanol; Propan-2-01)	C3H8O	60.096	3	0.01	6.00E-03	1.14E+00	2
128	67-64-1	2-Propanone (Acetone)	C3H6O	58.08	3	0.1	6.20E-02	1.17E+01	20
129	67-66-3	Chloroform	CHCl3	119.39	1	0.02	2.01E-03	3.81E-01	4
130	67-72-1	Hexachloroethane	C2Cl6	236.74	2	0.3	3.04E-02	5.76E+00	60

CALCULATION SHEET

BY E. Berrios
DATE: 11/23/05

PROJECT.RPP-WTP
JOB NO..24590
CALC NO 24590-WTP-M4C-FRP-00006
SHEET REV B
SHEET NO : A-7

SUBJECT: WTP Air Emissions Hazardous Organic Constituents Feed Concentrations

	A	B	C	D	E	F	G	H	I
1				spg	1 38E+00		Assumed TOC %		2.5%
2				Target C	3460	mg/L	Assumed Accounted		90.0%
3	**Table 4 Organic Constituent Feed Concentration Calculation**			MW C	12.011		Ratio		189
4	CAS #	COPC	Chemical Formula	MW	Carbons	mg/L	Eq Conc (mgC/L)	Ratioed Eq Conc (mg C/L)	Rat. Conc (mg/L)
131	684-16-2	Hexafluoroacetone	C3F6O	166.02	3	0 066	1.43E-02	2.71E+00	10
132	71-23-8	n-Propyl alcohol	C3H8O	60 096	3	0 02	1.20E-02	2 27E+00	4
133	71-36-3	n-Butyl alcohol	C4H10O	74 1	4	0 03	1 95E-02	3.68E+00	10
134	71-43-2	Benzene	C6H6	78.11	6	0.02	1.85E-02	3.49E+00	4
135	71-55-6	Methyl chloroform (1,1,1-Trichloroethane)	C2H3Cl3	133.42	2	0.02	3.60E-03	6.82E-01	4
136	74-83-9	Bromomethane (Methyl bromide)	CH3Br	94.95	1	0 02	2.53E-03	4.79E-01	4
137	74-87-3	Chloromethane (Methyl chloride)	CH3Cl	50.49	1	0.02	4.76E-03	9.01E-01	4
138	74-97-5	Bromochloromethane	CH2BrCl	129.39	1	0.066	6.13E-03	1.16E+00	10
139	74-99-7	Methylacetylene	C3H4	40.07	3	0 3	2.70E-01	5.11E+01	60
140	75-00-3	Chloroethane	C2H5Cl	64.52	2	0.02	7.45E-03	1 41E+00	4
141	75-01-4	Vinyl chloride (1-Chloroethene)	C2H3Cl	62.5	2	0.02	7.69E-03	1 46E+00	4
142	75-05-8	Acetonitrile	C2H3N	41 05	2	0 05	2.93E-02	5.54E+00	10
143	75-07-0	Acetaldehyde	C2H4O	44.05	2	0 3	1.64E-01	3.10E+01	60
144	75-09-2	Dichloromethane (Methylene chloride)	CH2Cl2	84.94	1	0 02	2.83E-03	5.35E-01	4
145	75-12-7	Formamide	CH3NO	45.04	1	0 3	8.00E-02	1 51E+01	60
146	75-15-0	Carbon disulfide	CS2	76.14	1	0.03	4.73E-03	8.96E-01	10
147	75-21-8	Ethylene oxide (Oxirane)	C2H4O	44 05	2	0.01	5.45E-03	1.03E+00	2
148	75-27-4	Bromodichloromethane	CHBrCl2	163.83	1	0 066	4.84E-03	9 16E-01	10
149	75-34-3	1,1-Dichloroethane	C2H4Cl2	98.97	2	0 02	4.85E-03	9.19E-01	4
150	75-35-4	1,1-Dichloroethene (Vinylidene chloride)	C2H2Cl2	96 95	2	0.04	9.91E-03	1 88E+00	10
151	75-43-4	Dichlorofluoromethane	CHCl2F	102.92	1	0.02	2.33E-03	4.42E-01	4
152	75-45-6	Chlorodifluoromethane	CHClF2	86.47	1	0 02	2.78E-03	5.26E-01	4
153	75-50-3	Trimethylamine	C3H9N	59.11	3	0.066	4.02E-02	7 62E+00	10
154	75-52-5	Nitromethane	CH3NO2	61.04	1	0.3	5.90E-02	1.12E+01	60
155	75-55-8	2-Methylaziridine	C3H7N	57 1	3	0.3	1.89E-01	3 58E+01	60
156	75-61-6	Difluorodibromomethane	CBr2F2	209 82	1	0 066	3.78E-03	7.15E-01	10
157	75-63-8	Trifluorobromomethane	CBrF3	148 91	1	0 066	5 32E-03	1 01E+00	10
158	75-65-0	2-Methyl-2-propanol	C4H10O	74.122	4	0.04	2 59E-02	4.91E+00	10
159	75-69-4	Trichlorofluoromethane	CCl3F	137.38	1	0.03	2.62E-03	4.97E-01	10
160	75-71-8	Dichlorodifluoromethane	CCl2F2	120.92	1	0.04	3.97E-03	7 52E-01	10
161	76-03-9	Trichloroacetic acid	C2HCl3O2	163.39	2	0.066	9.70E-03	1.84E+00	10
162	76-11-9	1,1,1,2-Tetrachloro-2,2-difluoroethane	C2Cl4F2	203.83	2	0 3	3.54E-02	6.69E+00	60
163	76-12-0	1,1,2,2-Tetrachloro-1,2-difluoroethane	C2Cl4F2	203.83	2	0.3	3 54E-02	6.69E+00	60
164	76-13-1	1,2,2-Trichloro-1,1,2-trifluoroethane (Freon 113)	C2Cl3F3	187 38	2	0.04	5.13E-03	9 71E-01	10
165	76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	C2Cl2F4	170.92	2	0 05	7.03E-03	1.33E+00	10
166	76-15-3	Chloropentafluoroethane	C2ClF5	154.47	2	0.066	1 03E-02	1 94E+00	10
167	78-83-1	2-Methylpropyl alcohol (Isobutyl alcohol)	C4H10O	74.12	4	0.3	1.94E-01	3.68E+01	60
168	78-87-5	1,2-Dichloropropane	C3H6Cl2	112.99	3	0.02	6.38E-03	1.21E+00	4
169	78-92-2	1-Methylpropyl alcohol (2-Butanol)	C4H10O	74 122	4	0.02	1.30E-02	2 45E+00	4
170	78-93-3	Methyl ethyl ketone (MEK, 2-Butanone)	C4H8O	72.1	4	0.06	4 00E-02	7.57E+00	10
171	79-00-5	1,1,2-Trichloroethane	C2H3Cl3	133.42	2	0.04	7.20E-03	1 36E+00	10
172	79-01-6	Trichloroethylene	C2HCl3	131.4	2	0.04	7.31E-03	1.38E+00	10
173	79-09-4	Propionic acid	C3H6O2	74.08	3	0 3	1.46E-01	2 76E+01	60
174	79-20-9	Methyl acetate	C3H6O2	74 08	3	0.3	1 46E-01	2 76E+01	60
175	79-34-5	1,1,2,2-Tetrachloroethane	C2H2Cl4	167.86	2	0.0001	1.43E-05	2.71E-03	0.02
176	83-32-9	Acenaphthene	C12H10	154.21	12	0.3	2.80E-01	5.31E+01	60
177	84-66-2	Diethyl phthalate	C12H14O4	222.24	12	0 3	1.95E-01	3 68E+01	60
178	84-74-2	Dibutyl phthalate	C16H22O4	278.34	16	0.3	2 07E-01	3.92E+01	60
179	85-01-8	Phenanthrene	C14H10	178.22	14	0.3	2.83E-01	5.36E+01	60
180	85-68-7	Butylbenzyl phthalate	C19H20O4	312.39	19	0.3	2.19E-01	4.15E+01	60
181	86-73-7	Fluorene	C13H10	166.22	13	0 3	2 82E-01	5 34E+01	60
182	87-68-3	Hexachlorobutadiene	C4Cl6	260.76	4	0.04	7.37E-03	1.40E+00	10
183	88-06-2	2,4,6-Trichlorophenol	C6H3Cl3O	197.46	6	0.3	1.09E-01	2.07E+01	60
184	88-72-2	2-Nitrotoluene	C7H7NO2	137.13	7	0.066	4.05E-02	7 66E+00	10
185	88-75-5	2-Nitrophenol	C6H5NO3	139.11	6	0.3	1.55E-01	2.94E+01	60
186	88-89-1	Picric acid	C6H3N3O7	229 11	6	0 3	9.44E-02	1.79E+01	60
187	91-20-3	Naphthalene	C10H8	128.16	10	0.01	9.37E-03	1.77E+00	2
188	91-22-5	Quinoline	C9H7N	129.16	9	0.3	2.51E-01	4.75E+01	60
189	91-58-7	2-Chloronapthalene	C10H7Cl	162 61	10	0 3	2 22E-01	4.20E+01	60
190	92-52-4	1,1`-Biphenyl	C12H10	154.21	12	0 2	1.87E-01	3 54E+01	40
191	92-93-3	4-Nitrobiphenyl	C12H9N02	199.21	12	0.3	2.17E-01	4 11E+01	60
192	95-13-6	Indene	C9H8	116.16	9	0 3	2.79E-01	5.29E+01	60
193	95-47-6	o-Xylene	C8H10	106.16	8	0.02	1 81E-02	3.43E+00	4

CALCULATION SHEET

BY: E. Berrios
DATE 11/23/05

SUBJECT: WTP Air Emissions Hazardous Organic Constituents Feed Concentrations

PROJECT RPP-WTP
JOB NO. 24590
CALC NO 24590-WTP-M4C-FRP-00006
SHEET REV B
SHEET NO : A-8

	A	B	C	D	E	F	G	H	I
1				spg	1.38E+00		Assumed TOC %		2.5%
2				Target C	3460	mg/L	Assumed Accounted		90.0%
3	**Table 4 Organic Constituent Feed Concentration Calculation**			MW C	12.011		Ratio		189
4	CAS #	COPC	Chemical Formula	MW	Carbons	mg/L	Eq Conc (mgC/L)	Ratioed Eq Conc (mg C/L)	Rat Conc (mg/L)
194	95-48-7	o-Cresol (2-Methylphenol)	C7H8O	108.13	7	0.066	5.13E-02	9.72E+00	10
195	95-49-8	2-Chlorotoluene	C7H7Cl	126.59	7	0 3	1.99E-01	3.77E+01	60
196	95-50-1	o-Dichlorobenzene (1,2-Dichlorobenzene)	C6H4Cl2	147.01	6	0 02	9.80E-03	1.86E+00	4
197	95-57-8	2-Chlorophenol	C6H5ClO	128.56	6	0.3	1.68E-01	3.18E+01	60
198	95-95-4	2,4,5-Trichlorophenol	C6H3Cl3O	197.46	6	0.3	1.09E-01	2.07E+01	60
199	96-18-4	1,2,3-Trichloropropane	C3H5Cl3	147 43	3	0.004	9 78E-04	1.85E-01	1
200	96-22-0	3-Pentanone	C5H10O	86 133	5	0 1	6.97E-02	1.32E+01	20
201	96-69-5	Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl)sulfide	C22H30O2S	358.54	22	0 3	2.21E-01	4.19E+01	60
202	98-51-1	p-tert-Butyltoluene	C11H16	148.25	11	0.3	2.67E-01	5 06E+01	60
203	98-82-8	Cumene	C9H12	120.19	9	0.3	2.70E-01	5.11E+01	60
204	98-83-9	alpha-Methylstyrene	C9H10	118.18	9	0.066	6.04E-02	1 14E+01	10
205	98-86-2	Acetophenone	C8H8O	120.5	8	0.2	1.59E-01	3.02E+01	40
206	98-95-3	Nitrobenzene	C6H5NO2	123.11	6	0.2	1.17E-01	2 22E+01	40
207							1 83E+01	3460	

Appendix E

Calculation: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

24590-WTP-M4C-FRP-00001, Rev 0D

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Calculation Cover Sheet

RIVER PROTECTION PROJECT-WASTE TREATMENT PLANT		JOB NO.: 24590
CALC NO. 24590-WTP-M4C-FRP-00001	GROUP Process Eng.	FACILITY Central
SUBJECT WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector		
CALCULATION STATUS DESIGNATION ☒ PRELIMINARY ☐ COMMITTED ☐ CONFIRMED ☐ SUPERSEDED BY: _____ ☐ CANCELLED		
SOFTWARE APPLICATIONS ☒ N/A		
QAS: ☐ YES ☐ NO	PROGRAM NAME:	VERSION/RELEASE NO.:

RECORD OF REVISIONS

NO.	REASON FOR REVISION	TOTAL NO. OF SHEETS	LAST SHEET NO.	ORIGINATOR	CHECKED	APPROVED/ ACCEPTED	DATE
0D	Update the Feed Vector	151	D-57	E. Berrios EB	J.Cook JC	S. Saunders SS	12-7-05
0C	Update the HLW SOW Max for As and V	106	D-39	E. Berrios EB	J. Reynolds	S. Saunders	01/10/05
0B	Update the Feed Vector	105	D-39	E. Berrios	J. Reynolds	S. Saunders	06/17/04
0A	Update the Feed Vector	137	137	E. Berrios	T. Lix/J. Tadlock	O. Block	12/18/02
0	Initial Issue	43	43	E. Berrios	J. Reynolds	O. Block	04/01/02

Notes/Comments

Calculations were performed on a Compaq Personal Computer using the software Microsoft Excel® 2000.

This calculation does not affect any structures, systems, components, or services of the WTP.

This calculation is a complete rewrite therefore no revision bars are used.

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Table B-1 HLW Chemical Analytes Feed Quantities in Kg **B-2**

Table B-2 HLW Radionuclide Feed Quantities in Curies **B-3**

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1 Objective

The objective of this calculation is to update the inorganic and radionuclide constituents feed vector used to estimate WTP air emissions by reconciling updated WTP tank feed sequence and tank waste composition per the most recent Best Basis Inventory (June 2005).

2 Inputs

2.1 Design Inputs

Air emissions feed vector is based on two main sources, the Statement of Work (SOW) maximum concentrations and the Tank Waste Information Network System (TWINS), which provides the Best Basis Inventory (BBI) for all Hanford Tanks. BBI values are used for all constituents that are scoped under the WTP air permits. Tanks evaluated for BBI information are based on the latest WTP feed delivery sequence as specified in Figure 2-4 of Revision 2 of the *River Protection Project System Plan* (Certa 2003). This Figure also provides the basis for the type of waste being processed for each tank (i.e. supernate, salt cake, or solids). This information determined which data from the BBI was going to be used for the analysis. The tanks and type of waste used for evaluation are:

LAW
- AN-102 supernate (Envelope C)
- AN-103 dissolved solids (salt cake) and supernate (Envelope A)
- AN-104 dissolved solids (salt cake) (Envelope A)
- AN-105 dissolved solids (salt cake) and supernate (Envelope A)
- AN-107 supernate (Envelope C)
- AP-101 supernate (Envelope A)
- AP-102 supernate (Envelope A)
- AP-103 supernate (Envelope A)
- AP-104 supernate (Envelope A)
- AP-105 supernate (Envelope A)
- AW-101 dissolved solids (salt cake) and supernate (Envelope A)
- AZ-101 supernate (Envelope B)
- AZ-102 supernate (Envelope B)
- SY-101 supernate (Envelope A)

HLW
- AW-104 solids (Envelope D)
- AY-101 solids (Envelope D)
- AY-102/C-106 solids (Envelope D)
- AZ-101 solids (Envelope D)
- AZ-102 solids (Envelope D)
- C-104 solids (Envelope D)
- C-107 solids (Envelope D)

The BBI for each tank is located in the TWINS website http://twinsweb.pnl.gov/twins.htm. The BBI is located under the subject area called Data.

The constituents tracked in this calculation are those required for air permit and environmental risk assessment purposes. These are identified in Tables 3 and 4 of the *Integrated Emissions Baseline Report for the Hanford Tank Waste Treatment and Immobilization Plant* (24590-WTP-RPT-PO-03-008). Not all constituents specified in these tables are present in the feed vector as they are products or byproducts of the process (e.g. NO_x, SO_x, acid gases).

For the LAW feed, the following Statement of Work (SOW) maximums, based on the *WTP Statement of Work* (DE-AC27-01RV14136) Specification 7, Tables TS-7.1 and TS-7.2, were used:

LAW SOW Maximums

Chemical Analyte	mol/mol Na
Al	2.5E-01
Ba	1.0E-04
Ca	4.0E-02
Cd	4.0E-03
Cl	8.9E-02
Cr	2.0E-02
F	2.0E-01
Fe	1.0E-02
Hg	1.4E-05
K	1.8E-01
La	8.3E-05
Ni	3.0E-03
NO_2	3.8E-01
NO_3	8.0E-01
Pb	6.8E-04
PO_4	1.3E-01
SO_4	7.0E-02
TIC* as CO_3	3.0E-01
TOC* as oxalate	5.0E-01
U	1.2E-03
Radionuclide	**Bq/mol Na**
TRU*	3.0E+06
^{137}Cs	2.0E+10
^{90}Sr	8.0E+08
^{99}Tc	7.1E+06
^{60}Co	3.7E+05
^{154}Eu	4.3E+06

* TRU is defined as alpha-emitting radionuclide constituents with an atomic number greater than 92 with half-life greater than 10 years. TIC is defined as total inorganic carbon and TOC is defined as total organic carbon.

For the HLW feed, the SOW maximums are based on grams per 100 grams of non-volatile waste oxides for inorganic constituents and Curies per 100 grams of non-volatile waste oxides for radionuclide constituents. SOW maximums are available for various non-volatile elements, volatile components, and radionuclide constituents. The HLW SOW maximums, per the *WTP Statement of Work* (DE-AC27-01RV14136) Specification 8, Tables TS-8.1, TS-8.2, TS-8.3, and TS-8.4 are:

HLW Non-Volatile Elements SOW Maximums

Non-Volatile Element	Maximum (grams / 100 grams waste oxides)	Non-Volatile Element	Maximum (grams / 100 grams waste oxides)
As	0.16	Zn	0.42
B	1.3	Ag	0.55
Be	0.065	Al	14
Ce	0.81	Ba	4.5
Co	0.45	Bi	2.8
Cs	0.58	Ca	7.1
Cu	0.48	Cd	4.5
Hg	0.1	Cr	0.68
La	2.6	F	3.5
Li	0.14	Fe	29
Mn	6.5	K	1.3
Mo	0.65	Mg	2.1
Nd	1.7	Na	19
Pr	0.35	Th	5.0
Pu	0.054	Ni	2.4
Rb	0.19	P	1.7
Sb	0.84	Pb	1.1
Se	0.52	Pd	0.13
Sr	0.52	Rh	0.13
Ta	0.03	Ru	0.35
Tc	0.26	S	0.65
Te	0.13	Si	19
Tl	0.45	Ti	1.3
V	0.032	U	14
W	0.24	Zr	15
Y	0.16		

HLW Volatile Components SOW Maximums

Volatile Components	Maximum (grams / 100 grams waste oxides)
Cl	0.33
CO_3^{-2}	30
NO_2	36 (total NO_2/NO_3) as NO_3
NO_3	
TOC	11
CN	1.6
NH_3	1.6

HLW Radionuclide Constituents SOW Maximums

Radionuclide	Maximum (Ci/100 grams waste oxide)	Radionuclide	Maximum (Ci/100 grams waste oxide)	Radionuclide	Maximum (Ci/100 grams waste oxide)
3H	6.5E-05	129I	2.9E-07	238Pu	3.5E-04
14C	6.5E-06	137Cs	1.5E+00	239Pu	3.1E-03
60Co	1.0E-02	152Eu	4.8E-04	241Pu	2.2E-02
90Sr	1.0E+01	154Eu	5.2E-02	241Am	9.0E-02
99Tc	1.5E-02	233U	2.0E-04	243+244Cm	3.0E-03
125Sb	3.2E-02	235U	2.5E-07		
126Sn	1.5E-04	237Np	7.4E-05		

For the purposes of charge balancing the feed vector, the following element charges were used. Charges are based on the CRC Handbook 71st Edition (CRC 1991). For compounds with multiple valance states, the most common valence state (or the state that is most appropriate for high level waste) has been used. The Steady-State Flowsheet Model (SSFM) only requires the inorganic constituents to be charge balanced thus the radionuclide constituents are not included in this step of the calculation.

Component Charges

Component	Charge	Component	Charge
Ag	1	NO_2	-1
Al	3	NO_3	-1
As	5	O	-2
B	3	OH	-1
Ba	2	Oxalate	-2
Be	2	Pb	2
Bi	3	Pd	2
Ca	2	PO_4	-3
Cd	2	Pr	3
Ce	3	Rb	1
Cl	-1	Rh	3
CN	-1	Ru	3
CO_3	-2	Sb	5
Co	3	Se	6
Cr	3	Ta	5
Cu	2	Si	4
F	-1	SO_4	-2
Fe	3	Sr	2
Hg	2	Te	4
K	1	Th	4
La	3	Ti	4
Li	1	Tl	3
Mg	2	U	6
Mn	4	V	3
Mo	6	W	6
Na	1	Y	3
Nd	3	Zn	2
Ni	2	Zr	4

Molecular weights of components were based on the CRC Handbook 71st Edition (CRC 1991). These are:

Analyte	MW g/mol	Analyte	MW g/mol
Ag	107.8	NO3	62.0
Al	27.0	O	16.0
As	74.9	OH	17.0
B	10.8	Oxalate	88.0
Ba	137.3	Pb	207.2
Be	9.0	Pd	105.4
Bi	208.9	PO4	95
Ca	40.1	Pr	140.9
Cd	112.4	Rb	85.5
Ce	140.1	Rh	102.9
Cl	35.5	Ru	101.1
CN	26.0	Sb	121.7
Co	58.9	Se	78.9
Cr	52	Si	28.1
Cu	63.5	SO4	96.1
F	19	Sr	87.6
Fe	55.9	Ta	180.9
Hg	200.6	Te	127.6
K	39.1	Th	232.0
La	138.9	Ti	47.9
Li	6.9	TIC as CO3	60.0
Mg	24.3	Tl	204.4
Mn	54.9	U(total)	238.0
Mo	95.9	V	50.9
Na	22.9	W	183.9
Nd	144.2	Y	88.9
NH3	17.0	Zn	65.4
Ni	58.7	Zr	91.2
NO2	46.0		

Conversion factor from Ci to Bq: 1Ci = 3.7E+10 Bq (Table 1-4 of [Perry, 1984])

2.2 Criteria

The following criteria were used in this calculation to develop the WTP air emissions inorganic and radionuclide constituents feed vector:

- For LAW inorganic constituents feed quantity selected is the calculated average value from all the tanks evaluated. This is different from previous air emissions feed vectors because as the WTP flowsheet has matured, it has been determined that a feed with all inorganic constituents at maximum concentrations imposes throughput restrictions in the flowsheet and does not provide a bounding condition. If the calculated average value is higher than SOW maximum, the SOW maximum value is selected as the feed concentration.

- For LAW radionuclide constituents feed quantity selected is the highest value from all the tanks evaluated. Unlike the inorganic constituents, the radionuclide constituents do not restrict the flowsheet with the same intensity as the inorganic constituents do. If the maximum radionuclide feed quantity is higher than SOW maximums, the SOW maximum number is used.
- For HLW inorganic constituents, the average feed concentrations were converted to equivalent SOW maximums by using the maximum values presented in Section 2 of this calculation. If the constituent did not have a SOW maximum value, then the average BBI feed concentration was used.
- For HLW radionuclide constituents, the maximum BBI feed concentrations were converted to equivalent SOW maximums by using the guidelines presented in Section 2 of this calculation. If the constituent did not have a SOW maximum value, then the maximum BBI feed concentration was used.
- For both LAW and HLW, the mercury (Hg) concentration selected is the maximum concentration to ensure bounding conditions for the constituent.
- The LAW transuranics are defined as: 237Np, 238Pu, 239Pu, 240Pu, 241Am, 242Cm, 242Pu, 243Am, 243Cm, and 244Cm, per the contract specifications.
- For the HLW feed contract maximum calculations, the non-volatile compounds are all those in the feed except Cl, CN, F, NH_3, NO_2, NO_3, OH, oxalate, PO_4, SO_4, and CO_3.
- Tanks analyzed are those specified in Figure 2-4 of revision 2 of the *River Protection Project System Plan* (Certa 2003). If the tanks to be processed by the WTP change, this calculation will need to be revised.

3 Background

Inorganic and radionuclide constituents feed vector used for air permitting and environmental risk assessment purposes is based on SOW maximum concentrations and BBI data. BBI data is used to calculate average concentrations for inorganic constituents and maximum concentration for radionuclide constituents. Since the release of the previous version of this calculation, changes have occurred to the SOW maximum concentrations that need to be reconciled along with changes in the tanks to be processed by the WTP. In addition, it was considered prudent to relook at the BBI data to ensure that the concentrations picked before were bounding, as the BBI is a living database. Reconciliation of this data is critical so that the feed vector used for air permitting purposes continuously provides a bounding air emissions profile.

4 Applicable Codes and Standards

No codes and standards were used in this calculation.

5 Methodology

The following methodology was used in this calculation.

5.1 LAW

- Data for the LAW tanks was obtained from the Best Basis Inventory on the web site http://twinsweb.pnl.gov/twins.htm. This data was downloaded in June 2005 and can be found in Attachment C sorted by tanks. Units of this data are:
  - Inorganic constituents: kg
  - Radionuclide constituents: Ci

- Per Figure 2-4 of the *River Protection Project System Plan* (Certa 2003), for tanks that have identified supernate as the type of waste feed being transferred, the supernate value was used. For those identified as dissolved solids, the salt cake value was used. For those identified as transferring both, the total number was used.
- Inorganic constituents' weight was converted to moles by multiplying by 1000 grams/kg and dividing by the molecular weight of the constituent in grams/mol. The average concentration in moles was then calculated for each constituent, except for Hg where the maximum concentration was used.
- Radionuclide constituents' maximum activity in Ci was selected.
- For LAW, Statement of Work maximums were compared to the calculated inorganic constituents feed concentration. If the calculated value was higher than the SOW maximum value, then the SOW maximum value was selected as the feed concentration. If the calculated value was lower than SOW maximum, the BBI average value was selected as the feed concentration.
- For the radionuclide constituents, the maximum concentration was selected and compared to SOW maximum values (in Bq/mol Na). If the SOW maximum value was lower than the calculated value, then the SOW value was selected as the feed concentration.
- Once the new feed quantities were selected as described in the bullets above, they were charge balanced (only inorganic constituents were considered as specified in Section 2.1). If the final overall charge was positive, then the amount of negative charges was adjusted to counteract the positive balance. If the final overall charge was negative, then the positive charges were adjusted to counteract the negative balance. The charge balance is only adjusted for constituents tracked in version 3.1 of the SSFM. These constituents are marked with a "Y" in the charge balance calculation sheets.
- After the charges were balanced, the final feed vector was converted to the units used by the Steady State Flowsheet Model. Chemical analytes were converted from moles to total mass in kg and the radionuclide constituents were converted from Bq/mol Na to total Ci.

5.2 HLW

- Data for the HLW tanks was obtained from the Best Basis Inventory on the web site http://twinsweb.pnl.gov/twins.htm. This data was downloaded in June 2005 and can be found in Attachment D sorted by tanks. All constituents were downloaded, as they are required to calculate the non-volatile waste oxides which in turn allows for calculation of SOW maximum inorganic and radionuclide concentrations. Units for this data are:
  - Inorganic constituents: kg
  - Radionuclide constituents: Ci
- For constituents that have several data points within a tank, these were added together to obtain a total inventory for the constituent. Only the sludge portion was considered in the calculation.
- Inorganic constituents' weight was converted to moles by multiplying by 1000 grams/kg and dividing by the molecular weight of the constituent in grams/mol. The average concentration in moles was then calculated for each constituent, except for Hg where the maximum concentration was used.
- Radionuclide constituents' maximum activity in Ci was selected.
- Statement of Work maximums were used for constituents that had one specified (see Section 6 for further details). Otherwise, the average BBI data was used. In order to determine to the SOW maximum, the amount of total non-volatile oxides had to be calculated. Once this number was obtained, the feed quantity required, per the SOW maximum, was calculated.
- For the radionuclide constituents, the maximum concentration was selected and compared to SOW maximum values (in Ci/100 g of oxides). If the SOW maximum value was lower than the calculated value, then the SOW value was selected as the feed concentration.

- For HLW inorganic constituents calculated average concentrations were converted to SOW maximums using the applicable grams/grams of oxide conversion shown in Section 2 of this calculation.
- Once the new feed quantities were selected, they were charge balanced (only inorganic constituents were considered as specified in Section 2.1). If the final overall charge was positive, then the amount of negative charges was adjusted to counteract the positive balance. If the final overall charge was negative, then the positive charges were adjusted to counteract the negative balance. The charge balance is only adjusted for constituents tracked in version 3.1 of the SSFM. These constituents are marked with a "Y" in the charge balance calculation sheets.
- After the charges were balanced, the final feed vector was converted to the units used by the Steady State Flowsheet Model. Chemical analytes were converted from moles back to total mass in kg and the radionuclide constituents were left in the units of Ci.

6 Assumptions

The following assumptions were used in this calculation and do not require verification:

- For HLW oxide calculation the contribution from the radionuclide constituents can be ignored, as the mass of these constituents is negligible when compared to the inorganic constituents.
- For the HLW inorganic SOW maximum concentrations, if all non-volatile g/100 g of oxides are added together, they add to over 100 g of oxides (~166 total g of oxides). What this means is that it is not physically possible to have all the inorganic constituents in the HLW feed stream come in at their SOW maximum values at the same time. Thus, in order to reduce this number down to 100 g of oxides, some constituents were selected to not be brought in at their SOW maximum values. A meeting was held with E&NS and Process Operations to identify constituents that do not typically contribute to human or ecological risks. The constituents selected were Bi, Ca, Na, Si, and Zr. These constituents will be considered to be at their BBI values as opposed to SOW maximums.

7 Calculations

These calculations were performed with a Microsoft Excel® 2000 spreadsheet on a Compaq PC workstation. A detailed calculation of each step is presented in this section for at least one constituent. The rest of the calculations are presented in the spreadsheets found in Attachment A for LAW and Attachment B for HLW.

7.1 LAW

7.1.1 Data Collection

The spreadsheet for the LAW portion of the calculation are located in Attachment A. Table A-1 shows the summarized raw data from the BBI for the chemical analytes in kilograms. This data was then converted to moles by multiplying by 1000 g/kg and dividing by the constituent's molecular weight in g/mole. This number is shown in Table A-2. Silver, for tank AN-102, is used as an example:

Ag: 9.56 kg Ag (Table A-1 cell D4)*1000g/kg*1 mole/107.8g Ag (Table A-2 cell C64)= 8.87E+01 mole Ag (Table A-2 cell E64)

Table A-2 shows the data in moles for all chemical analytes. The average feed quantity for each constituent was then selected except for Hg. The last column on Table A-2 shows the selected feed in units of mol.

For the radionuclide constituent, the raw data from BBI is presented in Table A-3. The maximum activity, in Ci, per constituent was selected and is shown in the last column of the table (Column R).

7.1.2 Inorganic and Radionuclide Constituents Feed Concentration

To determine the feed vector for the inorganic constituents, the data in moles was converted to mol/mol Na to match the units provided in the SOW maximum concentrations. This calculation is shown on Table A-4. The total Na amount is 2.71E+07 mol as shown in cell B29 of Table A-4. Column B includes the data in moles. Column C calculates the equivalent in mol/mol Na. Silver is used as an example. All other calculations are carried out identically.

Ag: 2.15E+02 moles Ag (cell B4) / 2.71E+07 mol Na (cell B29) = 7.92E-06 mol Ag/mol Na (cell C4)

Column D of Table A-4 provides the SOW maximum concentration for those available. If a SOW value exists, this value is compared to the one in column C. If the value in column C is greater, then the SOW value is selected. If the value in Column C is less, then the BBI average value is selected. Column E provides the inorganic constituents' feed vector before being charged balanced.

To determine the feed vector for radionuclide constituents, the data in Ci was converted to Bq/mol Na to match the units provided in the SOW maximum. This calculation is show on Table A-5. First, the Ci amount was converted to Ci/mol Na as shown in Column C. The Na amount was obtained from cell B29 of Table A-4. 106Ru is used as an example. All other calculations are carried out identically.

106Ru: 8.60E+01 Ci (cell B4) / 2.71E+07 mol Na (Table A-4 cell B29) = 3.17E-06 Ci 106Ru/mol Na (cell C4)

This number was then converted to Bq/mol Na by multiplying by the conversion factor 1Ci = 3.7E+10 Bq.

106Ru: 3.17E-06 Ci/mol Na (cell C4) * 3.7E+10 Bq/Ci = 1.17E+05 Bq/mol Na (cell D4)

Column E of Table A-5 provides the SOW maximums available. If an SOW value is available, then this value is used as the feed concentration. Finally, column F provides the radionuclide constituents' feed vector.

For the transuranics, the SOW maximum is given as a whole amount of 3.0E+06 Bq/mol Na. The LAW transuranics have atomic numbers greater than 92 and include 237Np, 238Pu, 239Pu, 240Pu, 241Am, 242Cm, 242Pu, 243Am, 243Cm, and 244Cm. The BBI concentrations of all these in Bq/mol Na were added together to determine the overall concentration (Column D of Table A-5 shows the BBI amounts of the transuranics in Bq/mol Na; these are repeated in column J). The summation is:
237Np = 2.61E+03 Bq/mol Na (cell J4)
238Pu = 1.47E+04 Bq/mol Na (cell J5)
239Pu = 2.03E+05 Bq/mol Na (cell J6)
240Pu = 5.28E+04 Bq/mol Na (cell J7)
241Am = 3.29E+06 Bq/mol Na (cell J8)
242Cm = 1.25E+04 Bq/mol Na (cell J9)
242Pu = 5.59 Bq/mol Na (cell J10)
243Am = 2.16E+03 Bq/mol Na (cell J11)
243Cm = 3.55E+02 Bq/mol Na (cell J12)
244Cm = 8.40E+03 Bq/mol Na (cell J13)
Total = 3.58E+06 Bq/mol Na (cell J14)

Since this amount is higher than the SOW maximum concentration, all concentrations were normalized so that the sum equals SOW maximum. This was done by dividing the individual transuranic feed quantity by the total transuranic feed quantity and then multiplying by the SOW maximum. These calculations are shown on column K of Table A-5.
237Np = 2.61E+03 Bq/mol Na (cell J4) / 3.58E+06 Bq/mol Na (cell J14)* 3.0E+06 Bq/mol Na (cell K14) = 2.18E+03 Bq/mol Na (cell K4)
238Pu = 1.47E+04 Bq/mol Na (cell J5) / 3.58E+06 Bq/mol Na (cell J14) * 3.0E+06 Bq/mol Na (cell K14) = 1.23E+04 Bq/mol Na (cell K5)
239Pu = 2.03E+05 Bq/mol Na (cell J6) / 3.58E+06 Bq/mol Na (cell J14) * 3.0E+06 Bq/mol Na (cell K14) = 1.70E+05 Bq/mol Na (cell K6)
240Pu = 5.28E+04 Bq/mol Na (cell J7) / 3.58E+06 Bq/mol Na (cell J14) * 3.0E+06 Bq/mol Na (cell K14) = 4.42E+04 Bq/mol Na (cell K7)
241Am = 3.29E+06 Bq/mol Na (cell J8) / 3.58E+06 Bq/mol Na (cell J14) * 3.0E+06 Bq/mol Na (cell K14) = 2.75E+06 Bq/mol Na (cell K8)
242Cm = 1.25E+04 Bq/mol Na (cell J9) / 3.58E+06 Bq/mol Na (cell J14) * 3.0E+06 Bq/mol Na (cell K14) = 1.05E+04 Bq/mol Na (cell K10)
242Pu = 5.59 Bq/mol Na (cell J10) / 3.58E+06 Bq/mol Na (cell J14) * 3.0E+06 Bq/mol Na (cell K14) = 4.68 Bq/mol Na (cell K11)
243Am = 2.16E+03 Bq/mol Na (cell J11) / 3.58E+06 Bq/mol Na (cell J14) * 3.0E+06 Bq/mol Na (cell K14) = 1.80E+03 Bq/mol Na (cell K12)
^{243}Cm = 3.55E+02 Bq/mol Na (cell J12) / 3.58E+06 Bq/mol Na (cell J14) * 3.0E+06 Bq/mol Na (cell K14) = 2.97E+02 Bq/mol Na (cell K13)
^{244}Cm = 8.40E+03 Bq/mol Na (cell J13) / 3.58E+06 Bq/mol Na (cell J14) * 3.0E+06 Bq/mol Na (cell K14) = 7.03E+03 Bq/mol Na (cell K14)
To verify the calculation, the new concentrations were added together to make sure they matched the SOW maximum. Total sum is 3.00E+06 Bq/mol Na, which is the same as the SOW maximum. These values are shown in column F of Table A-5 for the transuranics.

7.1.3 Feed Charge Balance

Once the feed quantities were determined, the feed was charge balanced. Table A-6 shows all the calculations described below. Only the inorganic constituents require charge balancing for Steady-State Flowsheet Model purposes.

First, the mol/mol Na concentrations were converted back to moles by multiplying by the total moles of Na (cell B29 from Table A-4). Then the feed quantity in moles was multiplied by the charge to get the total constituent's charge if the constituent is tracked in the SSFM. For example,

Ag
7.92E-06 mol Ag /mol Na (cell B4) * 2.71E+07 mol Na (Table A-4 cell B29) = 2.15E+02 moles Ag (cell C4)
Thus:
2.15E+02 moles Ag (cell C4) * +1 charge/mole (cell D4) = +215 mole charges (cell F4)

Column E determines if the constituent is tracked in the SSFM. If so, a "Y" is shown in the column, otherwise it is a "N". If the value in this column is "N", this constituent is not considered in the charge balancing and the values in the subsequent columns (F, G, and H) are zero.

After all charges were calculated, they were added together to get an overall charge. This was done by adding all the values in Column F for the inorganic constituents. The total charge calculated was 10,453,408. Being highly

positive, the negative charges required adjustment to counter balance. This was done by adjusting the OH charges by the same amount (10,453,408). This brought the charge total to zero. Feed concentrations specified before are the same for all the constituents except for OH. The new OH feed concentration is:
OH mole charges: -6,708,529 (cell F21)
OH mole charges added: -10,453,408 (cell N7)
OH charge: -1 (cell D21)
New total OH mole charges: -6,708,529 mole charges OH + (-10,453,408) added mole charges OH = -17,161,938 mole charges OH (cell G21)
New OH moles: -17,161,938 mole charges OH/ -1 mole charges/mole = 17,161,938 moles OH (cell H21)
New OH concentration: 17,161,938 moles OH (cell H21) / 2.71E+07 moles Na (Table A-4 cell B29) = 0.633 mol OH/mol Na (cell I21)

All other constituents were converted back to the original mol/mol Na as shown in Table A-6 columns G, H, and I. Calculations are similar to the ones used for OH. To obtain the final desired units, the inorganic constituents feed was converted to kg the following way:

Ag: 7.92E-06 mol Ag/mol Na (cell I4) * 2.71E+07 mol Na (Table A-4 cell B29) * 107.8 g Ag/mol (cell J4) * 1 kg / 1000g = 2.32E+01 kg Ag(cell L4)

Column L of Table A-6 shows the final LAW inorganic constituents feed concentrations in kilograms. Table A-7 shows the radionuclide constituents feed concentration. Column B of the table shows the same values as column F of Table A-5. These values were converted to Ci the following way (106Ru is used as an example):

1.17E+05 Bq 106Ru/mol Na (cell B64) * 2.71E+07 mol Na (Table A-4 cell B29) * 1 Ci/3.7E+10 Bq = 8.60E+01 Ci 106Ru (cell C64)

7.2 HLW

7.2.1 Data Collection

The spreadsheet for the HLW portion of the calculation can be located in Attachment B. Table B-1 shows the raw data from the BBI for the chemical analytes in kilograms. The average amount for each constituent was then calculated and shown in column K.

For the radionuclide constituents, the raw data from BBI is presented in Table B-2. The maximum activity, in Ci, per each constituent was selected and is shown in the last column of the table (column K).

7.2.2 Calculation of SOW Maximums with an Average Feed

For constituents with SOW maximum, this amount was selected for their feed concentration. For constituents without a SOW maximum, the BBI derived feed was used. To determine the SOW maximum, first the amount of non-volatile oxides had to be calculated. Non-volatile compounds include all components except Cl, CN, F, NH_3, NO_2, NO_3, OH, oxalate, PO_4, SO_4, TOC, and CO_3. Only inorganic constituents are taken into consideration, as the mass of radionuclide constituents is negligible when compared to the inorganic constituent mass. Table B-3 shows the calculation of the total oxides mass.

For the HLW inorganic SOW maximum concentrations, if all non-volatile g/100 g of oxides are added together, they add to over 100 g of oxides (~166 total g of oxides). What this means is that it is not physically possible to have all the inorganic constituents in the HLW feed stream come in at their SOW maximum values at the same

time. Thus, in order to reduce this number down to 100 g of oxides, some constituents were selected to not be brought in at their SOW maximum values. A meeting was held with E&NS and Process Operations to identify constituents that do not typically contribute to human or ecological risks. The constituents selected were Bi, Ca, Na, Si, and Zr. These constituents will be considered at their BBI values as opposed to their SOW maximums.

For inorganic constituents, silver is used as an example to demonstrate the calculation process. All the others are calculated identically.

The charge per each constituent was obtained as shown in Section 2 of this calculation. In order to calculate the amount of oxide ion needed to form the oxides, the constituent charge was divided by the charge of oxide ion.

Ag (O needed)
Charge = 1 (cell E4)
Mole of oxide ion needed per mole of Ag = 1/2 = 0.5 (cell F4)
Ag has a charge of +1, which means that the oxide to be formed is Ag_2O.

The mass of oxide ion associated with each constituent in the oxide form is then the number of oxide ion ratio times the moles of the constituent times the molecular weight of oxygen (16 g/mole).

Ag (Mass of oxide ion)
2.74E+02 kg Ag (cell B4) * 1000 g/kg * 1 mole / 107.8 g (cell C4) * 0.5 moles O / moles Ag (cell F4) * 16 g O / mole O = 2.03E+04 g O (cell G4) from Ag

Once all the oxide ion masses were calculated, the total amount of oxides in grams was calculated by adding all the constituents' weights together with the oxide ion weight. This total mass includes all constituents except Bi, Ca, Na, Si, Zr, OH, NH3, oxalate, PO4, SO4, Cl, CN, F, NO2, NO3, CO3, and TOC.

Total mass of inorganic constituents: 1.04E+08 grams (cell D112)
Total mass of oxide ion: 5.82E+07 grams (cell D111)
Total mass of oxides: 1.04E+08 g (cell D112) + 5.82E+07 g (cell D111) = 1.62E+08 g (cell D114)

The SOW maximum feed was then calculated by multiplying the constituents SOW maximum ratio by the total mass of oxides and dividing by 100. SOW maximum ratios used are those presented in Section 2. For example:

Ag:
Total mass oxides = 1.62E+08 grams (cell D114)
SOW maximum ratio = 0.55 g Ag / 100 g of oxides (cell H4)
SOW maximum feed quantity = 1.62E+08 g oxide (cell D114) * 0.55 g Ag /100 g of oxides (cell H4) = 8.93E+05 grams Ag (cell I4)

Table B-3 shows the rest of the calculations and the selected feed in grams for HLW inorganic constituents.

For the radionuclide constituents a similar approach was used. The SOW maximum Ci feed was calculated by multiplying the total oxide mass by the SOW maximum ratio and dividing by 100. 125Sb is used as an example:

125Sb
SOW maximum ratio: 3.20E-02 Ci 125Sb / 100 grams of oxides (cell C66)
Total oxide mass: 1.62E+08 grams (cell D114)

SOW maximum feed quantity = 1.62E+08 g oxide (cell D114) * 3.20E-02 Ci 125Sb / 100 g of oxides (cell C66)= 5.19E+04 Ci 125Sb (cell D66)

This value is repeated again in column E of Table B-3. Table B-3 shows the rest of the calculation for the remaining radionuclide constituents.

7.2.3 Feed Charge Balance

Once the final feed quantities were determined, the feed was charge balanced. Only the inorganic constituents require charge balancing for Steady-State Flowsheet Model purposes.

The feed quantity in kg was converted to moles. This amount was then multiplied by the constituent's charge to obtain the total charges. Ag is used as an example.

Ag
2.74E+02 kg Ag (cell B4) * 1000 g/kg * 1 mole / 107.8 g Ag (cell C4) = 2.54E+03 moles Ag (cell F4)

2.54E+03 moles Ag (cell F4) * +1 charge/mole Ag (cell E4) = +2,541 charges

Again, column G determines if the constituent is taken into consideration in the charge balance process. If the constituent has a "Y" value, it means it is tracked in the SSFM and is counted. Table B-4 shows the charge balance calculation for all the constituents.

The total charges were then added together to obtain the overall charge of the feed:

Total charge = +8,329,418 mol charges

Being positive, the amount of OH is then adjusted to counteract the positive charge. The added amount of OH is 8,329,418 mole charges.

The mole charges are then converted back to the original kg unit. Column J represents the final feed concentration (in kgmole) for inorganic constituents for air emissions purposes. Examples of the conversions are as follows:

Ag
2,541 mole charges (cell H4) / +1 charge/mole Ag (cell E4) * 107.8 g Ag/mole (cell C4) * 1 kg/1000g = 2.74E+02 kg Ag (cell I4)
2.74E+02 kg Ag (cell I4) / 107.8 kg Ag/kgmole = 2.54 kgmole Ag (cell J4)

Table B-5 shows the final radionuclide constituents feed concentrations for emissions purposes. These numbers are the same as those shown in column E of Table B-3 cells E64 through E109.

8 Results and Conclusions

The HLW and LAW feed vectors for the WTP air emissions profile have been developed in this calculation by using the SOW maximum concentrations and BBI data as the main basis. BBI data used is based on tanks expected to be processed by the WTP. These tanks are identified in Figure 2-4 of the *River Protection Project System Plan* (Certa 2003). The tables below show the final feed vector for LAW and HLW respectively. This feed vector will be incorporated in the SSFM to support future emissions profiles. This calculation will be updated if changes occur

to the SOW maximum concentrations and/or if the tanks to be processed by the WTP change. Also periodic comparisons to BBI data will be informally performed to determine any significant changes in inventory data.

LAW Chemical Analytes Emissions Feed Vector

Analyte	kg	Analyte	kg
Ag	2.32E+01	NO2	2.60E+05
Al	7.02E+04	NO3	4.74E+05
As	7.09E+01	OH	2.92E+05
B	1.70E+02	Oxalate	9.43E+03
Ba	2.71E+01	Pb	2.76E+02
Be	3.81E+00	Pd	1.09E+01
Bi	4.86E+01	PO4	1.01E+04
Ca	5.38E+02	Pr	6.98E-02
Cd	4.12E+01	Rb	4.16E+00
Ce	6.36E+01	Rh	1.02E+01
Cl	1.48E+04	Ru	1.50E+01
CN	1.17E+01	Sb	4.20E+01
Co	2.04E+01	Se	7.19E+01
Cr	3.24E+03	Si	5.64E+02
Cu	2.30E+01	SO4	2.44E+04
F	3.18E+03	Sr	4.13E+00
Fe	5.27E+02	Ta	5.53E+00
Hg	7.62E+01	Te	1.14E-01
K	3.48E+04	Th	6.59E+01
La	1.40E+01	Ti	7.93E+00
Li	1.96E+01	TIC as CO3	1.25E+05
Mg	7.27E+01	Tl	5.06E+01
Mn	1.78E+02	U(total)	3.37E+02
Mo	1.68E+02	V	2.78E+01
Na	6.21E+05	W	4.89E+01
Nd	8.32E+01	Y	5.29E+00
NH3	3.25E+02	Zn	4.05E+01
Ni	2.91E+02	Zr	4.17E+01

LAW Radionuclide Emissions Feed Vector

Analyte	Ci	Analyte	Ci
106Ru	8.60E+01	236U	7.76E-02
113mCd	1.33E+02	237Np	1.60E+00
125Sb	1.88E+03	238Pu	9.04E+00
126Sn	2.99E+01	238U	8.98E-01
129I	1.26E+00	239Pu	1.25E+02
134Cs	1.44E+03	240Pu	3.24E+01
137Cs	1.47E+07	241Am	2.02E+03
137mBa	4.78E+06	241Pu	6.80E+02
14C	4.13E+01	242Cm	7.69E+00
151Sm	2.64E+04	242Pu	3.43E-03
152Eu	1.52E+01	243Am	1.32E+00

Analyte	Ci	Analyte	Ci
154Eu	3.15E+03	243Cm	2.18E-01
155Eu	9.11E+02	244Cm	5.16E+00
226Ra	2.55E-04	3H	3.52E+02
227Ac	1.99E-02	59Ni	7.00E+01
228Ra	3.03E-01	60Co	2.71E+02
229Th	9.96E-03	63Ni	4.88E+03
231Pa	2.09E-01	79Se	3.37E+00
232Th	4.86E-02	90Sr	5.86E+05
232U	2.64E-02	90Y	2.74E+05
233U	1.62E+00	93mNb	1.20E+02
234U	1.15E+00	93Zr	1.95E+02
235U	4.53E-02	99Tc	5.20E+03

HLW Chemical Analytes Emissions Feed Vector

Analyte	kg	Analyte	kg
Ag	2.74E+02	NO2	1.56E+04
Al	3.85E+04	NO3	1.20E+04
As	1.72E+01	OH	1.42E+05
B	2.35E+02	Oxalate	4.66E+03
Ba	2.51E+02	Pb	2.14E+03
Be	6.31E+00	Pd	8.77E+01
Bi	1.30E+03	PO4	9.49E+03
Ca	1.50E+03	Pr	8.65E+01
Cd	9.19E+02	Rb	3.72E+01
Ce	3.14E+02	Rh	2.80E+01
Cl	3.07E+02	Ru	1.96E+02
CN	4.98E+00	Sb	6.75E+00
Co	1.30E+01	Se	1.17E+01
Cr	7.78E+02	Si	3.00E+03
Cu	1.07E+02	SO4	3.53E+03
F	5.55E+03	Sr	1.41E+02
Fe	3.98E+04	Ta	4.35E+02
Hg	1.56E+02	Te	4.92E+01
K	7.88E+02	Th	4.77E+03
La	4.65E+02	Ti	5.66E+01
Li	3.26E+01	TIC as CO3	3.45E+04
Mg	3.08E+02	Tl	1.33E+03
Mn	3.65E+03	U(total)	6.99E+03
Mo	1.78E+01	V	1.12E+01
Na	6.18E+04	W	8.52E+01
Nd	5.04E+02	Y	4.74E+01
NH3	1.14E-01	Zn	1.42E+02
Ni	1.63E+03	Zr	9.71E+03

HLW Radionuclide Emissions Feed Vector

Analyte	Ci	Analyte	Ci
106Ru	5.12E+01	236U	5.58E-01
113mCd	3.88E+02	237Np	1.20E+02
125Sb	5.19E+04	238Pu	5.68E+02
126Sn	2.43E+02	238U	9.56E+00
129I	4.71E-01	239Pu	5.03E+03
134Cs	1.23E+02	240Pu	1.33E+03
137Cs	2.43E+06	241Am	1.46E+05
137mBa	3.50E+05	241Pu	3.57E+04
14C	1.05E+01	242Cm	2.48E+01
151Sm	6.31E+05	242Pu	1.24E-01
152Eu	7.79E+02	243Am	1.18E+01
154Eu	8.44E+04	243Cm	2.05E+02
155Eu	1.25E+04	244Cm	4.66E+03
226Ra	5.16E-04	3H	1.05E+02
227Ac	2.02E+00	59Ni	3.01E+01
228Ra	1.48E+00	60Co	1.62E+04
229Th	5.53E-01	63Ni	2.81E+03
231Pa	1.70E-01	79Se	5.24E+00
232Th	3.97E+00	90Sr	1.62E+07
232U	2.26E+00	90Y	5.52E+06
233U	3.25E+02	93mNb	1.13E+02
234U	1.69E+01	93Zr	2.09E+02
235U	4.06E-01	99Tc	2.43E+04

9 References

9.1 Project Documents

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9.2 Other Documents

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10 Attachments

Attachment A - LAW Calculations
Attachment B - HLW Calculations
Attachment C - LAW BBI Data
Attachment D - HLW BBI Data

Attachment A LAW Calculations

CALCULATION SHEET

BY E Bernos
DATE 12/05/05

PROJECT RPP-WTP
JOB NO 24590
CALC NO 24590-WTP-M4C-FRP-00001
SHEET REV 0D
SHEET NO A-2

SUBJECT WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	Table A-1 LAW Chemical Analytes Feed Quantities in Kg															
2	Analyte	Units	Tank													
3			AN-102	AN-103	AN-104	AN-105	AN-107	AP-101	AP-102	AP-103	AP-104	AP-105	AW-101	AZ-101	AZ-102	SY-101
4	Ag	kg	9 56E+00	7 64E+01	3 73E+01	9 75E+01	6 26E+00	2 66E+00	0 00E+00	2 52E+01	2 91E+00	0 00E+00	6 23E+01	2 05E+00	1 61E+00	3 72E-01
5	Al	kg	4 56E+04	2 18E+05	5 13E+04	1 60E+05	3 70E+03	3 08E+04	1 25E+05	6 20E+04	6 98E+04	7 63E+04	1 15E+05	1 96E+04	1 13E+03	4 47E+03
6	As	kg	8 97E+01	1 60E+02	9 79E+01	2 28E+02	4 25E+00	5 31E+00	0 00E+00	1 17E+02	7 26E+00	0 00E+00	2 35E+02	3 21E+01	1 28E+01	3 44E+00
7	B	kg	1 39E+02	5 22E+02	3 44E+02	4 39E+02	7 38E+01	4 03E+01	0 00E+00	1 44E+02	2 05E+02	0 00E+00	3 70E+02	6 07E+01	2 57E+01	1 29E+01
8	Ba	kg	1 39E+01	7 98E+01	4 89E+01	1 14E+02	3 10E+01	1 39E+00	0 00E+00	7 29E+01	2 52E-01	0 00E+00	1 68E+01	2 52E-01	1 57E-01	1 36E-01
9	Be	kg	2 33E+00	9 38E+00	4 89E+00	1 14E+01	6 17E-01	5 56E+00	0 00E+00	7 56E+00	5 10E-01	0 00E+00	9 93E+00	9 53E-01	7 42E-02	1 14E-01
10	Bi	kg	9 00E+01	5 59E+01	3 18E+01	1 10E+02	2 73E+01	1 05E+01	9 10E+01	1 35E+02	1 16E+01	6 32E+01	4 78E+01	0 00E+00	0 00E+00	6 59E+00
11	Ca	kg	1 34E+03	3 39E+02	5 33E+02	1 96E+03	1 84E+03	3 25E+01	1 04E+02	2 58E+02	2 03E+02	1 13E+02	7 56E+02	2 38E+01	5 73E+00	1 37E+01
12	Cd	kg	1 95E+02	3 52E+01	2 46E+01	3 96E+01	2 07E+02	8 14E+00	0 00E+00	3 27E+01	6 36E+00	0 00E+00	2 38E+01	2 60E+00	1 67E+00	3 96E-01
13	Ce	kg	3 67E+01	1 60E+02	9 79E+01	2 28E+02	1 59E+02	3 15E-01	0 00E+00	1 46E+02	2 45E-01	0 00E+00	5 85E+01	1 91E-01	7 61E-02	3 32E+00
14	Cl	kg	1 33E+04	2 83E+04	1 11E+04	3 72E+04	5 82E+03	6 68E+03	2 44E+04	1 45E+04	2 16E+04	1 71E+04	2 50E+04	7 89E+02	2 36E+02	1 50E+03
15	CN	kg	0 00E+00	0 00E+00	0 00E+00	0 00E+00	0 00E+00	2 40E+01	0 00E+00	0 00E+00	1 09E+02	0 00E+00	0 00E+00	6 62E+00	2 44E+01	0 00E+00
16	Co	kg	2 22E+01	1 27E+02	1 96E+01	4 55E+01	1 36E+01	1 48E+00	0 00E+00	2 92E+01	2 89E+00	0 00E+00	2 33E+01	1 91E-01	7 42E-02	7 57E-01
17	Cr	kg	8 13E+02	2 51E+03	3 86E+03	7 34E+03	5 61E+02	7 27E+02	2 37E+03	1 99E+03	2 09E+03	1 69E+04	1 16E+03	2 22E+03	2 53E+03	2 87E+02
18	Cu	kg	7 85E+01	2 23E+01	1 90E+01	3 26E+01	9 49E+01	6 74E+00	0 00E+00	1 64E+01	1 62E+01	0 00E+00	3 18E+01	2 05E+00	1 30E+00	8 20E-01
19	F	kg	2 22E+02	3 53E+03	2 00E+03	6 14E+03	3 06E+02	7 95E+03	5 09E+02	2 77E+03	9 37E+02	7 15E+02	9 42E+03	6 51E+03	3 42E+03	3 71E+01
20	Fe	kg	1 14E+02	1 29E+02	2 86E+02	4 02E+02	5 43E+03	1 57E+01	2 39E+01	7 56E+01	2 10E+01	4 37E+01	8 19E+02	4 87E+00	2 23E+00	1 33E+00
21	Free OH	kg	3 07E+04	2 15E+05	9 15E+04	2 05E+05	5 93E+04	1 68E+05	1 30E+05	5 66E+04	8 18E+04	1 03E+05	3 93E+05	3 69E+04	8 13E+03	1 77E+04
22	Hg	kg	1 76E-01	1 51E+00	1 12E+00	1 94E+00	7 32E-01	3 36E-02	1 28E-05	0 00E+00	5 03E-03	7 41E-03	1 74E+00	1 80E-01	2 03E-01	7 59E-04
23	K	kg	7 52E+03	4 82E+04	8 91E+03	2 52E+04	5 70E+03	1 43E+05	1 65E+04	2 19E+04	8 76E+03	8 82E+03	1 67E+05	1 45E+04	1 05E+04	5 30E+02
24	La	kg	5 01E+01	2 26E-03	6 58E-04	2 34E-03	1 05E+02	1 90E-03	1 07E+01	1 88E+01	4 17E-01	3 62E+00	6 76E+00	0 00E+00	0 00E+00	3 92E-01
25	Li	kg	3 11E+00	9 69E+01	4 03E+01	6 45E+01	9 61E+00	1 43E+00	0 00E+00	1 17E+01	8 39E-02	0 00E+00	4 37E+01	2 92E+00	4 93E-01	2 16E-01
26	Mg	kg	6 94E+01	2 58E+02	9 79E+01	2 28E+02	4 57E+00	1 05E+01	0 00E+00	1 46E+02	1 16E+01	0 00E+00	1 63E+02	8 43E+00	1 71E+01	3 96E+00
27	Mn	kg	6 44E+01	2 58E+01	4 26E+01	7 24E+01	1 61E+03	5 48E+00	9 77E+00	1 51E+01	4 21E+00	9 15E+00	6 36E+02	0 00E+00	0 00E+00	3 77E-01
28	Mo	kg	1 68E+02	3 15E+02	1 24E+02	3 72E+02	1 10E+02	6 25E+01	0 00E+00	2 02E+02	2 62E+02	0 00E+00	2 51E+02	2 88E+02	1 78E+02	1 77E+01
29	Na	kg	7 17E+05	1 06E+06	4 81E+05	1 10E+06	6 85E+05	5 46E+05	7 88E+05	6 03E+05	5 35E+05	5 31E+05	1 02E+06	3 60E+05	2 04E+05	6 50E+04
30	Nd	kg	7 67E+01	2 58E+02	9 79E+01	2 28E+02	3 03E+02	1 05E+01	0 00E+00	1 16E+02	1 06E+01	0 00E+00	4 78E+01	8 43E+00	6 62E+00	1 53E+00
31	NH3	kg	4 65E+02	0 00E+00	0 00E+00	0 00E+00	1 54E+02	4 04E+02	0 00E+00	0 00E+00	3 53E+03	0 00E+00	0 00E+00	0 00E+00	0 00E+00	0 00E+00
32	Ni	kg	1 32E+03	5 15E+01	1 50E+02	1 42E+02	1 73E+03	2 61E+01	3 49E+01	2 64E+02	1 91E+02	4 39E+01	1 08E+02	3 24E+00	3 81E+00	1 09E+01
33	NO2	kg	3 02E+05	4 30E+05	1 58E+05	4 59E+05	2 20E+05	1 72E+05	3 98E+05	2 72E+05	2 66E+05	1 88E+05	4 22E+05	1 99E+05	1 35E+05	1 96E+04
34	NO3	kg	7 24E+05	6 50E+05	2 96E+05	6 91E+05	6 89E+05	4 96E+05	6 78E+05	5 05E+05	4 19E+05	4 21E+05	8 19E+05	1 71E+05	2 73E+04	4 88E+04
35	Oxalate	kg	2 73E+03	1 62E+04	2 11E+04	2 19E+04	2 98E+03	4 49E+03	1 24E+04	3 90E+03	3 79E+03	5 60E+03	2 61E+04	3 27E+03	7 37E+03	1 35E+02
36	Pb	kg	5 50E+02	4 36E+02	1 03E+02	2 63E+02	1 24E+03	5 13E+01	2 09E+02	1 51E+02	5 81E+01	9 09E+01	6 93E+02	1 08E+01	0 00E+00	4 07E+00
37	Pd	kg	0 00E+00	0 00E+00	0 00E+00	0 00E+00	0 00E+00	8 01E+01	0 00E+00	0 00E+00	7 46E+00	0 00E+00	0 00E+00	6 49E+01	0 00E+00	0 00E+00
38	PO4	kg	1 80E+04	8 91E+03	1 05E+04	2 54E+04	5 09E+03	5 31E+03	1 31E+04	8 06E+03	1 90E+04	9 13E+03	1 07E+04	5 01E+03	1 49E+03	1 65E+03
39	Pr	kg	0 00E+00	0 00E+00	0 00E+00	0 00E+00	0 00E+00	7 29E-02	0 00E+00	0 00E+00	7 13E-01	0 00E+00	0 00E+00	1 91E-01	0 00E+00	0 00E+00
40	Rb	kg	0 00E+00	0 00E+00	0 00E+00	0 00E+00	0 00E+00	1 67E+01	0 00E+00	0 00E+00	1 18E+01	0 00E+00	0 00E+00	2 98E+01	0 00E+00	0 00E+00
41	Rh	kg	0 00E+00	0 00E+00	0 00E+00	0 00E+00	8 19E+01	3 20E+01	0 00E+00	0 00E+00	2 28E+01	0 00E+00	0 00E+00	6 79E+00	0 00E+00	0 00E+00
42	Ru	kg	0 00E+00	0 00E+00	0 00E+00	0 00E+00	0 00E+00	1 18E+02	0 00E+00	0 00E+00	9 00E+01	0 00E+00	0 00E+00	1 52E+00	0 00E+00	0 00E+00
43	Sb	kg	7 25E-01	1 55E+02	5 88E+01	1 37E+02	1 01E+00	1 77E-01	0 00E+00	9 08E+01	1 12E-01	0 00E+00	1 41E+02	1 91E-01	1 13E-01	2 62E+00
44	Se	kg	9 03E+01	2 58E+02	9 79E+01	2 28E+02	2 66E+00	9 69E+00	0 00E+00	1 23E+02	2 85E+01	0 00E+00	1 20E+02	2 10E+01	2 19E+01	5 06E+00
45	Si	kg	7 76E+01	2 38E+03	1 60E+03	9 05E+02	4 30E+01	4 21E+02	1 82E+02	3 59E+02	1 51E+02	8 06E+01	1 31E+03	2 22E+02	1 62E+02	4 31E+00
46	SO4	kg	4 88E+04	1 10E+04	3 02E+04	2 84E+04	2 69E+04	1 62E+04	9 97E+03	1 61E+04	1 51E+04	1 19E+04	1 23E+04	5 24E+04	5 84E+04	3 61E+03
47	Sr	kg	7 99E+00	1 44E-01	5 25E+00	6 63E+00	6 18E+00	1 24E-01	4 68E+00	9 18E+00	1 12E+00	3 66E-01	1 58E+01	1 29E-01	1 20E-01	9 43E-02
48	Ta	kg	0 00E+00	0 00E+00	0 00E+00	0 00E+00	7 67E+01	3 75E-01	0 00E+00	0 00E+00	1 44E-01	0 00E+00	0 00E+00	1 91E-01	0 00E+00	0 00E+00
49	Te	kg	0 00E+00	0 00E+00	0 00E+00	0 00E+00	0 00E+00	6 87E-01	0 00E+00	0 00E+00	7 13E-01	0 00E+00	0 00E+00	1 91E-01	0 00E+00	0 00E+00
50	Th	kg	7 15E+00	2 21E+00	7 43E-01	1 76E+00	5 80E+01	4 64E-02	4 43E+02	3 52E+02	1 06E+00	5 41E+01	1 16E+00	1 69E-04	9 99E-05	1 70E+00
51	Ti	kg	2 23E+00	2 58E+01	9 79E+00	2 28E+01	4 67E+00	2 66E+00	0 00E+00	1 51E+01	1 33E+00	0 00E+00	2 39E+01	2 05E+00	5 48E-01	9 19E-02
52	TIC as CO3	kg	2 12E+05	8 10E+04	1 57E+05	2 31E+05	2 43E+05	1 40E+05	4 89E+04	1 08E+05	7 21E+04	6 03E+04	1 14E+05	1 60E+05	1 07E+05	1 19E+04
53	Tl	kg	6 69E+00	0 00E+00	0 00E+00	4 55E+02	3 94E-01	7 59E-02	0 00E+00	0 00E+00	2 10E-01	0 00E+00	2 42E+02	1 91E-01	0 00E+00	3 65E+00
54	UTOTAL	kg	1 78E+02	1 20E+02	4 45E+02	2 71E+02	3 36E+02	2 30E+02	5 35E+01	4 81E+01	4 93E+01	3 44E+01	2 69E+03	9 14E+00	2 58E+02	1 77E+00
55	V	kg	9 00E+00	1 29E+02	4 89E+01	1 14E+02	2 30E+00	3 15E+00	0 00E+00	5 79E+01	5 39E+00	0 00E+00	1 28E+01	4 87E+00	1 76E+00	4 07E-01
56	W	kg	0 00E+00	0 00E+00	0 00E+00	0 00E+00	0 00E+00	1 21E+02	0 00E+00	0 00E+00	3 75E+02	0 00E+00	0 00E+00	1 88E+02	0 00E+00	0 00E+00
57	Y	kg	2 78E+00	0 00E+00	0 00E+00	0 00E+00	2 84E+01	6 66E+00	0 00E+00	3 06E+01	1 27E+00	0 00E+00	0 00E+00	4 22E+00	7 42E-02	0 00E+00
58	Zn	kg	9 13E+00	1 10E+02	5 20E+01	1 98E+02	6 22E+01	2 36E+01	0 00E+00	1 51E+01	2 23E+00	0 00E+00	8 90E+01	4 22E+00	1 11E+00	1 80E-01
59	Zr	kg	2 60E+01	3 25E+01	4 21E+01	4 43E+01	1 97E+02	5 90E+00	8 41E+00	1 48E+01	2 46E+00	8 36E+00	2 00E+02	0 00E+00	1 04E+00	2 40E-01

CALCULATION SHEET

BY E Bermos
DATE 12/05/05

SUBJECT WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

PROJECT RPP-WTP
JOB NO 24590
CALC NO . 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO A-3

	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
61	Table A-2 LAW Chemical Analytes Feed Quantities in Moles																	
62	Analyte	MW	Units	Tank														
63		g/mole		AN-102	AN-103	AN-104	AN-105	AN-107	AP-101	AP-102	AP-103	AP-104	AP-105	AW-101	AZ-101	AZ-102	SY-101	Avg
64	Ag	107 8	mol	8 87E+01	7 09E+02	3 46E+02	9 04E+02	5 81E+01	2 47E+01	0 00E+00	2 34E+02	2 70E+01	0 00E+00	5 78E+02	1 90E+01	1 49E+01	3 45E+00	2 15E+02
65	Al	27 0	mol	1 69E+06	8 08E+06	1 90E+06	5 93E+06	1 37E+05	1 14E+06	4 63E+06	2 30E+06	2 59E+06	2 83E+06	4 26E+06	7 26E+05	4 19E+04	1 66E+05	2 60E+06
66	As	74 9	mol	1 20E+03	2 14E+03	1 31E+03	3 04E+03	5 67E+01	7 09E+01	0 00E+00	1 56E+03	9 69E+01	0 00E+00	3 14E+03	4 29E+02	1 71E+02	4 59E+01	9 47E+02
67	B	10 8	mol	1 29E+04	4 83E+04	3 19E+04	4 06E+04	6 83E+03	3 73E+03	0 00E+00	1 33E+04	1 90E+04	0 00E+00	3 43E+04	5 62E+03	2 38E+03	1 19E+03	1 57E+04
68	Ba	137 3	mol	1 01E+02	5 81E+02	3 56E+02	8 30E+02	2 26E+02	1 01E+01	0 00E+00	5 31E+02	1 84E+00	0 00E+00	1 22E+02	1 84E+00	1 14E+00	9 91E-01	1 97E+02
69	Be	9 0	mol	2 59E+02	1 04E+03	5 43E+02	1 27E+03	6 86E+01	6 18E+02	0 00E+00	8 40E+02	5 67E+01	0 00E+00	1 10E+03	1 06E+02	8 24E+00	1 27E+01	4 23E+02
70	Bi	208 9	mol	4 31E+02	2 68E+02	1 52E+02	5 27E+02	1 31E+02	5 03E+01	4 36E+02	6 46E+02	5 55E+01	3 03E+02	2 29E+02	0 00E+00	0 00E+00	3 15E+01	2 33E+02
71	Ca	40 1	mol	3 34E+04	8 46E+03	1 33E+04	4 89E+04	4 59E+04	8 11E+02	2 59E+03	6 44E+03	5 06E+03	2 82E+03	1 89E+04	5 94E+02	1 43E+02	3 42E+02	1 34E+04
72	Cd	112 4	mol	1 73E+03	3 13E+02	2 19E+02	3 52E+02	1 84E+03	7 24E+01	0 00E+00	2 91E+02	5 66E+01	0 00E+00	2 12E+02	2 31E+01	1 49E+01	3 52E+00	3 67E+02
73	Ce	140 1	mol	2 62E+02	1 14E+03	6 99E+02	1 63E+03	1 13E+03	2 25E+00	0 00E+00	1 04E+03	1 75E+00	0 00E+00	4 18E+02	1 36E+00	5 43E-01	2 37E+01	4 54E+02
74	Cl	35 5	mol	3 75E+05	7 98E+05	3 13E+05	1 05E+06	1 64E+05	1 88E+05	6 88E+05	4 09E+05	6 09E+05	4 82E+05	7 05E+05	2 23E+04	6 66E+03	4 23E+04	4 18E+05
75	CN	26 0	mol	0 00E+00	0 00E+00	0 00E+00	0 00E+00	0 00E+00	9 23E+02	0 00E+00	0 00E+00	4 19E+03	0 00E+00	0 00E+00	2 55E+02	9 38E+02	0 00E+00	4 51E+02
76	Co	58 9	mol	3 77E+02	2 16E+03	3 33E+02	7 72E+02	2 31E+02	2 51E+01	0 00E+00	4 96E+02	4 91E+01	0 00E+00	3 96E+02	3 24E+00	1 26E+00	1 29E+01	3 47E+02
77	Cr	52 0	mol	1 56E+04	4 83E+04	7 42E+04	1 41E+05	1 08E+04	1 40E+04	4 56E+04	3 83E+04	4 02E+04	3 25E+05	2 23E+04	4 27E+04	4 87E+04	5 52E+03	6 23E+04
78	Cu	63 5	mol	1 24E+03	3 51E+02	2 99E+02	5 13E+02	1 49E+03	1 06E+02	0 00E+00	2 58E+02	2 55E+02	0 00E+00	5 01E+02	3 23E+01	2 05E+01	1 29E+01	3 63E+02
79	F	19 0	mol	1 17E+04	1 86E+05	1 05E+05	3 23E+05	1 61E+04	4 18E+05	2 68E+04	1 46E+05	4 93E+04	3 76E+04	4 96E+05	3 43E+05	1 80E+05	1 95E+03	1 67E+05
80	Fe	55 9	mol	2 04E+03	2 31E+03	5 12E+03	7 20E+03	9 72E+04	2 81E+02	4 28E+02	1 35E+03	3 76E+02	7 82E+02	1 47E+04	8 72E+01	3 99E+01	2 38E+01	9 42E+03
81	Free OH	17 0	mol	1 81E+06	1 26E+07	5 38E+06	1 21E+07	3 49E+06	9 88E+06	7 65E+06	3 33E+06	4 81E+06	6 06E+06	2 31E+07	2 17E+06	4 78E+05	1 04E+06	6 71E+06
82	Hg*	200 6	mol	8 77E-01	7 53E+00	5 58E+00	9 67E+00	3 65E+00	1 67E-01	6 38E-05	0 00E+00	2 51E-02	3 69E-02	8 67E+00	8 97E-01	1 01E+00	3 78E-03	9 67E+00
83	K	39 1	mol	1 92E+05	1 23E+06	2 28E+05	6 45E+05	1 46E+05	3 66E+06	4 22E+05	5 60E+05	2 24E+05	2 26E+05	4 27E+06	3 71E+05	2 69E+05	1 36E+04	8 90E+05
84	La	138 9	mol	3 61E+02	1 63E-02	4 74E-03	1 68E-02	7 56E+02	1 37E-02	7 70E+01	1 35E+02	3 00E+00	2 61E+01	4 87E+01	0 00E+00	0 00E+00	2 82E+00	1 01E+02
85	Li	6 9	mol	4 51E+02	1 40E+04	5 84E+03	9 35E+03	1 39E+03	2 07E+02	0 00E+00	1 70E+03	1 22E+01	0 00E+00	6 33E+03	4 23E+02	7 14E+01	3 13E+01	2 85E+03
86	Mg	24 3	mol	2 86E+03	1 06E+04	4 03E+03	9 38E+03	1 88E+02	4 32E+02	0 00E+00	6 01E+03	4 77E+02	0 00E+00	6 71E+03	3 47E+02	7 04E+02	1 63E+02	2 99E+03
87	Mn	54 9	mol	1 17E+03	4 70E+02	7 76E+02	1 32E+03	2 93E+04	9 98E+01	1 78E+02	2 75E+02	7 67E+01	1 67E+02	1 16E+04	0 00E+00	0 00E+00	6 87E+00	3 25E+03
88	Mo	95 9	mol	1 75E+03	3 28E+03	1 29E+03	3 88E+03	1 15E+03	6 52E+02	0 00E+00	2 11E+03	2 73E+03	0 00E+00	2 62E+03	3 00E+03	1 86E+03	1 85E+02	1 75E+03
89	Na	22 9	mol	3 13E+07	4 63E+07	2 10E+07	4 80E+07	2 99E+07	2 38E+07	3 44E+07	2 63E+07	2 34E+07	2 32E+07	4 45E+07	1 57E+07	8 91E+06	2 84E+06	2 71E+07
90	Nd	144 2	mol	5 32E+02	1 79E+03	6 79E+02	1 58E+03	2 10E+03	7 28E+01	0 00E+00	8 04E+02	7 35E+01	0 00E+00	3 31E+02	5 85E+01	4 59E+01	1 06E+01	5 77E+02
91	NH3	17 0	mol	2 74E+04	0 00E+00	0 00E+00	0 00E+00	9 06E+03	2 38E+04	0 00E+00	0 00E+00	2 08E+05	0 00E+00	0 00E+00	0 00E+00	0 00E+00	0 00E+00	1 91E+04
92	Ni	58 7	mol	2 25E+04	8 77E+02	2 56E+03	2 42E+03	2 95E+04	4 45E+02	5 95E+02	4 50E+03	3 25E+03	7 48E+02	1 84E+03	5 52E+01	6 49E+01	1 86E+02	4 96E+03
93	NO2	46 0	mol	6 57E+06	9 35E+06	3 43E+06	9 98E+06	4 78E+06	3 74E+06	8 65E+06	5 91E+06	5 78E+06	4 09E+06	9 17E+06	4 33E+06	2 93E+06	4 26E+05	5 65E+06
94	NO3	62 0	mol	1 17E+07	1 05E+07	4 77E+06	1 11E+07	1 11E+07	8 00E+06	1 09E+07	8 15E+06	6 76E+06	6 79E+06	1 32E+07	2 76E+06	4 40E+05	7 87E+05	7 64E+06
95	Oxalate	88 0	mol	3 10E+04	1 84E+05	2 40E+05	2 49E+05	3 39E+04	5 10E+04	1 41E+05	4 43E+04	4 31E+04	6 36E+04	2 97E+05	3 72E+04	8 38E+04	1 53E+03	1 07E+05
96	Pb	207 2	mol	2 65E+03	2 10E+03	4 97E+02	1 27E+03	5 98E+03	2 48E+02	1 01E+03	7 29E+02	2 80E+02	4 39E+02	3 34E+03	5 21E+01	0 00E+00	1 96E+01	1 33E+03
97	Pd	105 4	mol	0 00E+00	0 00E+00	0 00E+00	0 00E+00	0 00E+00	7 60E+02	0 00E+00	0 00E+00	7 08E+01	0 00E+00	0 00E+00	6 16E+02	0 00E+00	0 00E+00	1 03E+02
98	PO4	95 0	mol	1 90E+05	9 38E+04	1 11E+05	2 67E+05	5 36E+04	5 59E+04	1 38E+05	8 49E+04	2 00E+05	9 61E+04	1 13E+05	5 28E+04	1 57E+04	1 74E+04	1 06E+05
99	Pr	140 9	mol	0 00E+00	0 00E+00	0 00E+00	0 00E+00	0 00E+00	5 17E-01	0 00E+00	0 00E+00	5 06E+00	0 00E+00	0 00E+00	1 36E+00	0 00E+00	0 00E+00	4 95E-01
100	Rb	85 5	mol	0 00E+00	0 00E+00	0 00E+00	0 00E+00	0 00E+00	1 95E+02	0 00E+00	0 00E+00	1 38E+02	0 00E+00	0 00E+00	3 49E+02	0 00E+00	0 00E+00	4 87E+01
101	Rh	102 9	mol	0 00E+00	0 00E+00	0 00E+00	0 00E+00	7 96E+02	3 11E+02	0 00E+00	0 00E+00	2 22E+02	0 00E+00	0 00E+00	6 60E+01	0 00E+00	0 00E+00	9 96E+01
102	Ru	101 1	mol	0 00E+00	0 00E+00	0 00E+00	0 00E+00	0 00E+00	1 17E+03	0 00E+00	0 00E+00	8 90E+02	0 00E+00	0 00E+00	1 50E+01	0 00E+00	0 00E+00	1 48E+02
103	Sb	121 7	mol	5 96E+00	1 27E+03	4 83E+02	1 13E+03	8 30E+00	1 45E+00	0 00E+00	7 46E+02	9 20E-01	0 00E+00	1 16E+03	1 57E+00	9 29E-01	2 15E+01	3 45E+02
104	Se	78 9	mol	1 14E+03	3 27E+03	1 24E+03	2 89E+03	3 37E+01	1 23E+02	0 00E+00	1 56E+03	3 61E+02	0 00E+00	1 52E+03	2 66E+02	2 78E+02	6 41E+01	9 11E+02
105	Si	28 1	mol	2 76E+03	8 47E+04	5 69E+04	3 22E+04	1 53E+03	1 50E+04	6 48E+03	1 28E+04	5 37E+03	2 87E+03	4 66E+04	7 90E+03	5 77E+03	1 53E+02	2 01E+04
106	SO4	96 1	mol	5 08E+05	1 15E+05	3 14E+05	2 96E+05	2 80E+05	1 69E+05	1 04E+05	1 68E+05	1 57E+05	1 24E+05	1 28E+05	5 45E+05	6 08E+05	3 76E+04	2 54E+05
107	Sr	87 6	mol	9 12E+01	1 64E+00	5 99E+01	7 57E+01	7 05E+01	1 42E+00	5 34E+01	1 05E+02	1 28E+01	4 18E+00	1 80E+02	1 47E+00	1 37E+00	1 08E+00	4 71E+01
108	Ta	180 9	mol	0 00E+00	0 00E+00	0 00E+00	0 00E+00	4 24E+02	2 07E+00	0 00E+00	0 00E+00	7 96E-01	0 00E+00	0 00E+00	1 06E+00	0 00E+00	0 00E+00	3 06E+01
109	Te	127 6	mol	0 00E+00	0 00E+00	0 00E+00	0 00E+00	0 00E+00	5 38E+00	0 00E+00	0 00E+00	5 59E+00	0 00E+00	0 00E+00	1 50E+00	0 00E+00	0 00E+00	8 91E-01
110	Th	232 0	mol	3 08E+01	9 53E+00	3 20E+00	7 59E+00	2 50E+02	2 00E-01	1 91E+03	1 52E+03	4 57E+00	2 33E+02	5 00E+00	7 28E-04	4 31E-04	7 33E+00	2 84E+02
111	Tl	47 9	mol	4 66E+01	5 39E+02	2 04E+02	4 76E+02	9 75E+01	5 55E+01	0 00E+00	3 15E+02	2 78E+01	0 00E+00	4 99E+02	4 28E+01	1 14E+01	1 92E+00	1 65E+02
112	TIC as CO3	60 0	mol	3 53E+06	1 35E+06	2 62E+06	3 85E+06	4 05E+06	2 33E+06	8 15E+05	1 80E+06	1 20E+06	1 01E+06	1 90E+06	2 67E+06	1 78E+06	1 98E+05	2 08E+06
113	Tl	204 4	mol	3 27E+01	0 00E+00	0 00E+00	2 23E+03	1 93E+00	3 71E-01	0 00E+00	0 00E+00	1 03E+00	0 00E+00	1 18E+03	9 34E-01	0 00E+00	1 79E+01	2 47E+02
114	U total	238.0	mol	7 48E+02	5 04E+02	1 87E+03	1 14E+03	1 41E+03	9 66E+02	2 25E+02	2 02E+02	2 07E+02	1 45E+02	1 13E+04	3 84E+01	1 08E+03	7 44E+00	1 42E+03
115	V	50 9	mol	1 77E+02	2 53E+03	9 61E+02	2 24E+03	4 52E+01	6 19E+01	0 00E+00	1 14E+03	1 06E+02	0 00E+00	2 51E+02	9 57E+01	3 46E+01	8 00E+00	5 47E+02
116	W	183 9	mol	0 00E+00	0 00E+00	0 00E+00	0 00E+00	0 00E+00	6 58E+02	0 00E+00	0 00E+00	2 04E+03	0 00E+00	0 00E+00	1 02E+03	0 00E+00	0 00E+00	2 66E+02
117	Y	88 9	mol	3 13E+01	0 00E+00	0 00E+00	0 00E+00	3 19E+02	7 49E+01	0 00E+00	3 44E+02	1 43E+01	0 00E+00	0 00E+00	4 75E+01	8 35E-01	0 00E+00	5 95E+01
118	Zn	65 4	mol	1 40E+02	1 68E+03	7 95E+02	3 03E+03	9 51E+02	3 61E+02	0 00E+00	2 31E+02	3 41E+01	0 00E+00	1 36E+03	6 45E+01	1 70E+01	2 75E+00	6 19E+02
119	Zr	91 2	mol	2 85E+02	3 56E+02	4 62E+02	4 86E+02	2 16E+03	6 47E+01	9 22E+01	1 62E+02	2 70E+01	9 17E+01	2 19E+03	0 00E+00	1 14E+01	2 63E+00	4 57E+02
120	*Value selected for Hg is the maximum of the tanks analyzed																	

CALCULATION SHEET

BY. E. Berrios
DATE: 12/05/05

PROJECT RPP-WTP
JOB NO.: 24590
CALC NO.. 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.. A-4

SUBJECT. Update Emissions Run Feed Vector

Table A-3 LAW Radionuclide Feed Quantities in Curies

Analyte	Units	Tank														
		AN-102	AN-103	AN-104	AN-105	AN-107	AP-101	AP-102	AP-103	AP-104	AP-105	AW-101	AZ-101	AZ-102	SY-101	MAX
106Ru	Ci	2.00E-05	5.76E-02	4.55E-02	5.65E-02	1.50E-05	1.42E-05	1.40E-05	1.48E-05	1.05E-05	1.81E-05	4.21E-02	2.87E+01	8.60E+01	9.22E-07	8.60E+01
113mCd	Ci	8.72E+01	8.11E+01	2.73E+01	8.34E+01	6.56E+01	6.21E+01	9.25E+01	9.47E+01	7.76E+01	7.53E+01	9.64E+01	1.33E+02	1.24E+02	7.39E+00	1.33E+02
125Sb	Ci	1.24E+01	2.03E+01	1.08E+01	2.05E+01	6.19E+00	8.79E+00	2.77E+01	2.91E+01	1.98E+01	2.07E+01	2.01E+01	1.88E+03	1.75E+03	1.84E+00	1.88E+03
126Sn	Ci	2.55E+01	1.95E+01	2.21E+00	1.73E+01	2.99E+01	3.57E+00	3.39E+00	3.66E+00	3.05E+00	2.93E+00	2.29E+01	7.85E+00	2.11E+00	2.87E-01	2.99E+01
129I	Ci	4.58E-01	1.22E+00	2.05E-01	8.51E-01	3.67E-01	5.88E-01	1.24E+00	1.26E+00	5.87E-01	8.51E-01	6.67E-01	3.24E-02	4.46E-02	8.11E-02	1.26E+00
134Cs	Ci	1.15E+01	1.07E+01	3.57E+00	1.10E+01	8.63E+00	5.75E+01	7.14E-01	3.56E+00	3.40E-01	1.90E+00	5.28E+01	1.44E+03	8.71E+02	3.57E-02	1.44E+03
137Cs	Ci	1.36E+06	1.73E+06	7.48E+05	1.41E+06	9.85E+05	5.87E+05	9.67E+05	7.75E+05	7.72E+05	5.39E+05	1.52E+06	5.06E+06	3.13E+06	5.58E+04	5.06E+06
137mBa	Ci	1.28E+06	1.64E+06	7.06E+05	1.33E+06	9.30E+05	5.54E+05	9.13E+05	7.32E+05	7.28E+05	5.09E+05	1.44E+06	4.78E+06	2.95E+06	5.27E+04	4.78E+06
14C	Ci	2.48E+00	1.41E+01	1.06E+01	1.39E+01	2.04E+00	9.36E-01	1.09E+01	4.13E+01	2.75E+00	2.61E+01	1.07E+01	6.25E+00	3.17E+00	1.74E+00	4.13E+01
151Sm	Ci	1.33E+04	2.63E+04	1.52E+04	2.64E+04	9.97E+03	9.43E+03	1.82E+04	1.93E+04	1.64E+04	1.58E+04	2.49E+04	1.26E+04	1.24E+04	1.55E+03	2.64E+04
152Eu	Ci	1.47E+00	3.01E+00	1.76E+00	3.02E+00	1.10E+00	1.04E+00	4.42E+00	4.69E+00	3.55E+00	3.40E+00	2.82E+00	1.52E+01	1.33E+01	3.34E-01	1.52E+01
154Eu	Ci	6.22E+02	1.65E+02	1.22E+02	1.98E+02	1.18E+03	6.25E+00	1.26E+02	4.78E+01	2.66E+01	8.05E+01	1.78E+02	1.55E+02	1.57E+02	3.23E+00	1.18E+03
155Eu	Ci	3.90E+01	8.01E+01	4.68E+01	8.03E+01	6.39E+02	2.78E+01	7.07E+01	5.16E+01	3.92E+01	6.18E+01	7.51E+01	9.11E+02	2.45E+02	1.12E+01	9.11E+02
226Ra	Ci	1.47E-04	1.36E-04	4.58E-05	1.40E-04	1.10E-04	1.04E-04	2.29E-04	2.55E-04	2.39E-04	2.15E-04	1.62E-04	2.22E-04	1.41E-04	2.12E-05	2.55E-04
227Ac	Ci	1.81E-02	1.68E-02	5.63E-03	1.73E-02	1.36E-02	1.28E-02	3.67E-03	3.01E-03	2.75E-03	2.61E-03	1.99E-02	1.46E-03	8.24E-04	2.58E-04	1.99E-02
228Ra	Ci	4.19E-02	3.87E-02	1.30E-02	3.98E-02	3.32E-02	2.96E-02	3.03E-01	1.26E-01	4.84E-02	6.51E-02	4.60E-02	1.45E-08	9.85E-09	4.97E-03	3.03E-01
229Th	Ci	7.26E-05	6.74E-05	2.26E-05	6.93E-05	5.46E-05	5.16E-05	9.96E-03	7.72E-03	3.86E-03	3.71E-03	8.01E-05	1.90E-06	9.38E-07	2.79E-04	9.96E-03
231Pa	Ci	1.90E-01	1.76E-01	5.91E-02	1.81E-01	1.43E-01	1.35E-01	6.36E-03	6.94E-03	6.22E-03	5.90E-03	2.09E-01	3.18E-03	1.78E-03	5.86E-04	2.09E-01
232Th	Ci	7.85E-04	2.44E-04	8.17E-05	1.93E-04	6.36E-03	5.10E-06	4.86E-02	3.86E-02	1.16E-04	5.97E-03	1.28E-04	1.86E-08	1.10E-08	1.87E-04	4.86E-02
232U	Ci	1.74E-03	1.18E-03	4.36E-03	2.65E-03	3.29E-03	2.25E-03	2.56E-02	9.94E-03	1.42E-02	4.30E-03	2.64E-02	1.49E-06	3.64E-05	2.50E-04	2.64E-02
233U	Ci	1.07E-01	7.21E-02	2.68E-01	1.63E-01	2.02E-01	1.98E-01	1.09E-01	4.20E-02	6.01E-02	1.81E-02	1.62E+00	4.92E-07	1.16E-05	1.06E-03	1.62E+00
234U	Ci	7.56E-02	5.11E-02	1.89E-01	1.15E-01	1.43E-01	1.18E-01	2.01E-02	1.76E-02	1.83E-02	1.31E-02	1.15E+00	4.42E-03	1.25E-01	6.29E-04	1.15E+00
235U	Ci	2.99E-03	2.02E-03	7.48E-03	4.56E-03	5.65E-03	4.20E-03	7.96E-04	7.35E-04	7.40E-04	5.31E-04	4.53E-02	1.65E-04	4.97E-03	2.61E-05	4.53E-02
236U	Ci	5.12E-03	3.46E-03	1.28E-02	7.80E-03	9.67E-03	8.97E-03	6.46E-04	6.13E-04	6.12E-04	5.32E-04	7.76E-02	4.22E-04	1.23E-02	1.72E-05	7.76E-02
238U	Ci	5.92E-02	4.00E-02	1.48E-01	9.03E-02	1.12E-01	7.65E-02	1.79E-02	1.61E-02	1.64E-02	1.15E-02	8.98E-01	3.04E-03	8.59E-02	5.90E-04	8.98E-01
241Pu	Ci	7.53E+01	1.88E+01	3.25E+01	3.08E+01	6.80E+02	2.02E+00	1.50E+00	4.29E+00	7.68E+00	1.35E+00	4.59E+02	3.37E+01	1.67E+02	6.28E-02	6.80E+02
3H	Ci	1.90E+00	7.04E+00	1.68E+01	4.20E+00	2.04E+00	1.50E+01	4.33E+01	2.06E+02	1.96E+00	3.52E+02	2.88E+01	5.17E+01	9.77E+01	2.17E+01	3.52E+02
59Ni	Ci	9.31E-01	1.27E+01	9.67E+00	1.25E+01	7.00E+01	6.63E-01	1.25E+00	1.22E+00	1.86E+00	1.17E+00	9.71E+00	6.93E+00	2.14E+00	7.30E-02	7.00E+01
60Co	Ci	1.83E+02	2.39E+01	1.86E+01	2.96E+01	2.12E+02	8.52E+00	1.50E+01	3.55E+01	3.10E+01	1.83E+01	3.19E+01	3.97E+01	3.94E+01	1.29E+00	2.12E+02
63Ni	Ci	8.67E+01	1.19E+03	9.03E+02	1.17E+03	4.88E+03	6.17E+01	1.17E+02	1.16E+02	1.76E+02	1.02E+02	9.07E+02	6.54E+02	2.05E+02	6.66E+00	4.88E+03
79Se	Ci	2.13E+00	2.33E+00	5.34E-01	3.12E+00	2.55E+00	3.95E-01	3.09E+00	2.21E+00	3.37E+00	1.79E+00	6.36E-01	3.14E+00	1.43E+00	2.58E-01	3.37E+00
90Sr	Ci	2.74E+05	5.87E+03	7.16E+04	2.88E+04	2.53E+05	4.12E+02	1.56E+03	8.15E+03	6.95E+03	1.08E+03	8.30E+04	2.81E+03	6.51E+03	1.04E+03	2.74E+05
90Y	Ci	2.74E+05	5.87E+03	7.16E+04	2.88E+04	2.53E+05	4.12E+02	1.56E+03	8.15E+03	6.95E+03	1.08E+03	8.30E+04	2.81E+03	6.51E+03	1.04E+03	2.74E+05
93mNb	Ci	8.45E+01	7.86E+01	2.64E+01	8.08E+01	6.35E+01	6.01E+01	2.94E+01	2.21E+01	1.57E+01	2.06E+01	9.34E+01	1.20E+02	6.13E+01	1.37E+00	1.20E+02
93Zr	Ci	1.02E+02	9.47E+01	3.18E+01	9.74E+01	7.66E+01	7.25E+01	3.41E+01	2.75E+01	1.88E+01	2.37E+01	1.13E+02	1.95E+02	1.05E+02	1.55E+00	1.95E+02
99Tc	Ci	4.93E+02	6.74E+02	3.32E+02	1.12E+03	2.57E+02	2.21E+02	6.54E+02	7.93E+02	7.20E+02	6.11E+02	8.18E+02	1.06E+03	6.98E+02	7.20E+01	1.12E+03
Transuranics		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
237Np	Ci	1.89E-01	5.11E-01	3.71E-01	5.08E-01	1.87E-01	2.29E-02	1.91E+00	1.68E-01	1.62E-02	1.14E+00	3.46E-01	1.22E-01	3.57E-01	9.58E-02	1.91E+00
238Pu	Ci	1.20E+00	2.98E-01	5.16E-01	4.89E-01	1.08E+01	3.21E-02	3.24E-02	9.77E-02	1.65E-01	6.38E-02	7.29E+00	4.70E-01	2.34E+00	1.45E-03	1.08E+01
239Pu	Ci	1.65E+01	4.11E+00	7.12E+00	6.75E+00	1.49E+02	4.42E-01	1.25E+00	3.16E+00	6.22E+00	1.12E+00	1.00E+02	4.55E+00	2.42E+01	6.81E-02	1.49E+02
240Pu	Ci	4.29E+00	1.07E+00	1.85E+00	1.76E+00	3.87E+01	1.15E-01	2.11E-01	5.28E-01	1.06E+00	1.84E-01	2.61E+01	1.30E+00	6.61E+00	1.08E-02	3.87E+01
241Am	Ci	5.63E+02	2.08E+01	4.71E+01	5.29E+01	2.41E+03	8.13E-01	7.00E+00	3.74E+01	9.64E+01	2.75E+00	1.05E+02	4.67E-01	2.07E+00	2.69E-01	2.41E+03
242Cm	Ci	1.10E+00	2.49E-02	1.23E-02	6.81E-02	9.19E+00	1.59E-03	2.25E-02	1.19E-01	4.43E-02	5.01E-03	2.75E-02	2.37E-04	6.57E-04	5.72E-04	9.19E+00
242Pu	Ci	4.54E-04	1.13E-04	1.96E-04	1.86E-04	4.10E-03	1.22E-05	1.29E-05	4.17E-05	6.83E-05	1.08E-05	2.77E-03	1.69E-04	7.97E-04	5.31E-07	4.10E-03
243Am	Ci	3.69E-01	1.37E-02	3.16E-02	3.50E-02	1.58E+00	5.34E-04	2.56E-04	1.39E-03	3.43E-03	9.73E-05	6.76E-02	1.06E-04	1.85E-04	9.17E-06	1.58E+00
243Cm	Ci	6.08E-02	1.38E-03	6.81E-04	3.76E-03	2.60E-01	8.79E-05	2.88E-03	1.60E-02	1.48E-01	1.78E-03	7.07E-02	4.24E-03	8.91E-05	1.39E-04	2.60E-01
244Cm	Ci	1.44E+00	3.26E-02	1.61E-02	8.89E-02	6.16E+00	2.08E-03	4.19E-02	2.22E-01	3.47E+00	3.51E-02	1.58E+00	9.86E-02	2.11E-03	2.57E-03	6.16E+00

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV 0D
SHEET NO.. A-5

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Feed Vector

	A	B	C	D	E	F
1	**Table A-4 LAW Inorganic Feed Concentration Before Charge Balance**					
2	**Analyte**	**BBI**	**BBI**	**Cont Max**	**Feed Conc.**	
3		**mol**	**mol/mol Na**	**mol/mol Na**	**mol/mol Na**	
4	Ag	2.15E+02	7.92E-06	N/A	7.92E-06	
5	Al	2.60E+06	9 59E-02	2 50E-01	9 59E-02	
6	As	9.47E+02	3.49E-05	N/A	3.49E-05	
7	B	1.57E+04	5.80E-04	N/A	5 80E-04	
8	Ba	1.97E+02	7.28E-06	1.00E-04	7.28E-06	
9	Be	4.23E+02	1.56E-05	N/A	1.56E-05	
10	Bi	2 33E+02	8.58E-06	N/A	8.58E-06	
11	Ca	1.34E+04	4.94E-04	4.00E-02	4.94E-04	
12	Cd	3 67E+02	1.35E-05	4.00E-03	1.35E-05	
13	Ce	4.54E+02	1.67E-05	N/A	1.67E-05	
14	Cl	4.18E+05	1.54E-02	8.90E-02	1.54E-02	
15	CN	4.51E+02	1.66E-05	N/A	1.66E-05	
16	Co	3.47E+02	1.28E-05	N/A	1.28E-05	
17	Cr	6.23E+04	2.30E-03	2.00E-02	2.30E-03	
18	Cu	3.63E+02	1.34E-05	N/A	1.34E-05	
19	F	1.67E+05	6.16E-03	2.00E-01	6.16E-03	
20	Fe	9.42E+03	3.47E-04	1.00E-02	3.47E-04	
21	Free OH	6.71E+06	2.47E-01	N/A	2.47E-01	
22	Hg	9.67E+00	3.57E-07	1.40E-05	1.40E-05	
23	K	8.90E+05	3.28E-02	1.80E-01	3.28E-02	
24	La	1.01E+02	3.71E-06	8 30E-05	3.71E-06	
25	Li	2.85E+03	1.05E-04	N/A	1.05E-04	
26	Mg	2.99E+03	1.10E-04	N/A	1.10E-04	
27	Mn	3.25E+03	1.20E-04	N/A	1.20E-04	
28	Mo	1.75E+03	6.45E-05	N/A	6.45E-05	
29	Na	2 71E+07	1.00E+00	N/A	1.00E+00	
30	Nd	5.77E+02	2.13E-05	N/A	2.13E-05	
31	NH3	1 91E+04	7.05E-04	N/A	7.05E-04	
32	Ni	4.96E+03	1.83E-04	3.00E-03	1 83E-04	
33	NO2	5.65E+06	2.08E-01	3.80E-01	2.08E-01	
34	NO3	7.64E+06	2.82E-01	8.00E-01	2.82E-01	
35	Oxalate	1.07E+05	3.95E-03	5.00E-01	3.95E-03	
36	Pb	1.33E+03	4.91E-05	6.80E-04	4 91E-05	
37	Pd	1.03E+02	3.81E-06	N/A	3.81E-06	
38	PO4	1.06E+05	3.92E-03	1.30E-01	3.92E-03	
39	Pr	4 95E-01	1.83E-08	N/A	1.83E-08	
40	Rb	4.87E+01	1.80E-06	N/A	1.80E-06	
41	Rh	9.96E+01	3 67E-06	N/A	3.67E-06	
42	Ru	1.48E+02	5 46E-06	N/A	5.46E-06	
43	Sb	3.45E+02	1.27E-05	N/A	1.27E-05	
44	Se	9.11E+02	3.36E-05	N/A	3.36E-05	
45	Si	2.01E+04	7.40E-04	N/A	7.40E-04	
46	SO4	2 54E+05	9.36E-03	7.00E-02	9 36E-03	
47	Sr	4.71E+01	1 74E-06	N/A	1.74E-06	
48	Ta	3.06E+01	1.13E-06	N/A	1.13E-06	
49	Te	8.91E-01	3.28E-08	N/A	3.28E-08	
50	Th	2.84E+02	1 05E-05	N/A	1.05E-05	
51	Ti	1.65E+02	6.10E-06	N/A	6.10E-06	
52	TIC as CO3	2.08E+06	7.66E-02	3.00E-01	7.66E-02	
53	Tl	2.47E+02	9.13E-06	N/A	9.13E-06	
54	U(total)	1.42E+03	5.23E-05	1.20E-03	5.23E-05	
55	V	5 47E+02	2.02E-05	N/A	2.02E-05	
56	W	2.66E+02	9.80E-06	N/A	9.80E-06	
57	Y	5.95E+01	2.19E-06	N/A	2.19E-06	
58	Zn	6.19E+02	2 28E-05	N/A	2.28E-05	
59	Zr	4 57E+02	1.68E-05	N/A	1.68E-05	
60	N/A = none available					

CALCULATION SHEET

BY: E. Berrios
DATE: 12/05/05

PROJECT: RPP-WTP
JOB NO.: 24590
CALC. NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: A-6

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Feed Vector

	A	B	C	D	E	F	H	I	J	K
1	**Table A-5 LAW Radionuclide Feed Concentration**									
2	**Analyte**	**Ci**	**Ci/mol Na**	**Bq/mol Na**	**SOW Max Bq/mol Na**	**Feed Conc. Bq/mol Na**			Actual	SOW Max
3								TRU	Bq/mol Na	Bq/mol Na
4	106Ru	8.60E+01	3.17E-06	1.17E+05	N/A	1.17E+05		237Np	2.61E+03	2.18E+03
5	113mCd	1.33E+02	4.90E-06	1.81E+05	N/A	1.81E+05		238Pu	1.47E+04	1.23E+04
6	125Sb	1.88E+03	6.93E-05	2.56E+06	N/A	2.56E+06		239Pu	2.03E+05	1.70E+05
7	126Sn	2.99E+01	1.10E-06	4.08E+04	N/A	4.08E+04		240Pu	5.28E+04	4.42E+04
8	129I	1.26E+00	4.65E-08	1.72E+03	N/A	1.72E+03		241Am	3.29E+06	2.75E+06
9	134Cs	1.44E+03	5.31E-05	1.96E+06	N/A	1.96E+06		242Cm	1.25E+04	1.05E+04
10	137Cs	5.06E+06	1.87E-01	6.90E+09	2.00E+10	2.00E+10		242Pu	5.59E+00	4.68E+00
11	137mBa	4.78E+06	1.76E-01	6.52E+09	N/A	6.52E+09		243Am	2.16E+03	1.80E+03
12	14C	4.13E+01	1.52E-06	5.63E+04	N/A	5.63E+04		243Cm	3.55E+02	2.97E+02
13	151Sm	2.64E+04	9.73E-04	3.60E+07	N/A	3.60E+07		244Cm	8.40E+03	7.03E+03
14	152Eu	1.52E+01	5.60E-07	2.07E+04	N/A	2.07E+04		Total	3.58E+06	3.00E+06
15	154Eu	1.18E+03	4.35E-05	1.61E+06	4.30E+06	4.30E+06				
16	155Eu	9.11E+02	3.36E-05	1.24E+06	N/A	1.24E+06				
17	226Ra	2.55E-04	9.40E-12	3.48E-01	N/A	3.48E-01				
18	227Ac	1.99E-02	7.34E-10	2.71E+01	N/A	2.71E+01				
19	228Ra	3.03E-01	1.12E-08	4.13E+02	N/A	4.13E+02				
20	229Th	9.96E-03	3.67E-10	1.36E+01	N/A	1.36E+01				
21	231Pa	2.09E-01	7.71E-09	2.85E+02	N/A	2.85E+02				
22	232Th	4.86E-02	1.79E-09	6.63E+01	N/A	6.63E+01				
23	232U	2.64E-02	9.73E-10	3.60E+01	N/A	3.60E+01				
24	233U	1.62E+00	5.97E-08	2.21E+03	N/A	2.21E+03				
25	234U	1.15E+00	4.24E-08	1.57E+03	N/A	1.57E+03				
26	235U	4.53E-02	1.67E-09	6.18E+01	N/A	6.18E+01				
27	236U	7.76E-02	2.86E-09	1.06E+02	N/A	1.06E+02				
28	237Np	1.91E+00	7.04E-08	2.61E+03	2.18E+03	2.18E+03				
29	238Pu	1.08E+01	3.98E-07	1.47E+04	1.23E+04	1.23E+04				
30	238U	8.98E-01	3.31E-08	1.23E+03	N/A	1.23E+03				
31	239Pu	1.49E+02	5.49E-06	2.03E+05	1.70E+05	1.70E+05				
32	240Pu	3.87E+01	1.43E-06	5.28E+04	4.42E+04	4.42E+04				
33	241Am	2.41E+03	8.89E-05	3.29E+06	2.75E+06	2.75E+06				
34	241Pu	6.80E+02	2.51E-05	9.28E+05	N/A	9.28E+05				
35	242Cm	9.19E+00	3.39E-07	1.25E+04	1.05E+04	1.05E+04				
36	242Pu	4.10E-03	1.51E-10	5.59E+00	4.68E+00	4.68E+00				
37	243Am	1.58E+00	5.83E-08	2.16E+03	1.80E+03	1.80E+03				
38	243Cm	2.60E-01	9.59E-09	3.55E+02	2.97E+02	2.97E+02				
39	244Cm	6.16E+00	2.27E-07	8.40E+03	7.03E+03	7.03E+03				
40	3H	3.52E+02	1.30E-05	4.80E+05	N/A	4.80E+05				
41	59Ni	7.00E+01	2.58E-06	9.55E+04	N/A	9.55E+04				
42	60Co	2.12E+02	7.82E-06	2.89E+05	3.70E+05	3.70E+05				
43	63Ni	4.88E+03	1.80E-04	6.66E+06	N/A	6.66E+06				
44	79Se	3.37E+00	1.24E-07	4.60E+03	N/A	4.60E+03				
45	90Sr	2.74E+05	1.01E-02	3.74E+08	8.00E+08	8.00E+08				
46	90Y	2.74E+05	1.01E-02	3.74E+08	N/A	3.74E+08				
47	93mNb	1.20E+02	4.42E-06	1.64E+05	N/A	1.64E+05				
48	93Zr	1.95E+02	7.19E-06	2.66E+05	N/A	2.66E+05				
49	99Tc	1.12E+03	4.13E-05	1.53E+06	7.10E+06	7.10E+06				
50	N/A = none available									

CALCULATION SHEET

BY E Berrios
DATE 12/05/05

PROJECT RPP-WTP
JOB NO 24590
CALC NO 24590-WTP-M4C-FRP-00001
SHEET REV 0D
SHEET NO A-7

SUBJECT WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Table A-6 LAW Feed Charge Balance														
2 3	Analyte	Feed Conc. mol/mol Na	Feed Conc. Mol	charge	In ACM	mole charge	Adjusted Charges	New Moles	New mol/mol Na	MW g/mole	New Feed kgmole	New Feed kg			
4	Ag	7 92E-06	2 15E+02	1	Y	215	215	215	7 92E-06	107 8	2 15E-01	2 32E+01			
5	Al	9 59E-02	2 60E+06	3	Y	7,804,988	7,804,988	2,601,663	9 59E-02	27 0	2 60E+03	7 02E+04	Total charge		10,453,408
6	As	3 49E-05	9 47E+02	5	Y	4,734	4,734	947	3 49E-05	74 9	9 47E-01	7 09E+01	OH added		10,453,408
7	B	5 80E-04	1 57E+04	3	Y	47,151	47,151	15,717	5 80E-04	10 8	1 57E+01	1 70E+02	New total charge		2 854E-09
8	Ba	7 28E-06	1 97E+02	2	Y	395	395	197	7 28E-06	137 3	1 97E-01	2 71E+01			
9	Be	1 56E-05	4 23E+02	2	N	0	0	0	1 56E-05	9 0	4 23E-01	3 81E+00			
10	Bi	8 58E-06	2 33E+02	3	Y	698	698	233	8 58E-06	208 9	2 33E-01	4 86E+01			
11	Ca	4 94E-04	1 34E+04	2	Y	26,810	26,810	13,405	4 94E-04	40 1	1 34E+01	5 38E+02			
12	Cd	1 35E-05	3 67E+02	2	Y	733	733	367	1 35E-05	112 4	3 67E-01	4 12E+01			
13	Ce	1 67E-05	4 54E+02	3	Y	1,362	1,362	454	1 67E-05	140 1	4 54E-01	6 36E+01			
14	Cl	1 54E-02	4 18E+05	-1	Y	-418,144	-418,144	418,144	1 54E-02	35 5	4 18E+02	1 48E+04			
15	CN	1 66E-05	4 51E+02	-1	N	0	0	0	1 66E-05	26 0	4 51E-01	1 17E+01			
16	Co	1 28E-05	3 47E+02	3	N	0	0	0	1 28E-05	58 9	3 47E-01	2 04E+01			
17	Cr	2 30E-03	6 23E+04	3	Y	186,915	186,915	62,305	2 30E-03	52 0	6 23E+01	3 24E+03			
18	Cu	1 34E-05	3 63E+02	2	Y	726	726	363	1 34E-05	63 5	3 63E-01	2 30E+01			
19	F	6 16E-03	1 67E+05	-1	Y	-167,166	-167,166	167,166	6 16E-03	19 0	1 67E+02	3 18E+03			
20	Fe	3 47E-04	9 42E+03	3	Y	28,271	28,271	9,424	3 47E-04	55 9	9 42E+00	5 27E+02			
21	Free OH	2 47E-01	6 71E+06	-1	Y	-6,708,529	-17,161,938	17,161,938	6 33E-01	17 0	1 72E+04	2 92E+05			
22	Hg	1 40E-05	3 80E+02	2	Y	759	759	380	1 40E-05	200 6	3 80E-01	7 62E+01			
23	K	3 28E-02	8 90E+05	1	Y	889,733	889,733	889,733	3 28E-02	39 1	8 90E+02	3 48E+04			
24	La	3 71E-06	1 01E+02	3	Y	302	302	101	3 71E-06	138 9	1 01E-01	1 40E+01			
25	Li	1 05E-04	2 85E+03	1	Y	2,846	2,846	2,846	1 05E-04	6 9	2 85E+00	1 96E+01			
26	Mg	1 10E-04	2 99E+03	2	Y	5,987	5,987	2,994	1 10E-04	24 3	2 99E+00	7 27E+01			
27	Mn	1 20E-04	3 25E+03	4	Y	12,986	12,986	3,247	1 20E-04	54 9	3 25E+00	1 78E+02			
28	Mo	6 45E-05	1 75E+03	6	N	0	0	0	6 45E-05	95 9	1 75E+00	1 68E+02			
29	Na	1 00E+00	2 71E+07	1	Y	27,121,023	27,121,023	27,121,023	1 00E+00	22 9	2 71E+04	6 21E+05			
30	Nd	2 13E-05	5 77E+02	3	N	0	0	0	2 13E-05	144 2	5 77E-01	8 32E+01			
31	NH3	7 05E-04	1 91E+04	0	Y	0	0	0	7 05E-04	17 0	1 91E+01	3 25E+02			
32	Ni	1 83E-04	4 96E+03	2	Y	9,928	9,928	4,964	1 83E-04	58 7	4 96E+00	2 91E+02			
33	NO2	2 08E-01	5 65E+06	-1	Y	-5,653,106	-5,653,106	5,653,106	2 08E-01	46 0	5 65E+03	2 60E+05			
34	NO3	2 82E-01	7 64E+06	-1	Y	-7,644,124	-7,644,124	7,644,124	2 82E-01	62 0	7 64E+03	4 74E+05			
35	Oxalate	3 95E-03	1 07E+05	-2	Y	-214,229	-214,229	107,114	3 95E-03	88 0	1 07E+02	9 43E+03			
36	Pb	4 91E-05	1 33E+03	2	Y	2,661	2,661	1,331	4 91E-05	207 2	1 33E+00	2 76E+02			
37	Pd	3 81E-06	1 03E+02	2	Y	207	207	103	3 81E-06	105 4	1 03E-01	1 09E+01			
38	PO4	3 92E-03	1 06E+05	-3	Y	-318,935	-318,935	106,312	3 92E-03	95 0	1 06E+02	1 01E+04			
39	Pr	1 83E-08	4 95E-01	3	N	0	0	0	1 83E-08	140 9	4 95E-04	6 98E-02			
40	Rb	1 80E-06	4 87E+01	1	N	0	0	0	1 80E-06	85 5	4 87E-02	4 16E+00			
41	Rh	3 67E-06	9 96E+01	3	Y	299	299	100	3 67E-06	102 9	9 96E-02	1 02E+01			
42	Ru	5 46E-06	1 48E+02	3	Y	444	444	148	5 46E-06	101 1	1 48E-01	1 50E+01			
43	Sb	1 27E-05	3 45E+02	5	N	0	0	0	1 27E-05	121 7	3 45E-01	4 20E+01			
44	Se	3 36E-05	9 11E+02	6	N	0	0	0	3 36E-05	78 9	9 11E-01	7 19E+01			
45	Si	7 40E-04	2 01E+04	4	Y	80,300	80,300	20,075	7 40E-04	28 1	2 01E+01	5 64E+02			
46	SO4	9 36E-03	2 54E+05	-2	Y	-507,540	-507,540	253,770	9 36E-03	96 1	2 54E+02	2 44E+04			
47	Sr	1 74E-06	4 71E+01	2	Y	94	94	47	1 74E-06	87 6	4 71E-02	4 13E+00			
48	Ta	1 13E-06	3 06E+01	5	N	0	0	0	1 13E-06	180 9	3 06E-02	5 53E+00			
49	Te	3 28E-08	8 91E-01	4	N	0	0	0	3 28E-08	127 6	8 91E-04	1 14E-01			
50	Th	1 05E-05	2 84E+02	4	N	0	0	0	1 05E-05	232 0	2 84E-01	6 59E+01			
51	Ti	6 10E-06	1 65E+02	4	Y	662	662	165	6 10E-06	47 9	1 65E-01	7 93E+00			
52	TIC as CO3	7 66E-02	2 08E+06	-2	Y	-4,157,619	-4,157,619	2,078,810	7 66E-02	60 0	2 08E+03	1 25E+05			
53	Tl	9 13E-06	2 47E+02	3	N	0	0	0	9 13E-06	204 4	2 47E-01	5 06E+01			
54	U(total)	5 23E-05	1 42E+03	6	Y	8,507	8,507	1,418	5 23E-05	238 0	1 42E+00	3 37E+02			
55	V	2 02E-05	5 47E+02	3	N	0	0	0	2 02E-05	50 9	5 47E-01	2 78E+01			
56	W	9 80E-06	2 66E+02	6	N	0	0	0	9 80E-06	183 9	2 66E-01	4 89E+01			
57	Y	2 19E-06	5 95E+01	3	N	0	0	0	2 19E-06	88 9	5 95E-02	5 29E+00			
58	Zn	2 28E-05	6 19E+02	2	Y	1,238	1,238	619	2 28E-05	65 4	6 19E-01	4 05E+01			
59	Zr	1 68E-05	4 57E+02	4	Y	1,827	1,827	457	1 68E-05	91 2	4 57E-01	4 17E+01			

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: A-8

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

	A	B	C	D	E
61	**Table A-7 LAW Radionuclide Constituents Feed Vector**				
62	**Analyte**	**Feed Conc. Bq/mol Na**	**Ci**		
63					
64	106Ru	1.17E+05	8.60E+01		
65	113mCd	1.81E+05	1.33E+02		
66	125Sb	2.56E+06	1.88E+03		
67	126Sn	4.08E+04	2.99E+01		
68	129I	1.72E+03	1.26E+00		
69	134Cs	1.96E+06	1.44E+03		
70	137Cs	2.00E+10	1.47E+07		
71	137mBa	6.52E+09	4.78E+06		
72	14C	5.63E+04	4.13E+01		
73	151Sm	3.60E+07	2.64E+04		
74	152Eu	2.07E+04	1.52E+01		
75	154Eu	4.30E+06	3.15E+03		
76	155Eu	1.24E+06	9.11E+02		
77	226Ra	3.48E-01	2.55E-04		
78	227Ac	2.71E+01	1.99E-02		
79	228Ra	4.13E+02	3.03E-01		
80	229Th	1.36E+01	9.96E-03		
81	231Pa	2.85E+02	2.09E-01		
82	232Th	6.63E+01	4.86E-02		
83	232U	3.60E+01	2.64E-02		
84	233U	2.21E+03	1.62E+00		
85	234U	1.57E+03	1.15E+00		
86	235U	6.18E+01	4.53E-02		
87	236U	1.06E+02	7.76E-02		
88	237Np	2.18E+03	1.60E+00		
89	238Pu	1.23E+04	9.04E+00		
90	238U	1.23E+03	8.98E-01		
91	239Pu	1.70E+05	1.25E+02		
92	240Pu	4.42E+04	3.24E+01		
93	241Am	2.75E+06	2.02E+03		
94	241Pu	9.28E+05	6.80E+02		
95	242Cm	1.05E+04	7.69E+00		
96	242Pu	4.68E+00	3.43E-03		
97	243Am	1.80E+03	1.32E+00		
98	243Cm	2.97E+02	2.18E-01		
99	244Cm	7.03E+03	5.16E+00		
100	3H	4.80E+05	3.52E+02		
101	59Ni	9.55E+04	7.00E+01		
102	60Co	3.70E+05	2.71E+02		
103	63Ni	6.66E+06	4.88E+03		
104	79Se	4.60E+03	3.37E+00		
105	90Sr	8.00E+08	5.86E+05		
106	90Y	3.74E+08	2.74E+05		
107	93mNb	1.64E+05	1.20E+02		
108	93Zr	2.66E+05	1.95E+02		
109	99Tc	7.10E+06	5.20E+03		

Attachment B HLW Calculations

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO : 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: B-2

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

	A	B	C	D	E	F	G	H	I	J	K
1	**Table B-1 HLW Chemical Analytes Feed Quantities in kg**										
2	**Analyte**	**Units**	**Tank**								
3			**AW-104**	**AY-101**	**AY-102**	**AZ-101**	**AZ-102**	**C-104**	**C-106**	**C-107**	**Avg**
4	Ag	kg	2.46E+01	2.03E+02	4.67E+02	1.59E+01	1.30E+02	1.05E+03	7.84E+00	2.93E+02	2.74E+02
5	Al	kg	3.41E+03	3.49E+04	5.16E+04	3 94E+04	3.03E+04	8.96E+04	3.82E+02	5.83E+04	3.85E+04
6	As	kg	1.50E+01	1.36E+01	1 40E+01	1.36E+01	2.32E+01	4.84E+01	0.00E+00	9.90E+00	1.72E+01
7	B	kg	8.04E+00	2.17E+01	1.81E+01	8.56E+00	3.01E+01	1.78E+03	1.19E+00	1.10E+01	2.35E+02
8	Ba	kg	8.27E+00	2.81E+02	5.00E+02	1.41E+02	2.00E+02	1.46E+02	1.64E+00	7.27E+02	2.51E+02
9	Be	kg	1.11E+00	3.33E+00	7.10E-01	2.61E+00	3.20E+00	3.79E+01	5.65E-02	1.55E+00	6.31E+00
10	Bi	kg	1.32E+00	1.07E+01	1.73E+01	7.48E-01	9.05E+01	7.01E-01	2.94E+00	1.03E+04	1.30E+03
11	Ca	kg	9.18E+02	1.27E+03	3.47E+03	6.92E+02	1.31E+03	2.97E+03	1.18E+02	1.24E+03	1.50E+03
12	Cd	kg	0.00E+00	8 28E+01	9.01E+01	1.35E+03	4.72E+03	1.02E+03	1.44E+00	9.49E+01	9.19E+02
13	Ce	kg	1.50E+01	3.34E+02	7.59E+02	2.31E+02	3.17E+02	7.05E+01	5.70E+00	7.76E+02	3.14E+02
14	Cl	kg	4.65E+02	1.53E+02	5.67E+01	3.83E+01	7.70E+01	7.95E+02	6.13E+00	8.65E+02	3.07E+02
15	CN	kg	0.00E+00	0.00E+00	1.03E+01	1.42E+00	3.00E+00	1.90E+01	7.80E-02	6.08E+00	4.98E+00
16	Co	kg	3 00E+00	1.74E+01	2.69E+01	9.05E+00	1.11E+01	9.69E+00	3.75E-01	2 64E+01	1.30E+01
17	Cr	kg	1.62E+02	1.34E+03	1.55E+03	2.47E+02	5.50E+02	1.45E+03	3.78E+00	9.26E+02	7.78E+02
18	Cu	kg	1.49E+01	1.35E+02	2 20E+02	6.86E+01	5.25E+01	1.33E+02	2.31E+00	2.27E+02	1.07E+02
19	F	kg	8.53E+02	1.08E+03	4.56E+01	1.23E+03	4.60E+02	3.44E+04	5.41E-01	6.34E+03	5.55E+03
20	Fe	kg	2 31E+03	4.12E+04	8.98E+04	1.92E+04	3.61E+04	2.74E+04	2.07E+02	1.02E+05	3.98E+04
21	Free OH	kg	1.27E+03	4.92E-02	4.43E+01	2.69E+02	4.00E+01	0.00E+00	0.00E+00	0.00E+00	2.03E+02
22	Hg*	kg	1.03E-02	1.63E+01	1.56E+02	9.04E-01	4.98E+00	5.50E+01	1.93E+00	6.66E+01	1.56E+02
23	K	kg	1.79E+03	2.25E+02	5.24E+02	5.00E+02	1.50E+03	1.32E+03	1.77E+01	4.27E+02	7.88E+02
24	La	kg	2.00E+01	1.05E+03	6.15E+02	5.16E+02	1.20E+03	4.84E+01	2.44E+00	2.69E+02	4.65E+02
25	Li	kg	3 11E+00	2.91E+00	3.64E+01	2.03E+01	2.67E+01	6.01E+00	1.13E-01	1 65E+02	3.26E+01
26	Mg	kg	2.00E+02	4.39E+02	7 98E+02	1 27E+02	2.10E+02	2.05E+02	7.10E+00	4.75E+02	3.08E+02
27	Mn	kg	7.92E+02	1.83E+03	1.27E+04	4.27E+02	9.46E+02	6.97E+03	5.49E+02	5.01E+03	3.65E+03
28	Mo	kg	1.31E+01	1.12E+01	9.71E+00	2.04E+01	2.00E+01	2.17E+01	3.05E-01	4.56E+01	1.78E+01
29	Na	kg	3.48E+04	6.62E+04	7.17E+04	2.29E+04	2.70E+04	1.77E+05	1.85E+02	9.47E+04	6.18E+04
30	Nd	kg	1.50E+01	7.73E+02	9.88E+02	6.04E+02	9.06E+02	1.06E+02	9.00E+00	6.31E+02	5.04E+02
31	NH3	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.10E-01	0 00E+00	1 14E-01
32	Ni	kg	6.32E+01	1.69E+03	2.34E+03	7 99E+02	2.44E+03	2.62E+03	3 02E+01	3.08E+03	1.63E+03
33	NO2	kg	8.54E+03	1.60E+04	3.14E+03	9.34E+03	1.60E+04	3.63E+04	4.14E+01	3.51E+04	1.56E+04
34	NO3	kg	1.46E+04	2.08E+03	2.08E+02	7.84E+03	4.30E+03	1.95E+04	3.48E+01	4 75E+04	1.20E+04
35	Oxalate	kg	8.85E+02	2.68E+04	1.38E+03	9.32E+02	1.04E+03	5.58E+03	3.32E+02	3.65E+02	4.66E+03
36	Pb	kg	8.20E+01	9.33E+02	4.24E+03	1 42E+02	7.82E+02	8.32E+02	2.56E+01	1.01E+04	2.14E+03
37	Pd	kg	0 00E+00	0.00E+00	8.69E+00	6.92E+02	0.00E+00	0.00E+00	1.15E+00	0.00E+00	8.77E+01
38	PO4	kg	3.02E+02	2.53E+03	8.64E+03	1.62E+03	1.14E+03	3.19E+03	9.00E+01	5.84E+04	9.49E+03
39	Pr	kg	0.00E+00	0.00E+00	2.80E+02	1.43E+02	0.00E+00	5.71E+01	5.39E+00	2.07E+02	8.65E+01
40	Rb	kg	0.00E+00	7.85E-01	2.11E+00	7.57E+01	0 00E+00	2.18E+02	2.69E-01	8.39E-01	3.72E+01
41	Rh	kg	0.00E+00	1.06E+01	2.02E+01	2.63E+01	0.00E+00	1.21E+02	2.45E+00	4.33E+01	2.80E+01
42	Ru	kg	0.00E+00	0.00E+00	4.12E+02	2.08E+02	0.00E+00	0.00E+00	2.40E+00	9.46E+02	1.96E+02
43	Sb	kg	9 03E+00	0.00E+00	2 51E+00	9.80E-01	9.70E+00	2 91E+01	2.95E-01	2.39E+00	6 75E+00
44	Se	kg	1.53E+01	0.00E+00	5.87E-01	4 41E-01	2.35E+01	4.84E+01	6.24E-02	4.99E+00	1.17E+01
45	Si	kg	4.79E+02	2.01E+00	8.56E+03	1.10E+03	1.82E+03	1.02E+04	1.60E+01	1.86E+03	3.00E+03
46	SO4	kg	8.42E+02	2.80E+00	1.78E+03	7.30E+03	6.50E+03	3.40E+03	3 90E+00	8 38E+03	3.53E+03
47	Sr	kg	4.94E+00	4.50E+02	1.62E+02	1.03E+02	6.15E+01	8.69E+01	1.83E+00	2.56E+02	1.41E+02
48	Ta	kg	0.00E+00	3.48E+03	1.96E+00	1.05E+00	0.00E+00	1 43E+00	2.60E-01	8.43E-01	4.35E+02
49	Te	kg	0.00E+00	6.61E+01	8.84E+01	5.74E+01	0.00E+00	0.00E+00	2.40E+00	1.79E+02	4.92E+01
50	Th	kg	2.53E-02	5.22E+02	6.37E+02	7.42E+01	1.87E+02	3.61E+04	5.09E+00	6.58E+02	4.77E+03
51	Ti	kg	1.60E+01	3.97E+01	1.33E+02	1.85E+01	2.47E+01	9.74E+01	3.85E-01	1.23E+02	5.66E+01
52	TIC as CO3	kg	1.68E+04	1.10E+05	6.82E+04	1.32E+04	8.00E+03	4.82E+04	7.58E+01	1.14E+04	3.45E+04
53	Tl	kg	0.00E+00	8.02E-01	2.81E+00	4.53E-02	0.00E+00	9.69E+01	3.68E-01	5.40E+00	1 33E+01
54	TOC	kg	3.00E+03	7.42E+03	4.11E+03	2.60E+02	2.90E+02	1.41E+04	9.06E+01	7.32E+02	3.75E+03
55	UTOTAL	kg	7.02E+03	5.29E+02	1.73E+03	1 64E+03	7.06E+03	2.87E+04	2.70E+00	9 23E+03	6.99E+03
56	V	kg	7.53E+00	1.19E+01	8.80E+00	6.78E+00	2.33E+00	2.70E+01	2.94E-01	2.50E+01	1.12E+01
57	W	kg	0.00E+00	0.00E+00	0.00E+00	1.10E+01	0 00E+00	0.00E+00	0.00E+00	6.71E+02	8.52E+01
58	Y	kg	1.50E+00	9.06E+01	1.05E+02	3.26E+01	3.03E+01	2.36E+01	1.69E+00	9.43E+01	4.74E+01
59	Zn	kg	2.80E+01	5.39E+01	1.49E+02	2.28E+01	9.89E+01	6.05E+02	2.13E+00	1.76E+02	1.42E+02
60	Zr	kg	2.11E+03	5.88E+02	1.97E+02	5.63E+03	4 56E+03	6.45E+04	2.79E+00	7.37E+01	9.71E+03
61	*Value selected for Hg is the maximum of the tanks analyzed.										

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: B-3

BY: E. Berrios
DATE:12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Feed Vector

	A	B	C	D	E	F	G	H	I	J	K
1	**Table B-2 HLW Radionuclide Feed Quantities in Curies**										
2	**Analyte**	**Units**	**Tank**								
3			**AW-104**	**AY-101**	**AY-102**	**AZ-101**	**AZ-102**	**C-104**	**C-106**	**C-107**	**MAX**
4	106Ru	Ci	1.18E-02	2.98E-02	5.02E-04	5.12E+01	5.90E+00	1.80E-04	4.52E-05	2.08E-03	5.12E+01
5	113mCd	Ci	9.29E-01	1.87E+01	2.97E+00	3.88E+02	1.75E+02	3.10E+00	4.68E+00	3.76E+00	3.88E+02
6	125Sb	Ci	1.43E-01	2.46E+02	2.70E+01	2.94E+03	2.39E+03	7.68E+01	2.02E-01	1.31E+02	2.94E+03
7	126Sn	Ci	2.72E-01	1.38E+00	1.34E+01	5.39E-01	5.80E-01	8.29E-02	1.62E+00	2.21E-01	1.34E+01
8	129I	Ci	1.32E-02	8.40E-02	5.84E-02	3.61E-01	4.50E-03	6.66E-01	6.30E-04	7.15E-01	7.15E-01
9	134Cs	Ci	1.26E-01	1.26E+00	1.67E-02	4.88E+01	1.23E+02	5.41E-02	3.28E-03	1.62E-01	1.23E+02
10	137Cs	Ci	1.44E+04	6.50E+04	2.50E+05	2.43E+05	3.70E+05	8.86E+04	1.45E+03	5.89E+04	3.70E+05
11	137mBa	Ci	1.36E+04	6.14E+04	2.36E+05	2.29E+05	3.50E+05	8.36E+04	1.37E+03	5.56E+04	3.50E+05
12	14C	Ci	2.52E-02	1.21E+00	2.15E-01	3.46E-01	4.00E-01	1.82E+00	8.22E-03	5.56E-01	1.82E+00
13	151Sm	Ci	1.41E+02	2.45E+05	7.37E+04	1.18E+05	2.05E+05	5.73E+04	8.85E+03	6.31E+05	6.31E+05
14	152Eu	Ci	1.59E-02	3.60E+02	6.34E+01	1.42E+02	9.77E+01	1.53E+01	4.57E+00	1.37E+02	3.60E+02
15	154Eu	Ci	1.41E+00	5.62E+03	6.49E+03	1.06E+04	8.57E+03	8.54E+02	8.18E+01	1.25E+03	1.06E+04
16	155Eu	Ci	4.39E-01	2.27E+03	2.60E+03	1.13E+04	1.25E+04	4.38E+02	7.90E+01	6.49E+02	1.25E+04
17	226Ra	Ci	1.56E-06	2.30E-05	2.76E-06	7.73E-05	1.10E-05	1.31E-04	5.16E-04	8.64E-06	5.16E-04
18	227Ac	Ci	1.92E-04	1.89E-03	1.78E-05	3.10E-04	9.20E-05	2.02E+00	2.55E-03	2.86E-03	2.02E+00
19	228Ra	Ci	4.43E-04	7.20E-02	2.25E-02	2.75E-03	6.62E-03	1.48E+00	3.24E-03	2.75E-02	1.48E+00
20	229Th	Ci	7.72E-07	8.70E-06	7.30E-07	5.95E-07	1.92E-07	5.53E-01	1.91E-05	1.45E-02	5.53E-01
21	231Pa	Ci	2.02E-03	1.99E-02	2.98E-05	1.50E-03	4.60E-04	1.70E-01	2.53E-03	5.32E-04	1.70E-01
22	232Th	Ci	2.79E-06	5.74E-02	6.99E-02	8.16E-03	2.06E-02	3.97E+00	5.60E-04	7.24E-02	3.97E+00
23	232U	Ci	2.16E-03	8.04E-04	8.23E-04	2.68E-03	5.67E-03	2.26E+00	5.72E-04	7.61E-02	2.26E+00
24	233U	Ci	6.76E-02	4.70E-02	4.95E-02	1.50E-01	3.03E-01	3.37E+02	1.83E-03	4.72E+00	3.37E+02
25	234U	Ci	3.39E+00	2.08E-01	5.90E-01	7.78E-01	3.16E+00	1.69E+01	9.40E-04	3.12E+00	1.69E+01
26	235U	Ci	1.30E-01	8.86E-03	2.52E-02	2.94E-02	1.27E-01	4.38E-01	3.86E-05	1.34E-01	4.38E-01
27	236U	Ci	3.24E-01	8.14E-03	1.50E-02	7.11E-02	2.64E-01	5.58E-01	1.73E-05	5.11E-02	5.58E-01
28	237Np	Ci	2.05E-03	2.65E+00	3.73E+00	1.35E+01	1.89E+01	3.59E+00	5.41E-02	5.28E-02	1.89E+01
29	238Pu	Ci	4.95E+01	5.92E+01	6.10E+01	1.15E+02	1.95E+02	2.29E+02	2.70E+00	4.43E+01	2.29E+02
30	238U	Ci	2.34E+00	1.77E-01	5.78E-01	5.48E-01	2.35E+00	9.56E+00	9.02E-04	3.08E+00	9.56E+00
31	239Pu	Ci	4.90E+02	6.93E+02	1.59E+03	1.17E+03	1.31E+03	5.18E+03	1.67E+01	2.18E+03	5.18E+03
32	240Pu	Ci	1.38E+02	2.13E+02	3.67E+02	3.31E+02	3.44E+02	1.33E+03	3.57E+00	3.55E+02	1.33E+03
33	241Am	Ci	1.86E+01	1.32E+04	4.98E+03	2.56E+04	2.84E+04	6.34E+03	6.52E+01	6.69E+03	2.84E+04
34	241Pu	Ci	3.54E+03	2.97E+03	2.60E+03	8.16E+03	7.17E+03	1.25E+04	3.98E+01	1.78E+03	1.25E+04
35	242Cm	Ci	5.28E-04	1.96E+01	5.60E+00	1.12E+01	2.48E+01	2.07E+00	1.57E-01	2.62E+00	2.48E+01
36	242Pu	Ci	1.74E-02	3.04E-02	2.46E-02	4.16E-02	3.71E-02	1.24E-01	4.16E-04	1.63E-02	1.24E-01
37	243Am	Ci	1.83E-04	1.18E+01	2.72E+00	9.41E+00	9.39E+00	1.38E+00	3.06E-03	1.88E+00	1.18E+01
38	243Cm	Ci	3.13E-05	1.93E+00	2.12E+00	1.04E+00	2.86E+00	1.84E-01	3.02E-01	1.55E-01	2.86E+00
39	244Cm	Ci	7.43E-04	4.52E+01	5.01E+01	2.41E+01	6.50E+01	4.11E+00	7.26E+00	3.62E+00	6.50E+01
40	3H	Ci	2.01E-01	2.21E+00	3.47E+00	2.18E+00	1.73E+01	4.00E+01	1.02E-02	3.14E+00	4.00E+01
41	59Ni	Ci	1.15E-02	3.01E+01	2.43E+01	1.43E+01	9.86E+00	5.68E+00	1.05E+01	2.81E+00	3.01E+01
42	60Co	Ci	2.20E-01	4.51E+02	7.22E+01	7.40E+02	7.44E+02	1.82E+02	1.82E+01	1.67E+02	7.44E+02
43	63Ni	Ci	1.07E+00	2.81E+03	2.20E+03	1.36E+03	9.35E+02	5.28E+02	7.29E+01	2.61E+02	2.81E+03
44	79Se	Ci	4.61E-02	3.40E-01	5.41E-02	5.32E-01	1.30E-01	5.24E+00	9.57E-03	5.19E-02	5.24E+00
45	90Sr	Ci	5.22E+01	1.94E+06	4.63E+06	5.52E+06	3.91E+06	4.47E+05	6.61E+04	2.08E+06	5.52E+06
46	90Y	Ci	5.22E+01	1.94E+06	4.63E+06	5.52E+06	3.91E+06	4.47E+05	6.61E+04	2.08E+06	5.52E+06
47	93mNb	Ci	8.99E-01	1.13E+02	2.43E+00	4.67E+00	4.90E+00	1.45E+00	9.82E+00	3.72E+00	1.13E+02
48	93Zr	Ci	1.08E+00	2.09E+02	2.93E+00	7.34E+00	8.00E+00	1.79E+00	1.04E+01	4.50E+00	2.09E+02
49	99Tc	Ci	1.07E+01	1.44E+01	2.45E+01	5.03E+01	8.70E+01	5.76E+01	1.65E-01	3.77E+01	8.70E+01

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.:B-4

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

	A	B	C	D	E	F	G	H	I	J
1	**Table B-3 HLW Oxide Mass Calculation**									
2 3	**Analyte**	**Feed Kg**	**MW g/mol**	**Oxide**	**Charge**	**mole O needed for oxide**	**g O needed for oxide**	**SOW max g/100 g oxide**	**Feed grams**	**Feed All kg**
4	Ag	2.74E+02	107 8	Ag2O	1	0.5	2.03E+04	0.55	8.93E+05	8.93E+02
5	Al	3.85E+04	27.0	Al2O3	3	1.5	3.42E+07	14	2.27E+07	2.27E+04
6	As	1.72E+01	74.9	As2O5	5	2 5	9.20E+03	0 160	2.60E+05	2.60E+02
7	B	2.35E+02	10.8	B2O3	3	1.5	5.22E+05	1.3	2.11E+06	2 11E+03
8	Ba	2.51E+02	137.3	BaO	2	1	2 92E+04	4.5	7 30E+06	7.30E+03
9	Be	6.31E+00	9.0	BeO	2	1	1.12E+04	0.065	1.05E+05	1.05E+02
10	Bi	1.30E+03	208 9	Bi2O3	3	0	0 00E+00	-	-	1.30E+03
11	Ca	1.50E+03	40.1	CaO	2	0	0.00E+00	-	-	1.50E+03
12	Cd	9.19E+02	112.4	CdO	2	1	1.31E+05	4.5	7.30E+06	7.30E+03
13	Ce	3.14E+02	140.1	Ce2O3	3	1.5	5.37E+04	0.81	1 31E+06	1.31E+03
14	Cl	3.07E+02	35.5	-	-1	0	0.00E+00	0.33	5.36E+05	5.36E+02
15	CN	4.98E+00	26.0	-	-1	0	0.00E+00	1.6	2.60E+06	2.60E+03
16	Co	1.30E+01	58.9	Co2O3	3	1.5	5.30E+03	0.45	7.30E+05	7.30E+02
17	Cr	7.78E+02	52.0	Cr2O3	3	1.5	3.59E+05	0.68	1.10E+06	1.10E+03
18	Cu	1.07E+02	63.5	CuO	2	1	2 69E+04	0.48	7.79E+05	7.79E+02
19	F	5.55E+03	19.0	-	-1	0	0.00E+00	3.5	5.68E+06	5.68E+03
20	Fe	3 98E+04	55.9	Fe2O3	3	1 5	1.71E+07	29	4.71E+07	4.71E+04
21	Free OH	2.03E+02	17.0	-	-1	0	0.00E+00	-	-	2.03E+02
22	Hg	1.56E+02	200.6	HgO	2	1	1 24E+04	0 1	1.62E+05	1.62E+02
23	K	7 88E+02	39.1	K2O	1	0.5	1.61E+05	1.3	2.11E+06	2 11E+03
24	La	4.65E+02	138.9	La2O3	3	1.5	8.04E+04	2.6	4.22E+06	4.22E+03
25	Li	3.26E+01	6.9	Li2O	1	0.5	3.78E+04	0.14	2.27E+05	2.27E+02
26	Mg	3.08E+02	24.3	MgO	2	1	2 03E+05	2.1	3.41E+06	3 41E+03
27	Mn	3.65E+03	54.9	MnO2	4	2	2.13E+06	6.5	1,05E+07	1 05E+04
28	Mo	1.78E+01	95.9	MoO3	6	3	8.89E+03	0.65	1.05E+06	1.05E+03
29	Na	6.18E+04	22.9	Na2O	1	0	0.00E+00	-	-	6.18E+04
30	Nd	5 04E+02	144.2	Nd2O3	3	1.5	8.39E+04	1.7	2 76E+06	2.76E+03
31	NH3	1 14E-01	17.0	-	0	0	0 00E+00	-	-	1.14E-01
32	Ni	1.63E+03	58.7	NiO	2	1	4.45E+05	2.4	3.89E+06	3.89E+03
33	NO2	1.56E+04	46.0	-	-1	0	0.00E+00	36	5 84E+07	3.30E+04
34	NO3	1 20E+04	62.0	-	-1	0	0.00E+00		5.84E+07	2.54E+04
35	Oxalate	4.66E+03	88.0	-	-2	0	0.00E+00	-	-	4.66E+03
36	Pb	2.14E+03	207 2	PbO	2	1	1.65E+05	1.1	1.79E+06	1.79E+03
37	Pd	8.77E+01	105.4	PdO	2	1	1.33E+04	0.13	2.11E+05	2.11E+02
38	PO4	9 49E+03	95.0	-	-3	0	0.00E+00	-	-	9.49E+03
39	Pr	8.65E+01	140.9	Pr2O3	3	1.5	1.47E+04	0.35	5.68E+05	5.68E+02
40	Rb	3.72E+01	85.5	Rb2O	1	0.5	3.48E+03	0.19	3.08E+05	3.08E+02
41	Rh	2 80E+01	102.9	Rh2O3	3	1.5	6.53E+03	0.13	2.11E+05	2.11E+02
42	Ru	1.96E+02	101.1	Ru2O3	3	1 5	4.65E+04	0.35	5.68E+05	5.68E+02
43	Sb	6.75E+00	121.7	Sb2O5	5	2.5	2 22E+03	0.84	1 36E+06	1.36E+03
44	Se	1 17E+01	78.9	SeO3	6	3	7.09E+03	0.52	8.44E+05	8.44E+02
45	Si	3.00E+03	28.1	SiO2	4	0	0.00E+00	-	-	3 00E+03
46	SO4	3.53E+03	96.1	-	-2	0	0.00E+00	-	-	3.53E+03
47	Sr	1.41E+02	87.6	SrO	2	1	2 57E+04	0.52	8.44E+05	8.44E+02
48	Ta	4 35E+02	180.9	Ta2O5	5	2.5	9.63E+04	0.03	4.87E+04	4.87E+01
49	Te	4.92E+01	127.6	TeO2	4	2	1.23E+04	0.13	2.11E+05	2.11E+02
50	Th	4.77E+03	232.0	ThO2	4	2	6 58E+05	5	8.11E+06	8 11E+03
51	Ti	5.66E+01	47.9	TiO2	4	2	3.78E+04	1 3	2.11E+06	2.11E+03
52	TIC as CO3	3.45E+04	60.0	-		0	0.00E+00	30	4 87E+07	4.87E+04
53	Tl	1.33E+01	204.4	Tl2O3	3	1.5	1.56E+03	0.45	7.30E+05	7.30E+02
54	TOC	3.75E+03	0.0	-		0	0.00E+00	11	1.79E+07	1.79E+04
55	UTOTAL	6.99E+03	238.0	UO3	6	3	1.41E+06	14	2.27E+07	2.27E+04
56	V	1.12E+01	50.9	V2O3	3	1.5	5.28E+03	0.032	5.19E+04	5.19E+01
57	W	8.52E+01	183.9	WO3	6	3	2.23E+04	0 24	3.89E+05	3.89E+02
58	Y	4.74E+01	88.9	Y2O3	3	1.5	1.28E+04	0 16	2.60E+05	2.60E+02
59	Zn	1.42E+02	65.4	ZnO	2	1	3.47E+04	0.42	6.82E+05	6.82E+02
60	Zr	9.71E+03	91.2	ZrO2	4	0	0.00E+00	-	-	9.71E+03

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.:B-5

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

	A	B	C	D	E
61	**Table B-3 HLW Oxide Mass Calculation (continued)**				
62	**Analyte**	**Feed**	**SOW max**	**Feed**	**Feed All**
63		**Ci**	**Ci/100 g**	**Ci**	**Ci**
64	106Ru	5.12E+01	-	-	5.12E+01
65	113mCd	3.88E+02	-	-	3.88E+02
66	125Sb	2.94E+03	3.20E-02	5.19E+04	5.19E+04
67	126Sn	1.34E+01	1.50E-04	2.43E+02	2.43E+02
68	129I	7.15E-01	2.90E-07	4.71E-01	4.71E-01
69	134Cs	1.23E+02	-	-	1.23E+02
70	137Cs	3.70E+05	1.50E+00	2.43E+06	2.43E+06
71	137mBa	3.50E+05	-	-	3.50E+05
72	14C	1.82E+00	6.50E-06	1.05E+01	1.05E+01
73	151Sm	6.31E+05	-	-	6.31E+05
74	152Eu	3.60E+02	4.80E-04	7.79E+02	7.79E+02
75	154Eu	1.06E+04	5.20E-02	8.44E+04	8.44E+04
76	155Eu	1.25E+04	-	-	1.25E+04
77	226Ra	5.16E-04	-	-	5.16E-04
78	227Ac	2.02E+00	-	-	2.02E+00
79	228Ra	1.48E+00	-	-	1.48E+00
80	229Th	5.53E-01	-	-	5.53E-01
81	231Pa	1.70E-01	-	-	1.70E-01
82	232Th	3.97E+00	-	-	3.97E+00
83	232U	2.26E+00	-	-	2.26E+00
84	233U	3.37E+02	2.00E-04	3.25E+02	3.25E+02
85	234U	1.69E+01	-	-	1.69E+01
86	235U	4.38E-01	2.50E-07	4.06E-01	4.06E-01
87	236U	5.58E-01	-	-	5.58E-01
88	237Np	1.89E+01	7.40E-05	1.20E+02	1.20E+02
89	238Pu	2.29E+02	3.50E-04	5.68E+02	5.68E+02
90	238U	9.56E+00	-	-	9.56E+00
91	239Pu	5.18E+03	3.10E-03	5.03E+03	5.03E+03
92	240Pu	1.33E+03	-	-	1.33E+03
93	241Am	2.84E+04	9.00E-02	1.46E+05	1.46E+05
94	241Pu	1.25E+04	2.20E-02	3.57E+04	3.57E+04
95	242Cm	2.48E+01	-	-	2.48E+01
96	242Pu	1.24E-01	-	-	1.24E-01
97	243Am	1.18E+01	-	-	1.18E+01
98	243Cm	2.86E+00	3.00E-03	4.87E+03	2.05E+02
99	244Cm	6.50E+01			4.66E+03
100	3H	4.00E+01	6.50E-05	1.05E+02	1.05E+02
101	59Ni	3.01E+01	-	-	3.01E+01
102	60Co	7.44E+02	1.00E-02	1.62E+04	1.62E+04
103	63Ni	2.81E+03	-	-	2.81E+03
104	79Se	5.24E+00	-	-	5.24E+00
105	90Sr	5.52E+06	1.00E+01	1.62E+07	1.62E+07
106	90Y	5.52E+06	-	-	5.52E+06
107	93mNb	1.13E+02	-	-	1.13E+02
108	93Zr	2.09E+02	-	-	2.09E+02
109	99Tc	8.70E+01	1.50E-02	2.43E+04	2.43E+04
110					
111		Total grams of O		5.82E+07 g	
112		Total grams inorg		1.04E+08 g	
113		Total grams rads		0.00E+00 g	
114		Total oxide mass		1.62E+08 g	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: B-6

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

	A	B	C	E	F	G	H	I	J	K	L	M
1	**Table B-4 HLW Feed Charge Balance**											
2 3	**Analyte**	**Feed Kg**	**MW g/mol**	**Charge**	**mole**	**In ACM**	**mol charge**	**Final Feed Kg**	**Final Feed kgmole**			
4	Ag	2 74E+02	107.8	1	2 54E+03	Y	2,541	2.74E+02	2.54E+00	Total charge		0
5	Al	3.85E+04	27 0	3	1 43E+06	Y	4,276,199	3.85E+04	1.43E+03	Adjust OH		8,329,418
6	As	1 72E+01	74 9	5	2.30E+02	Y	1,150	1.72E+01	2.30E-01			
7	B	2 35E+02	10.8	3	2.17E+04	Y	65,232	2.35E+02	2 17E+01			
8	Ba	2.51E+02	137.3	2	1.82E+03	Y	3,650	2.51E+02	1.82E+00			
9	Be	6.31E+00	9.0	2	7.01E+02	N	0	6.31E+00	7.01E-01			
10	Bi	1 30E+03	208.9	3	6.24E+03	Y	18,713	1.30E+03	6.24E+00			
11	Ca	1 50E+03	40 1	2	3.74E+04	Y	74,772	1.50E+03	3 74E+01			
12	Cd	9.19E+02	112.4	2	8.18E+03	Y	16,354	9.19E+02	8.18E+00			
13	Ce	3 14E+02	140 1	3	2 24E+03	Y	6,713	3.14E+02	2.24E+00			
14	Cl	3.07E+02	35.5	-1	8 65E+03	Y	-8,648	3.07E+02	8.65E+00			
15	CN	4.98E+00	26 0	-1	1.92E+02	N	0	4.98E+00	1.92E-01			
16	Co	1.30E+01	58 9	3	2.21E+02	N	0	1.30E+01	2.21E-01			
17	Cr	7.78E+02	52.0	3	1 50E+04	Y	44,899	7 78E+02	1 50E+01			
18	Cu	1.07E+02	63.5	2	1.68E+03	Y	3,358	1.07E+02	1.68E+00			
19	F	5.55E+03	19 0	-1	2 92E+05	Y	-292,142	5.55E+03	2.92E+02			
20	Fe	3 98E+04	55 9	3	7.12E+05	Y	2,135,087	3.98E+04	7.12E+02			
21	Free OH	2 03E+02	17 0	-1	1 19E+04	Y	-8,341,354	1.42E+05	8 34E+03			
22	Hg	1.56E+02	200.6	2	7.78E+02	Y	1,556	1.56E+02	7.78E-01			
23	K	7.88E+02	39 1	1	2.02E+04	Y	20,153	7 88E+02	2.02E+01			
24	La	4 65E+02	138.9	3	3.35E+03	Y	10,045	4.65E+02	3.35E+00			
25	Li	3 26E+01	6 9	1	4 72E+03	Y	4,720	3.26E+01	4 72E+00			
26	Mg	3 08E+02	24 3	2	1.27E+04	Y	25,323	3.08E+02	1.27E+01			
27	Mn	3.65E+03	54 9	4	6.66E+04	Y	266,265	3.65E+03	6.66E+01			
28	Mo	1 78E+01	95.9	6	1.85E+02	N	0	1 78E+01	1.85E-01			
29	Na	6.18E+04	22.9	1	2 70E+06	Y	2,698,772	6.18E+04	2 70E+03			
30	Nd	5 04E+02	144.2	3	3 50E+03	N	0	5.04E+02	3.50E+00			
31	NH3	1 14E-01	17 0	0	6.69E+00	Y	0	1.14E-01	6 69E-03			
32	Ni	1 63E+03	58.7	2	2.78E+04	Y	55,631	1 63E+03	2 78E+01			
33	NO2	1 56E+04	46 0	-1	3.38E+05	Y	-338,183	1 56E+04	3 38E+02			
34	NO3	1 20E+04	62.0	-1	1 94E+05	Y	-193,636	1 20E+04	1.94E+02			
35	Oxalate	4 66E+03	88 0	-2	5 29E+04	Y	-105,878	4 66E+03	5 29E+01			
36	Pb	2.14E+03	207 2	2	1.03E+04	Y	20,670	2.14E+03	1 03E+01			
37	Pd	8 77E+01	105.4	2	8.32E+02	Y	1,665	8.77E+01	8.32E-01			
38	PO4	9.49E+03	95 0	-3	9.99E+04	Y	-299,641	9.49E+03	9 99E+01			
39	Pr	8.65E+01	140.9	3	6.14E+02	N	0	8.65E+01	6.14E-01			
40	Rb	3.72E+01	85.5	1	4 35E+02	N	0	3 72E+01	4.35E-01			
41	Rh	2.80E+01	102 9	3	2 72E+02	Y	816	2.80E+01	2.72E-01			
42	Ru	1 96E+02	101 1	3	1 94E+03	Y	5,815	1.96E+02	1 94E+00			
43	Sb	6.75E+00	121.7	5	5.55E+01	N	0	6 75E+00	5 55E-02			
44	Se	1 17E+01	78.9	6	1.48E+02	N	0	1.17E+01	1.48E-01			
45	Si	3.00E+03	28 1	4	1 07E+05	Y	427,621	3 00E+03	1.07E+02			
46	SO4	3.53E+03	96 1	-2	3 67E+04	Y	-73,379	3 53E+03	3.67E+01			
47	Sr	1 41E+02	87.6	2	1.61E+03	Y	3,213	1.41E+02	1 61E+00			
48	Ta	4 35E+02	180 9	5	2 41E+03	N	0	4.35E+02	2.41E+00			
49	Te	4.92E+01	127.6	4	3 85E+02	N	0	4.92E+01	3 85E-01			
50	Th	4.77E+03	232 0	4	2.06E+04	N	0	4 77E+03	2 06E+01			
51	Ti	5.66E+01	47.9	4	1 18E+03	Y	4,726	5 66E+01	1.18E+00			
52	TIC as CO3	3.45E+04	60.0	-2	5.75E+05	Y	-1,149,066	3.45E+04	5.75E+02			
53	Tl	1.33E+01	204.4	3	6.50E+01	N	0	1 33E+01	6.50E-02			
54	TOC	3 75E+03	0 0		-	Y	0	3.75E+03	-			
55	UTOTAL	6.99E+03	238.0	6	2 94E+04	Y	176,208	6 99E+03	2.94E+01			
56	V	1 12E+01	50.9	3	2 20E+02	N	0	1 12E+01	2.20E-01			
57	W	8 52E+01	183 9	6	4.64E+02	N	0	8 52E+01	4 64E-01			
58	Y	4.74E+01	88.9	3	5 33E+02	N	0	4.74E+01	5.33E-01			
59	Zn	1 42E+02	65.4	2	2.17E+03	Y	4,340	1 42E+02	2.17E+00			
60	Zr	9.71E+03	91 2	4	1 06E+05	Y	425,720	9 71E+03	1 06E+02			

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: B-7

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

	A	B	C	E	F
62	**Table B-5 HLW Radionuclide Constituents Feed Vector**				
63	**Analyte**	**Units**	**Feed**		
64					
65	106Ru	Ci	5.12E+01		
66	113mCd	Ci	3.88E+02		
67	125Sb	Ci	5.19E+04		
68	126Sn	Ci	2.43E+02		
69	129I	Ci	4.71E-01		
70	134Cs	Ci	1.23E+02		
71	137Cs	Ci	2.43E+06		
72	137mBa	Ci	3.50E+05		
73	14C	Ci	1.05E+01		
74	151Sm	Ci	6.31E+05		
75	152Eu	Ci	7.79E+02		
76	154Eu	Ci	8.44E+04		
77	155Eu	Ci	1.25E+04		
78	226Ra	Ci	5.16E-04		
79	227Ac	Ci	2.02E+00		
80	228Ra	Ci	1.48E+00		
81	229Th	Ci	5.53E-01		
82	231Pa	Ci	1.70E-01		
83	232Th	Ci	3.97E+00		
84	232U	Ci	2.26E+00		
85	233U	Ci	3.25E+02		
86	234U	Ci	1.69E+01		
87	235U	Ci	4.06E-01		
88	236U	Ci	5.58E-01		
89	237Np	Ci	1.20E+02		
90	238Pu	Ci	5.68E+02		
91	238U	Ci	9.56E+00		
92	239Pu	Ci	5.03E+03		
93	240Pu	Ci	1.33E+03		
94	241Am	Ci	1.46E+05		
95	241Pu	Ci	3.57E+04		
96	242Cm	Ci	2.48E+01		
97	242Pu	Ci	1.24E-01		
98	243Am	Ci	1.18E+01		
99	243Cm	Ci	2.05E+02		
100	244Cm	Ci	4.66E+03		
101	3H	Ci	1.05E+02		
102	59Ni	Ci	3.01E+01		
103	60Co	Ci	1.62E+04		
104	63Ni	Ci	2.81E+03		
105	79Se	Ci	5.24E+00		
106	90Sr	Ci	1.62E+07		
107	90Y	Ci	5.52E+06		
108	93mNb	Ci	1.13E+02		
109	93Zr	Ci	2.09E+02		
110	99Tc	Ci	2.43E+04		

Attachment C LAW BBI Data

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-2

BY. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AN-102	106Ru	Salt Cake	A2-SltSlr (Solid)	1.81E-02	Ci
241-AN-102	106Ru	Supernatant	NA	2.00E-05	Ci
241-AN-102	106Ru	Total		1.81E-02	Ci
241-AN-102	113mCd	Salt Cake	A2-SltSlr (Solid)	1.08E+01	Ci
241-AN-102	113mCd	Supernatant	NA	8.72E+01	Ci
241-AN-102	113mCd	Total		9.81E+01	Ci
241-AN-102	125Sb	Salt Cake	A2-SltSlr (Solid)	4.30E+00	Ci
241-AN-102	125Sb	Supernatant	NA	1.24E+01	Ci
241-AN-102	125Sb	Total		1.67E+01	Ci
241-AN-102	126Sn	Salt Cake	A2-SltSlr (Solid)	8.80E-01	Ci
241-AN-102	126Sn	Supernatant	NA	2.55E+01	Ci
241-AN-102	126Sn	Total		2.64E+01	Ci
241-AN-102	129I	Salt Cake	A2-SltSlr (Solid)	8.17E-02	Ci
241-AN-102	129I	Supernatant	NA	4.58E-01	Ci
241-AN-102	129I	Total		5.39E-01	Ci
241-AN-102	134Cs	Salt Cake	A2-SltSlr (Solid)	1.42E+00	Ci
241-AN-102	134Cs	Supernatant	NA	1.15E+01	Ci
241-AN-102	134Cs	Total		1.29E+01	Ci
241-AN-102	137Cs	Salt Cake	A2-SltSlr (Solid)	2.36E+05	Ci
241-AN-102	137Cs	Supernatant	NA	1.36E+06	Ci
241-AN-102	137Cs	Total		1.59E+06	Ci
241-AN-102	137mBa	Salt Cake	A2-SltSlr (Solid)	2.23E+05	Ci
241-AN-102	137mBa	Supernatant	NA	1.28E+06	Ci
241-AN-102	137mBa	Total		1.50E+06	Ci
241-AN-102	14C	Salt Cake	A2-SltSlr (Solid)	1.16E+00	Ci
241-AN-102	14C	Supernatant	NA	2.48E+00	Ci
241-AN-102	14C	Total		3.63E+00	Ci
241-AN-102	151Sm	Salt Cake	A2-SltSlr (Solid)	6.02E+03	Ci
241-AN-102	151Sm	Supernatant	NA	1.33E+04	Ci
241-AN-102	151Sm	Total		1.93E+04	Ci
241-AN-102	152Eu	Salt Cake	A2-SltSlr (Solid)	6.98E-01	Ci
241-AN-102	152Eu	Supernatant	NA	1.47E+00	Ci
241-AN-102	152Eu	Total		2.16E+00	Ci
241-AN-102	154Eu	Salt Cake	A2-SltSlr (Solid)	3.27E+02	Ci
241-AN-102	154Eu	Supernatant	NA	6.22E+02	Ci
241-AN-102	154Eu	Total		9.49E+02	Ci
241-AN-102	155Eu	Salt Cake	A2-SltSlr (Solid)	1.35E+02	Ci
241-AN-102	155Eu	Supernatant	NA	3.90E+01	Ci
241-AN-102	155Eu	Total		1.74E+02	Ci
241-AN-102	226Ra	Salt Cake	A2-SltSlr (Solid)	1.82E-05	Ci
241-AN-102	226Ra	Supernatant	NA	1.47E-04	Ci
241-AN-102	226Ra	Total		1.65E-04	Ci
241-AN-102	227Ac	Salt Cake	A2-SltSlr (Solid)	2.24E-03	Ci
241-AN-102	227Ac	Supernatant	NA	1.81E-02	Ci
241-AN-102	227Ac	Total		2.03E-02	Ci
241-AN-102	228Ra	Salt Cake	A2-SltSlr (Solid)	1.09E-02	Ci
241-AN-102	228Ra	Supernatant	NA	4.19E-02	Ci
241-AN-102	228Ra	Total		5.27E-02	Ci
241-AN-102	229Th	Salt Cake	A2-SltSlr (Solid)	8.99E-06	Ci
241-AN-102	229Th	Supernatant	NA	7.26E-05	Ci
241-AN-102	229Th	Total		8.16E-05	Ci
241-AN-102	231Pa	Salt Cake	A2-SltSlr (Solid)	2.35E-02	Ci
241-AN-102	231Pa	Supernatant	NA	1.90E-01	Ci
241-AN-102	231Pa	Total		2.13E-01	Ci
241-AN-102	232Th	Salt Cake	A2-SltSlr (Solid)	1.79E-02	Ci
241-AN-102	232Th	Supernatant	NA	7.85E-04	Ci
241-AN-102	232Th	Total		1.87E-02	Ci
241-AN-102	232U	Salt Cake	A2-SltSlr (Solid)	8.80E-03	Ci
241-AN-102	232U	Supernatant	NA	1.74E-03	Ci
241-AN-102	232U	Total		1.05E-02	Ci
241-AN-102	233U	Salt Cake	A2-SltSlr (Solid)	5.40E-01	Ci
241-AN-102	233U	Supernatant	NA	1.07E-01	Ci
241-AN-102	233U	Total		6.47E-01	Ci
241-AN-102	234U	Salt Cake	A2-SltSlr (Solid)	3.82E-01	Ci
241-AN-102	234U	Supernatant	NA	7.56E-02	Ci
241-AN-102	234U	Total		4.58E-01	Ci
241-AN-102	235U	Salt Cake	A2-SltSlr (Solid)	1.51E-02	Ci
241-AN-102	235U	Supernatant	NA	2.99E-03	Ci

Summary		
106Ru	2.00E-05	Ci
113mCd	8.72E+01	Ci
125Sb	1.24E+01	Ci
126Sn	2.55E+01	Ci
129I	4.58E-01	Ci
134Cs	1.15E+01	Ci
137Cs	1.36E+06	Ci
137mBa	1.28E+06	Ci
14C	2.48E+00	Ci
151Sm	1.33E+04	Ci
152Eu	1.47E+00	Ci
154Eu	6.22E+02	Ci
155Eu	3.90E+01	Ci
226Ra	1.47E-04	Ci
227Ac	1.81E-02	Ci
228Ra	4.19E-02	Ci
229Th	7.26E-05	Ci
231Pa	1.90E-01	Ci
232Th	7.85E-04	Ci
232U	1.74E-03	Ci
233U	1.07E-01	Ci
234U	7.56E-02	Ci
235U	2.99E-03	Ci
236U	5.12E-03	Ci
237Np	1.89E-01	Ci
238Pu	1.20E+00	Ci
238U	5.92E-02	Ci
239Pu	1.65E+01	Ci
240Pu	4.29E+00	Ci
241Am	5.63E+02	Ci
241Pu	7.53E+01	Ci
242Cm	1.10E+00	Ci
242Pu	4.54E-04	Ci
243Am	3.69E-01	Ci
243Cm	6.08E-02	Ci
244Cm	1.44E+00	Ci
3H	1.90E+00	Ci
59Ni	9.31E-01	Ci
60Co	1.83E+02	Ci
63Ni	8.67E+01	Ci
79Se	2.13E+00	Ci
90Sr	2.74E+05	Ci
90Y	2.74E+05	Ci
93mNb	8.45E+01	Ci
93Zr	1.02E+02	Ci
99Tc	4.93E+02	Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.. 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-3

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AN-102	235U	Total		1.81E-02	Ci	
241-AN-102	236U	Salt Cake	A2-SltSlr (Solid)	2.59E-02	Ci	
241-AN-102	236U	Supernatant	NA	5.12E-03	Ci	
241-AN-102	236U	Total		3.10E-02	Ci	
241-AN-102	237Np	Salt Cake	A2-SltSlr (Solid)	1.47E-01	Ci	
241-AN-102	237Np	Supernatant	NA	1.89E-01	Ci	
241-AN-102	237Np	Total		3.36E-01	Ci	
241-AN-102	238Pu	Salt Cake	A2-SltSlr (Solid)	2.62E+00	Ci	
241-AN-102	238Pu	Supernatant	NA	1.20E+00	Ci	
241-AN-102	238Pu	Total		3.82E+00	Ci	
241-AN-102	238U	Salt Cake	A2-SltSlr (Solid)	3.00E-01	Ci	
241-AN-102	238U	Supernatant	NA	5.92E-02	Ci	
241-AN-102	238U	Total		3.59E-01	Ci	
241-AN-102	239Pu	Salt Cake	A2-SltSlr (Solid)	3.61E+01	Ci	
241-AN-102	239Pu	Supernatant	NA	1.65E+01	Ci	
241-AN-102	239Pu	Total		5.26E+01	Ci	
241-AN-102	240Pu	Salt Cake	A2-SltSlr (Solid)	9.40E+00	Ci	
241-AN-102	240Pu	Supernatant	NA	4.29E+00	Ci	
241-AN-102	240Pu	Total		1.37E+01	Ci	
241-AN-102	241Am	Salt Cake	A2-SltSlr (Solid)	5.35E+02	Ci	
241-AN-102	241Am	Supernatant	NA	5.63E+02	Ci	
241-AN-102	241Am	Total		1.10E+03	Ci	
241-AN-102	241Pu	Salt Cake	A2-SltSlr (Solid)	1.65E+02	Ci	
241-AN-102	241Pu	Supernatant	NA	7.53E+01	Ci	
241-AN-102	241Pu	Total		2.40E+02	Ci	
241-AN-102	242Cm	Salt Cake	A2-SltSlr (Solid)	1.48E-01	Ci	
241-AN-102	242Cm	Supernatant	NA	1.10E+00	Ci	
241-AN-102	242Cm	Total		1.25E+00	Ci	
241-AN-102	242Pu	Salt Cake	A2-SltSlr (Solid)	9.95E-04	Ci	
241-AN-102	242Pu	Supernatant	NA	4.54E-04	Ci	
241-AN-102	242Pu	Total		1.45E-03	Ci	
241-AN-102	243Am	Salt Cake	A2-SltSlr (Solid)	3.79E-01	Ci	
241-AN-102	243Am	Supernatant	NA	3.69E-01	Ci	
241-AN-102	243Am	Total		7.48E-01	Ci	
241-AN-102	243Cm	Salt Cake	A2-SltSlr (Solid)	8.16E-03	Ci	
241-AN-102	243Cm	Supernatant	NA	6.08E-02	Ci	
241-AN-102	243Cm	Total		6.89E-02	Ci	
241-AN-102	244Cm	Salt Cake	A2-SltSlr (Solid)	1.93E-01	Ci	
241-AN-102	244Cm	Supernatant	NA	1.44E+00	Ci	
241-AN-102	244Cm	Total		1.63E+00	Ci	
241-AN-102	3H	Salt Cake	A2-SltSlr (Solid)	9.80E-01	Ci	
241-AN-102	3H	Supernatant	NA	1.90E+00	Ci	
241-AN-102	3H	Total		2.88E+00	Ci	
241-AN-102	59Ni	Salt Cake	A2-SltSlr (Solid)	3.84E+00	Ci	
241-AN-102	59Ni	Supernatant	NA	9.31E-01	Ci	
241-AN-102	59Ni	Total		4.77E+00	Ci	
241-AN-102	60Co	Salt Cake	A2-SltSlr (Solid)	5.19E+01	Ci	
241-AN-102	60Co	Supernatant	NA	1.83E+02	Ci	
241-AN-102	60Co	Total		2.35E+02	Ci	
241-AN-102	63Ni	Salt Cake	A2-SltSlr (Solid)	3.59E+02	Ci	
241-AN-102	63Ni	Supernatant	NA	8.67E+01	Ci	
241-AN-102	63Ni	Total		4.45E+02	Ci	
241-AN-102	79Se	Salt Cake	A2-SltSlr (Solid)	1.93E-01	Ci	
241-AN-102	79Se	Supernatant	NA	2.13E+00	Ci	
241-AN-102	79Se	Total		2.32E+00	Ci	
241-AN-102	90Sr	Salt Cake	A2-SltSlr (Solid)	1.22E+05	Ci	
241-AN-102	90Sr	Supernatant	NA	2.74E+05	Ci	
241-AN-102	90Sr	Total		3.96E+05	Ci	
241-AN-102	90Y	Salt Cake	A2-SltSlr (Solid)	1.22E+05	Ci	
241-AN-102	90Y	Supernatant	NA	2.74E+05	Ci	
241-AN-102	90Y	Total		3.96E+05	Ci	
241-AN-102	93mNb	Salt Cake	A2-SltSlr (Solid)	1.05E+01	Ci	
241-AN-102	93mNb	Supernatant	NA	8.45E+01	Ci	
241-AN-102	93mNb	Total		9.50E+01	Ci	
241-AN-102	93Zr	Salt Cake	A2-SltSlr (Solid)	1.26E+01	Ci	
241-AN-102	93Zr	Supernatant	NA	1.02E+02	Ci	
241-AN-102	93Zr	Total		1.15E+02	Ci	
241-AN-102	99Tc	Salt Cake	A2-SltSlr (Solid)	1.20E+02	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-4

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AN-102	99Tc	Supernatant	NA	4.93E+02	Ci
241-AN-102	99Tc	Total		6.13E+02	Ci
241-AN-102	Ag	Salt Cake	A2-SltSlr (Solid)	1.45E+00	kg
241-AN-102	Ag	Supernatant	NA	9.56E+00	kg
241-AN-102	Ag	Total		1.10E+01	kg
241-AN-102	Al	Salt Cake	A2-SltSlr (Solid)	1.08E+04	kg
241-AN-102	Al	Supernatant	NA	4.56E+04	kg
241-AN-102	Al	Total		5.64E+04	kg
241-AN-102	As	Salt Cake	A2-SltSlr (Solid)	4.49E+01	kg
241-AN-102	As	Supernatant	NA	8.97E+01	kg
241-AN-102	As	Total		1.35E+02	kg
241-AN-102	B	Salt Cake	A2-SltSlr (Solid)	3.45E+01	kg
241-AN-102	B	Supernatant	NA	1.39E+02	kg
241-AN-102	B	Total		1.73E+02	kg
241-AN-102	Ba	Salt Cake	A2-SltSlr (Solid)	2.32E+01	kg
241-AN-102	Ba	Supernatant	NA	1.39E+01	kg
241-AN-102	Ba	Total		3.71E+01	kg
241-AN-102	Be	Salt Cake	A2-SltSlr (Solid)	6.49E-01	kg
241-AN-102	Be	Supernatant	NA	2.33E+00	kg
241-AN-102	Be	Total		2.98E+00	kg
241-AN-102	Bi	Salt Cake	A2-SltSlr (Solid)	1.26E+01	kg
241-AN-102	Bi	Supernatant	NA	9.00E+01	kg
241-AN-102	Bi	Total		1.03E+02	kg
241-AN-102	Ca	Salt Cake	A2-SltSlr (Solid)	3.62E+02	kg
241-AN-102	Ca	Supernatant	NA	1.34E+03	kg
241-AN-102	Ca	Total		1.70E+03	kg
241-AN-102	Cd	Salt Cake	A2-SltSlr (Solid)	3.17E+01	kg
241-AN-102	Cd	Supernatant	NA	1.95E+02	kg
241-AN-102	Cd	Total		2.27E+02	kg
241-AN-102	Ce	Salt Cake	A2-SltSlr (Solid)	3.40E+01	kg
241-AN-102	Ce	Supernatant	NA	3.67E+01	kg
241-AN-102	Ce	Total		7.07E+01	kg
241-AN-102	Cl	Salt Cake	A2-SltSlr (Solid)	1.07E+03	kg
241-AN-102	Cl	Supernatant	NA	1.33E+04	kg
241-AN-102	Cl	Total		1.44E+04	kg
241-AN-102	Co	Salt Cake	A2-SltSlr (Solid)	7.30E+00	kg
241-AN-102	Co	Supernatant	NA	2.22E+01	kg
241-AN-102	Co	Total		2.95E+01	kg
241-AN-102	Cr	Salt Cake	A2-SltSlr (Solid)	1.29E+03	kg
241-AN-102	Cr	Supernatant	NA	8.13E+02	kg
241-AN-102	Cr	Total		2.10E+03	kg
241-AN-102	Cu	Salt Cake	A2-SltSlr (Solid)	1.68E+01	kg
241-AN-102	Cu	Supernatant	NA	7.85E+01	kg
241-AN-102	Cu	Total		9.53E+01	kg
241-AN-102	F	Salt Cake	A2-SltSlr (Solid)	4.97E+02	kg
241-AN-102	F	Supernatant	NA	2.22E+02	kg
241-AN-102	F	Total		7.19E+02	kg
241-AN-102	Fe	Salt Cake	A2-SltSlr (Solid)	1.57E+03	kg
241-AN-102	Fe	Supernatant	NA	1.14E+02	kg
241-AN-102	Fe	Total		1.68E+03	kg
241-AN-102	Free OH	Salt Cake	A2-SltSlr (Solid)	3.48E+04	kg
241-AN-102	Free OH	Supernatant	NA	3.07E+04	kg
241-AN-102	Free OH	Total		6.55E+04	kg
241-AN-102	Hg	Salt Cake	A2-SltSlr (Solid)	4.44E-01	kg
241-AN-102	Hg	Supernatant	NA	1.76E-01	kg
241-AN-102	Hg	Total		6.20E-01	kg
241-AN-102	K	Salt Cake	A2-SltSlr (Solid)	1.09E+03	kg
241-AN-102	K	Supernatant	NA	7.52E+03	kg
241-AN-102	K	Total		8.61E+03	kg
241-AN-102	La	Salt Cake	A2-SltSlr (Solid)	3.32E+01	kg
241-AN-102	La	Supernatant	NA	5.01E+01	kg
241-AN-102	La	Total		8.34E+01	kg
241-AN-102	Li	Salt Cake	A2-SltSlr (Solid)	1.39E+01	kg
241-AN-102	Li	Supernatant	NA	3.11E+00	kg
241-AN-102	Li	Total		1.70E+01	kg
241-AN-102	Mg	Salt Cake	A2-SltSlr (Solid)	4.49E+01	kg
241-AN-102	Mg	Supernatant	NA	6.94E+01	kg
241-AN-102	Mg	Total		1.14E+02	kg

Summary	
Summary	
Ag	9.56E+00 kg
Al	4.56E+04 kg
As	8.97E+01 kg
B	1.39E+02 kg
Ba	1.39E+01 kg
Be	2.33E+00 kg
Bi	9.00E+01 kg
Ca	1.34E+03 kg
Cd	1.95E+02 kg
Ce	3.67E+01 kg
Cl	1.33E+04 kg
CN	0.00E+00 kg
Co	2.22E+01 kg
Cr	8.13E+02 kg
Cu	7.85E+01 kg
F	2.22E+02 kg
Fe	1.14E+02 kg
Free OH	3.07E+04 kg
Hg	1.76E-01 kg
K	7.52E+03 kg
La	5.01E+01 kg
Li	3.11E+00 kg
Mg	6.94E+01 kg
Mn	6.44E+01 kg
Mo	1.68E+02 kg
Na	7.17E+05 kg
Nd	7.67E+01 kg
NH3	4.65E+02 kg
Ni	1.32E+03 kg
NO2	3.02E+05 kg
NO3	7.24E+05 kg
Oxalate	2.73E+03 kg
Pb	5.50E+02 kg
Pd	0.00E+00 kg
PO4	1.80E+04 kg
Pr	0.00E+00 kg
Rb	0.00E+00 kg
Rh	0.00E+00 kg
Ru	0.00E+00 kg
Sb	7.25E-01 kg
Se	9.03E+01 kg
Si	7.76E+01 kg
SO4	4.88E+04 kg
Sr	7.99E+00 kg
Ta	0.00E+00 kg
Te	0.00E+00 kg
Th	7.15E+00 kg
Ti	2.23E+00 kg
TIC as CO3	2.12E+05 kg
Tl	6.69E+00 kg
TOC	8.37E+04 kg
UTOTAL	1.78E+02 kg
V	9.00E+00 kg
W	0.00E+00 kg
Y	2.78E+00 kg
Zn	9.13E+00 kg
Zr	2.60E+01 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-5

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AN-102	Mn	Salt Cake	A2-SltSlr (Solid)	3.62E+02	kg	
241-AN-102	Mn	Supernatant	NA	6.44E+01	kg	
241-AN-102	Mn	Total		4.27E+02	kg	
241-AN-102	Mo	Salt Cake	A2-SltSlr (Solid)	2.80E+01	kg	
241-AN-102	Mo	Supernatant	NA	1.68E+02	kg	
241-AN-102	Mo	Total		1.96E+02	kg	
241-AN-102	Na	Salt Cake	A2-SltSlr (Solid)	1.47E+05	kg	
241-AN-102	Na	Supernatant	NA	7.17E+05	kg	
241-AN-102	Na	Total		8.64E+05	kg	
241-AN-102	Nd	Salt Cake	A2-SltSlr (Solid)	6.51E+01	kg	
241-AN-102	Nd	Supernatant	NA	7.67E+01	kg	
241-AN-102	Nd	Total		1.42E+02	kg	
241-AN-102	NH3	Salt Cake	A2-SltSlr (Solid)	3.70E+01	kg	
241-AN-102	NH3	Supernatant	NA	4.65E+02	kg	
241-AN-102	NH3	Total		5.02E+02	kg	
241-AN-102	Ni	Salt Cake	A2-SltSlr (Solid)	2.20E+02	kg	
241-AN-102	Ni	Supernatant	NA	1.32E+03	kg	
241-AN-102	Ni	Total		1.54E+03	kg	
241-AN-102	NO2	Salt Cake	A2-SltSlr (Solid)	8.35E+04	kg	
241-AN-102	NO2	Supernatant	NA	3.02E+05	kg	
241-AN-102	NO2	Total		3.86E+05	kg	
241-AN-102	NO3	Salt Cake	A2-SltSlr (Solid)	1.98E+05	kg	
241-AN-102	NO3	Supernatant	NA	7.24E+05	kg	
241-AN-102	NO3	Total		9.23E+05	kg	
241-AN-102	Oxalate	Salt Cake	A2-SltSlr (Solid)	1.05E+04	kg	
241-AN-102	Oxalate	Supernatant	NA	2.73E+03	kg	
241-AN-102	Oxalate	Total		1.32E+04	kg	
241-AN-102	Pb	Salt Cake	A2-SltSlr (Solid)	2.12E+02	kg	
241-AN-102	Pb	Supernatant	NA	5.50E+02	kg	
241-AN-102	Pb	Total		7.63E+02	kg	
241-AN-102	PO4	Salt Cake	A2-SltSlr (Solid)	7.10E+03	kg	
241-AN-102	PO4	Supernatant	NA	1.80E+04	kg	
241-AN-102	PO4	Total		2.51E+04	kg	
241-AN-102	Sb	Salt Cake	A2-SltSlr (Solid)	2.64E+01	kg	
241-AN-102	Sb	Supernatant	NA	7.25E-01	kg	
241-AN-102	Sb	Total		2.71E+01	kg	
241-AN-102	Se	Salt Cake	A2-SltSlr (Solid)	4.50E+01	kg	
241-AN-102	Se	Supernatant	NA	9.03E+01	kg	
241-AN-102	Se	Total		1.35E+02	kg	
241-AN-102	Si	Salt Cake	A2-SltSlr (Solid)	1.46E+02	kg	
241-AN-102	Si	Supernatant	NA	7.76E+01	kg	
241-AN-102	Si	Total		2.24E+02	kg	
241-AN-102	SO4	Salt Cake	A2-SltSlr (Solid)	1.51E+04	kg	
241-AN-102	SO4	Supernatant	NA	4.88E+04	kg	
241-AN-102	SO4	Total		6.38E+04	kg	
241-AN-102	Sr	Salt Cake	A2-SltSlr (Solid)	3.94E+00	kg	
241-AN-102	Sr	Supernatant	NA	7.99E+00	kg	
241-AN-102	Sr	Total		1.19E+01	kg	
241-AN-102	Th	Salt Cake	A2-SltSlr (Solid)	1.63E+02	kg	
241-AN-102	Th	Supernatant	NA	7.15E+00	kg	
241-AN-102	Th	Total		1.70E+02	kg	
241-AN-102	Ti	Salt Cake	A2-SltSlr (Solid)	4.41E+00	kg	
241-AN-102	Ti	Supernatant	NA	2.23E+00	kg	
241-AN-102	Ti	Total		6.64E+00	kg	
241-AN-102	TIC as CO3	Salt Cake	A2-SltSlr (Solid)	6.55E+04	kg	
241-AN-102	TIC as CO3	Supernatant	NA	2.12E+05	kg	
241-AN-102	TIC as CO3	Total		2.78E+05	kg	
241-AN-102	Tl	Salt Cake	A2-SltSlr (Solid)	8.84E+01	kg	
241-AN-102	Tl	Supernatant	NA	6.69E+00	kg	
241-AN-102	Tl	Total		9.51E+01	kg	
241-AN-102	TOC	Salt Cake	A2-SltSlr (Solid)	2.07E+04	kg	
241-AN-102	TOC	Supernatant	NA	8.37E+04	kg	
241-AN-102	TOC	Total		1.04E+05	kg	
241-AN-102	UTOTAL	Salt Cake	A2-SltSlr (Solid)	8.99E+02	kg	
241-AN-102	UTOTAL	Supernatant	NA	1.78E+02	kg	
241-AN-102	UTOTAL	Total		1.08E+03	kg	
241-AN-102	V	Salt Cake	A2-SltSlr (Solid)	7.29E+00	kg	
241-AN-102	V	Supernatant	NA	9.00E+00	kg	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-6

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AN-102	V	Total		1.63E+01	kg
241-AN-102	Y	Salt Cake	A2-SltSlr (Solid)	9.08E+00	kg
241-AN-102	Y	Supernatant	NA	2.78E+00	kg
241-AN-102	Y	Total		1.19E+01	kg
241-AN-102	Zn	Salt Cake	A2-SltSlr (Solid)	1.56E+01	kg
241-AN-102	Zn	Supernatant	NA	9.13E+00	kg
241-AN-102	Zn	Total		2.48E+01	kg
241-AN-102	Zr	Salt Cake	A2-SltSlr (Solid)	3.34E+02	kg
241-AN-102	Zr	Supernatant	NA	2.60E+01	kg
241-AN-102	Zr	Total		3.60E+02	kg

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AN-103	106Ru	Supernatant	A2-SltSlr (Liquid)	1.07E-05	Ci
241-AN-103	106Ru	Salt Cake	A2-SltSlr (Solid)	5.76E-02	Ci
241-AN-103	106Ru	Total		5.76E-02	Ci
241-AN-103	113mCd	Supernatant	A2-SltSlr (Liquid)	4.66E+01	Ci
241-AN-103	113mCd	Salt Cake	A2-SltSlr (Solid)	3.45E+01	Ci
241-AN-103	113mCd	Total		8.11E+01	Ci
241-AN-103	125Sb	Supernatant	A2-SltSlr (Liquid)	6.60E+00	Ci
241-AN-103	125Sb	Salt Cake	A2-SltSlr (Solid)	1.37E+01	Ci
241-AN-103	125Sb	Total		2.03E+01	Ci
241-AN-103	126Sn	Supernatant	A2-SltSlr (Liquid)	1.67E+01	Ci
241-AN-103	126Sn	Salt Cake	A2-SltSlr (Solid)	2.80E+00	Ci
241-AN-103	126Sn	Total		1.95E+01	Ci
241-AN-103	129I	Supernatant	A2-SltSlr (Liquid)	7.16E-01	Ci
241-AN-103	129I	Salt Cake	A2-SltSlr (Solid)	5.03E-01	Ci
241-AN-103	129I	Total		1.22E+00	Ci
241-AN-103	134Cs	Supernatant	A2-SltSlr (Liquid)	6.13E+00	Ci
241-AN-103	134Cs	Salt Cake	A2-SltSlr (Solid)	4.53E+00	Ci
241-AN-103	134Cs	Total		1.07E+01	Ci
241-AN-103	137Cs	Supernatant	A2-SltSlr (Liquid)	1.19E+06	Ci
241-AN-103	137Cs	Salt Cake	A2-SltSlr (Solid)	5.40E+05	Ci
241-AN-103	137Cs	Total		1.73E+06	Ci
241-AN-103	137mBa	Supernatant	A2-SltSlr (Liquid)	1.13E+06	Ci
241-AN-103	137mBa	Salt Cake	A2-SltSlr (Solid)	5.10E+05	Ci
241-AN-103	137mBa	Total		1.64E+06	Ci
241-AN-103	14C	Supernatant	A2-SltSlr (Liquid)	6.55E-01	Ci
241-AN-103	14C	Salt Cake	A2-SltSlr (Solid)	1.34E+01	Ci
241-AN-103	14C	Total		1.41E+01	Ci
241-AN-103	151Sm	Supernatant	A2-SltSlr (Liquid)	7.08E+03	Ci
241-AN-103	151Sm	Salt Cake	A2-SltSlr (Solid)	1.92E+04	Ci
241-AN-103	151Sm	Total		2.63E+04	Ci
241-AN-103	152Eu	Supernatant	A2-SltSlr (Liquid)	7.83E-01	Ci
241-AN-103	152Eu	Salt Cake	A2-SltSlr (Solid)	2.22E+00	Ci
241-AN-103	152Eu	Total		3.01E+00	Ci
241-AN-103	154Eu	Supernatant	A2-SltSlr (Liquid)	5.78E+01	Ci
241-AN-103	154Eu	Salt Cake	A2-SltSlr (Solid)	1.07E+02	Ci
241-AN-103	154Eu	Total		1.65E+02	Ci
241-AN-103	155Eu	Supernatant	A2-SltSlr (Liquid)	2.08E+01	Ci
241-AN-103	155Eu	Salt Cake	A2-SltSlr (Solid)	5.92E+01	Ci
241-AN-103	155Eu	Total		8.01E+01	Ci
241-AN-103	226Ra	Supernatant	A2-SltSlr (Liquid)	7.83E-05	Ci
241-AN-103	226Ra	Salt Cake	A2-SltSlr (Solid)	5.80E-05	Ci
241-AN-103	226Ra	Total		1.36E-04	Ci
241-AN-103	227Ac	Supernatant	A2-SltSlr (Liquid)	9.64E-03	Ci
241-AN-103	227Ac	Salt Cake	A2-SltSlr (Solid)	7.13E-03	Ci
241-AN-103	227Ac	Total		1.68E-02	Ci
241-AN-103	228Ra	Supernatant	A2-SltSlr (Liquid)	2.23E-02	Ci
241-AN-103	228Ra	Salt Cake	A2-SltSlr (Solid)	1.65E-02	Ci
241-AN-103	228Ra	Total		3.87E-02	Ci
241-AN-103	229Th	Supernatant	A2-SltSlr (Liquid)	3.88E-05	Ci
241-AN-103	229Th	Salt Cake	A2-SltSlr (Solid)	2.87E-05	Ci
241-AN-103	229Th	Total		6.74E-05	Ci
241-AN-103	231Pa	Supernatant	A2-SltSlr (Liquid)	1.01E-01	Ci
241-AN-103	231Pa	Salt Cake	A2-SltSlr (Solid)	7.49E-02	Ci
241-AN-103	231Pa	Total		1.76E-01	Ci
241-AN-103	232Th	Supernatant	A2-SltSlr (Liquid)	1.40E-04	Ci

Summary		
106Ru	5.76E-02	Ci
113mCd	8.11E+01	Ci
125Sb	2.03E+01	Ci
126Sn	1.95E+01	Ci
129I	1.22E+00	Ci
134Cs	1.07E+01	Ci
137Cs	1.73E+06	Ci
137mBa	1.64E+06	Ci
14C	1.41E+01	Ci
151Sm	2.63E+04	Ci
152Eu	3.01E+00	Ci
154Eu	1.65E+02	Ci
155Eu	8.01E+01	Ci
226Ra	1.36E-04	Ci
227Ac	1.68E-02	Ci
228Ra	3.87E-02	Ci
229Th	6.74E-05	Ci
231Pa	1.76E-01	Ci
232Th	2.44E-04	Ci
232U	1.18E-03	Ci
233U	7.21E-02	Ci
234U	5.11E-02	Ci
235U	2.02E-03	Ci
236U	3.46E-03	Ci
237Np	5.11E-01	Ci
238Pu	2.98E-01	Ci
238U	4.00E-02	Ci
239Pu	4.11E+00	Ci
240Pu	1.07E+00	Ci
241Am	2.08E+01	Ci
241Pu	1.88E+01	Ci
242Cm	2.49E-02	Ci
242Pu	1.13E-04	Ci
243Am	1.37E-02	Ci
243Cm	1.38E-03	Ci
244Cm	3.26E-02	Ci
3H	7.04E+00	Ci
59Ni	1.27E+01	Ci
60Co	2.39E+01	Ci
63Ni	1.19E+03	Ci
79Se	2.33E+00	Ci
90Sr	5.87E+03	Ci
90Y	5.87E+03	Ci
93mNb	7.86E+01	Ci
93Zr	9.47E+01	Ci
99Tc	6.74E+02	Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-7

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AN-103	232Th	Salt Cake	A2-SltSlr (Solid)	1.03E-04	Ci	
241-AN-103	232Th	Total		2.44E-04	Ci	
241-AN-103	232U	Supernatant	A2-SltSlr (Liquid)	3.40E-05	Ci	
241-AN-103	232U	Salt Cake	A2-SltSlr (Solid)	1.14E-03	Ci	
241-AN-103	232U	Total		1.18E-03	Ci	
241-AN-103	233U	Supernatant	A2-SltSlr (Liquid)	2.09E-03	Ci	
241-AN-103	233U	Salt Cake	A2-SltSlr (Solid)	7.01E-02	Ci	
241-AN-103	233U	Total		7.21E-02	Ci	
241-AN-103	234U	Supernatant	A2-SltSlr (Liquid)	1.48E-03	Ci	
241-AN-103	234U	Salt Cake	A2-SltSlr (Solid)	4.96E-02	Ci	
241-AN-103	234U	Total		5.11E-02	Ci	
241-AN-103	235U	Supernatant	A2-SltSlr (Liquid)	5.84E-05	Ci	
241-AN-103	235U	Salt Cake	A2-SltSlr (Solid)	1.96E-03	Ci	
241-AN-103	235U	Total		2.02E-03	Ci	
241-AN-103	236U	Supernatant	A2-SltSlr (Liquid)	1.00E-04	Ci	
241-AN-103	236U	Salt Cake	A2-SltSlr (Solid)	3.36E-03	Ci	
241-AN-103	236U	Total		3.46E-03	Ci	
241-AN-103	237Np	Supernatant	A2-SltSlr (Liquid)	4.14E-02	Ci	
241-AN-103	237Np	Salt Cake	A2-SltSlr (Solid)	4.69E-01	Ci	
241-AN-103	237Np	Total		5.11E-01	Ci	
241-AN-103	238Pu	Supernatant	A2-SltSlr (Liquid)	3.50E-02	Ci	
241-AN-103	238Pu	Salt Cake	A2-SltSlr (Solid)	2.63E-01	Ci	
241-AN-103	238Pu	Total		2.98E-01	Ci	
241-AN-103	238U	Supernatant	A2-SltSlr (Liquid)	1.16E-03	Ci	
241-AN-103	238U	Salt Cake	A2-SltSlr (Solid)	3.88E-02	Ci	
241-AN-103	238U	Total		4.00E-02	Ci	
241-AN-103	239Pu	Supernatant	A2-SltSlr (Liquid)	4.82E-01	Ci	
241-AN-103	239Pu	Salt Cake	A2-SltSlr (Solid)	3.63E+00	Ci	
241-AN-103	239Pu	Total		4.11E+00	Ci	
241-AN-103	240Pu	Supernatant	A2-SltSlr (Liquid)	1.25E-01	Ci	
241-AN-103	240Pu	Salt Cake	A2-SltSlr (Solid)	9.44E-01	Ci	
241-AN-103	240Pu	Total		1.07E+00	Ci	
241-AN-103	241Am	Supernatant	A2-SltSlr (Liquid)	1.15E+01	Ci	
241-AN-103	241Am	Salt Cake	A2-SltSlr (Solid)	9.23E+00	Ci	
241-AN-103	241Am	Total		2.08E+01	Ci	
241-AN-103	241Pu	Supernatant	A2-SltSlr (Liquid)	2.20E+00	Ci	
241-AN-103	241Pu	Salt Cake	A2-SltSlr (Solid)	1.66E+01	Ci	
241-AN-103	241Pu	Total		1.88E+01	Ci	
241-AN-103	242Cm	Supernatant	A2-SltSlr (Liquid)	2.26E-02	Ci	
241-AN-103	242Cm	Salt Cake	A2-SltSlr (Solid)	2.38E-03	Ci	
241-AN-103	242Cm	Total		2.49E-02	Ci	
241-AN-103	242Pu	Supernatant	A2-SltSlr (Liquid)	1.33E-05	Ci	
241-AN-103	242Pu	Salt Cake	A2-SltSlr (Solid)	9.99E-05	Ci	
241-AN-103	242Pu	Total		1.13E-04	Ci	
241-AN-103	243Am	Supernatant	A2-SltSlr (Liquid)	7.56E-03	Ci	
241-AN-103	243Am	Salt Cake	A2-SltSlr (Solid)	6.10E-03	Ci	
241-AN-103	243Am	Total		1.37E-02	Ci	
241-AN-103	243Cm	Supernatant	A2-SltSlr (Liquid)	1.24E-03	Ci	
241-AN-103	243Cm	Salt Cake	A2-SltSlr (Solid)	1.31E-04	Ci	
241-AN-103	243Cm	Total		1.38E-03	Ci	
241-AN-103	244Cm	Supernatant	A2-SltSlr (Liquid)	2.94E-02	Ci	
241-AN-103	244Cm	Salt Cake	A2-SltSlr (Solid)	3.11E-03	Ci	
241-AN-103	244Cm	Total		3.26E-02	Ci	
241-AN-103	3H	Supernatant	A2-SltSlr (Liquid)	2.03E+00	Ci	
241-AN-103	3H	Salt Cake	A2-SltSlr (Solid)	5.02E+00	Ci	
241-AN-103	3H	Total		7.04E+00	Ci	
241-AN-103	59Ni	Supernatant	A2-SltSlr (Liquid)	4.97E-01	Ci	
241-AN-103	59Ni	Salt Cake	A2-SltSlr (Solid)	1.22E+01	Ci	
241-AN-103	59Ni	Total		1.27E+01	Ci	
241-AN-103	60Co	Supernatant	A2-SltSlr (Liquid)	1.07E+01	Ci	
241-AN-103	60Co	Salt Cake	A2-SltSlr (Solid)	1.32E+01	Ci	
241-AN-103	60Co	Total		2.39E+01	Ci	
241-AN-103	63Ni	Supernatant	A2-SltSlr (Liquid)	4.63E+01	Ci	
241-AN-103	63Ni	Salt Cake	A2-SltSlr (Solid)	1.14E+03	Ci	
241-AN-103	63Ni	Total		1.19E+03	Ci	
241-AN-103	79Se	Supernatant	A2-SltSlr (Liquid)	1.66E+00	Ci	
241-AN-103	79Se	Salt Cake	A2-SltSlr (Solid)	6.77E-01	Ci	
241-AN-103	79Se	Total		2.33E+00	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-8

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AN-103	90Sr	Supernatant	A2-SltSlr (Liquid)	3.34E+01	Ci
241-AN-103	90Sr	Salt Cake	A2-SltSlr (Solid)	5.84E+03	Ci
241-AN-103	90Sr	Total		5.87E+03	Ci
241-AN-103	90Y	Supernatant	A2-SltSlr (Liquid)	3.34E+01	Ci
241-AN-103	90Y	Salt Cake	A2-SltSlr (Solid)	5.84E+03	Ci
241-AN-103	90Y	Total		5.87E+03	Ci
241-AN-103	93mNb	Supernatant	A2-SltSlr (Liquid)	4.51E+01	Ci
241-AN-103	93mNb	Salt Cake	A2-SltSlr (Solid)	3.34E+01	Ci
241-AN-103	93mNb	Total		7.86E+01	Ci
241-AN-103	93Zr	Supernatant	A2-SltSlr (Liquid)	5.44E+01	Ci
241-AN-103	93Zr	Salt Cake	A2-SltSlr (Solid)	4.03E+01	Ci
241-AN-103	93Zr	Total		9.47E+01	Ci
241-AN-103	99Tc	Supernatant	A2-SltSlr (Liquid)	3.01E+02	Ci
241-AN-103	99Tc	Salt Cake	A2-SltSlr (Solid)	3.73E+02	Ci
241-AN-103	99Tc	Total		6.74E+02	Ci
241-AN-103	Ag	Supernatant	A2-SltSlr (Liquid)	3.72E+01	kg
241-AN-103	Ag	Salt Cake	A2-SltSlr (Solid)	3.92E+01	kg
241-AN-103	Ag	Total		7.64E+01	kg
241-AN-103	Al	Supernatant	A2-SltSlr (Liquid)	5.66E+04	kg
241-AN-103	Al	Salt Cake	A2-SltSlr (Solid)	1.61E+05	kg
241-AN-103	Al	Total		2.18E+05	kg
241-AN-103	As	Supernatant	A2-SltSlr (Liquid)	1.56E+01	kg
241-AN-103	As	Salt Cake	A2-SltSlr (Solid)	1.44E+02	kg
241-AN-103	As	Total		1.60E+02	kg
241-AN-103	B	Supernatant	A2-SltSlr (Liquid)	1.50E+02	kg
241-AN-103	B	Salt Cake	A2-SltSlr (Solid)	3.71E+02	kg
241-AN-103	B	Total		5.22E+02	kg
241-AN-103	Ba	Supernatant	A2-SltSlr (Liquid)	7.81E+00	kg
241-AN-103	Ba	Salt Cake	A2-SltSlr (Solid)	7.20E+01	kg
241-AN-103	Ba	Total		7.98E+01	kg
241-AN-103	Be	Supernatant	A2-SltSlr (Liquid)	2.18E+00	kg
241-AN-103	Be	Salt Cake	A2-SltSlr (Solid)	7.20E+00	kg
241-AN-103	Be	Total		9.38E+00	kg
241-AN-103	Bi	Supernatant	A2-SltSlr (Liquid)	1.56E+01	kg
241-AN-103	Bi	Salt Cake	A2-SltSlr (Solid)	4.03E+01	kg
241-AN-103	Bi	Total		5.59E+01	kg
241-AN-103	Ca	Supernatant	A2-SltSlr (Liquid)	1.56E+01	kg
241-AN-103	Ca	Salt Cake	A2-SltSlr (Solid)	3.24E+02	kg
241-AN-103	Ca	Total		3.39E+02	kg
241-AN-103	Cd	Supernatant	A2-SltSlr (Liquid)	9.92E+00	kg
241-AN-103	Cd	Salt Cake	A2-SltSlr (Solid)	2.53E+01	kg
241-AN-103	Cd	Total		3.52E+01	kg
241-AN-103	Ce	Supernatant	A2-SltSlr (Liquid)	1.56E+01	kg
241-AN-103	Ce	Salt Cake	A2-SltSlr (Solid)	1.44E+02	kg
241-AN-103	Ce	Total		1.60E+02	kg
241-AN-103	Cl	Supernatant	A2-SltSlr (Liquid)	1.80E+04	kg
241-AN-103	Cl	Salt Cake	A2-SltSlr (Solid)	1.03E+04	kg
241-AN-103	Cl	Total		2.83E+04	kg
241-AN-103	Co	Supernatant	A2-SltSlr (Liquid)	3.42E+00	kg
241-AN-103	Co	Salt Cake	A2-SltSlr (Solid)	1.24E+02	kg
241-AN-103	Co	Total		1.27E+02	kg
241-AN-103	Cr	Supernatant	A2-SltSlr (Liquid)	1.06E+03	kg
241-AN-103	Cr	Salt Cake	A2-SltSlr (Solid)	1.45E+03	kg
241-AN-103	Cr	Total		2.51E+03	kg
241-AN-103	Cu	Supernatant	A2-SltSlr (Liquid)	7.87E+00	kg
241-AN-103	Cu	Salt Cake	A2-SltSlr (Solid)	1.44E+01	kg
241-AN-103	Cu	Total		2.23E+01	kg
241-AN-103	F	Supernatant	A2-SltSlr (Liquid)	1.25E+03	kg
241-AN-103	F	Salt Cake	A2-SltSlr (Solid)	2.27E+03	kg
241-AN-103	F	Total		3.53E+03	kg
241-AN-103	Fe	Supernatant	A2-SltSlr (Liquid)	9.78E+00	kg
241-AN-103	Fe	Salt Cake	A2-SltSlr (Solid)	1.19E+02	kg
241-AN-103	Fe	Total		1.29E+02	kg
241-AN-103	Free OH	Supernatant	A2-SltSlr (Liquid)	1.27E+05	kg
241-AN-103	Free OH	Salt Cake	A2-SltSlr (Solid)	8.77E+04	kg
241-AN-103	Free OH	Total		2.15E+05	kg
241-AN-103	Hg	Supernatant	A2-SltSlr (Liquid)	9.45E-02	kg
241-AN-103	Hg	Salt Cake	A2-SltSlr (Solid)	1.41E+00	kg

Summary		
Ag	7.64E+01	kg
Al	2.18E+05	kg
As	1.60E+02	kg
B	5.22E+02	kg
Ba	7.98E+01	kg
Be	9.38E+00	kg
Bi	5.59E+01	kg
Ca	3.39E+02	kg
Cd	3.52E+01	kg
Ce	1.60E+02	kg
Cl	2.83E+04	kg
CN	0.00E+00	kg
Co	1.27E+02	kg
Cr	2.51E+03	kg
Cu	2.23E+01	kg
F	3.53E+03	kg
Fe	1.29E+02	kg
Free OH	2.15E+05	kg
Hg	1.51E+00	kg
K	4.82E+04	kg
La	2.26E-03	kg
Li	9.69E+01	kg
Mg	2.58E+02	kg
Mn	2.58E+01	kg
Mo	3.15E+02	kg
Na	1.06E+06	kg
Nd	2.58E+02	kg
NH3	0.00E+00	kg
Ni	5.15E+01	kg
NO2	4.30E+05	kg
NO3	6.50E+05	kg
Oxalate	1.62E+04	kg
Pb	4.36E+02	kg
Pd	0.00E+00	kg
PO4	8.91E+03	kg
Pr	0.00E+00	kg
Rb	0.00E+00	kg
Rh	0.00E+00	kg
Ru	0.00E+00	kg
Sb	1.55E+02	kg
Se	2.58E+02	kg
Si	2.38E+03	kg
SO4	1.10E+04	kg
Sr	1.44E-01	kg
Ta	0.00E+00	kg
Te	0.00E+00	kg
Th	2.21E+00	kg
Ti	2.58E+01	kg
TIC as CO3	8.10E+04	kg
Tl	0.00E+00	kg
TOC	1.05E+04	kg
UTOTAL	1.20E+02	kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-9

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AN-103	Hg	Total		1.51E+00	kg
241-AN-103	K	Supernatant	A2-SltSlr (Liquid)	3.15E+04	kg
241-AN-103	K	Salt Cake	A2-SltSlr (Solid)	1.68E+04	kg
241-AN-103	K	Total		4.82E+04	kg
241-AN-103	La	Supernatant	A2-SltSlr (Liquid)	1.43E-03	kg
241-AN-103	La	Salt Cake	A2-SltSlr (Solid)	8.33E-04	kg
241-AN-103	La	Total		2.26E-03	kg
241-AN-103	Li	Supernatant	A2-SltSlr (Liquid)	4.70E+01	kg
241-AN-103	Li	Salt Cake	A2-SltSlr (Solid)	4.99E+01	kg
241-AN-103	Li	Total		9.69E+01	kg
241-AN-103	Mg	Supernatant	A2-SltSlr (Liquid)	1.14E+02	kg
241-AN-103	Mg	Salt Cake	A2-SltSlr (Solid)	1.44E+02	kg
241-AN-103	Mg	Total		2.58E+02	kg
241-AN-103	Mn	Supernatant	A2-SltSlr (Liquid)	1.14E+01	kg
241-AN-103	Mn	Salt Cake	A2-SltSlr (Solid)	1.44E+01	kg
241-AN-103	Mn	Total		2.58E+01	kg
241-AN-103	Mo	Supernatant	A2-SltSlr (Liquid)	2.21E+02	kg
241-AN-103	Mo	Salt Cake	A2-SltSlr (Solid)	9.46E+01	kg
241-AN-103	Mo	Total		3.15E+02	kg
241-AN-103	Na	Supernatant	A2-SltSlr (Liquid)	5.10E+05	kg
241-AN-103	Na	Salt Cake	A2-SltSlr (Solid)	5.49E+05	kg
241-AN-103	Na	Total		1.06E+06	kg
241-AN-103	Nd	Supernatant	A2-SltSlr (Liquid)	1.14E+02	kg
241-AN-103	Nd	Salt Cake	A2-SltSlr (Solid)	1.44E+02	kg
241-AN-103	Nd	Total		2.58E+02	kg
241-AN-103	Ni	Supernatant	A2-SltSlr (Liquid)	2.27E+01	kg
241-AN-103	Ni	Salt Cake	A2-SltSlr (Solid)	2.88E+01	kg
241-AN-103	Ni	Total		5.15E+01	kg
241-AN-103	NO2	Supernatant	A2-SltSlr (Liquid)	2.46E+05	kg
241-AN-103	NO2	Salt Cake	A2-SltSlr (Solid)	1.84E+05	kg
241-AN-103	NO2	Total		4.30E+05	kg
241-AN-103	NO3	Supernatant	A2-SltSlr (Liquid)	2.43E+05	kg
241-AN-103	NO3	Salt Cake	A2-SltSlr (Solid)	4.07E+05	kg
241-AN-103	NO3	Total		6.50E+05	kg
241-AN-103	Oxalate	Supernatant	A2-SltSlr (Liquid)	9.49E+02	kg
241-AN-103	Oxalate	Salt Cake	A2-SltSlr (Solid)	1.52E+04	kg
241-AN-103	Oxalate	Total		1.62E+04	kg
241-AN-103	Pb	Supernatant	A2-SltSlr (Liquid)	2.92E+02	kg
241-AN-103	Pb	Salt Cake	A2-SltSlr (Solid)	1.44E+02	kg
241-AN-103	Pb	Total		4.36E+02	kg
241-AN-103	PO4	Supernatant	A2-SltSlr (Liquid)	3.18E+03	kg
241-AN-103	PO4	Salt Cake	A2-SltSlr (Solid)	5.73E+03	kg
241-AN-103	PO4	Total		8.91E+03	kg
241-AN-103	Sb	Supernatant	A2-SltSlr (Liquid)	6.82E+01	kg
241-AN-103	Sb	Salt Cake	A2-SltSlr (Solid)	8.63E+01	kg
241-AN-103	Sb	Total		1.55E+02	kg
241-AN-103	Se	Supernatant	A2-SltSlr (Liquid)	1.14E+02	kg
241-AN-103	Se	Salt Cake	A2-SltSlr (Solid)	1.44E+02	kg
241-AN-103	Se	Total		2.58E+02	kg
241-AN-103	Si	Supernatant	A2-SltSlr (Liquid)	8.20E+02	kg
241-AN-103	Si	Salt Cake	A2-SltSlr (Solid)	1.56E+03	kg
241-AN-103	Si	Total		2.38E+03	kg
241-AN-103	SO4	Supernatant	A2-SltSlr (Liquid)	2.42E+03	kg
241-AN-103	SO4	Salt Cake	A2-SltSlr (Solid)	8.54E+03	kg
241-AN-103	SO4	Total		1.10E+04	kg
241-AN-103	Sr	Supernatant	A2-SltSlr (Liquid)	8.16E-04	kg
241-AN-103	Sr	Salt Cake	A2-SltSlr (Solid)	1.43E-01	kg
241-AN-103	Sr	Total		1.44E-01	kg
241-AN-103	Th	Supernatant	A2-SltSlr (Liquid)	1.27E+00	kg
241-AN-103	Th	Salt Cake	A2-SltSlr (Solid)	9.42E-01	kg
241-AN-103	Th	Total		2.21E+00	kg
241-AN-103	Ti	Supernatant	A2-SltSlr (Liquid)	1.14E+01	kg
241-AN-103	Ti	Salt Cake	A2-SltSlr (Solid)	1.44E+01	kg
241-AN-103	Ti	Total		2.58E+01	kg
241-AN-103	TIC as CO3	Supernatant	A2-SltSlr (Liquid)	1.09E+04	kg
241-AN-103	TIC as CO3	Salt Cake	A2-SltSlr (Solid)	7.01E+04	kg
241-AN-103	TIC as CO3	Total		8.10E+04	kg
241-AN-103	TOC	Supernatant	A2-SltSlr (Liquid)	5.76E+03	kg

Summary	
V	1.29E+02 kg
W	0.00E+00 kg
Y	0.00E+00 kg
Zn	1.10E+02 kg
Zr	3.25E+01 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO : 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-10

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AN-103	TOC	Salt Cake	A2-SltSlr (Solid)	4.76E+03	kg	
241-AN-103	TOC	Total		1.05E+04	kg	
241-AN-103	UTOTAL	Supernatant	A2-SltSlr (Liquid)	3.47E+00	kg	
241-AN-103	UTOTAL	Salt Cake	A2-SltSlr (Solid)	1.17E+02	kg	
241-AN-103	UTOTAL	Total		1.20E+02	kg	
241-AN-103	V	Supernatant	A2-SltSlr (Liquid)	5.69E+01	kg	
241-AN-103	V	Salt Cake	A2-SltSlr (Solid)	7.20E+01	kg	
241-AN-103	V	Total		1.29E+02	kg	
241-AN-103	Zn	Supernatant	A2-SltSlr (Liquid)	2.32E+01	kg	
241-AN-103	Zn	Salt Cake	A2-SltSlr (Solid)	8.64E+01	kg	
241-AN-103	Zn	Total		1.10E+02	kg	
241-AN-103	Zr	Supernatant	A2-SltSlr (Liquid)	1.81E+01	kg	
241-AN-103	Zr	Salt Cake	A2-SltSlr (Solid)	1.44E+01	kg	
241-AN-103	Zr	Total		3.25E+01	kg	

241-AN-104	106Ru	Supernatant	A2-SltSlr (Liquid)	1.13E-05	Ci	Summary	
241-AN-104	106Ru	Salt Cake	A2-SltSlr (Solid)	4.55E-02	Ci	106Ru	4.55E-02 Ci
241-AN-104	106Ru	Total		4.55E-02	Ci	113mCd	2.73E+01 Ci
241-AN-104	113mCd	Supernatant	A2-SltSlr (Liquid)	4.94E+01	Ci	125Sb	1.08E+01 Ci
241-AN-104	113mCd	Salt Cake	A2-SltSlr (Solid)	2.73E+01	Ci	126Sn	2.21E+00 Ci
241-AN-104	113mCd	Total		7.67E+01	Ci	129I	2.05E-01 Ci
241-AN-104	125Sb	Supernatant	A2-SltSlr (Liquid)	1.96E-01	Ci	134Cs	3.57E+00 Ci
241-AN-104	125Sb	Salt Cake	A2-SltSlr (Solid)	1.08E+01	Ci	137Cs	7.48E+05 Ci
241-AN-104	125Sb	Total		1.10E+01	Ci	137mBa	7.06E+05 Ci
241-AN-104	126Sn	Supernatant	A2-SltSlr (Liquid)	1.06E+01	Ci	14C	1.06E+01 Ci
241-AN-104	126Sn	Salt Cake	A2-SltSlr (Solid)	2.21E+00	Ci	151Sm	1.52E+04 Ci
241-AN-104	126Sn	Total		1.28E+01	Ci	152Eu	1.76E+00 Ci
241-AN-104	129I	Supernatant	A2-SltSlr (Liquid)	4.83E-01	Ci	154Eu	1.22E+02 Ci
241-AN-104	129I	Salt Cake	A2-SltSlr (Solid)	2.05E-01	Ci	155Eu	4.68E+01 Ci
241-AN-104	129I	Total		6.88E-01	Ci	226Ra	4.58E-05 Ci
241-AN-104	134Cs	Supernatant	A2-SltSlr (Liquid)	6.50E+00	Ci	227Ac	5.63E-03 Ci
241-AN-104	134Cs	Salt Cake	A2-SltSlr (Solid)	3.57E+00	Ci	228Ra	1.30E-02 Ci
241-AN-104	134Cs	Total		1.01E+01	Ci	229Th	2.26E-05 Ci
241-AN-104	137Cs	Supernatant	A2-SltSlr (Liquid)	1.13E+06	Ci	231Pa	5.91E-02 Ci
241-AN-104	137Cs	Salt Cake	A2-SltSlr (Solid)	7.48E+05	Ci	232Th	8.17E-05 Ci
241-AN-104	137Cs	Total		1.88E+06	Ci	232U	4.36E-03 Ci
241-AN-104	137mBa	Supernatant	A2-SltSlr (Liquid)	1.07E+06	Ci	233U	2.68E-01 Ci
241-AN-104	137mBa	Salt Cake	A2-SltSlr (Solid)	7.06E+05	Ci	234U	1.89E-01 Ci
241-AN-104	137mBa	Total		1.77E+06	Ci	235U	7.48E-03 Ci
241-AN-104	14C	Supernatant	A2-SltSlr (Liquid)	6.98E-01	Ci	236U	1.28E-02 Ci
241-AN-104	14C	Salt Cake	A2-SltSlr (Solid)	1.06E+01	Ci	237Np	3.71E-01 Ci
241-AN-104	14C	Total		1.13E+01	Ci	238Pu	5.16E-01 Ci
241-AN-104	151Sm	Supernatant	A2-SltSlr (Liquid)	7.51E+03	Ci	238U	1.48E-01 Ci
241-AN-104	151Sm	Salt Cake	A2-SltSlr (Solid)	1.52E+04	Ci	239Pu	7.12E+00 Ci
241-AN-104	151Sm	Total		2.27E+04	Ci	240Pu	1.85E+00 Ci
241-AN-104	152Eu	Supernatant	A2-SltSlr (Liquid)	8.31E-01	Ci	241Am	4.71E+01 Ci
241-AN-104	152Eu	Salt Cake	A2-SltSlr (Solid)	1.76E+00	Ci	241Pu	3.25E+01 Ci
241-AN-104	152Eu	Total		2.59E+00	Ci	242Cm	1.23E-02 Ci
241-AN-104	154Eu	Supernatant	A2-SltSlr (Liquid)	1.31E-01	Ci	242Pu	1.96E-04 Ci
241-AN-104	154Eu	Salt Cake	A2-SltSlr (Solid)	1.22E+02	Ci	243Am	3.16E-02 Ci
241-AN-104	154Eu	Total		1.22E+02	Ci	243Cm	6.81E-04 Ci
241-AN-104	155Eu	Supernatant	A2-SltSlr (Liquid)	1.97E-01	Ci	244Cm	1.61E-02 Ci
241-AN-104	155Eu	Salt Cake	A2-SltSlr (Solid)	4.68E+01	Ci	3H	1.68E+01 Ci
241-AN-104	155Eu	Total		4.70E+01	Ci	59Ni	9.67E+00 Ci
241-AN-104	226Ra	Supernatant	A2-SltSlr (Liquid)	8.30E-05	Ci	60Co	1.86E+01 Ci
241-AN-104	226Ra	Salt Cake	A2-SltSlr (Solid)	4.58E-05	Ci	63Ni	9.03E+02 Ci
241-AN-104	226Ra	Total		1.29E-04	Ci	79Se	5.34E-01 Ci
241-AN-104	227Ac	Supernatant	A2-SltSlr (Liquid)	1.02E-02	Ci	90Sr	7.16E+04 Ci
241-AN-104	227Ac	Salt Cake	A2-SltSlr (Solid)	5.63E-03	Ci	90Y	7.16E+04 Ci
241-AN-104	227Ac	Total		1.59E-02	Ci	93mNb	2.64E+01 Ci
241-AN-104	228Ra	Supernatant	A2-SltSlr (Liquid)	2.36E-02	Ci	93Zr	3.18E+01 Ci
241-AN-104	228Ra	Salt Cake	A2-SltSlr (Solid)	1.30E-02	Ci	99Tc	3.32E+02 Ci
241-AN-104	228Ra	Total		3.66E-02	Ci		
241-AN-104	229Th	Supernatant	A2-SltSlr (Liquid)	4.11E-05	Ci		
241-AN-104	229Th	Salt Cake	A2-SltSlr (Solid)	2.26E-05	Ci		
241-AN-104	229Th	Total		6.37E-05	Ci		

CALCULATION SHEET

BY:. E. Berrios
DATE: 12/05/05

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO · 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-11

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AN-104	231Pa	Supernatant	A2-SltSlr (Liquid)	1.07E-01	Ci	
241-AN-104	231Pa	Salt Cake	A2-SltSlr (Solid)	5.91E-02	Ci	
241-AN-104	231Pa	Total		1.67E-01	Ci	
241-AN-104	232Th	Supernatant	A2-SltSlr (Liquid)	1.49E-04	Ci	
241-AN-104	232Th	Salt Cake	A2-SltSlr (Solid)	8.17E-05	Ci	
241-AN-104	232Th	Total		2.30E-04	Ci	
241-AN-104	232U	Supernatant	A2-SltSlr (Liquid)	9.71E-05	Ci	
241-AN-104	232U	Salt Cake	A2-SltSlr (Solid)	4.36E-03	Ci	
241-AN-104	232U	Total		4.46E-03	Ci	
241-AN-104	233U	Supernatant	A2-SltSlr (Liquid)	5.96E-03	Ci	
241-AN-104	233U	Salt Cake	A2-SltSlr (Solid)	2.68E-01	Ci	
241-AN-104	233U	Total		2.73E-01	Ci	
241-AN-104	234U	Supernatant	A2-SltSlr (Liquid)	4.22E-03	Ci	
241-AN-104	234U	Salt Cake	A2-SltSlr (Solid)	1.89E-01	Ci	
241-AN-104	234U	Total		1.94E-01	Ci	
241-AN-104	235U	Supernatant	A2-SltSlr (Liquid)	1.67E-04	Ci	
241-AN-104	235U	Salt Cake	A2-SltSlr (Solid)	7.48E-03	Ci	
241-AN-104	235U	Total		7.65E-03	Ci	
241-AN-104	236U	Supernatant	A2-SltSlr (Liquid)	2.86E-04	Ci	
241-AN-104	236U	Salt Cake	A2-SltSlr (Solid)	1.28E-02	Ci	
241-AN-104	236U	Total		1.31E-02	Ci	
241-AN-104	237Np	Supernatant	A2-SltSlr (Liquid)	1.33E-02	Ci	
241-AN-104	237Np	Salt Cake	A2-SltSlr (Solid)	3.71E-01	Ci	
241-AN-104	237Np	Total		3.84E-01	Ci	
241-AN-104	238Pu	Supernatant	A2-SltSlr (Liquid)	1.20E-02	Ci	
241-AN-104	238Pu	Salt Cake	A2-SltSlr (Solid)	5.16E-01	Ci	
241-AN-104	238Pu	Total		5.29E-01	Ci	
241-AN-104	238U	Supernatant	A2-SltSlr (Liquid)	3.30E-03	Ci	
241-AN-104	238U	Salt Cake	A2-SltSlr (Solid)	1.48E-01	Ci	
241-AN-104	238U	Total		1.52E-01	Ci	
241-AN-104	239Pu	Supernatant	A2-SltSlr (Liquid)	1.66E-01	Ci	
241-AN-104	239Pu	Salt Cake	A2-SltSlr (Solid)	7.12E+00	Ci	
241-AN-104	239Pu	Total		7.28E+00	Ci	
241-AN-104	240Pu	Supernatant	A2-SltSlr (Liquid)	4.32E-02	Ci	
241-AN-104	240Pu	Salt Cake	A2-SltSlr (Solid)	1.85E+00	Ci	
241-AN-104	240Pu	Total		1.90E+00	Ci	
241-AN-104	241Am	Supernatant	A2-SltSlr (Liquid)	8.06E-01	Ci	
241-AN-104	241Am	Salt Cake	A2-SltSlr (Solid)	4.71E+01	Ci	
241-AN-104	241Am	Total		4.79E+01	Ci	
241-AN-104	241Pu	Supernatant	A2-SltSlr (Liquid)	7.58E-01	Ci	
241-AN-104	241Pu	Salt Cake	A2-SltSlr (Solid)	3.25E+01	Ci	
241-AN-104	241Pu	Total		3.33E+01	Ci	
241-AN-104	242Cm	Supernatant	A2-SltSlr (Liquid)	1.56E-03	Ci	
241-AN-104	242Cm	Salt Cake	A2-SltSlr (Solid)	1.23E-02	Ci	
241-AN-104	242Cm	Total		1.39E-02	Ci	
241-AN-104	242Pu	Supernatant	A2-SltSlr (Liquid)	4.57E-06	Ci	
241-AN-104	242Pu	Salt Cake	A2-SltSlr (Solid)	1.96E-04	Ci	
241-AN-104	242Pu	Total		2.01E-04	Ci	
241-AN-104	243Am	Supernatant	A2-SltSlr (Liquid)	5.24E-04	Ci	
241-AN-104	243Am	Salt Cake	A2-SltSlr (Solid)	3.16E-02	Ci	
241-AN-104	243Am	Total		3.21E-02	Ci	
241-AN-104	243Cm	Supernatant	A2-SltSlr (Liquid)	8.62E-05	Ci	
241-AN-104	243Cm	Salt Cake	A2-SltSlr (Solid)	6.81E-04	Ci	
241-AN-104	243Cm	Total		7.67E-04	Ci	
241-AN-104	244Cm	Supernatant	A2-SltSlr (Liquid)	2.04E-03	Ci	
241-AN-104	244Cm	Salt Cake	A2-SltSlr (Solid)	1.61E-02	Ci	
241-AN-104	244Cm	Total		1.81E-02	Ci	
241-AN-104	3H	Supernatant	A2-SltSlr (Liquid)	2.38E+00	Ci	
241-AN-104	3H	Salt Cake	A2-SltSlr (Solid)	1.68E+01	Ci	
241-AN-104	3H	Total		1.92E+01	Ci	
241-AN-104	59Ni	Supernatant	A2-SltSlr (Liquid)	1.64E-01	Ci	
241-AN-104	59Ni	Salt Cake	A2-SltSlr (Solid)	9.67E+00	Ci	
241-AN-104	59Ni	Total		9.83E+00	Ci	
241-AN-104	60Co	Supernatant	A2-SltSlr (Liquid)	1.16E+00	Ci	
241-AN-104	60Co	Salt Cake	A2-SltSlr (Solid)	1.86E+01	Ci	
241-AN-104	60Co	Total		1.97E+01	Ci	
241-AN-104	63Ni	Supernatant	A2-SltSlr (Liquid)	6.15E+00	Ci	
241-AN-104	63Ni	Salt Cake	A2-SltSlr (Solid)	9.03E+02	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-12

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AN-104	63Ni	Total		9.09E+02	Ci
241-AN-104	79Se	Supernatant	A2-SltSlr (Liquid)	2.18E+00	Ci
241-AN-104	79Se	Salt Cake	A2-SltSlr (Solid)	5.34E-01	Ci
241-AN-104	79Se	Total		2.71E+00	Ci
241-AN-104	90Sr	Supernatant	A2-SltSlr (Liquid)	1.88E+02	Ci
241-AN-104	90Sr	Salt Cake	A2-SltSlr (Solid)	7.16E+04	Ci
241-AN-104	90Sr	Total		7.18E+04	Ci
241-AN-104	90Y	Supernatant	A2-SltSlr (Liquid)	1.88E+02	Ci
241-AN-104	90Y	Salt Cake	A2-SltSlr (Solid)	7.16E+04	Ci
241-AN-104	90Y	Total		7.18E+04	Ci
241-AN-104	93mNb	Supernatant	A2-SltSlr (Liquid)	4.79E+01	Ci
241-AN-104	93mNb	Salt Cake	A2-SltSlr (Solid)	2.64E+01	Ci
241-AN-104	93mNb	Total		7.43E+01	Ci
241-AN-104	93Zr	Supernatant	A2-SltSlr (Liquid)	5.77E+01	Ci
241-AN-104	93Zr	Salt Cake	A2-SltSlr (Solid)	3.18E+01	Ci
241-AN-104	93Zr	Total		8.95E+01	Ci
241-AN-104	99Tc	Supernatant	A2-SltSlr (Liquid)	4.62E+02	Ci
241-AN-104	99Tc	Salt Cake	A2-SltSlr (Solid)	3.32E+02	Ci
241-AN-104	99Tc	Total		7.94E+02	Ci
241-AN-104	Ag	Supernatant	A2-SltSlr (Liquid)	4.11E+01	kg
241-AN-104	Ag	Salt Cake	A2-SltSlr (Solid)	3.73E+01	kg
241-AN-104	Ag	Total		7.84E+01	kg
241-AN-104	Al	Supernatant	A2-SltSlr (Liquid)	8.96E+04	kg
241-AN-104	Al	Salt Cake	A2-SltSlr (Solid)	5.13E+04	kg
241-AN-104	Al	Total		1.41E+05	kg
241-AN-104	As	Supernatant	A2-SltSlr (Liquid)	2.53E+00	kg
241-AN-104	As	Salt Cake	A2-SltSlr (Solid)	9.79E+01	kg
241-AN-104	As	Total		1.00E+02	kg
241-AN-104	B	Supernatant	A2-SltSlr (Liquid)	1.50E+02	kg
241-AN-104	B	Salt Cake	A2-SltSlr (Solid)	3.44E+02	kg
241-AN-104	B	Total		4.94E+02	kg
241-AN-104	Ba	Supernatant	A2-SltSlr (Liquid)	9.03E+00	kg
241-AN-104	Ba	Salt Cake	A2-SltSlr (Solid)	4.89E+01	kg
241-AN-104	Ba	Total		5.80E+01	kg
241-AN-104	Be	Supernatant	A2-SltSlr (Liquid)	1.33E+00	kg
241-AN-104	Be	Salt Cake	A2-SltSlr (Solid)	4.89E+00	kg
241-AN-104	Be	Total		6.22E+00	kg
241-AN-104	Bi	Supernatant	A2-SltSlr (Liquid)	1.81E+01	kg
241-AN-104	Bi	Salt Cake	A2-SltSlr (Solid)	3.18E+01	kg
241-AN-104	Bi	Total		4.99E+01	kg
241-AN-104	Ca	Supernatant	A2-SltSlr (Liquid)	1.25E+01	kg
241-AN-104	Ca	Salt Cake	A2-SltSlr (Solid)	5.33E+02	kg
241-AN-104	Ca	Total		5.45E+02	kg
241-AN-104	Cd	Supernatant	A2-SltSlr (Liquid)	2.27E+00	kg
241-AN-104	Cd	Salt Cake	A2-SltSlr (Solid)	2.46E+01	kg
241-AN-104	Cd	Total		2.68E+01	kg
241-AN-104	Ce	Supernatant	A2-SltSlr (Liquid)	4.96E+01	kg
241-AN-104	Ce	Salt Cake	A2-SltSlr (Solid)	9.79E+01	kg
241-AN-104	Ce	Total		1.47E+02	kg
241-AN-104	Cl	Supernatant	A2-SltSlr (Liquid)	1.80E+04	kg
241-AN-104	Cl	Salt Cake	A2-SltSlr (Solid)	1.11E+04	kg
241-AN-104	Cl	Total		2.91E+04	kg
241-AN-104	Co	Supernatant	A2-SltSlr (Liquid)	4.33E+00	kg
241-AN-104	Co	Salt Cake	A2-SltSlr (Solid)	1.96E+01	kg
241-AN-104	Co	Total		2.39E+01	kg
241-AN-104	Cr	Supernatant	A2-SltSlr (Liquid)	7.80E+02	kg
241-AN-104	Cr	Salt Cake	A2-SltSlr (Solid)	3.86E+03	kg
241-AN-104	Cr	Total		4.64E+03	kg
241-AN-104	Cu	Supernatant	A2-SltSlr (Liquid)	1.11E+01	kg
241-AN-104	Cu	Salt Cake	A2-SltSlr (Solid)	1.90E+01	kg
241-AN-104	Cu	Total		3.01E+01	kg
241-AN-104	F	Supernatant	A2-SltSlr (Liquid)	1.05E+02	kg
241-AN-104	F	Salt Cake	A2-SltSlr (Solid)	2.00E+03	kg
241-AN-104	F	Total		2.10E+03	kg
241-AN-104	Fe	Supernatant	A2-SltSlr (Liquid)	1.08E+00	kg
241-AN-104	Fe	Salt Cake	A2-SltSlr (Solid)	2.86E+02	kg
241-AN-104	Fe	Total		2.87E+02	kg
241-AN-104	Free OH	Supernatant	A2-SltSlr (Liquid)	1.50E+05	kg

Summary		
Ag	3.73E+01	kg
Al	5.13E+04	kg
As	9.79E+01	kg
B	3.44E+02	kg
Ba	4.89E+01	kg
Be	4.89E+00	kg
Bi	3.18E+01	kg
Ca	5.33E+02	kg
Cd	2.46E+01	kg
Ce	9.79E+01	kg
Cl	1.11E+04	kg
CN	0.00E+00	kg
Co	1.96E+01	kg
Cr	3.86E+03	kg
Cu	1.90E+01	kg
F	2.00E+03	kg
Fe	2.86E+02	kg
Free OH	9.15E+04	kg
Hg	1.12E+00	kg
K	8.91E+03	kg
La	6.58E-04	kg
Li	4.03E+01	kg
Mg	9.79E+01	kg
Mn	4.26E+01	kg
Mo	1.24E+02	kg
Na	4.81E+05	kg
Nd	9.79E+01	kg
NH3	0.00E+00	kg
Ni	1.50E+02	kg
NO2	1.58E+05	kg
NO3	2.96E+05	kg
Oxalate	2.11E+04	kg
Pb	1.03E+02	kg
Pd	0.00E+00	kg
PO4	1.05E+04	kg
Pr	0.00E+00	kg
Rb	0.00E+00	kg
Rh	0.00E+00	kg
Ru	0.00E+00	kg
Sb	5.88E+01	kg
Se	9.79E+01	kg
Si	1.60E+03	kg
SO4	3.02E+04	kg
Sr	5.25E+00	kg
Ta	0.00E+00	kg
Te	0.00E+00	kg
Th	7.43E-01	kg
Ti	9.79E+00	kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-13

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AN-104	Free OH	Salt Cake	A2-SltSlr (Solid)	9.15E+04	kg
241-AN-104	Free OH	Total		2.41E+05	kg
241-AN-104	Hg	Supernatant	A2-SltSlr (Liquid)	4.64E-02	kg
241-AN-104	Hg	Salt Cake	A2-SltSlr (Solid)	1.12E+00	kg
241-AN-104	Hg	Total		1.16E+00	kg
241-AN-104	K	Supernatant	A2-SltSlr (Liquid)	1.55E+04	kg
241-AN-104	K	Salt Cake	A2-SltSlr (Solid)	8.91E+03	kg
241-AN-104	K	Total		2.44E+04	kg
241-AN-104	La	Supernatant	A2-SltSlr (Liquid)	1.51E-03	kg
241-AN-104	La	Salt Cake	A2-SltSlr (Solid)	6.58E-04	kg
241-AN-104	La	Total		2.17E-03	kg
241-AN-104	Li	Supernatant	A2-SltSlr (Liquid)	2.74E+01	kg
241-AN-104	Li	Salt Cake	A2-SltSlr (Solid)	4.03E+01	kg
241-AN-104	Li	Total		6.77E+01	kg
241-AN-104	Mg	Supernatant	A2-SltSlr (Liquid)	2.83E+00	kg
241-AN-104	Mg	Salt Cake	A2-SltSlr (Solid)	9.79E+01	kg
241-AN-104	Mg	Total		1.01E+02	kg
241-AN-104	Mn	Supernatant	A2-SltSlr (Liquid)	1.33E+01	kg
241-AN-104	Mn	Salt Cake	A2-SltSlr (Solid)	4.26E+01	kg
241-AN-104	Mn	Total		5.59E+01	kg
241-AN-104	Mo	Supernatant	A2-SltSlr (Liquid)	1.86E+02	kg
241-AN-104	Mo	Salt Cake	A2-SltSlr (Solid)	1.24E+02	kg
241-AN-104	Mo	Total		3.11E+02	kg
241-AN-104	Na	Supernatant	A2-SltSlr (Liquid)	5.94E+05	kg
241-AN-104	Na	Salt Cake	A2-SltSlr (Solid)	4.81E+05	kg
241-AN-104	Na	Total		1.07E+06	kg
241-AN-104	Nd	Supernatant	A2-SltSlr (Liquid)	1.39E+02	kg
241-AN-104	Nd	Salt Cake	A2-SltSlr (Solid)	9.79E+01	kg
241-AN-104	Nd	Total		2.37E+02	kg
241-AN-104	Ni	Supernatant	A2-SltSlr (Liquid)	7.35E+00	kg
241-AN-104	Ni	Salt Cake	A2-SltSlr (Solid)	1.50E+02	kg
241-AN-104	Ni	Total		1.58E+02	kg
241-AN-104	NO2	Supernatant	A2-SltSlr (Liquid)	2.74E+05	kg
241-AN-104	NO2	Salt Cake	A2-SltSlr (Solid)	1.58E+05	kg
241-AN-104	NO2	Total		4.32E+05	kg
241-AN-104	NO3	Supernatant	A2-SltSlr (Liquid)	4.35E+05	kg
241-AN-104	NO3	Salt Cake	A2-SltSlr (Solid)	2.96E+05	kg
241-AN-104	NO3	Total		7.32E+05	kg
241-AN-104	Oxalate	Supernatant	A2-SltSlr (Liquid)	5.21E+02	kg
241-AN-104	Oxalate	Salt Cake	A2-SltSlr (Solid)	2.11E+04	kg
241-AN-104	Oxalate	Total		2.16E+04	kg
241-AN-104	Pb	Supernatant	A2-SltSlr (Liquid)	7.05E+01	kg
241-AN-104	Pb	Salt Cake	A2-SltSlr (Solid)	1.03E+02	kg
241-AN-104	Pb	Total		1.74E+02	kg
241-AN-104	PO4	Supernatant	A2-SltSlr (Liquid)	6.28E+03	kg
241-AN-104	PO4	Salt Cake	A2-SltSlr (Solid)	1.05E+04	kg
241-AN-104	PO4	Total		1.67E+04	kg
241-AN-104	Sb	Supernatant	A2-SltSlr (Liquid)	8.38E+01	kg
241-AN-104	Sb	Salt Cake	A2-SltSlr (Solid)	5.88E+01	kg
241-AN-104	Sb	Total		1.43E+02	kg
241-AN-104	Se	Supernatant	A2-SltSlr (Liquid)	2.53E+00	kg
241-AN-104	Se	Salt Cake	A2-SltSlr (Solid)	9.79E+01	kg
241-AN-104	Se	Total		1.00E+02	kg
241-AN-104	Si	Supernatant	A2-SltSlr (Liquid)	5.41E+02	kg
241-AN-104	Si	Salt Cake	A2-SltSlr (Solid)	1.60E+03	kg
241-AN-104	Si	Total		2.14E+03	kg
241-AN-104	SO4	Supernatant	A2-SltSlr (Liquid)	8.22E+03	kg
241-AN-104	SO4	Salt Cake	A2-SltSlr (Solid)	3.02E+04	kg
241-AN-104	SO4	Total		3.84E+04	kg
241-AN-104	Sr	Supernatant	A2-SltSlr (Liquid)	9.88E-02	kg
241-AN-104	Sr	Salt Cake	A2-SltSlr (Solid)	5.25E+00	kg
241-AN-104	Sr	Total		5.35E+00	kg
241-AN-104	Th	Supernatant	A2-SltSlr (Liquid)	1.35E+00	kg
241-AN-104	Th	Salt Cake	A2-SltSlr (Solid)	7.43E-01	kg
241-AN-104	Th	Total		2.09E+00	kg
241-AN-104	Ti	Supernatant	A2-SltSlr (Liquid)	3.50E-03	kg
241-AN-104	Ti	Salt Cake	A2-SltSlr (Solid)	9.79E+00	kg
241-AN-104	Ti	Total		9.79E+00	kg

Summary	
TIC as CO3	1.57E+05 kg
Tl	0.00E+00 kg
TOC	1.20E+04 kg
UTOTAL	4.45E+02 kg
V	4.89E+01 kg
W	0.00E+00 kg
Y	0.00E+00 kg
Zn	5.20E+01 kg
Zr	4.21E+01 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-14

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AN-104	TIC as CO3	Supernatant	A2-SltSlr (Liquid)	2.48E+04	kg	
241-AN-104	TIC as CO3	Salt Cake	A2-SltSlr (Solid)	1.57E+05	kg	
241-AN-104	TIC as CO3	Total		1.82E+05	kg	
241-AN-104	TOC	Supernatant	A2-SltSlr (Liquid)	7.22E+03	kg	
241-AN-104	TOC	Salt Cake	A2-SltSlr (Solid)	1.20E+04	kg	
241-AN-104	TOC	Total		1.93E+04	kg	
241-AN-104	UTOTAL	Supernatant	A2-SltSlr (Liquid)	9.91E+00	kg	
241-AN-104	UTOTAL	Salt Cake	A2-SltSlr (Solid)	4.45E+02	kg	
241-AN-104	UTOTAL	Total		4.55E+02	kg	
241-AN-104	V	Supernatant	A2-SltSlr (Liquid)	2.15E+01	kg	
241-AN-104	V	Salt Cake	A2-SltSlr (Solid)	4.89E+01	kg	
241-AN-104	V	Total		7.04E+01	kg	
241-AN-104	Zn	Supernatant	A2-SltSlr (Liquid)	3.37E+01	kg	
241-AN-104	Zn	Salt Cake	A2-SltSlr (Solid)	5.20E+01	kg	
241-AN-104	Zn	Total		8.57E+01	kg	
241-AN-104	Zr	Supernatant	A2-SltSlr (Liquid)	1.82E+01	kg	
241-AN-104	Zr	Salt Cake	A2-SltSlr (Solid)	4.21E+01	kg	
241-AN-104	Zr	Total		6.03E+01	kg	

241-AN-105	106Ru	Supernatant	A2-SltSlr (Liquid)	1.14E-05	Ci	Summary	
241-AN-105	106Ru	Salt Cake	A2-SltSlr (Solid)	5.65E-02	Ci	106Ru	5.65E-02 Ci
241-AN-105	106Ru	Total		5.65E-02	Ci	113mCd	8.34E+01 Ci
241-AN-105	113mCd	Supernatant	A2-SltSlr (Liquid)	4.95E+01	Ci	125Sb	2.05E+01 Ci
241-AN-105	113mCd	Salt Cake	A2-SltSlr (Solid)	3.39E+01	Ci	126Sn	1.73E+01 Ci
241-AN-105	113mCd	Total		8.34E+01	Ci	129I	8.51E-01 Ci
241-AN-105	125Sb	Supernatant	A2-SltSlr (Liquid)	7.02E+00	Ci	134Cs	1.10E+01 Ci
241-AN-105	125Sb	Salt Cake	A2-SltSlr (Solid)	1.35E+01	Ci	137Cs	1.41E+06 Ci
241-AN-105	125Sb	Total		2.05E+01	Ci	137mBa	1.33E+06 Ci
241-AN-105	126Sn	Supernatant	A2-SltSlr (Liquid)	1.45E+01	Ci	14C	1.39E+01 Ci
241-AN-105	126Sn	Salt Cake	A2-SltSlr (Solid)	2.75E+00	Ci	151Sm	2.64E+04 Ci
241-AN-105	126Sn	Total		1.73E+01	Ci	152Eu	3.02E+00 Ci
241-AN-105	129I	Supernatant	A2-SltSlr (Liquid)	5.96E-01	Ci	154Eu	1.98E+02 Ci
241-AN-105	129I	Salt Cake	A2-SltSlr (Solid)	2.55E-01	Ci	155Eu	8.03E+01 Ci
241-AN-105	129I	Total		8.51E-01	Ci	226Ra	1.40E-04 Ci
241-AN-105	134Cs	Supernatant	A2-SltSlr (Liquid)	6.51E+00	Ci	227Ac	1.73E-02 Ci
241-AN-105	134Cs	Salt Cake	A2-SltSlr (Solid)	4.45E+00	Ci	228Ra	3.98E-02 Ci
241-AN-105	134Cs	Total		1.10E+01	Ci	229Th	6.93E-05 Ci
241-AN-105	137Cs	Supernatant	A2-SltSlr (Liquid)	6.52E+05	Ci	231Pa	1.81E-01 Ci
241-AN-105	137Cs	Salt Cake	A2-SltSlr (Solid)	7.56E+05	Ci	232Th	1.93E-04 Ci
241-AN-105	137Cs	Total		1.41E+06	Ci	232U	2.65E-03 Ci
241-AN-105	137mBa	Supernatant	A2-SltSlr (Liquid)	6.15E+05	Ci	233U	1.63E-01 Ci
241-AN-105	137mBa	Salt Cake	A2-SltSlr (Solid)	7.13E+05	Ci	234U	1.15E-01 Ci
241-AN-105	137mBa	Total		1.33E+06	Ci	235U	4.56E-03 Ci
241-AN-105	14C	Supernatant	A2-SltSlr (Liquid)	7.31E-01	Ci	236U	7.80E-03 Ci
241-AN-105	14C	Salt Cake	A2-SltSlr (Solid)	1.32E+01	Ci	237Np	5.08E-01 Ci
241-AN-105	14C	Total		1.39E+01	Ci	238Pu	4.89E-01 Ci
241-AN-105	151Sm	Supernatant	A2-SltSlr (Liquid)	7.53E+03	Ci	238U	9.03E-02 Ci
241-AN-105	151Sm	Salt Cake	A2-SltSlr (Solid)	1.88E+04	Ci	239Pu	6.75E+00 Ci
241-AN-105	151Sm	Total		2.64E+04	Ci	240Pu	1.76E+00 Ci
241-AN-105	152Eu	Supernatant	A2-SltSlr (Liquid)	8.33E-01	Ci	241Am	5.29E+01 Ci
241-AN-105	152Eu	Salt Cake	A2-SltSlr (Solid)	2.18E+00	Ci	241Pu	3.08E+01 Ci
241-AN-105	152Eu	Total		3.02E+00	Ci	242Cm	6.81E-02 Ci
241-AN-105	154Eu	Supernatant	A2-SltSlr (Liquid)	4.59E+01	Ci	242Pu	1.86E-04 Ci
241-AN-105	154Eu	Salt Cake	A2-SltSlr (Solid)	1.52E+02	Ci	243Am	3.50E-02 Ci
241-AN-105	154Eu	Total		1.98E+02	Ci	243Cm	3.76E-03 Ci
241-AN-105	155Eu	Supernatant	A2-SltSlr (Liquid)	2.21E+01	Ci	244Cm	8.89E-02 Ci
241-AN-105	155Eu	Salt Cake	A2-SltSlr (Solid)	5.81E+01	Ci	3H	4.20E+00 Ci
241-AN-105	155Eu	Total		8.03E+01	Ci	59Ni	1.25E+01 Ci
241-AN-105	226Ra	Supernatant	A2-SltSlr (Liquid)	8.32E-05	Ci	60Co	2.96E+01 Ci
241-AN-105	226Ra	Salt Cake	A2-SltSlr (Solid)	5.69E-05	Ci	63Ni	1.17E+03 Ci
241-AN-105	226Ra	Total		1.40E-04	Ci	79Se	3.12E+00 Ci
241-AN-105	227Ac	Supernatant	A2-SltSlr (Liquid)	1.03E-02	Ci	90Sr	2.88E+04 Ci
241-AN-105	227Ac	Salt Cake	A2-SltSlr (Solid)	7.00E-03	Ci	90Y	2.88E+04 Ci
241-AN-105	227Ac	Total		1.73E-02	Ci	93mNb	8.08E+01 Ci
241-AN-105	228Ra	Supernatant	A2-SltSlr (Liquid)	2.36E-02	Ci	93Zr	9.74E+01 Ci
241-AN-105	228Ra	Salt Cake	A2-SltSlr (Solid)	1.62E-02	Ci	99Tc	1.12E+03 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-15

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AN-105	228Ra	Total		3.98E-02	Ci	
241-AN-105	229Th	Supernatant	A2-SltSlr (Liquid)	4.12E-05	Ci	
241-AN-105	229Th	Salt Cake	A2-SltSlr (Solid)	2.81E-05	Ci	
241-AN-105	229Th	Total		6.93E-05	Ci	
241-AN-105	231Pa	Supernatant	A2-SltSlr (Liquid)	1.08E-01	Ci	
241-AN-105	231Pa	Salt Cake	A2-SltSlr (Solid)	7.35E-02	Ci	
241-AN-105	231Pa	Total		1.81E-01	Ci	
241-AN-105	232Th	Supernatant	A2-SltSlr (Liquid)	9.18E-05	Ci	
241-AN-105	232Th	Salt Cake	A2-SltSlr (Solid)	1.02E-04	Ci	
241-AN-105	232Th	Total		1.93E-04	Ci	
241-AN-105	232U	Supernatant	A2-SltSlr (Liquid)	7.77E-05	Ci	
241-AN-105	232U	Salt Cake	A2-SltSlr (Solid)	2.58E-03	Ci	
241-AN-105	232U	Total		2.65E-03	Ci	
241-AN-105	233U	Supernatant	A2-SltSlr (Liquid)	4.77E-03	Ci	
241-AN-105	233U	Salt Cake	A2-SltSlr (Solid)	1.58E-01	Ci	
241-AN-105	233U	Total		1.63E-01	Ci	
241-AN-105	234U	Supernatant	A2-SltSlr (Liquid)	3.37E-03	Ci	
241-AN-105	234U	Salt Cake	A2-SltSlr (Solid)	1.12E-01	Ci	
241-AN-105	234U	Total		1.15E-01	Ci	
241-AN-105	235U	Supernatant	A2-SltSlr (Liquid)	1.33E-04	Ci	
241-AN-105	235U	Salt Cake	A2-SltSlr (Solid)	4.42E-03	Ci	
241-AN-105	235U	Total		4.56E-03	Ci	
241-AN-105	236U	Supernatant	A2-SltSlr (Liquid)	2.29E-04	Ci	
241-AN-105	236U	Salt Cake	A2-SltSlr (Solid)	7.58E-03	Ci	
241-AN-105	236U	Total		7.80E-03	Ci	
241-AN-105	237Np	Supernatant	A2-SltSlr (Liquid)	4.75E-02	Ci	
241-AN-105	237Np	Salt Cake	A2-SltSlr (Solid)	4.61E-01	Ci	
241-AN-105	237Np	Total		5.08E-01	Ci	
241-AN-105	238Pu	Supernatant	A2-SltSlr (Liquid)	9.72E-02	Ci	
241-AN-105	238Pu	Salt Cake	A2-SltSlr (Solid)	3.92E-01	Ci	
241-AN-105	238Pu	Total		4.89E-01	Ci	
241-AN-105	238U	Supernatant	A2-SltSlr (Liquid)	2.64E-03	Ci	
241-AN-105	238U	Salt Cake	A2-SltSlr (Solid)	8.76E-02	Ci	
241-AN-105	238U	Total		9.03E-02	Ci	
241-AN-105	239Pu	Supernatant	A2-SltSlr (Liquid)	1.34E+00	Ci	
241-AN-105	239Pu	Salt Cake	A2-SltSlr (Solid)	5.41E+00	Ci	
241-AN-105	239Pu	Total		6.75E+00	Ci	
241-AN-105	240Pu	Supernatant	A2-SltSlr (Liquid)	3.48E-01	Ci	
241-AN-105	240Pu	Salt Cake	A2-SltSlr (Solid)	1.41E+00	Ci	
241-AN-105	240Pu	Total		1.76E+00	Ci	
241-AN-105	241Am	Supernatant	A2-SltSlr (Liquid)	3.20E+01	Ci	
241-AN-105	241Am	Salt Cake	A2-SltSlr (Solid)	2.09E+01	Ci	
241-AN-105	241Am	Total		5.29E+01	Ci	
241-AN-105	241Pu	Supernatant	A2-SltSlr (Liquid)	6.12E+00	Ci	
241-AN-105	241Pu	Salt Cake	A2-SltSlr (Solid)	2.47E+01	Ci	
241-AN-105	241Pu	Total		3.08E+01	Ci	
241-AN-105	242Cm	Supernatant	A2-SltSlr (Liquid)	6.26E-02	Ci	
241-AN-105	242Cm	Salt Cake	A2-SltSlr (Solid)	5.45E-03	Ci	
241-AN-105	242Cm	Total		6.81E-02	Ci	
241-AN-105	242Pu	Supernatant	A2-SltSlr (Liquid)	3.69E-05	Ci	
241-AN-105	242Pu	Salt Cake	A2-SltSlr (Solid)	1.49E-04	Ci	
241-AN-105	242Pu	Total		1.86E-04	Ci	
241-AN-105	243Am	Supernatant	A2-SltSlr (Liquid)	2.10E-02	Ci	
241-AN-105	243Am	Salt Cake	A2-SltSlr (Solid)	1.40E-02	Ci	
241-AN-105	243Am	Total		3.50E-02	Ci	
241-AN-105	243Cm	Supernatant	A2-SltSlr (Liquid)	3.46E-03	Ci	
241-AN-105	243Cm	Salt Cake	A2-SltSlr (Solid)	3.01E-04	Ci	
241-AN-105	243Cm	Total		3.76E-03	Ci	
241-AN-105	244Cm	Supernatant	A2-SltSlr (Liquid)	8.18E-02	Ci	
241-AN-105	244Cm	Salt Cake	A2-SltSlr (Solid)	7.11E-03	Ci	
241-AN-105	244Cm	Total		8.89E-02	Ci	
241-AN-105	3H	Supernatant	A2-SltSlr (Liquid)	5.80E-02	Ci	
241-AN-105	3H	Salt Cake	A2-SltSlr (Solid)	4.14E+00	Ci	
241-AN-105	3H	Total		4.20E+00	Ci	
241-AN-105	59Ni	Supernatant	A2-SltSlr (Liquid)	5.29E-01	Ci	
241-AN-105	59Ni	Salt Cake	A2-SltSlr (Solid)	1.20E+01	Ci	
241-AN-105	59Ni	Total		1.25E+01	Ci	
241-AN-105	60Co	Supernatant	A2-SltSlr (Liquid)	6.50E+00	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-16

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AN-105	60Co	Salt Cake	A2-SltSlr (Solid)	2.31E+01	Ci
241-AN-105	60Co	Total		2.96E+01	Ci
241-AN-105	63Ni	Supernatant	A2-SltSlr (Liquid)	4.92E+01	Ci
241-AN-105	63Ni	Salt Cake	A2-SltSlr (Solid)	1.12E+03	Ci
241-AN-105	63Ni	Total		1.17E+03	Ci
241-AN-105	79Se	Supernatant	A2-SltSlr (Liquid)	2.46E+00	Ci
241-AN-105	79Se	Salt Cake	A2-SltSlr (Solid)	6.65E-01	Ci
241-AN-105	79Se	Total		3.12E+00	Ci
241-AN-105	90Sr	Supernatant	A2-SltSlr (Liquid)	7.73E+01	Ci
241-AN-105	90Sr	Salt Cake	A2-SltSlr (Solid)	2.87E+04	Ci
241-AN-105	90Sr	Total		2.88E+04	Ci
241-AN-105	90Y	Supernatant	A2-SltSlr (Liquid)	7.73E+01	Ci
241-AN-105	90Y	Salt Cake	A2-SltSlr (Solid)	2.87E+04	Ci
241-AN-105	90Y	Total		2.88E+04	Ci
241-AN-105	93mNb	Supernatant	A2-SltSlr (Liquid)	4.80E+01	Ci
241-AN-105	93mNb	Salt Cake	A2-SltSlr (Solid)	3.28E+01	Ci
241-AN-105	93mNb	Total		8.08E+01	Ci
241-AN-105	93Zr	Supernatant	A2-SltSlr (Liquid)	5.78E+01	Ci
241-AN-105	93Zr	Salt Cake	A2-SltSlr (Solid)	3.96E+01	Ci
241-AN-105	93Zr	Total		9.74E+01	Ci
241-AN-105	99Tc	Supernatant	A2-SltSlr (Liquid)	5.88E+02	Ci
241-AN-105	99Tc	Salt Cake	A2-SltSlr (Solid)	5.34E+02	Ci
241-AN-105	99Tc	Total		1.12E+03	Ci
241-AN-105	Ag	Supernatant	A2-SltSlr (Liquid)	3.96E+01	kg
241-AN-105	Ag	Salt Cake	A2-SltSlr (Solid)	5.79E+01	kg
241-AN-105	Ag	Total		9.75E+01	kg
241-AN-105	Al	Supernatant	A2-SltSlr (Liquid)	9.28E+04	kg
241-AN-105	Al	Salt Cake	A2-SltSlr (Solid)	6.76E+04	kg
241-AN-105	Al	Total		1.60E+05	kg
241-AN-105	As	Supernatant	A2-SltSlr (Liquid)	1.09E+02	kg
241-AN-105	As	Salt Cake	A2-SltSlr (Solid)	1.18E+02	kg
241-AN-105	As	Total		2.28E+02	kg
241-AN-105	B	Supernatant	A2-SltSlr (Liquid)	1.66E+02	kg
241-AN-105	B	Salt Cake	A2-SltSlr (Solid)	2.74E+02	kg
241-AN-105	B	Total		4.39E+02	kg
241-AN-105	Ba	Supernatant	A2-SltSlr (Liquid)	5.47E+01	kg
241-AN-105	Ba	Salt Cake	A2-SltSlr (Solid)	5.92E+01	kg
241-AN-105	Ba	Total		1.14E+02	kg
241-AN-105	Be	Supernatant	A2-SltSlr (Liquid)	5.44E+00	kg
241-AN-105	Be	Salt Cake	A2-SltSlr (Solid)	5.92E+00	kg
241-AN-105	Be	Total		1.14E+01	kg
241-AN-105	Bi	Supernatant	A2-SltSlr (Liquid)	7.03E+01	kg
241-AN-105	Bi	Salt Cake	A2-SltSlr (Solid)	3.96E+01	kg
241-AN-105	Bi	Total		1.10E+02	kg
241-AN-105	Ca	Supernatant	A2-SltSlr (Liquid)	1.09E+02	kg
241-AN-105	Ca	Salt Cake	A2-SltSlr (Solid)	1.85E+03	kg
241-AN-105	Ca	Total		1.96E+03	kg
241-AN-105	Cd	Supernatant	A2-SltSlr (Liquid)	5.44E+00	kg
241-AN-105	Cd	Salt Cake	A2-SltSlr (Solid)	3.41E+01	kg
241-AN-105	Cd	Total		3.96E+01	kg
241-AN-105	Ce	Supernatant	A2-SltSlr (Liquid)	1.09E+02	kg
241-AN-105	Ce	Salt Cake	A2-SltSlr (Solid)	1.18E+02	kg
241-AN-105	Ce	Total		2.28E+02	kg
241-AN-105	Cl	Supernatant	A2-SltSlr (Liquid)	2.15E+04	kg
241-AN-105	Cl	Salt Cake	A2-SltSlr (Solid)	1.57E+04	kg
241-AN-105	Cl	Total		3.72E+04	kg
241-AN-105	Co	Supernatant	A2-SltSlr (Liquid)	2.18E+01	kg
241-AN-105	Co	Salt Cake	A2-SltSlr (Solid)	2.37E+01	kg
241-AN-105	Co	Total		4.55E+01	kg
241-AN-105	Cr	Supernatant	A2-SltSlr (Liquid)	5.00E+02	kg
241-AN-105	Cr	Salt Cake	A2-SltSlr (Solid)	6.84E+03	kg
241-AN-105	Cr	Total		7.34E+03	kg
241-AN-105	Cu	Supernatant	A2-SltSlr (Liquid)	1.17E+01	kg
241-AN-105	Cu	Salt Cake	A2-SltSlr (Solid)	2.09E+01	kg
241-AN-105	Cu	Total		3.26E+01	kg
241-AN-105	F	Supernatant	A2-SltSlr (Liquid)	6.91E+02	kg
241-AN-105	F	Salt Cake	A2-SltSlr (Solid)	5.45E+03	kg
241-AN-105	F	Total		6.14E+03	kg

Summary	
Ag	9.75E+01 kg
Al	1.60E+05 kg
As	2.28E+02 kg
B	4.39E+02 kg
Ba	1.14E+02 kg
Be	1.14E+01 kg
Bi	1.10E+02 kg
Ca	1.96E+03 kg
Cd	3.96E+01 kg
Ce	2.28E+02 kg
Cl	3.72E+04 kg
CN	0.00E+00 kg
Co	4.55E+01 kg
Cr	7.34E+03 kg
Cu	3.26E+01 kg
F	6.14E+03 kg
Fe	4.02E+02 kg
Free OH	2.05E+05 kg
Hg	1.94E+00 kg
K	2.52E+04 kg
La	2.34E-03 kg
Li	6.45E+01 kg
Mg	2.28E+02 kg
Mn	7.24E+01 kg
Mo	3.72E+02 kg
Na	1.10E+06 kg
Nd	2.28E+02 kg
NH3	0.00E+00 kg
Ni	1.42E+02 kg
NO2	4.59E+05 kg
NO3	6.91E+05 kg
Oxalate	2.19E+04 kg
Pb	2.63E+02 kg
Pd	0.00E+00 kg
PO4	2.54E+04 kg
Pr	0.00E+00 kg
Rb	0.00E+00 kg
Rh	0.00E+00 kg
Ru	0.00E+00 kg
Sb	1.37E+02 kg
Se	2.28E+02 kg
Si	9.05E+02 kg
SO4	2.84E+04 kg
Sr	6.63E+00 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-17

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AN-105	Fe	Supernatant	A2-SltSlr (Liquid)	5.47E+01	kg
241-AN-105	Fe	Salt Cake	A2-SltSlr (Solid)	3.48E+02	kg
241-AN-105	Fe	Total		4.02E+02	kg
241-AN-105	Free OH	Supernatant	A2-SltSlr (Liquid)	1.33E+05	kg
241-AN-105	Free OH	Salt Cake	A2-SltSlr (Solid)	7.22E+04	kg
241-AN-105	Free OH	Total		2.05E+05	kg
241-AN-105	Hg	Supernatant	A2-SltSlr (Liquid)	5.52E-01	kg
241-AN-105	Hg	Salt Cake	A2-SltSlr (Solid)	1.39E+00	kg
241-AN-105	Hg	Total		1.94E+00	kg
241-AN-105	K	Supernatant	A2-SltSlr (Liquid)	1.46E+04	kg
241-AN-105	K	Salt Cake	A2-SltSlr (Solid)	1.06E+04	kg
241-AN-105	K	Total		2.52E+04	kg
241-AN-105	La	Supernatant	A2-SltSlr (Liquid)	1.52E-03	kg
241-AN-105	La	Salt Cake	A2-SltSlr (Solid)	8.18E-04	kg
241-AN-105	La	Total		2.34E-03	kg
241-AN-105	Li	Supernatant	A2-SltSlr (Liquid)	1.33E+01	kg
241-AN-105	Li	Salt Cake	A2-SltSlr (Solid)	5.12E+01	kg
241-AN-105	Li	Total		6.45E+01	kg
241-AN-105	Mg	Supernatant	A2-SltSlr (Liquid)	1.09E+02	kg
241-AN-105	Mg	Salt Cake	A2-SltSlr (Solid)	1.18E+02	kg
241-AN-105	Mg	Total		2.28E+02	kg
241-AN-105	Mn	Supernatant	A2-SltSlr (Liquid)	1.09E+01	kg
241-AN-105	Mn	Salt Cake	A2-SltSlr (Solid)	6.15E+01	kg
241-AN-105	Mn	Total		7.24E+01	kg
241-AN-105	Mo	Supernatant	A2-SltSlr (Liquid)	2.15E+02	kg
241-AN-105	Mo	Salt Cake	A2-SltSlr (Solid)	1.57E+02	kg
241-AN-105	Mo	Total		3.72E+02	kg
241-AN-105	Na	Supernatant	A2-SltSlr (Liquid)	5.50E+05	kg
241-AN-105	Na	Salt Cake	A2-SltSlr (Solid)	5.52E+05	kg
241-AN-105	Na	Total		1.10E+06	kg
241-AN-105	Nd	Supernatant	A2-SltSlr (Liquid)	1.09E+02	kg
241-AN-105	Nd	Salt Cake	A2-SltSlr (Solid)	1.18E+02	kg
241-AN-105	Nd	Total		2.28E+02	kg
241-AN-105	Ni	Supernatant	A2-SltSlr (Liquid)	2.20E+01	kg
241-AN-105	Ni	Salt Cake	A2-SltSlr (Solid)	1.20E+02	kg
241-AN-105	Ni	Total		1.42E+02	kg
241-AN-105	NO2	Supernatant	A2-SltSlr (Liquid)	2.64E+05	kg
241-AN-105	NO2	Salt Cake	A2-SltSlr (Solid)	1.94E+05	kg
241-AN-105	NO2	Total		4.59E+05	kg
241-AN-105	NO3	Supernatant	A2-SltSlr (Liquid)	3.48E+05	kg
241-AN-105	NO3	Salt Cake	A2-SltSlr (Solid)	3.43E+05	kg
241-AN-105	NO3	Total		6.91E+05	kg
241-AN-105	Oxalate	Supernatant	A2-SltSlr (Liquid)	1.09E+03	kg
241-AN-105	Oxalate	Salt Cake	A2-SltSlr (Solid)	2.08E+04	kg
241-AN-105	Oxalate	Total		2.19E+04	kg
241-AN-105	Pb	Supernatant	A2-SltSlr (Liquid)	1.20E+02	kg
241-AN-105	Pb	Salt Cake	A2-SltSlr (Solid)	1.43E+02	kg
241-AN-105	Pb	Total		2.63E+02	kg
241-AN-105	PO4	Supernatant	A2-SltSlr (Liquid)	2.73E+03	kg
241-AN-105	PO4	Salt Cake	A2-SltSlr (Solid)	2.26E+04	kg
241-AN-105	PO4	Total		2.54E+04	kg
241-AN-105	Sb	Supernatant	A2-SltSlr (Liquid)	6.55E+01	kg
241-AN-105	Sb	Salt Cake	A2-SltSlr (Solid)	7.11E+01	kg
241-AN-105	Sb	Total		1.37E+02	kg
241-AN-105	Se	Supernatant	A2-SltSlr (Liquid)	1.09E+02	kg
241-AN-105	Se	Salt Cake	A2-SltSlr (Solid)	1.18E+02	kg
241-AN-105	Se	Total		2.28E+02	kg
241-AN-105	Si	Supernatant	A2-SltSlr (Liquid)	4.86E+02	kg
241-AN-105	Si	Salt Cake	A2-SltSlr (Solid)	4.19E+02	kg
241-AN-105	Si	Total		9.05E+02	kg
241-AN-105	SO4	Supernatant	A2-SltSlr (Liquid)	6.26E+03	kg
241-AN-105	SO4	Salt Cake	A2-SltSlr (Solid)	2.22E+04	kg
241-AN-105	SO4	Total		2.84E+04	kg
241-AN-105	Sr	Supernatant	A2-SltSlr (Liquid)	9.91E-02	kg
241-AN-105	Sr	Salt Cake	A2-SltSlr (Solid)	6.53E+00	kg
241-AN-105	Sr	Total		6.63E+00	kg
241-AN-105	Th	Supernatant	A2-SltSlr (Liquid)	8.33E-01	kg
241-AN-105	Th	Salt Cake	A2-SltSlr (Solid)	9.24E-01	kg

Summary	
Ta	0.00E+00 kg
Te	0.00E+00 kg
Th	1.76E+00 kg
Ti	2.28E+01 kg
TIC as CO3	2.31E+05 kg
Tl	4.55E+02 kg
TOC	2.23E+04 kg
UTOTAL	2.71E+02 kg
V	1.14E+02 kg
W	0.00E+00 kg
Y	0.00E+00 kg
Zn	1.98E+02 kg
Zr	4.43E+01 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.. 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.. C-18

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AN-105	Th	Total		1.76E+00	kg	
241-AN-105	Ti	Supernatant	A2-SltSlr (Liquid)	1.09E+01	kg	
241-AN-105	Ti	Salt Cake	A2-SltSlr (Solid)	1.18E+01	kg	
241-AN-105	Ti	Total		2.28E+01	kg	
241-AN-105	TIC as CO3	Supernatant	A2-SltSlr (Liquid)	3.97E+04	kg	
241-AN-105	TIC as CO3	Salt Cake	A2-SltSlr (Solid)	1.91E+05	kg	
241-AN-105	TIC as CO3	Total		2.31E+05	kg	
241-AN-105	Tl	Supernatant	A2-SltSlr (Liquid)	2.18E+02	kg	
241-AN-105	Tl	Salt Cake	A2-SltSlr (Solid)	2.37E+02	kg	
241-AN-105	Tl	Total		4.55E+02	kg	
241-AN-105	TOC	Supernatant	A2-SltSlr (Liquid)	6.15E+03	kg	
241-AN-105	TOC	Salt Cake	A2-SltSlr (Solid)	1.62E+04	kg	
241-AN-105	TOC	Total		2.23E+04	kg	
241-AN-105	UTOTAL	Supernatant	A2-SltSlr (Liquid)	7.93E+00	kg	
241-AN-105	UTOTAL	Salt Cake	A2-SltSlr (Solid)	2.63E+02	kg	
241-AN-105	UTOTAL	Total		2.71E+02	kg	
241-AN-105	V	Supernatant	A2-SltSlr (Liquid)	5.47E+01	kg	
241-AN-105	V	Salt Cake	A2-SltSlr (Solid)	5.92E+01	kg	
241-AN-105	V	Total		1.14E+02	kg	
241-AN-105	Zn	Supernatant	A2-SltSlr (Liquid)	6.91E+01	kg	
241-AN-105	Zn	Salt Cake	A2-SltSlr (Solid)	1.29E+02	kg	
241-AN-105	Zn	Total		1.98E+02	kg	
241-AN-105	Zr	Supernatant	A2-SltSlr (Liquid)	1.12E+01	kg	
241-AN-105	Zr	Salt Cake	A2-SltSlr (Solid)	3.31E+01	kg	
241-AN-105	Zr	Total		4.43E+01	kg	

241-AN-107	106Ru	Supernatant	A2-SltSlr (Liquid)	1.50E-05	Ci	Summary	
241-AN-107	106Ru	Salt Cake	A2-SltSlr (Solid)	2.42E-02	Ci	106Ru	1.50E-05 Ci
241-AN-107	106Ru	Total		2.42E-02	Ci	113mCd	6.56E+01 Ci
241-AN-107	113mCd	Supernatant	A2-SltSlr (Liquid)	6.56E+01	Ci	125Sb	6.19E+00 Ci
241-AN-107	113mCd	Salt Cake	A2-SltSlr (Solid)	1.45E+01	Ci	126Sn	2.99E+01 Ci
241-AN-107	113mCd	Total		8.01E+01	Ci	129I	3.67E-01 Ci
241-AN-107	125Sb	Supernatant	A2-SltSlr (Liquid)	6.19E+00	Ci	134Cs	8.63E+00 Ci
241-AN-107	125Sb	Salt Cake	A2-SltSlr (Solid)	5.75E+00	Ci	137Cs	9.85E+05 Ci
241-AN-107	125Sb	Total		1.19E+01	Ci	137mBa	9.30E+05 Ci
241-AN-107	126Sn	Supernatant	A2-SltSlr (Liquid)	2.99E+01	Ci	14C	2.04E+00 Ci
241-AN-107	126Sn	Salt Cake	A2-SltSlr (Solid)	1.18E+00	Ci	151Sm	9.97E+03 Ci
241-AN-107	126Sn	Total		3.11E+01	Ci	152Eu	1.10E+00 Ci
241-AN-107	129I	Supernatant	A2-SltSlr (Liquid)	3.67E-01	Ci	154Eu	1.18E+03 Ci
241-AN-107	129I	Salt Cake	A2-SltSlr (Solid)	1.09E-01	Ci	155Eu	6.39E+02 Ci
241-AN-107	129I	Total		4.76E-01	Ci	226Ra	1.10E-04 Ci
241-AN-107	134Cs	Supernatant	A2-SltSlr (Liquid)	8.63E+00	Ci	227Ac	1.36E-02 Ci
241-AN-107	134Cs	Salt Cake	A2-SltSlr (Solid)	1.90E+00	Ci	228Ra	3.32E-02 Ci
241-AN-107	134Cs	Total		1.05E+01	Ci	229Th	5.46E-05 Ci
241-AN-107	137Cs	Supernatant	A2-SltSlr (Liquid)	9.85E+05	Ci	231Pa	1.43E-01 Ci
241-AN-107	137Cs	Salt Cake	A2-SltSlr (Solid)	3.01E+05	Ci	232Th	6.36E-03 Ci
241-AN-107	137Cs	Total		1.29E+06	Ci	232U	3.29E-03 Ci
241-AN-107	137mBa	Supernatant	A2-SltSlr (Liquid)	9.30E+05	Ci	233U	2.02E-01 Ci
241-AN-107	137mBa	Salt Cake	A2-SltSlr (Solid)	2.84E+05	Ci	234U	1.43E-01 Ci
241-AN-107	137mBa	Total		1.21E+06	Ci	235U	5.65E-03 Ci
241-AN-107	14C	Supernatant	A2-SltSlr (Liquid)	2.04E+00	Ci	236U	9.67E-03 Ci
241-AN-107	14C	Salt Cake	A2-SltSlr (Solid)	5.65E+00	Ci	237Np	1.87E-01 Ci
241-AN-107	14C	Total		7.69E+00	Ci	238Pu	1.08E+01 Ci
241-AN-107	151Sm	Supernatant	A2-SltSlr (Liquid)	9.97E+03	Ci	238U	1.12E-01 Ci
241-AN-107	151Sm	Salt Cake	A2-SltSlr (Solid)	8.06E+03	Ci	239Pu	1.49E+02 Ci
241-AN-107	151Sm	Total		1.80E+04	Ci	240Pu	3.87E+01 Ci
241-AN-107	152Eu	Supernatant	A2-SltSlr (Liquid)	1.10E+00	Ci	241Am	2.41E+03 Ci
241-AN-107	152Eu	Salt Cake	A2-SltSlr (Solid)	9.34E-01	Ci	241Pu	6.80E+02 Ci
241-AN-107	152Eu	Total		2.04E+00	Ci	242Cm	9.19E+00 Ci
241-AN-107	154Eu	Supernatant	A2-SltSlr (Liquid)	1.18E+03	Ci	242Pu	4.10E-03 Ci
241-AN-107	154Eu	Salt Cake	A2-SltSlr (Solid)	1.90E+03	Ci	243Am	1.58E+00 Ci
241-AN-107	154Eu	Total		3.08E+03	Ci	243Cm	2.60E-01 Ci
241-AN-107	155Eu	Supernatant	A2-SltSlr (Liquid)	6.39E+02	Ci	244Cm	6.16E+00 Ci
241-AN-107	155Eu	Salt Cake	A2-SltSlr (Solid)	1.06E+03	Ci	3H	2.04E+00 Ci
241-AN-107	155Eu	Total		1.70E+03	Ci	59Ni	7.00E+01 Ci
241-AN-107	226Ra	Supernatant	A2-SltSlr (Liquid)	1.10E-04	Ci	60Co	2.12E+02 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-19

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AN-107	226Ra	Salt Cake	A2-SltSlr (Solid)	2.44E-05	Ci
241-AN-107	226Ra	Total		1.35E-04	Ci
241-AN-107	227Ac	Supernatant	A2-SltSlr (Liquid)	1.36E-02	Ci
241-AN-107	227Ac	Salt Cake	A2-SltSlr (Solid)	3.00E-03	Ci
241-AN-107	227Ac	Total		1.66E-02	Ci
241-AN-107	228Ra	Supernatant	A2-SltSlr (Liquid)	3.32E-02	Ci
241-AN-107	228Ra	Salt Cake	A2-SltSlr (Solid)	8.66E-03	Ci
241-AN-107	228Ra	Total		4.18E-02	Ci
241-AN-107	229Th	Supernatant	A2-SltSlr (Liquid)	5.46E-05	Ci
241-AN-107	229Th	Salt Cake	A2-SltSlr (Solid)	1.20E-05	Ci
241-AN-107	229Th	Total		6.66E-05	Ci
241-AN-107	231Pa	Supernatant	A2-SltSlr (Liquid)	1.43E-01	Ci
241-AN-107	231Pa	Salt Cake	A2-SltSlr (Solid)	3.15E-02	Ci
241-AN-107	231Pa	Total		1.74E-01	Ci
241-AN-107	232Th	Supernatant	A2-SltSlr (Liquid)	6.36E-03	Ci
241-AN-107	232Th	Salt Cake	A2-SltSlr (Solid)	5.91E-03	Ci
241-AN-107	232Th	Total		1.23E-02	Ci
241-AN-107	232U	Supernatant	A2-SltSlr (Liquid)	3.29E-03	Ci
241-AN-107	232U	Salt Cake	A2-SltSlr (Solid)	4.93E-03	Ci
241-AN-107	232U	Total		8.22E-03	Ci
241-AN-107	233U	Supernatant	A2-SltSlr (Liquid)	2.02E-01	Ci
241-AN-107	233U	Salt Cake	A2-SltSlr (Solid)	3.03E-01	Ci
241-AN-107	233U	Total		5.05E-01	Ci
241-AN-107	234U	Supernatant	A2-SltSlr (Liquid)	1.43E-01	Ci
241-AN-107	234U	Salt Cake	A2-SltSlr (Solid)	2.14E-01	Ci
241-AN-107	234U	Total		3.57E-01	Ci
241-AN-107	235U	Supernatant	A2-SltSlr (Liquid)	5.65E-03	Ci
241-AN-107	235U	Salt Cake	A2-SltSlr (Solid)	8.46E-03	Ci
241-AN-107	235U	Total		1.41E-02	Ci
241-AN-107	236U	Supernatant	A2-SltSlr (Liquid)	9.67E-03	Ci
241-AN-107	236U	Salt Cake	A2-SltSlr (Solid)	1.45E-02	Ci
241-AN-107	236U	Total		2.42E-02	Ci
241-AN-107	237Np	Supernatant	A2-SltSlr (Liquid)	1.87E-01	Ci
241-AN-107	237Np	Salt Cake	A2-SltSlr (Solid)	1.47E-01	Ci
241-AN-107	237Np	Total		3.34E-01	Ci
241-AN-107	238Pu	Supernatant	A2-SltSlr (Liquid)	1.08E+01	Ci
241-AN-107	238Pu	Salt Cake	A2-SltSlr (Solid)	5.14E+00	Ci
241-AN-107	238Pu	Total		1.59E+01	Ci
241-AN-107	238U	Supernatant	A2-SltSlr (Liquid)	1.12E-01	Ci
241-AN-107	238U	Salt Cake	A2-SltSlr (Solid)	1.68E-01	Ci
241-AN-107	238U	Total		2.80E-01	Ci
241-AN-107	239Pu	Supernatant	A2-SltSlr (Liquid)	1.49E+02	Ci
241-AN-107	239Pu	Salt Cake	A2-SltSlr (Solid)	7.08E+01	Ci
241-AN-107	239Pu	Total		2.20E+02	Ci
241-AN-107	240Pu	Supernatant	A2-SltSlr (Liquid)	3.87E+01	Ci
241-AN-107	240Pu	Salt Cake	A2-SltSlr (Solid)	1.84E+01	Ci
241-AN-107	240Pu	Total		5.71E+01	Ci
241-AN-107	241Am	Supernatant	A2-SltSlr (Liquid)	2.41E+03	Ci
241-AN-107	241Am	Salt Cake	A2-SltSlr (Solid)	1.20E+03	Ci
241-AN-107	241Am	Total		3.62E+03	Ci
241-AN-107	241Pu	Supernatant	A2-SltSlr (Liquid)	6.80E+02	Ci
241-AN-107	241Pu	Salt Cake	A2-SltSlr (Solid)	3.23E+02	Ci
241-AN-107	241Pu	Total		1.00E+03	Ci
241-AN-107	242Cm	Supernatant	A2-SltSlr (Liquid)	9.19E+00	Ci
241-AN-107	242Cm	Salt Cake	A2-SltSlr (Solid)	3.16E-01	Ci
241-AN-107	242Cm	Total		9.50E+00	Ci
241-AN-107	242Pu	Supernatant	A2-SltSlr (Liquid)	4.10E-03	Ci
241-AN-107	242Pu	Salt Cake	A2-SltSlr (Solid)	1.95E-03	Ci
241-AN-107	242Pu	Total		6.05E-03	Ci
241-AN-107	243Am	Supernatant	A2-SltSlr (Liquid)	1.58E+00	Ci
241-AN-107	243Am	Salt Cake	A2-SltSlr (Solid)	8.09E-01	Ci
241-AN-107	243Am	Total		2.39E+00	Ci
241-AN-107	243Cm	Supernatant	A2-SltSlr (Liquid)	2.60E-01	Ci
241-AN-107	243Cm	Salt Cake	A2-SltSlr (Solid)	1.74E-02	Ci
241-AN-107	243Cm	Total		2.78E-01	Ci
241-AN-107	244Cm	Supernatant	A2-SltSlr (Liquid)	6.16E+00	Ci
241-AN-107	244Cm	Salt Cake	A2-SltSlr (Solid)	4.12E-01	Ci
241-AN-107	244Cm	Total		6.57E+00	Ci

Summary	
63Ni	4.88E+03 Ci
79Se	2.55E+00 Ci
90Sr	2.53E+05 Ci
90Y	2.53E+05 Ci
93mNb	6.35E+01 Ci
93Zr	7.66E+01 Ci
99Tc	2.57E+02 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-20

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AN-107	3H	Supernatant	A2-SltSlr (Liquid)	2.04E+00	Ci
241-AN-107	3H	Salt Cake	A2-SltSlr (Solid)	7.60E+00	Ci
241-AN-107	3H	Total		9.63E+00	Ci
241-AN-107	59Ni	Supernatant	A2-SltSlr (Liquid)	7.00E+01	Ci
241-AN-107	59Ni	Salt Cake	A2-SltSlr (Solid)	5.14E+00	Ci
241-AN-107	59Ni	Total		7.51E+01	Ci
241-AN-107	60Co	Supernatant	A2-SltSlr (Liquid)	2.12E+02	Ci
241-AN-107	60Co	Salt Cake	A2-SltSlr (Solid)	6.41E+01	Ci
241-AN-107	60Co	Total		2.76E+02	Ci
241-AN-107	63Ni	Supernatant	A2-SltSlr (Liquid)	4.88E+03	Ci
241-AN-107	63Ni	Salt Cake	A2-SltSlr (Solid)	4.80E+02	Ci
241-AN-107	63Ni	Total		5.36E+03	Ci
241-AN-107	79Se	Supernatant	A2-SltSlr (Liquid)	2.55E+00	Ci
241-AN-107	79Se	Salt Cake	A2-SltSlr (Solid)	2.84E-01	Ci
241-AN-107	79Se	Total		2.84E+00	Ci
241-AN-107	90Sr	Supernatant	A2-SltSlr (Liquid)	2.53E+05	Ci
241-AN-107	90Sr	Salt Cake	A2-SltSlr (Solid)	2.14E+05	Ci
241-AN-107	90Sr	Total		4.67E+05	Ci
241-AN-107	90Y	Supernatant	A2-SltSlr (Liquid)	2.53E+05	Ci
241-AN-107	90Y	Salt Cake	A2-SltSlr (Solid)	2.14E+05	Ci
241-AN-107	90Y	Total		4.67E+05	Ci
241-AN-107	93mNb	Supernatant	A2-SltSlr (Liquid)	6.35E+01	Ci
241-AN-107	93mNb	Salt Cake	A2-SltSlr (Solid)	1.40E+01	Ci
241-AN-107	93mNb	Total		7.76E+01	Ci
241-AN-107	93Zr	Supernatant	A2-SltSlr (Liquid)	7.66E+01	Ci
241-AN-107	93Zr	Salt Cake	A2-SltSlr (Solid)	1.69E+01	Ci
241-AN-107	93Zr	Total		9.35E+01	Ci
241-AN-107	99Tc	Supernatant	A2-SltSlr (Liquid)	2.57E+02	Ci
241-AN-107	99Tc	Salt Cake	A2-SltSlr (Solid)	1.31E+02	Ci
241-AN-107	99Tc	Total		3.88E+02	Ci
241-AN-107	Ag	Supernatant	A2-SltSlr (Liquid)	6.26E+00	kg
241-AN-107	Ag	Salt Cake	A2-SltSlr (Solid)	1.38E+01	kg
241-AN-107	Ag	Total		2.01E+01	kg
241-AN-107	Al	Supernatant	A2-SltSlr (Liquid)	3.70E+03	kg
241-AN-107	Al	Salt Cake	A2-SltSlr (Solid)	2.23E+04	kg
241-AN-107	Al	Total		2.60E+04	kg
241-AN-107	As	Supernatant	A2-SltSlr (Liquid)	4.25E+00	kg
241-AN-107	As	Salt Cake	A2-SltSlr (Solid)	5.31E+01	kg
241-AN-107	As	Total		5.73E+01	kg
241-AN-107	B	Supernatant	A2-SltSlr (Liquid)	7.38E+01	kg
241-AN-107	B	Salt Cake	A2-SltSlr (Solid)	4.21E+01	kg
241-AN-107	B	Total		1.16E+02	kg
241-AN-107	Ba	Supernatant	A2-SltSlr (Liquid)	3.10E+01	kg
241-AN-107	Ba	Salt Cake	A2-SltSlr (Solid)	2.71E+01	kg
241-AN-107	Ba	Total		5.82E+01	kg
241-AN-107	Be	Supernatant	A2-SltSlr (Liquid)	6.17E-01	kg
241-AN-107	Be	Salt Cake	A2-SltSlr (Solid)	1.28E+00	kg
241-AN-107	Be	Total		1.90E+00	kg
241-AN-107	Bi	Supernatant	A2-SltSlr (Liquid)	2.73E+01	kg
241-AN-107	Bi	Salt Cake	A2-SltSlr (Solid)	1.41E+01	kg
241-AN-107	Bi	Total		4.14E+01	kg
241-AN-107	Ca	Supernatant	A2-SltSlr (Liquid)	1.84E+03	kg
241-AN-107	Ca	Salt Cake	A2-SltSlr (Solid)	4.66E+02	kg
241-AN-107	Ca	Total		2.30E+03	kg
241-AN-107	Cd	Supernatant	A2-SltSlr (Liquid)	2.07E+02	kg
241-AN-107	Cd	Salt Cake	A2-SltSlr (Solid)	4.97E+01	kg
241-AN-107	Cd	Total		2.56E+02	kg
241-AN-107	Ce	Supernatant	A2-SltSlr (Liquid)	1.59E+02	kg
241-AN-107	Ce	Salt Cake	A2-SltSlr (Solid)	7.46E+01	kg
241-AN-107	Ce	Total		2.34E+02	kg
241-AN-107	Cl	Supernatant	A2-SltSlr (Liquid)	5.82E+03	kg
241-AN-107	Cl	Salt Cake	A2-SltSlr (Solid)	1.35E+03	kg
241-AN-107	Cl	Total		7.17E+03	kg
241-AN-107	Co	Supernatant	A2-SltSlr (Liquid)	1.36E+01	kg
241-AN-107	Co	Salt Cake	A2-SltSlr (Solid)	7.06E+00	kg
241-AN-107	Co	Total		2.07E+01	kg
241-AN-107	Cr	Supernatant	A2-SltSlr (Liquid)	5.61E+02	kg
241-AN-107	Cr	Salt Cake	A2-SltSlr (Solid)	8.12E+02	kg

Summary	
Ag	6.26E+00 kg
Al	3.70E+03 kg
As	4.25E+00 kg
B	7.38E+01 kg
Ba	3.10E+01 kg
Be	6.17E-01 kg
Bi	2.73E+01 kg
Ca	1.84E+03 kg
Cd	2.07E+02 kg
Ce	1.59E+02 kg
Cl	5.82E+03 kg
CN	0.00E+00 kg
Co	1.36E+01 kg
Cr	5.61E+02 kg
Cu	9.49E+01 kg
F	3.06E+02 kg
Fe	5.43E+03 kg
Free OH	5.93E+04 kg
Hg	7.32E-01 kg
K	5.70E+03 kg
La	1.05E+02 kg
Li	9.61E+00 kg
Mg	4.57E+00 kg
Mn	1.61E+03 kg
Mo	1.10E+02 kg
Na	6.85E+05 kg
Nd	3.03E+02 kg
NH3	1.54E+02 kg
Ni	1.73E+03 kg
NO2	2.20E+05 kg
NO3	6.89E+05 kg
Oxalate	2.98E+03 kg
Pb	1.24E+03 kg
Pd	0.00E+00 kg
PO4	5.09E+03 kg
Pr	0.00E+00 kg
Rb	0.00E+00 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-21

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AN-107	Cr	Total		1.37E+03	kg
241-AN-107	Cu	Supernatant	A2-SltSlr (Liquid)	9.49E+01	kg
241-AN-107	Cu	Salt Cake	A2-SltSlr (Solid)	2.65E+01	kg
241-AN-107	Cu	Total		1.21E+02	kg
241-AN-107	F	Supernatant	A2-SltSlr (Liquid)	3.06E+02	kg
241-AN-107	F	Salt Cake	A2-SltSlr (Solid)	1.95E+02	kg
241-AN-107	F	Total		5.02E+02	kg
241-AN-107	Fe	Supernatant	A2-SltSlr (Liquid)	5.43E+03	kg
241-AN-107	Fe	Salt Cake	A2-SltSlr (Solid)	8.00E+03	kg
241-AN-107	Fe	Total		1.34E+04	kg
241-AN-107	Free OH	Supernatant	A2-SltSlr (Liquid)	5.93E+04	kg
241-AN-107	Free OH	Salt Cake	A2-SltSlr (Solid)	2.48E+02	kg
241-AN-107	Free OH	Total		5.96E+04	kg
241-AN-107	Hg	Supernatant	A2-SltSlr (Liquid)	7.32E-01	kg
241-AN-107	Hg	Salt Cake	A2-SltSlr (Solid)	5.94E-01	kg
241-AN-107	Hg	Total		1.33E+00	kg
241-AN-107	K	Supernatant	A2-SltSlr (Liquid)	5.70E+03	kg
241-AN-107	K	Salt Cake	A2-SltSlr (Solid)	1.76E+03	kg
241-AN-107	K	Total		7.46E+03	kg
241-AN-107	La	Supernatant	A2-SltSlr (Liquid)	1.05E+02	kg
241-AN-107	La	Salt Cake	A2-SltSlr (Solid)	3.86E+01	kg
241-AN-107	La	Total		1.44E+02	kg
241-AN-107	Li	Supernatant	A2-SltSlr (Liquid)	9.61E+00	kg
241-AN-107	Li	Salt Cake	A2-SltSlr (Solid)	2.17E+01	kg
241-AN-107	Li	Total		3.13E+01	kg
241-AN-107	Mg	Supernatant	A2-SltSlr (Liquid)	4.57E+00	kg
241-AN-107	Mg	Salt Cake	A2-SltSlr (Solid)	2.27E+01	kg
241-AN-107	Mg	Total		2.73E+01	kg
241-AN-107	Mn	Supernatant	A2-SltSlr (Liquid)	1.61E+03	kg
241-AN-107	Mn	Salt Cake	A2-SltSlr (Solid)	7.37E+02	kg
241-AN-107	Mn	Total		2.34E+03	kg
241-AN-107	Mo	Supernatant	A2-SltSlr (Liquid)	1.10E+02	kg
241-AN-107	Mo	Salt Cake	A2-SltSlr (Solid)	2.94E+01	kg
241-AN-107	Mo	Total		1.40E+02	kg
241-AN-107	Na	Supernatant	A2-SltSlr (Liquid)	6.85E+05	kg
241-AN-107	Na	Salt Cake	A2-SltSlr (Solid)	1.88E+05	kg
241-AN-107	Na	Total		8.72E+05	kg
241-AN-107	Nd	Supernatant	A2-SltSlr (Liquid)	3.03E+02	kg
241-AN-107	Nd	Salt Cake	A2-SltSlr (Solid)	1.49E+02	kg
241-AN-107	Nd	Total		4.51E+02	kg
241-AN-107	NH3	Supernatant	A2-SltSlr (Liquid)	1.54E+02	kg
241-AN-107	NH3	Salt Cake	A2-SltSlr (Solid)	4.51E+01	kg
241-AN-107	NH3	Total		1.99E+02	kg
241-AN-107	Ni	Supernatant	A2-SltSlr (Liquid)	1.73E+03	kg
241-AN-107	Ni	Salt Cake	A2-SltSlr (Solid)	4.61E+02	kg
241-AN-107	Ni	Total		2.19E+03	kg
241-AN-107	NO2	Supernatant	A2-SltSlr (Liquid)	2.20E+05	kg
241-AN-107	NO2	Salt Cake	A2-SltSlr (Solid)	5.38E+04	kg
241-AN-107	NO2	Total		2.74E+05	kg
241-AN-107	NO3	Supernatant	A2-SltSlr (Liquid)	6.89E+05	kg
241-AN-107	NO3	Salt Cake	A2-SltSlr (Solid)	1.47E+05	kg
241-AN-107	NO3	Total		8.37E+05	kg
241-AN-107	Oxalate	Supernatant	A2-SltSlr (Liquid)	2.98E+03	kg
241-AN-107	Oxalate	Salt Cake	A2-SltSlr (Solid)	1.87E+04	kg
241-AN-107	Oxalate	Total		2.16E+04	kg
241-AN-107	Pb	Supernatant	A2-SltSlr (Liquid)	1.24E+03	kg
241-AN-107	Pb	Salt Cake	A2-SltSlr (Solid)	5.10E+02	kg
241-AN-107	Pb	Total		1.75E+03	kg
241-AN-107	PO4	Supernatant	A2-SltSlr (Liquid)	5.09E+03	kg
241-AN-107	PO4	Salt Cake	A2-SltSlr (Solid)	6.00E+03	kg
241-AN-107	PO4	Total		1.11E+04	kg
241-AN-107	Rh	Supernatant	A2-SltSlr (Liquid)	8.19E+01	kg
241-AN-107	Rh	Salt Cake	A2-SltSlr (Solid)	4.27E+01	kg
241-AN-107	Rh	Total		1.25E+02	kg
241-AN-107	Sb	Supernatant	A2-SltSlr (Liquid)	1.01E+00	kg
241-AN-107	Sb	Salt Cake	A2-SltSlr (Solid)	3.20E+01	kg
241-AN-107	Sb	Total		3.30E+01	kg
241-AN-107	Se	Supernatant	A2-SltSlr (Liquid)	2.66E+00	kg

Summary		
Rh	8.19E+01	kg
Ru	0.00E+00	kg
Sb	1.01E+00	kg
Se	2.66E+00	kg
Si	4.30E+01	kg
SO4	2.69E+04	kg
Sr	6.18E+00	kg
Ta	7.67E+01	kg
Te	0.00E+00	kg
Th	5.80E+01	kg
Ti	4.67E+00	kg
TIC as CO3	2.43E+05	kg
Tl	3.94E-01	kg
TOC	1.07E+05	kg
UTOTAL	3.36E+02	kg
V	2.30E+00	kg
W	0.00E+00	kg
Y	2.84E+01	kg
Zn	6.22E+01	kg
Zr	1.97E+02	kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-22

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions *Inorganic and Radionuclide* Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AN-107	Se	Salt Cake	A2-SltSlr (Solid)	3.57E+01	kg	
241-AN-107	Se	Total		3.84E+01	kg	
241-AN-107	Si	Supernatant	A2-SltSlr (Liquid)	4.30E+01	kg	
241-AN-107	Si	Salt Cake	A2-SltSlr (Solid)	1.08E+02	kg	
241-AN-107	Si	Total		1.51E+02	kg	
241-AN-107	SO4	Supernatant	A2-SltSlr (Liquid)	2.69E+04	kg	
241-AN-107	SO4	Salt Cake	A2-SltSlr (Solid)	6.58E+03	kg	
241-AN-107	SO4	Total		3.35E+04	kg	
241-AN-107	Sr	Supernatant	A2-SltSlr (Liquid)	6.18E+00	kg	
241-AN-107	Sr	Salt Cake	A2-SltSlr (Solid)	5.66E+00	kg	
241-AN-107	Sr	Total		1.18E+01	kg	
241-AN-107	Ta	Supernatant	A2-SltSlr (Liquid)	7.67E+01	kg	
241-AN-107	Ta	Salt Cake	A2-SltSlr (Solid)	2.92E-01	kg	
241-AN-107	Ta	Total		7.70E+01	kg	
241-AN-107	Th	Supernatant	A2-SltSlr (Liquid)	5.80E+01	kg	
241-AN-107	Th	Salt Cake	A2-SltSlr (Solid)	5.37E+01	kg	
241-AN-107	Th	Total		1.12E+02	kg	
241-AN-107	Ti	Supernatant	A2-SltSlr (Liquid)	4.67E+00	kg	
241-AN-107	Ti	Salt Cake	A2-SltSlr (Solid)	4.43E+00	kg	
241-AN-107	Ti	Total		9.10E+00	kg	
241-AN-107	TIC as CO3	Supernatant	A2-SltSlr (Liquid)	2.43E+05	kg	
241-AN-107	TIC as CO3	Salt Cake	A2-SltSlr (Solid)	8.53E+04	kg	
241-AN-107	TIC as CO3	Total		3.28E+05	kg	
241-AN-107	Tl	Supernatant	A2-SltSlr (Liquid)	3.94E-01	kg	
241-AN-107	Tl	Salt Cake	A2-SltSlr (Solid)	7.10E+01	kg	
241-AN-107	Tl	Total		7.14E+01	kg	
241-AN-107	TOC	Supernatant	A2-SltSlr (Liquid)	1.07E+05	kg	
241-AN-107	TOC	Salt Cake	A2-SltSlr (Solid)	4.03E+04	kg	
241-AN-107	TOC	Total		1.47E+05	kg	
241-AN-107	UTOTAL	Supernatant	A2-SltSlr (Liquid)	3.36E+02	kg	
241-AN-107	UTOTAL	Salt Cake	A2-SltSlr (Solid)	5.03E+02	kg	
241-AN-107	UTOTAL	Total		8.39E+02	kg	
241-AN-107	V	Supernatant	A2-SltSlr (Liquid)	2.30E+00	kg	
241-AN-107	V	Salt Cake	A2-SltSlr (Solid)	7.06E+00	kg	
241-AN-107	V	Total		9.36E+00	kg	
241-AN-107	Y	Supernatant	A2-SltSlr (Liquid)	2.84E+01	kg	
241-AN-107	Y	Salt Cake	A2-SltSlr (Solid)	3.49E+01	kg	
241-AN-107	Y	Total		6.33E+01	kg	
241-AN-107	Zn	Supernatant	A2-SltSlr (Liquid)	6.22E+01	kg	
241-AN-107	Zn	Salt Cake	A2-SltSlr (Solid)	7.05E+01	kg	
241-AN-107	Zn	Total		1.33E+02	kg	
241-AN-107	Zr	Supernatant	A2-SltSlr (Liquid)	1.97E+02	kg	
241-AN-107	Zr	Salt Cake	A2-SltSlr (Solid)	1.67E+02	kg	
241-AN-107	Zr	Total		3.64E+02	kg	

241-AP-101	106Ru	Supernatant	A2-SltCk (Liquid)	1.42E-05	Ci	Summary	
241-AP-101	106Ru	Total		1.42E-05	Ci	106Ru	1.42E-05 Ci
241-AP-101	113mCd	Supernatant	A2-SltCk (Liquid)	6.21E+01	Ci	113mCd	6.21E+01 Ci
241-AP-101	113mCd	Total		6.21E+01	Ci	125Sb	8.79E+00 Ci
241-AP-101	125Sb	Supernatant	A2-SltCk (Liquid)	8.79E+00	Ci	126Sn	3.57E+00 Ci
241-AP-101	125Sb	Total		8.79E+00	Ci	129I	5.88E-01 Ci
241-AP-101	126Sn	Supernatant	A2-SltCk (Liquid)	3.57E+00	Ci	134Cs	5.75E+01 Ci
241-AP-101	126Sn	Total		3.57E+00	Ci	137Cs	5.87E+05 Ci
241-AP-101	129I	Supernatant	A2-SltCk (Liquid)	5.88E-01	Ci	137mBa	5.54E+05 Ci
241-AP-101	129I	Total		5.88E-01	Ci	14C	9.36E-01 Ci
241-AP-101	134Cs	Supernatant	A2-SltCk (Liquid)	5.75E+01	Ci	151Sm	9.43E+03 Ci
241-AP-101	134Cs	Total		5.75E+01	Ci	152Eu	1.04E+00 Ci
241-AP-101	137Cs	Supernatant	A2-SltCk (Liquid)	5.87E+05	Ci	154Eu	6.25E+00 Ci
241-AP-101	137Cs	Total		5.87E+05	Ci	155Eu	2.78E+01 Ci
241-AP-101	137mBa	Supernatant	A2-SltCk (Liquid)	5.54E+05	Ci	226Ra	1.04E-04 Ci
241-AP-101	137mBa	Total		5.54E+05	Ci	227Ac	1.28E-02 Ci
241-AP-101	14C	Supernatant	A2-SltCk (Liquid)	9.36E-01	Ci	228Ra	2.96E-02 Ci
241-AP-101	14C	Total		9.36E-01	Ci	229Th	5.16E-05 Ci
241-AP-101	151Sm	Supernatant	A2-SltCk (Liquid)	9.43E+03	Ci	231Pa	1.35E-01 Ci
241-AP-101	151Sm	Total		9.43E+03	Ci	232Th	5.10E-06 Ci
241-AP-101	152Eu	Supernatant	A2-SltCk (Liquid)	1.04E+00	Ci	232U	2.25E-03 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-23

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AP-101	152Eu	Total		1.04E+00	Ci
241-AP-101	154Eu	Supernatant	A2-SltCk (Liquid)	6.25E+00	Ci
241-AP-101	154Eu	Total		6.25E+00	Ci
241-AP-101	155Eu	Supernatant	A2-SltCk (Liquid)	2.78E+01	Ci
241-AP-101	155Eu	Total		2.78E+01	Ci
241-AP-101	226Ra	Supernatant	A2-SltCk (Liquid)	1.04E-04	Ci
241-AP-101	226Ra	Total		1.04E-04	Ci
241-AP-101	227Ac	Supernatant	A2-SltCk (Liquid)	1.28E-02	Ci
241-AP-101	227Ac	Total		1.28E-02	Ci
241-AP-101	228Ra	Supernatant	A2-SltCk (Liquid)	2.96E-02	Ci
241-AP-101	228Ra	Total		2.96E-02	Ci
241-AP-101	229Th	Supernatant	A2-SltCk (Liquid)	5.16E-05	Ci
241-AP-101	229Th	Total		5.16E-05	Ci
241-AP-101	231Pa	Supernatant	A2-SltCk (Liquid)	1.35E-01	Ci
241-AP-101	231Pa	Total		1.35E-01	Ci
241-AP-101	232Th	Supernatant	A2-SltCk (Liquid)	5.10E-06	Ci
241-AP-101	232Th	Total		5.10E-06	Ci
241-AP-101	232U	Supernatant	A2-SltCk (Liquid)	2.25E-03	Ci
241-AP-101	232U	Total		2.25E-03	Ci
241-AP-101	233U	Supernatant	A2-SltCk (Liquid)	1.98E-01	Ci
241-AP-101	233U	Total		1.98E-01	Ci
241-AP-101	234U	Supernatant	A2-SltCk (Liquid)	1.18E-01	Ci
241-AP-101	234U	Total		1.18E-01	Ci
241-AP-101	235U	Supernatant	A2-SltCk (Liquid)	4.20E-03	Ci
241-AP-101	235U	Total		4.20E-03	Ci
241-AP-101	236U	Supernatant	A2-SltCk (Liquid)	8.97E-03	Ci
241-AP-101	236U	Total		8.97E-03	Ci
241-AP-101	237Np	Supernatant	A2-SltCk (Liquid)	2.29E-02	Ci
241-AP-101	237Np	Total		2.29E-02	Ci
241-AP-101	238Pu	Supernatant	A2-SltCk (Liquid)	3.21E-02	Ci
241-AP-101	238Pu	Total		3.21E-02	Ci
241-AP-101	238U	Supernatant	A2-SltCk (Liquid)	7.65E-02	Ci
241-AP-101	238U	Total		7.65E-02	Ci
241-AP-101	239Pu	Supernatant	A2-SltCk (Liquid)	4.42E-01	Ci
241-AP-101	239Pu	Total		4.42E-01	Ci
241-AP-101	240Pu	Supernatant	A2-SltCk (Liquid)	1.15E-01	Ci
241-AP-101	240Pu	Total		1.15E-01	Ci
241-AP-101	241Am	Supernatant	A2-SltCk (Liquid)	8.13E-01	Ci
241-AP-101	241Am	Total		8.13E-01	Ci
241-AP-101	241Pu	Supernatant	A2-SltCk (Liquid)	2.02E+00	Ci
241-AP-101	241Pu	Total		2.02E+00	Ci
241-AP-101	242Cm	Supernatant	A2-SltCk (Liquid)	1.59E-03	Ci
241-AP-101	242Cm	Total		1.59E-03	Ci
241-AP-101	242Pu	Supernatant	A2-SltCk (Liquid)	1.22E-05	Ci
241-AP-101	242Pu	Total		1.22E-05	Ci
241-AP-101	243Am	Supernatant	A2-SltCk (Liquid)	5.34E-04	Ci
241-AP-101	243Am	Total		5.34E-04	Ci
241-AP-101	243Cm	Supernatant	A2-SltCk (Liquid)	8.79E-05	Ci
241-AP-101	243Cm	Total		8.79E-05	Ci
241-AP-101	244Cm	Supernatant	A2-SltCk (Liquid)	2.08E-03	Ci
241-AP-101	244Cm	Total		2.08E-03	Ci
241-AP-101	3H	Supernatant	A2-SltCk (Liquid)	1.50E+01	Ci
241-AP-101	3H	Total		1.50E+01	Ci
241-AP-101	59Ni	Supernatant	A2-SltCk (Liquid)	6.63E-01	Ci
241-AP-101	59Ni	Total		6.63E-01	Ci
241-AP-101	60Co	Supernatant	A2-SltCk (Liquid)	8.52E+00	Ci
241-AP-101	60Co	Total		8.52E+00	Ci
241-AP-101	63Ni	Supernatant	A2-SltCk (Liquid)	6.17E+01	Ci
241-AP-101	63Ni	Total		6.17E+01	Ci
241-AP-101	79Se	Supernatant	A2-SltCk (Liquid)	3.95E-01	Ci
241-AP-101	79Se	Total		3.95E-01	Ci
241-AP-101	90Sr	Supernatant	A2-SltCk (Liquid)	4.12E+02	Ci
241-AP-101	90Sr	Total		4.12E+02	Ci
241-AP-101	90Y	Supernatant	A2-SltCk (Liquid)	4.12E+02	Ci
241-AP-101	90Y	Total		4.12E+02	Ci
241-AP-101	93mNb	Supernatant	A2-SltCk (Liquid)	6.01E+01	Ci
241-AP-101	93mNb	Total		6.01E+01	Ci
241-AP-101	93Zr	Supernatant	A2-SltCk (Liquid)	7.25E+01	Ci

Summary	
233U	1.98E-01 Ci
234U	1.18E-01 Ci
235U	4.20E-03 Ci
236U	8.97E-03 Ci
237Np	2.29E-02 Ci
238Pu	3.21E-02 Ci
238U	7.65E-02 Ci
239Pu	4.42E-01 Ci
240Pu	1.15E-01 Ci
241Am	8.13E-01 Ci
241Pu	2.02E+00 Ci
242Cm	1.59E-03 Ci
242Pu	1.22E-05 Ci
243Am	5.34E-04 Ci
243Cm	8.79E-05 Ci
244Cm	2.08E-03 Ci
3H	1.50E+01 Ci
59Ni	6.63E-01 Ci
60Co	8.52E+00 Ci
63Ni	6.17E+01 Ci
79Se	3.95E-01 Ci
90Sr	4.12E+02 Ci
90Y	4.12E+02 Ci
93mNb	6.01E+01 Ci
93Zr	7.25E+01 Ci
99Tc	2.21E+02 Ci

CALCULATION SHEET

PROJECT. RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-24

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AP-101	93Zr	Total		7.25E+01	Ci
241-AP-101	99Tc	Supernatant	A2-SltCk (Liquid)	2.21E+02	Ci
241-AP-101	99Tc	Total		2.21E+02	Ci
241-AP-101	Ag	Supernatant	A2-SltCk (Liquid)	2.66E+00	kg
241-AP-101	Ag	Total		2.66E+00	kg
241-AP-101	Al	Supernatant	A2-SltCk (Liquid)	3.08E+04	kg
241-AP-101	Al	Total		3.08E+04	kg
241-AP-101	As	Supernatant	A2-SltCk (Liquid)	5.31E+00	kg
241-AP-101	As	Total		5.31E+00	kg
241-AP-101	B	Supernatant	A2-SltCk (Liquid)	4.03E+01	kg
241-AP-101	B	Total		4.03E+01	kg
241-AP-101	Ba	Supernatant	A2-SltCk (Liquid)	1.39E+00	kg
241-AP-101	Ba	Total		1.39E+00	kg
241-AP-101	Be	Supernatant	A2-SltCk (Liquid)	5.56E+00	kg
241-AP-101	Be	Total		5.56E+00	kg
241-AP-101	Bi	Supernatant	A2-SltCk (Liquid)	1.05E+01	kg
241-AP-101	Bi	Total		1.05E+01	kg
241-AP-101	Ca	Supernatant	A2-SltCk (Liquid)	3.25E+01	kg
241-AP-101	Ca	Total		3.25E+01	kg
241-AP-101	Cd	Supernatant	A2-SltCk (Liquid)	8.14E+00	kg
241-AP-101	Cd	Total		8.14E+00	kg
241-AP-101	Ce	Supernatant	A2-SltCk (Liquid)	3.15E-01	kg
241-AP-101	Ce	Total		3.15E-01	kg
241-AP-101	Cl	Supernatant	A2-SltCk (Liquid)	6.68E+03	kg
241-AP-101	Cl	Total		6.68E+03	kg
241-AP-101	CN	Supernatant	A2-SltCk (Liquid)	2.40E+01	kg
241-AP-101	CN	Total		2.40E+01	kg
241-AP-101	Co	Supernatant	A2-SltCk (Liquid)	1.48E+00	kg
241-AP-101	Co	Total		1.48E+00	kg
241-AP-101	Cr	Supernatant	A2-SltCk (Liquid)	7.27E+02	kg
241-AP-101	Cr	Total		7.27E+02	kg
241-AP-101	Cu	Supernatant	A2-SltCk (Liquid)	6.74E+00	kg
241-AP-101	Cu	Total		6.74E+00	kg
241-AP-101	F	Supernatant	A2-SltCk (Liquid)	7.95E+03	kg
241-AP-101	F	Total		7.95E+03	kg
241-AP-101	Fe	Supernatant	A2-SltCk (Liquid)	1.57E+01	kg
241-AP-101	Fe	Total		1.57E+01	kg
241-AP-101	Free OH	Supernatant	A2-SltCk (Liquid)	1.68E+05	kg
241-AP-101	Free OH	Total		1.68E+05	kg
241-AP-101	Hg	Supernatant	A2-SltCk (Liquid)	3.36E-02	kg
241-AP-101	Hg	Total		3.36E-02	kg
241-AP-101	K	Supernatant	A2-SltCk (Liquid)	1.43E+05	kg
241-AP-101	K	Total		1.43E+05	kg
241-AP-101	La	Supernatant	A2-SltCk (Liquid)	1.90E-03	kg
241-AP-101	La	Total		1.90E-03	kg
241-AP-101	Li	Supernatant	A2-SltCk (Liquid)	1.43E+00	kg
241-AP-101	Li	Total		1.43E+00	kg
241-AP-101	Mg	Supernatant	A2-SltCk (Liquid)	1.05E+01	kg
241-AP-101	Mg	Total		1.05E+01	kg
241-AP-101	Mn	Supernatant	A2-SltCk (Liquid)	5.48E+00	kg
241-AP-101	Mn	Total		5.48E+00	kg
241-AP-101	Mo	Supernatant	A2-SltCk (Liquid)	6.25E+01	kg
241-AP-101	Mo	Total		6.25E+01	kg
241-AP-101	Na	Supernatant	A2-SltCk (Liquid)	5.46E+05	kg
241-AP-101	Na	Total		5.46E+05	kg
241-AP-101	Nd	Supernatant	A2-SltCk (Liquid)	1.05E+01	kg
241-AP-101	Nd	Total		1.05E+01	kg
241-AP-101	NH3	Supernatant	A2-SltCk (Liquid)	4.04E+02	kg
241-AP-101	NH3	Total		4.04E+02	kg
241-AP-101	Ni	Supernatant	A2-SltCk (Liquid)	2.61E+01	kg
241-AP-101	Ni	Total		2.61E+01	kg
241-AP-101	NO2	Supernatant	A2-SltCk (Liquid)	1.72E+05	kg
241-AP-101	NO2	Total		1.72E+05	kg
241-AP-101	NO3	Supernatant	A2-SltCk (Liquid)	4.96E+05	kg
241-AP-101	NO3	Total		4.96E+05	kg
241-AP-101	Oxalate	Supernatant	A2-SltCk (Liquid)	4.49E+03	kg
241-AP-101	Oxalate	Total		4.49E+03	kg
241-AP-101	Pb	Supernatant	A2-SltCk (Liquid)	5.13E+01	kg

Summary	
Ag	2.66E+00 kg
Al	3.08E+04 kg
As	5.31E+00 kg
B	4.03E+01 kg
Ba	1.39E+00 kg
Be	5.56E+00 kg
Bi	1.05E+01 kg
Ca	3.25E+01 kg
Cd	8.14E+00 kg
Ce	3.15E-01 kg
Cl	6.68E+03 kg
CN	2.40E+01 kg
Co	1.48E+00 kg
Cr	7.27E+02 kg
Cu	6.74E+00 kg
F	7.95E+03 kg
Fe	1.57E+01 kg
Free OH	1.68E+05 kg
Hg	3.36E-02 kg
K	1.43E+05 kg
La	1.90E-03 kg
Li	1.43E+00 kg
Mg	1.05E+01 kg
Mn	5.48E+00 kg
Mo	6.25E+01 kg
Na	5.46E+05 kg
Nd	1.05E+01 kg
NH3	4.04E+02 kg
Ni	2.61E+01 kg
NO2	1.72E+05 kg
NO3	4.96E+05 kg
Oxalate	4.49E+03 kg
Pb	5.13E+01 kg
Pd	8.01E+01 kg
PO4	5.31E+03 kg
Pr	7.29E-02 kg
Rb	1.67E+01 kg
Rh	3.20E+01 kg
Ru	1.18E+02 kg
Sb	1.77E-01 kg
Se	9.69E+00 kg
Si	4.21E+02 kg
SO4	1.62E+04 kg
Sr	1.24E-01 kg
Ta	3.75E-01 kg
Te	6.87E-01 kg
Th	4.64E-02 kg
Ti	2.66E+00 kg
TIC as CO3	1.40E+05 kg
Tl	7.59E-02 kg
TOC	8.00E+03 kg
UTOTAL	2.30E+02 kg
V	3.15E+00 kg
W	1.21E+02 kg
Y	6.66E+00 kg
Zn	2.36E+01 kg
Zr	5.90E+00 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-25

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AP-101	Pb	Total		5.13E+01	kg	
241-AP-101	Pd	Supernatant	A2-SltCk (Liquid)	8.01E+01	kg	
241-AP-101	Pd	Total		8.01E+01	kg	
241-AP-101	PO4	Supernatant	A2-SltCk (Liquid)	5.31E+03	kg	
241-AP-101	PO4	Total		5.31E+03	kg	
241-AP-101	Pr	Supernatant	A2-SltCk (Liquid)	7.29E-02	kg	
241-AP-101	Pr	Total		7.29E-02	kg	
241-AP-101	Rb	Supernatant	A2-SltCk (Liquid)	1.67E+01	kg	
241-AP-101	Rb	Total		1.67E+01	kg	
241-AP-101	Rh	Supernatant	A2-SltCk (Liquid)	3.20E+01	kg	
241-AP-101	Rh	Total		3.20E+01	kg	
241-AP-101	Ru	Supernatant	A2-SltCk (Liquid)	1.18E+02	kg	
241-AP-101	Ru	Total		1.18E+02	kg	
241-AP-101	Sb	Supernatant	A2-SltCk (Liquid)	1.77E-01	kg	
241-AP-101	Sb	Total		1.77E-01	kg	
241-AP-101	Se	Supernatant	A2-SltCk (Liquid)	9.69E+00	kg	
241-AP-101	Se	Total		9.69E+00	kg	
241-AP-101	Si	Supernatant	A2-SltCk (Liquid)	4.21E+02	kg	
241-AP-101	Si	Total		4.21E+02	kg	
241-AP-101	SO4	Supernatant	A2-SltCk (Liquid)	1.62E+04	kg	
241-AP-101	SO4	Total		1.62E+04	kg	
241-AP-101	Sr	Supernatant	A2-SltCk (Liquid)	1.24E-01	kg	
241-AP-101	Sr	Total		1.24E-01	kg	
241-AP-101	Ta	Supernatant	A2-SltCk (Liquid)	3.75E-01	kg	
241-AP-101	Ta	Total		3.75E-01	kg	
241-AP-101	Te	Supernatant	A2-SltCk (Liquid)	6.87E-01	kg	
241-AP-101	Te	Total		6.87E-01	kg	
241-AP-101	Th	Supernatant	A2-SltCk (Liquid)	4.64E-02	kg	
241-AP-101	Th	Total		4.64E-02	kg	
241-AP-101	Ti	Supernatant	A2-SltCk (Liquid)	2.66E+00	kg	
241-AP-101	Ti	Total		2.66E+00	kg	
241-AP-101	TIC as CO3	Supernatant	A2-SltCk (Liquid)	1.40E+05	kg	
241-AP-101	TIC as CO3	Total		1.40E+05	kg	
241-AP-101	Tl	Supernatant	A2-SltCk (Liquid)	7.59E-02	kg	
241-AP-101	Tl	Total		7.59E-02	kg	
241-AP-101	TOC	Supernatant	A2-SltCk (Liquid)	8.00E+03	kg	
241-AP-101	TOC	Total		8.00E+03	kg	
241-AP-101	UTOTAL	Supernatant	A2-SltCk (Liquid)	2.30E+02	kg	
241-AP-101	UTOTAL	Total		2.30E+02	kg	
241-AP-101	V	Supernatant	A2-SltCk (Liquid)	3.15E+00	kg	
241-AP-101	V	Total		3.15E+00	kg	
241-AP-101	W	Supernatant	A2-SltCk (Liquid)	1.21E+02	kg	
241-AP-101	W	Total		1.21E+02	kg	
241-AP-101	Y	Supernatant	A2-SltCk (Liquid)	6.66E+00	kg	
241-AP-101	Y	Total		6.66E+00	kg	
241-AP-101	Zn	Supernatant	A2-SltCk (Liquid)	2.36E+01	kg	
241-AP-101	Zn	Total		2.36E+01	kg	
241-AP-101	Zr	Supernatant	A2-SltCk (Liquid)	5.90E+00	kg	
241-AP-101	Zr	Total		5.90E+00	kg	

241-AP-102	106Ru	Sludge	NA	2.42E-07	Ci	Summary	
241-AP-102	106Ru	Supernatant	Waste Transfer	1.40E-05	Ci	106Ru	1.40E-05 Ci
241-AP-102	106Ru	Total		1.43E-05	Ci	113mCd	9.25E+01 Ci
241-AP-102	113mCd	Sludge	NA	1.53E+00	Ci	125Sb	2.77E+01 Ci
241-AP-102	113mCd	Supernatant	Waste Transfer	9.25E+01	Ci	126Sn	3.39E+00 Ci
241-AP-102	113mCd	Total		9.41E+01	Ci	129I	1.24E+00 Ci
241-AP-102	125Sb	Sludge	NA	7.30E-01	Ci	134Cs	7.14E-01 Ci
241-AP-102	125Sb	Supernatant	Waste Transfer	2.77E+01	Ci	137Cs	9.67E+05 Ci
241-AP-102	125Sb	Total		2.84E+01	Ci	137mBa	9.13E+05 Ci
241-AP-102	126Sn	Sludge	NA	5.71E-02	Ci	14C	1.09E+01 Ci
241-AP-102	126Sn	Supernatant	Waste Transfer	3.39E+00	Ci	151Sm	1.82E+04 Ci
241-AP-102	126Sn	Total		3.45E+00	Ci	152Eu	4.42E+00 Ci
241-AP-102	129I	Sludge	NA	1.77E-02	Ci	154Eu	1.26E+02 Ci
241-AP-102	129I	Supernatant	Waste Transfer	1.24E+00	Ci	155Eu	7.07E+01 Ci
241-AP-102	129I	Total		1.25E+00	Ci	226Ra	2.29E-04 Ci
241-AP-102	134Cs	Sludge	NA	7.13E-03	Ci	227Ac	3.67E-03 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-26

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AP-102	134Cs	Supernatant	Waste Transfer	7.14E-01	Ci
241-AP-102	134Cs	Total		7.21E-01	Ci
241-AP-102	137Cs	Sludge	NA	1.25E+04	Ci
241-AP-102	137Cs	Supernatant	Waste Transfer	9.67E+05	Ci
241-AP-102	137Cs	Total		9.80E+05	Ci
241-AP-102	137mBa	Sludge	NA	1.18E+04	Ci
241-AP-102	137mBa	Supernatant	Waste Transfer	9.13E+05	Ci
241-AP-102	137mBa	Total		9.25E+05	Ci
241-AP-102	14C	Sludge	NA	7.41E-01	Ci
241-AP-102	14C	Supernatant	Waste Transfer	1.09E+01	Ci
241-AP-102	14C	Total		1.16E+01	Ci
241-AP-102	151Sm	Sludge	NA	3.08E+02	Ci
241-AP-102	151Sm	Supernatant	Waste Transfer	1.82E+04	Ci
241-AP-102	151Sm	Total		1.85E+04	Ci
241-AP-102	152Eu	Sludge	NA	7.34E-02	Ci
241-AP-102	152Eu	Supernatant	Waste Transfer	4.42E+00	Ci
241-AP-102	152Eu	Total		4.49E+00	Ci
241-AP-102	154Eu	Sludge	NA	6.16E+00	Ci
241-AP-102	154Eu	Supernatant	Waste Transfer	1.26E+02	Ci
241-AP-102	154Eu	Total		1.32E+02	Ci
241-AP-102	155Eu	Sludge	NA	1.37E+00	Ci
241-AP-102	155Eu	Supernatant	Waste Transfer	7.07E+01	Ci
241-AP-102	155Eu	Total		7.20E+01	Ci
241-AP-102	226Ra	Sludge	NA	3.82E-06	Ci
241-AP-102	226Ra	Supernatant	Waste Transfer	2.29E-04	Ci
241-AP-102	226Ra	Total		2.33E-04	Ci
241-AP-102	227Ac	Sludge	NA	4.04E-05	Ci
241-AP-102	227Ac	Supernatant	Waste Transfer	3.67E-03	Ci
241-AP-102	227Ac	Total		3.71E-03	Ci
241-AP-102	228Ra	Sludge	NA	4.70E-03	Ci
241-AP-102	228Ra	Supernatant	Waste Transfer	3.03E-01	Ci
241-AP-102	228Ra	Total		3.08E-01	Ci
241-AP-102	229Th	Sludge	NA	1.66E-04	Ci
241-AP-102	229Th	Supernatant	Waste Transfer	9.96E-03	Ci
241-AP-102	229Th	Total		1.01E-02	Ci
241-AP-102	231Pa	Sludge	NA	1.09E-04	Ci
241-AP-102	231Pa	Supernatant	Waste Transfer	6.36E-03	Ci
241-AP-102	231Pa	Total		6.47E-03	Ci
241-AP-102	232Th	Sludge	NA	7.70E-04	Ci
241-AP-102	232Th	Supernatant	Waste Transfer	4.86E-02	Ci
241-AP-102	232Th	Total		4.94E-02	Ci
241-AP-102	232U	Sludge	NA	2.22E-03	Ci
241-AP-102	232U	Supernatant	Waste Transfer	2.56E-02	Ci
241-AP-102	232U	Total		2.78E-02	Ci
241-AP-102	233U	Sludge	NA	9.38E-03	Ci
241-AP-102	233U	Supernatant	Waste Transfer	1.09E-01	Ci
241-AP-102	233U	Total		1.18E-01	Ci
241-AP-102	234U	Sludge	NA	1.63E-03	Ci
241-AP-102	234U	Supernatant	Waste Transfer	2.01E-02	Ci
241-AP-102	234U	Total		2.17E-02	Ci
241-AP-102	235U	Sludge	NA	6.47E-05	Ci
241-AP-102	235U	Supernatant	Waste Transfer	7.96E-04	Ci
241-AP-102	235U	Total		8.61E-04	Ci
241-AP-102	236U	Sludge	NA	5.22E-05	Ci
241-AP-102	236U	Supernatant	Waste Transfer	6.46E-04	Ci
241-AP-102	236U	Total		6.99E-04	Ci
241-AP-102	237Np	Sludge	NA	3.88E-02	Ci
241-AP-102	237Np	Supernatant	Waste Transfer	1.91E+00	Ci
241-AP-102	237Np	Total		1.95E+00	Ci
241-AP-102	238Pu	Sludge	NA	1.85E-03	Ci
241-AP-102	238Pu	Supernatant	Waste Transfer	3.24E-02	Ci
241-AP-102	238Pu	Total		3.43E-02	Ci
241-AP-102	238U	Sludge	NA	1.45E-03	Ci
241-AP-102	238U	Supernatant	Waste Transfer	1.79E-02	Ci
241-AP-102	238U	Total		1.93E-02	Ci
241-AP-102	239Pu	Sludge	NA	7.21E-02	Ci
241-AP-102	239Pu	Supernatant	Waste Transfer	1.25E+00	Ci
241-AP-102	239Pu	Total		1.32E+00	Ci

Summary	
228Ra	3.03E-01 Ci
229Th	9.96E-03 Ci
231Pa	6.36E-03 Ci
232Th	4.86E-02 Ci
232U	2.56E-02 Ci
233U	1.09E-01 Ci
234U	2.01E-02 Ci
235U	7.96E-04 Ci
236U	6.46E-04 Ci
237Np	1.91E+00 Ci
238Pu	3.24E-02 Ci
238U	1.79E-02 Ci
239Pu	1.25E+00 Ci
240Pu	2.11E-01 Ci
241Am	7.00E+00 Ci
241Pu	1.50E+00 Ci
242Cm	2.25E-02 Ci
242Pu	1.29E-05 Ci
243Am	2.56E-04 Ci
243Cm	2.88E-03 Ci
244Cm	4.19E-02 Ci
3H	4.33E+01 Ci
59Ni	1.25E+00 Ci
60Co	1.50E+01 Ci
63Ni	1.17E+02 Ci
79Se	3.09E+00 Ci
90Sr	1.56E+03 Ci
90Y	1.56E+03 Ci
93mNb	2.94E+01 Ci
93Zr	3.41E+01 Ci
99Tc	6.54E+02 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-27

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary	
241-AP-102	240Pu	Sludge	NA	1.22E-02	Ci		
241-AP-102	240Pu	Supernatant	Waste Transfer	2.11E-01	Ci		
241-AP-102	240Pu	Total		2.23E-01	Ci		
241-AP-102	241Am	Sludge	NA	1.07E-01	Ci		
241-AP-102	241Am	Supernatant	Waste Transfer	7.00E+00	Ci		
241-AP-102	241Am	Total		7.11E+00	Ci		
241-AP-102	241Pu	Sludge	NA	8.58E-02	Ci		
241-AP-102	241Pu	Supernatant	Waste Transfer	1.50E+00	Ci		
241-AP-102	241Pu	Total		1.58E+00	Ci		
241-AP-102	242Cm	Sludge	NA	2.77E-04	Ci		
241-AP-102	242Cm	Supernatant	Waste Transfer	2.25E-02	Ci		
241-AP-102	242Cm	Total		2.27E-02	Ci		
241-AP-102	242Pu	Sludge	NA	7.41E-07	Ci		
241-AP-102	242Pu	Supernatant	Waste Transfer	1.29E-05	Ci		
241-AP-102	242Pu	Total		1.36E-05	Ci		
241-AP-102	243Am	Sludge	NA	3.89E-06	Ci		
241-AP-102	243Am	Supernatant	Waste Transfer	2.56E-04	Ci		
241-AP-102	243Am	Total		2.60E-04	Ci		
241-AP-102	243Cm	Sludge	NA	2.29E-05	Ci		
241-AP-102	243Cm	Supernatant	Waste Transfer	2.88E-03	Ci		
241-AP-102	243Cm	Total		2.91E-03	Ci		
241-AP-102	244Cm	Sludge	NA	1.97E-04	Ci		
241-AP-102	244Cm	Supernatant	Waste Transfer	4.19E-02	Ci		
241-AP-102	244Cm	Total		4.21E-02	Ci		
241-AP-102	3H	Sludge	NA	4.09E+00	Ci		
241-AP-102	3H	Supernatant	Waste Transfer	4.33E+01	Ci		
241-AP-102	3H	Total		4.74E+01	Ci		
241-AP-102	59Ni	Sludge	NA	3.82E-02	Ci		
241-AP-102	59Ni	Supernatant	Waste Transfer	1.25E+00	Ci		
241-AP-102	59Ni	Total		1.29E+00	Ci		
241-AP-102	60Co	Sludge	NA	2.13E-01	Ci		
241-AP-102	60Co	Supernatant	Waste Transfer	1.50E+01	Ci		
241-AP-102	60Co	Total		1.52E+01	Ci		
241-AP-102	63Ni	Sludge	NA	3.51E+00	Ci		
241-AP-102	63Ni	Supernatant	Waste Transfer	1.17E+02	Ci		
241-AP-102	63Ni	Total		1.20E+02	Ci		
241-AP-102	79Se	Sludge	NA	5.05E-03	Ci		
241-AP-102	79Se	Supernatant	Waste Transfer	3.09E+00	Ci		
241-AP-102	79Se	Total		3.09E+00	Ci		
241-AP-102	90Sr	Sludge	NA	5.66E+01	Ci		
241-AP-102	90Sr	Supernatant	Waste Transfer	1.56E+03	Ci		
241-AP-102	90Sr	Total		1.62E+03	Ci		
241-AP-102	90Y	Sludge	NA	5.66E+01	Ci		
241-AP-102	90Y	Supernatant	Waste Transfer	1.56E+03	Ci		
241-AP-102	90Y	Total		1.62E+03	Ci		
241-AP-102	93mNb	Sludge	NA	3.99E-01	Ci		
241-AP-102	93mNb	Supernatant	Waste Transfer	2.94E+01	Ci		
241-AP-102	93mNb	Total		2.98E+01	Ci		
241-AP-102	93Zr	Sludge	NA	4.62E-01	Ci		
241-AP-102	93Zr	Supernatant	Waste Transfer	3.41E+01	Ci		
241-AP-102	93Zr	Total		3.46E+01	Ci		
241-AP-102	99Tc	Sludge	NA	1.05E+01	Ci		
241-AP-102	99Tc	Supernatant	Waste Transfer	6.54E+02	Ci		
241-AP-102	99Tc	Total		6.65E+02	Ci		
241-AP-102	Al	Sludge	NA	1.57E+04	kg	Summary	
241-AP-102	Al	Supernatant	Waste Transfer	1.25E+05	kg	Ag	0.00E+00 kg
241-AP-102	Al	Total		1.41E+05	kg	Al	1.25E+05 kg
241-AP-102	Bi	Sludge	NA	1.52E+00	kg	As	0.00E+00 kg
241-AP-102	Bi	Supernatant	Waste Transfer	9.10E+01	kg	B	0.00E+00 kg
241-AP-102	Bi	Total		9.26E+01	kg	Ba	0.00E+00 kg
241-AP-102	Ca	Sludge	NA	1.65E+04	kg	Be	0.00E+00 kg
241-AP-102	Ca	Supernatant	Waste Transfer	1.04E+02	kg	Bi	9.10E+01 kg
241-AP-102	Ca	Total		1.66E+04	kg	Ca	1.04E+02 kg
241-AP-102	Cl	Sludge	NA	2.91E+02	kg	Cd	0.00E+00 kg
241-AP-102	Cl	Supernatant	Waste Transfer	2.44E+04	kg	Ce	0.00E+00 kg
241-AP-102	Cl	Total		2.47E+04	kg	Cl	2.44E+04 kg
241-AP-102	Cr	Sludge	NA	2.59E+01	kg	CN	0.00E+00 kg
241-AP-102	Cr	Supernatant	Waste Transfer	2.37E+03	kg	Co	0.00E+00 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-28

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AP-102	Cr	Total		2.40E+03	kg
241-AP-102	F	Sludge	NA	8.21E+00	kg
241-AP-102	F	Supernatant	Waste Transfer	5.09E+02	kg
241-AP-102	F	Total		5.18E+02	kg
241-AP-102	Fe	Sludge	NA	9.07E-01	kg
241-AP-102	Fe	Supernatant	Waste Transfer	2.39E+01	kg
241-AP-102	Fe	Total		2.48E+01	kg
241-AP-102	Free OH	Sludge	NA	1.20E+03	kg
241-AP-102	Free OH	Supernatant	Waste Transfer	1.30E+05	kg
241-AP-102	Free OH	Total		1.31E+05	kg
241-AP-102	Hg	Sludge	NA	0.00E+00	kg
241-AP-102	Hg	Supernatant	Waste Transfer	1.28E-05	kg
241-AP-102	Hg	Total		1.28E-05	kg
241-AP-102	K	Sludge	NA	1.85E+02	kg
241-AP-102	K	Supernatant	Waste Transfer	1.65E+04	kg
241-AP-102	K	Total		1.66E+04	kg
241-AP-102	La	Sludge	NA	4.60E-01	kg
241-AP-102	La	Supernatant	Waste Transfer	1.07E+01	kg
241-AP-102	La	Total		1.11E+01	kg
241-AP-102	Mn	Sludge	NA	1.49E+00	kg
241-AP-102	Mn	Supernatant	Waste Transfer	9.77E+00	kg
241-AP-102	Mn	Total		1.13E+01	kg
241-AP-102	Na	Sludge	NA	9.18E+03	kg
241-AP-102	Na	Supernatant	Waste Transfer	7.88E+05	kg
241-AP-102	Na	Total		7.98E+05	kg
241-AP-102	Ni	Sludge	NA	1.28E+00	kg
241-AP-102	Ni	Supernatant	Waste Transfer	3.49E+01	kg
241-AP-102	Ni	Total		3.61E+01	kg
241-AP-102	NO2	Sludge	NA	4.67E+03	kg
241-AP-102	NO2	Supernatant	Waste Transfer	3.98E+05	kg
241-AP-102	NO2	Total		4.03E+05	kg
241-AP-102	NO3	Sludge	NA	7.58E+03	kg
241-AP-102	NO3	Supernatant	Waste Transfer	6.78E+05	kg
241-AP-102	NO3	Total		6.86E+05	kg
241-AP-102	Oxalate	Sludge	NA	4.10E+01	kg
241-AP-102	Oxalate	Supernatant	Waste Transfer	1.24E+04	kg
241-AP-102	Oxalate	Total		1.25E+04	kg
241-AP-102	Pb	Sludge	NA	2.65E+00	kg
241-AP-102	Pb	Supernatant	Waste Transfer	2.09E+02	kg
241-AP-102	Pb	Total		2.11E+02	kg
241-AP-102	PO4	Sludge	NA	2.65E+04	kg
241-AP-102	PO4	Supernatant	Waste Transfer	1.31E+04	kg
241-AP-102	PO4	Total		3.96E+04	kg
241-AP-102	Si	Sludge	NA	3.74E+00	kg
241-AP-102	Si	Supernatant	Waste Transfer	1.82E+02	kg
241-AP-102	Si	Total		1.86E+02	kg
241-AP-102	SO4	Sludge	NA	1.51E+02	kg
241-AP-102	SO4	Supernatant	Waste Transfer	9.97E+03	kg
241-AP-102	SO4	Total		1.01E+04	kg
241-AP-102	Sr	Sludge	NA	1.53E-01	kg
241-AP-102	Sr	Supernatant	Waste Transfer	4.68E+00	kg
241-AP-102	Sr	Total		4.83E+00	kg
241-AP-102	Th	Sludge	NA	6.99E+00	kg
241-AP-102	Th	Supernatant	Waste Transfer	4.43E+02	kg
241-AP-102	Th	Total		4.50E+02	kg
241-AP-102	TIC as CO3	Sludge	NA	1.10E+03	kg
241-AP-102	TIC as CO3	Supernatant	Waste Transfer	4.89E+04	kg
241-AP-102	TIC as CO3	Total		5.00E+04	kg
241-AP-102	TOC	Sludge	NA	2.16E+02	kg
241-AP-102	TOC	Supernatant	Waste Transfer	1.22E+04	kg
241-AP-102	TOC	Total		1.24E+04	kg
241-AP-102	UTOTAL	Sludge	NA	4.36E+00	kg
241-AP-102	UTOTAL	Supernatant	Waste Transfer	5.35E+01	kg
241-AP-102	UTOTAL	Total		5.79E+01	kg
241-AP-102	Zr	Sludge	NA	8.25E-01	kg
241-AP-102	Zr	Supernatant	Waste Transfer	8.41E+00	kg
241-AP-102	Zr	Total		9.24E+00	kg

Summary	
Cr	2.37E+03 kg
Cu	0.00E+00 kg
F	5.09E+02 kg
Fe	2.39E+01 kg
Free OH	1.30E+05 kg
Hg	1.28E-05 kg
K	1.65E+04 kg
La	1.07E+01 kg
Li	0.00E+00 kg
Mg	0.00E+00 kg
Mn	9.77E+00 kg
Mo	0.00E+00 kg
Na	7.88E+05 kg
Nd	0.00E+00 kg
NH3	0.00E+00 kg
Ni	3.49E+01 kg
NO2	3.98E+05 kg
NO3	6.78E+05 kg
Oxalate	1.24E+04 kg
Pb	2.09E+02 kg
Pd	0.00E+00 kg
PO4	1.31E+04 kg
Pr	0.00E+00 kg
Rb	0.00E+00 kg
Rh	0.00E+00 kg
Ru	0.00E+00 kg
Sb	0.00E+00 kg
Se	0.00E+00 kg
Si	1.82E+02 kg
SO4	9.97E+03 kg
Sr	4.68E+00 kg
Ta	0.00E+00 kg
Te	0.00E+00 kg
Th	4.43E+02 kg
Ti	0.00E+00 kg
TIC as CO3	4.89E+04 kg
Tl	0.00E+00 kg
TOC	1.22E+04 kg
UTOTAL	5.35E+01 kg
V	0.00E+00 kg
W	0.00E+00 kg
Y	0.00E+00 kg
Zn	0.00E+00 kg
Zr	8.41E+00 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-29

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AP-103	106Ru	Supernatant	NA	1.48E-05	Ci
241-AP-103	106Ru	Total		1.48E-05	Ci
241-AP-103	113mCd	Supernatant	NA	9.47E+01	Ci
241-AP-103	113mCd	Total		9.47E+01	Ci
241-AP-103	125Sb	Supernatant	NA	2.91E+01	Ci
241-AP-103	125Sb	Total		2.91E+01	Ci
241-AP-103	126Sn	Supernatant	NA	3.66E+00	Ci
241-AP-103	126Sn	Total		3.66E+00	Ci
241-AP-103	129I	Supernatant	NA	1.26E+00	Ci
241-AP-103	129I	Total		1.26E+00	Ci
241-AP-103	134Cs	Supernatant	NA	3.56E+00	Ci
241-AP-103	134Cs	Total		3.56E+00	Ci
241-AP-103	137Cs	Supernatant	NA	7.75E+05	Ci
241-AP-103	137Cs	Total		7.75E+05	Ci
241-AP-103	137mBa	Supernatant	NA	7.31E+05	Ci
241-AP-103	137mBa	Total		7.32E+05	Ci
241-AP-103	14C	Supernatant	NA	4.13E+01	Ci
241-AP-103	14C	Total		4.13E+01	Ci
241-AP-103	151Sm	Supernatant	NA	1.93E+04	Ci
241-AP-103	151Sm	Total		1.93E+04	Ci
241-AP-103	152Eu	Supernatant	NA	4.69E+00	Ci
241-AP-103	152Eu	Total		4.69E+00	Ci
241-AP-103	154Eu	Supernatant	NA	4.78E+01	Ci
241-AP-103	154Eu	Total		4.78E+01	Ci
241-AP-103	155Eu	Supernatant	NA	5.16E+01	Ci
241-AP-103	155Eu	Total		5.16E+01	Ci
241-AP-103	226Ra	Supernatant	NA	2.55E-04	Ci
241-AP-103	226Ra	Total		2.55E-04	Ci
241-AP-103	227Ac	Supernatant	NA	3.01E-03	Ci
241-AP-103	227Ac	Total		3.01E-03	Ci
241-AP-103	228Ra	Supernatant	NA	1.26E-01	Ci
241-AP-103	228Ra	Total		1.26E-01	Ci
241-AP-103	229Th	Supernatant	NA	7.72E-03	Ci
241-AP-103	229Th	Total		7.72E-03	Ci
241-AP-103	231Pa	Supernatant	NA	6.94E-03	Ci
241-AP-103	231Pa	Total		6.94E-03	Ci
241-AP-103	232Th	Supernatant	NA	3.86E-02	Ci
241-AP-103	232Th	Total		3.86E-02	Ci
241-AP-103	232U	Supernatant	NA	9.94E-03	Ci
241-AP-103	232U	Total		9.94E-03	Ci
241-AP-103	233U	Supernatant	NA	4.20E-02	Ci
241-AP-103	233U	Total		4.20E-02	Ci
241-AP-103	234U	Supernatant	NA	1.76E-02	Ci
241-AP-103	234U	Total		1.76E-02	Ci
241-AP-103	235U	Supernatant	NA	7.35E-04	Ci
241-AP-103	235U	Total		7.35E-04	Ci
241-AP-103	236U	Supernatant	NA	6.13E-04	Ci
241-AP-103	236U	Total		6.13E-04	Ci
241-AP-103	237Np	Supernatant	NA	1.68E-01	Ci
241-AP-103	237Np	Total		1.68E-01	Ci
241-AP-103	238Pu	Supernatant	NA	9.77E-02	Ci
241-AP-103	238Pu	Total		9.77E-02	Ci
241-AP-103	238U	Supernatant	NA	1.61E-02	Ci
241-AP-103	238U	Total		1.61E-02	Ci
241-AP-103	239Pu	Supernatant	NA	3.16E+00	Ci
241-AP-103	239Pu	Total		3.16E+00	Ci
241-AP-103	240Pu	Supernatant	NA	5.28E-01	Ci
241-AP-103	240Pu	Total		5.28E-01	Ci
241-AP-103	241Am	Supernatant	NA	3.74E+01	Ci
241-AP-103	241Am	Total		3.74E+01	Ci
241-AP-103	241Pu	Supernatant	NA	4.29E+00	Ci
241-AP-103	241Pu	Total		4.29E+00	Ci
241-AP-103	242Cm	Supernatant	NA	1.19E-01	Ci
241-AP-103	242Cm	Total		1.19E-01	Ci
241-AP-103	242Pu	Supernatant	NA	4.17E-05	Ci
241-AP-103	242Pu	Total		4.17E-05	Ci

Summary	
106Ru	1.48E-05 Ci
113mCd	9.47E+01 Ci
125Sb	2.91E+01 Ci
126Sn	3.66E+00 Ci
129I	1.26E+00 Ci
134Cs	3.56E+00 Ci
137Cs	7.75E+05 Ci
137mBa	7.32E+05 Ci
14C	4.13E+01 Ci
151Sm	1.93E+04 Ci
152Eu	4.69E+00 Ci
154Eu	4.78E+01 Ci
155Eu	5.16E+01 Ci
226Ra	2.55E-04 Ci
227Ac	3.01E-03 Ci
228Ra	1.26E-01 Ci
229Th	7.72E-03 Ci
231Pa	6.94E-03 Ci
232Th	3.86E-02 Ci
232U	9.94E-03 Ci
233U	4.20E-02 Ci
234U	1.76E-02 Ci
235U	7.35E-04 Ci
236U	6.13E-04 Ci
237Np	1.68E-01 Ci
238Pu	9.77E-02 Ci
238U	1.61E-02 Ci
239Pu	3.16E+00 Ci
240Pu	5.28E-01 Ci
241Am	3.74E+01 Ci
241Pu	4.29E+00 Ci
242Cm	1.19E-01 Ci
242Pu	4.17E-05 Ci
3H	2.06E+02 Ci
59Ni	1.22E+00 Ci
60Co	3.55E+01 Ci
63Ni	1.16E+02 Ci
79Se	2.21E+00 Ci
90Sr	8.15E+03 Ci
90Y	8.15E+03 Ci
93mNb	2.21E+01 Ci
93Zr	2.75E+01 Ci
99Tc	7.93E+02 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-30

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AP-103	243Am	Supernatant	NA	1.39E-03	Ci
241-AP-103	243Am	Total		1.39E-03	Ci
241-AP-103	243Cm	Supernatant	NA	1.60E-02	Ci
241-AP-103	243Cm	Total		1.60E-02	Ci
241-AP-103	244Cm	Supernatant	NA	2.22E-01	Ci
241-AP-103	244Cm	Total		2.22E-01	Ci
241-AP-103	3H	Supernatant	NA	2.06E+02	Ci
241-AP-103	3H	Total		2.06E+02	Ci
241-AP-103	59Ni	Supernatant	NA	1.22E+00	Ci
241-AP-103	59Ni	Total		1.22E+00	Ci
241-AP-103	60Co	Supernatant	NA	3.55E+01	Ci
241-AP-103	60Co	Total		3.55E+01	Ci
241-AP-103	63Ni	Supernatant	NA	1.16E+02	Ci
241-AP-103	63Ni	Total		1.16E+02	Ci
241-AP-103	79Se	Supernatant	NA	2.21E+00	Ci
241-AP-103	79Se	Total		2.21E+00	Ci
241-AP-103	90Sr	Supernatant	NA	8.15E+03	Ci
241-AP-103	90Sr	Total		8.15E+03	Ci
241-AP-103	90Y	Supernatant	NA	8.15E+03	Ci
241-AP-103	90Y	Total		8.15E+03	Ci
241-AP-103	93mNb	Supernatant	NA	2.21E+01	Ci
241-AP-103	93mNb	Total		2.21E+01	Ci
241-AP-103	93Zr	Supernatant	NA	2.75E+01	Ci
241-AP-103	93Zr	Total		2.75E+01	Ci
241-AP-103	99Tc	Supernatant	NA	7.93E+02	Ci
241-AP-103	99Tc	Total		7.93E+02	Ci
241-AP-103	Ag	Supernatant	NA	2.52E+01	kg
241-AP-103	Ag	Total		2.52E+01	kg
241-AP-103	Al	Supernatant	NA	6.20E+04	kg
241-AP-103	Al	Total		6.20E+04	kg
241-AP-103	As	Supernatant	NA	1.17E+02	kg
241-AP-103	As	Total		1.17E+02	kg
241-AP-103	B	Supernatant	NA	1.44E+02	kg
241-AP-103	B	Total		1.44E+02	kg
241-AP-103	Ba	Supernatant	NA	7.29E+01	kg
241-AP-103	Ba	Total		7.29E+01	kg
241-AP-103	Be	Supernatant	NA	7.56E+00	kg
241-AP-103	Be	Total		7.56E+00	kg
241-AP-103	Bi	Supernatant	NA	1.35E+02	kg
241-AP-103	Bi	Total		1.35E+02	kg
241-AP-103	Ca	Supernatant	NA	2.58E+02	kg
241-AP-103	Ca	Total		2.58E+02	kg
241-AP-103	Cd	Supernatant	NA	3.27E+01	kg
241-AP-103	Cd	Total		3.27E+01	kg
241-AP-103	Ce	Supernatant	NA	1.46E+02	kg
241-AP-103	Ce	Total		1.46E+02	kg
241-AP-103	Cl	Supernatant	NA	1.45E+04	kg
241-AP-103	Cl	Total		1.45E+04	kg
241-AP-103	Co	Supernatant	NA	2.92E+01	kg
241-AP-103	Co	Total		2.92E+01	kg
241-AP-103	Cr	Supernatant	NA	1.99E+03	kg
241-AP-103	Cr	Total		1.99E+03	kg
241-AP-103	Cu	Supernatant	NA	1.64E+01	kg
241-AP-103	Cu	Total		1.64E+01	kg
241-AP-103	F	Supernatant	NA	2.77E+03	kg
241-AP-103	F	Total		2.77E+03	kg
241-AP-103	Fe	Supernatant	NA	7.56E+01	kg
241-AP-103	Fe	Total		7.56E+01	kg
241-AP-103	Free OH	Supernatant	NA	5.66E+04	kg
241-AP-103	Free OH	Total		5.66E+04	kg
241-AP-103	Hg	Supernatant	NA	0.00E+00	kg
241-AP-103	Hg	Total		0.00E+00	kg
241-AP-103	K	Supernatant	NA	2.19E+04	kg
241-AP-103	K	Total		2.19E+04	kg
241-AP-103	La	Supernatant	NA	1.88E+01	kg
241-AP-103	La	Total		1.88E+01	kg
241-AP-103	Li	Supernatant	NA	1.17E+01	kg
241-AP-103	Li	Total		1.17E+01	kg

Summary	
Ag	2.52E+01 kg
Al	6.20E+04 kg
As	1.17E+02 kg
B	1.44E+02 kg
Ba	7.29E+01 kg
Be	7.56E+00 kg
Bi	1.35E+02 kg
Ca	2.58E+02 kg
Cd	3.27E+01 kg
Ce	1.46E+02 kg
Cl	1.45E+04 kg
CN	0.00E+00 kg
Co	2.92E+01 kg
Cr	1.99E+03 kg
Cu	1.64E+01 kg
F	2.77E+03 kg
Fe	7.56E+01 kg
Free OH	5.66E+04 kg
Hg	0.00E+00 kg
K	2.19E+04 kg
La	1.88E+01 kg
Li	1.17E+01 kg
Mg	1.46E+02 kg
Mn	1.51E+01 kg
Mo	2.02E+02 kg
Na	6.03E+05 kg
Nd	1.16E+02 kg
NH3	0.00E+00 kg
Ni	2.64E+02 kg
NO2	2.72E+05 kg
NO3	5.05E+05 kg
Oxalate	3.90E+03 kg
Pb	1.51E+02 kg
Pd	0.00E+00 kg
PO4	8.06E+03 kg
Pr	0.00E+00 kg
Rb	0.00E+00 kg
Rh	0.00E+00 kg
Ru	0.00E+00 kg
Sb	9.08E+01 kg
Se	1.23E+02 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-31

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AP-103	Mg	Supernatant	NA	1.46E+02	kg
241-AP-103	Mg	Total		1.46E+02	kg
241-AP-103	Mn	Supernatant	NA	1.51E+01	kg
241-AP-103	Mn	Total		1.51E+01	kg
241-AP-103	Mo	Supernatant	NA	2.02E+02	kg
241-AP-103	Mo	Total		2.02E+02	kg
241-AP-103	Na	Supernatant	NA	6.03E+05	kg
241-AP-103	Na	Total		6.03E+05	kg
241-AP-103	Nd	Supernatant	NA	1.16E+02	kg
241-AP-103	Nd	Total		1.16E+02	kg
241-AP-103	Ni	Supernatant	NA	2.64E+02	kg
241-AP-103	Ni	Total		2.64E+02	kg
241-AP-103	NO2	Supernatant	NA	2.72E+05	kg
241-AP-103	NO2	Total		2.72E+05	kg
241-AP-103	NO3	Supernatant	NA	5.05E+05	kg
241-AP-103	NO3	Total		5.05E+05	kg
241-AP-103	Oxalate	Supernatant	NA	3.90E+03	kg
241-AP-103	Oxalate	Total		3.90E+03	kg
241-AP-103	Pb	Supernatant	NA	1.51E+02	kg
241-AP-103	Pb	Total		1.51E+02	kg
241-AP-103	PO4	Supernatant	NA	8.06E+03	kg
241-AP-103	PO4	Total		8.06E+03	kg
241-AP-103	Sb	Supernatant	NA	9.08E+01	kg
241-AP-103	Sb	Total		9.08E+01	kg
241-AP-103	Se	Supernatant	NA	1.23E+02	kg
241-AP-103	Se	Total		1.23E+02	kg
241-AP-103	Si	Supernatant	NA	3.59E+02	kg
241-AP-103	Si	Total		3.59E+02	kg
241-AP-103	SO4	Supernatant	NA	1.61E+04	kg
241-AP-103	SO4	Total		1.61E+04	kg
241-AP-103	Sr	Supernatant	NA	9.18E+00	kg
241-AP-103	Sr	Total		9.18E+00	kg
241-AP-103	Th	Supernatant	NA	3.52E+02	kg
241-AP-103	Th	Total		3.52E+02	kg
241-AP-103	Ti	Supernatant	NA	1.51E+01	kg
241-AP-103	Ti	Total		1.51E+01	kg
241-AP-103	TIC as CO3	Supernatant	NA	1.08E+05	kg
241-AP-103	TIC as CO3	Total		1.08E+05	kg
241-AP-103	TOC	Supernatant	NA	2.46E+04	kg
241-AP-103	TOC	Total		2.46E+04	kg
241-AP-103	UTOTAL	Supernatant	NA	4.81E+01	kg
241-AP-103	UTOTAL	Total		4.81E+01	kg
241-AP-103	V	Supernatant	NA	5.79E+01	kg
241-AP-103	V	Total		5.79E+01	kg
241-AP-103	Y	Supernatant	NA	3.06E+01	kg
241-AP-103	Y	Total		3.06E+01	kg
241-AP-103	Zn	Supernatant	NA	1.51E+01	kg
241-AP-103	Zn	Total		1.51E+01	kg
241-AP-103	Zr	Supernatant	NA	1.48E+01	kg
241-AP-103	Zr	Total		1.48E+01	kg

Summary	
Si	3.59E+02 kg
SO4	1.61E+04 kg
Sr	9.18E+00 kg
Ta	0.00E+00 kg
Te	0.00E+00 kg
Th	3.52E+02 kg
Ti	1.51E+01 kg
TIC as CO3	1.08E+05 kg
Tl	0.00E+00 kg
TOC	2.46E+04 kg
UTOTAL	4.81E+01 kg
V	5.79E+01 kg
W	0.00E+00 kg
Y	3.06E+01 kg
Zn	1.51E+01 kg
Zr	1.48E+01 kg

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AP-104	106Ru	Supernatant	NA	1.05E-05	Ci
241-AP-104	106Ru	Total		1.05E-05	Ci
241-AP-104	113mCd	Supernatant	NA	7.76E+01	Ci
241-AP-104	113mCd	Total		7.76E+01	Ci
241-AP-104	125Sb	Supernatant	NA	1.98E+01	Ci
241-AP-104	125Sb	Total		1.98E+01	Ci
241-AP-104	126Sn	Supernatant	NA	3.05E+00	Ci
241-AP-104	126Sn	Total		3.05E+00	Ci
241-AP-104	129I	Supernatant	NA	5.87E-01	Ci
241-AP-104	129I	Total		5.87E-01	Ci
241-AP-104	134Cs	Supernatant	NA	3.40E-01	Ci
241-AP-104	134Cs	Total		3.40E-01	Ci
241-AP-104	137Cs	Supernatant	NA	7.72E+05	Ci
241-AP-104	137Cs	Total		7.72E+05	Ci
241-AP-104	137mBa	Supernatant	NA	7.28E+05	Ci

Summary	
106Ru	1.05E-05 Ci
113mCd	7.76E+01 Ci
125Sb	1.98E+01 Ci
126Sn	3.05E+00 Ci
129I	5.87E-01 Ci
134Cs	3.40E-01 Ci
137Cs	7.72E+05 Ci
137mBa	7.28E+05 Ci
14C	2.75E+00 Ci
151Sm	1.64E+04 Ci
152Eu	3.55E+00 Ci
154Eu	2.66E+01 Ci
155Eu	3.92E+01 Ci
226Ra	2.39E-04 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-32

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AP-104	137mBa	Total		7.28E+05	Ci
241-AP-104	14C	Supernatant	NA	2.75E+00	Ci
241-AP-104	14C	Total		2.75E+00	Ci
241-AP-104	151Sm	Supernatant	NA	1.64E+04	Ci
241-AP-104	151Sm	Total		1.64E+04	Ci
241-AP-104	152Eu	Supernatant	NA	3.55E+00	Ci
241-AP-104	152Eu	Total		3.55E+00	Ci
241-AP-104	154Eu	Supernatant	NA	2.66E+01	Ci
241-AP-104	154Eu	Total		2.66E+01	Ci
241-AP-104	155Eu	Supernatant	NA	3.92E+01	Ci
241-AP-104	155Eu	Total		3.92E+01	Ci
241-AP-104	226Ra	Supernatant	NA	2.39E-04	Ci
241-AP-104	226Ra	Total		2.39E-04	Ci
241-AP-104	227Ac	Supernatant	NA	2.75E-03	Ci
241-AP-104	227Ac	Total		2.75E-03	Ci
241-AP-104	228Ra	Supernatant	NA	4.84E-02	Ci
241-AP-104	228Ra	Total		4.84E-02	Ci
241-AP-104	229Th	Supernatant	NA	3.86E-03	Ci
241-AP-104	229Th	Total		3.86E-03	Ci
241-AP-104	231Pa	Supernatant	NA	6.22E-03	Ci
241-AP-104	231Pa	Total		6.22E-03	Ci
241-AP-104	232Th	Supernatant	NA	1.16E-04	Ci
241-AP-104	232Th	Total		1.16E-04	Ci
241-AP-104	232U	Supernatant	NA	1.42E-02	Ci
241-AP-104	232U	Total		1.42E-02	Ci
241-AP-104	233U	Supernatant	NA	6.01E-02	Ci
241-AP-104	233U	Total		6.01E-02	Ci
241-AP-104	234U	Supernatant	NA	1.83E-02	Ci
241-AP-104	234U	Total		1.83E-02	Ci
241-AP-104	235U	Supernatant	NA	7.40E-04	Ci
241-AP-104	235U	Total		7.40E-04	Ci
241-AP-104	236U	Supernatant	NA	6.12E-04	Ci
241-AP-104	236U	Total		6.12E-04	Ci
241-AP-104	237Np	Supernatant	NA	1.62E-02	Ci
241-AP-104	237Np	Total		1.62E-02	Ci
241-AP-104	238Pu	Supernatant	NA	1.65E-01	Ci
241-AP-104	238Pu	Total		1.65E-01	Ci
241-AP-104	238U	Supernatant	NA	1.64E-02	Ci
241-AP-104	238U	Total		1.64E-02	Ci
241-AP-104	239Pu	Supernatant	NA	6.22E+00	Ci
241-AP-104	239Pu	Total		6.22E+00	Ci
241-AP-104	240Pu	Supernatant	NA	1.06E+00	Ci
241-AP-104	240Pu	Total		1.06E+00	Ci
241-AP-104	241Am	Supernatant	NA	9.64E+01	Ci
241-AP-104	241Am	Total		9.64E+01	Ci
241-AP-104	241Pu	Supernatant	NA	7.68E+00	Ci
241-AP-104	241Pu	Total		7.68E+00	Ci
241-AP-104	242Cm	Supernatant	NA	4.43E-02	Ci
241-AP-104	242Cm	Total		4.43E-02	Ci
241-AP-104	242Pu	Supernatant	NA	6.83E-05	Ci
241-AP-104	242Pu	Total		6.83E-05	Ci
241-AP-104	243/244Cm	Supernatant	NA	3.87E+00	Ci
241-AP-104	243/244Cm	Total		3.87E+00	Ci
241-AP-104	243Am	Supernatant	NA	3.43E-03	Ci
241-AP-104	243Am	Total		3.43E-03	Ci
241-AP-104	243Cm	Supernatant	NA	1.48E-01	Ci
241-AP-104	243Cm	Total		1.48E-01	Ci
241-AP-104	244Cm	Supernatant	NA	3.47E+00	Ci
241-AP-104	244Cm	Total		3.47E+00	Ci
241-AP-104	3H	Supernatant	NA	1.96E+00	Ci
241-AP-104	3H	Total		1.96E+00	Ci
241-AP-104	59Ni	Supernatant	NA	1.86E+00	Ci
241-AP-104	59Ni	Total		1.86E+00	Ci
241-AP-104	60Co	Supernatant	NA	3.10E+01	Ci
241-AP-104	60Co	Total		3.10E+01	Ci
241-AP-104	63Ni	Supernatant	NA	1.76E+02	Ci
241-AP-104	63Ni	Total		1.76E+02	Ci
241-AP-104	79Se	Supernatant	NA	3.37E+00	Ci

Summary		
227Ac	2.75E-03	Ci
226Ra	4.84E-02	Ci
229Th	3.86E-03	Ci
231Pa	6.22E-03	Ci
232Th	1.16E-04	Ci
232U	1.42E-02	Ci
233U	6.01E-02	Ci
234U	1.83E-02	Ci
235U	7.40E-04	Ci
236U	6.12E-04	Ci
237Np	1.62E-02	Ci
238Pu	1.65E-01	Ci
241Am	9.64E+01	Ci
241Pu	7.68E+00	Ci
242Cm	4.43E-02	Ci
242Pu	6.83E-05	Ci
243Am	3.43E-03	Ci
243Cm	1.48E-01	Ci
244Cm	3.47E+00	Ci
3H	1.96E+00	Ci
59Ni	1.86E+00	Ci
60Co	3.10E+01	Ci
63Ni	1.76E+02	Ci
79Se	3.37E+00	Ci
90Sr	6.95E+03	Ci
90Y	6.95E+03	Ci
93mNb	1.57E+01	Ci
93Zr	1.88E+01	Ci
99Tc	7.20E+02	Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO : 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-33

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AP-104	79Se	Total		3.37E+00	Ci
241-AP-104	90Sr	Supernatant	NA	6.95E+03	Ci
241-AP-104	90Sr	Total		6.95E+03	Ci
241-AP-104	90Y	Supernatant	NA	6.95E+03	Ci
241-AP-104	90Y	Total		6.95E+03	Ci
241-AP-104	93mNb	Supernatant	NA	1.57E+01	Ci
241-AP-104	93mNb	Total		1.57E+01	Ci
241-AP-104	93Zr	Supernatant	NA	1.88E+01	Ci
241-AP-104	93Zr	Total		1.88E+01	Ci
241-AP-104	99Tc	Supernatant	NA	7.20E+02	Ci
241-AP-104	99Tc	Total		7.20E+02	Ci
241-AP-104	Ag	Supernatant	NA	2.91E+00	kg
241-AP-104	Ag	Total		2.91E+00	kg
241-AP-104	Al	Supernatant	NA	6.98E+04	kg
241-AP-104	Al	Total		6.98E+04	kg
241-AP-104	As	Supernatant	NA	7.26E+00	kg
241-AP-104	As	Total		7.26E+00	kg
241-AP-104	B	Supernatant	NA	2.05E+02	kg
241-AP-104	B	Total		2.05E+02	kg
241-AP-104	Ba	Supernatant	NA	2.52E-01	kg
241-AP-104	Ba	Total		2.52E-01	kg
241-AP-104	Be	Supernatant	NA	5.10E-01	kg
241-AP-104	Be	Total		5.10E-01	kg
241-AP-104	Bi	Supernatant	NA	1.16E+01	kg
241-AP-104	Bi	Total		1.16E+01	kg
241-AP-104	Ca	Supernatant	NA	2.03E+02	kg
241-AP-104	Ca	Total		2.03E+02	kg
241-AP-104	Cd	Supernatant	NA	6.36E+00	kg
241-AP-104	Cd	Total		6.36E+00	kg
241-AP-104	Ce	Supernatant	NA	2.45E-01	kg
241-AP-104	Ce	Total		2.45E-01	kg
241-AP-104	Cl	Supernatant	NA	2.16E+04	kg
241-AP-104	Cl	Total		2.16E+04	kg
241-AP-104	CN	Supernatant	NA	1.09E+02	kg
241-AP-104	CN	Total		1.09E+02	kg
241-AP-104	Co	Supernatant	NA	2.89E+00	kg
241-AP-104	Co	Total		2.89E+00	kg
241-AP-104	Cr	Supernatant	NA	2.09E+03	kg
241-AP-104	Cr	Total		2.09E+03	kg
241-AP-104	Cu	Supernatant	NA	1.62E+01	kg
241-AP-104	Cu	Total		1.62E+01	kg
241-AP-104	F	Supernatant	NA	9.37E+02	kg
241-AP-104	F	Total		9.37E+02	kg
241-AP-104	Fe	Supernatant	NA	2.10E+01	kg
241-AP-104	Fe	Total		2.10E+01	kg
241-AP-104	Free OH	Supernatant	NA	8.18E+04	kg
241-AP-104	Free OH	Total		8.18E+04	kg
241-AP-104	Hg	Supernatant	NA	5.03E-03	kg
241-AP-104	Hg	Total		5.03E-03	kg
241-AP-104	K	Supernatant	NA	8.76E+03	kg
241-AP-104	K	Total		8.76E+03	kg
241-AP-104	La	Supernatant	NA	4.17E-01	kg
241-AP-104	La	Total		4.17E-01	kg
241-AP-104	Li	Supernatant	NA	8.39E-02	kg
241-AP-104	Li	Total		8.39E-02	kg
241-AP-104	Mg	Supernatant	NA	1.16E+01	kg
241-AP-104	Mg	Total		1.16E+01	kg
241-AP-104	Mn	Supernatant	NA	4.21E+00	kg
241-AP-104	Mn	Total		4.21E+00	kg
241-AP-104	Mo	Supernatant	NA	2.62E+02	kg
241-AP-104	Mo	Total		2.62E+02	kg
241-AP-104	Na	Supernatant	NA	5.35E+05	kg
241-AP-104	Na	Total		5.35E+05	kg
241-AP-104	Nd	Supernatant	NA	1.06E+01	kg
241-AP-104	Nd	Total		1.06E+01	kg
241-AP-104	NH3	Supernatant	NA	3.53E+03	kg
241-AP-104	NH3	Total		3.53E+03	kg
241-AP-104	Ni	Supernatant	NA	1.91E+02	kg

Summary	
Ag	2.91E+00 kg
Al	6.98E+04 kg
As	7.26E+00 kg
B	2.05E+02 kg
Ba	2.52E-01 kg
Be	5.10E-01 kg
Bi	1.16E+01 kg
Ca	2.03E+02 kg
Cd	6.36E+00 kg
Ce	2.45E-01 kg
Cl	2.16E+04 kg
CN	1.09E+02 kg
Co	2.89E+00 kg
Cr	2.09E+03 kg
Cu	1.62E+01 kg
F	9.37E+02 kg
Fe	2.10E+01 kg
Free OH	8.18E+04 kg
Hg	5.03E-03 kg
K	8.76E+03 kg
La	4.17E-01 kg
Li	8.39E-02 kg
Mg	1.16E+01 kg
Mn	4.21E+00 kg
Mo	2.62E+02 kg
Na	5.35E+05 kg
Nd	1.06E+01 kg
NH3	3.53E+03 kg
Ni	1.91E+02 kg
NO2	2.66E+05 kg
NO3	4.19E+05 kg
Oxalate	3.79E+03 kg
Pb	5.81E+01 kg
Pd	7.46E+00 kg
PO4	1.90E+04 kg
Pr	7.13E-01 kg
Rb	1.18E+01 kg
Rh	2.28E+01 kg
Ru	9.00E+01 kg
Sb	1.12E-01 kg
Se	2.85E+01 kg
Si	1.51E+02 kg
SO4	1.51E+04 kg
Sr	1.12E+00 kg
Ta	1.44E-01 kg
Te	7.13E-01 kg
Th	1.06E+00 kg
Ti	1.33E+00 kg
TIC as CO3	7.21E+04 kg
Tl	2.10E-01 kg
TOC	1.73E+04 kg
UTOTAL	4.93E+01 kg
V	5.39E+00 kg
W	3.75E+02 kg
Y	1.27E+00 kg
Zn	2.23E+00 kg
Zr	2.46E+00 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-34

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AP-104	Ni	Total		1.91E+02	kg	
241-AP-104	NO2	Supernatant	NA	2.66E+05	kg	
241-AP-104	NO2	Total		2.66E+05	kg	
241-AP-104	NO3	Supernatant	NA	4.19E+05	kg	
241-AP-104	NO3	Total		4.19E+05	kg	
241-AP-104	Oxalate	Supernatant	NA	3.79E+03	kg	
241-AP-104	Oxalate	Total		3.79E+03	kg	
241-AP-104	Pb	Supernatant	NA	5.81E+01	kg	
241-AP-104	Pb	Total		5.81E+01	kg	
241-AP-104	Pd	Supernatant	NA	7.46E+00	kg	
241-AP-104	Pd	Total		7.46E+00	kg	
241-AP-104	PO4	Supernatant	NA	1.90E+04	kg	
241-AP-104	PO4	Total		1.90E+04	kg	
241-AP-104	Pr	Supernatant	NA	7.13E-01	kg	
241-AP-104	Pr	Total		7.13E-01	kg	
241-AP-104	Rb	Supernatant	NA	1.18E+01	kg	
241-AP-104	Rb	Total		1.18E+01	kg	
241-AP-104	Rh	Supernatant	NA	2.28E+01	kg	
241-AP-104	Rh	Total		2.28E+01	kg	
241-AP-104	Ru	Supernatant	NA	9.00E+01	kg	
241-AP-104	Ru	Total		9.00E+01	kg	
241-AP-104	Sb	Supernatant	NA	1.12E-01	kg	
241-AP-104	Sb	Total		1.12E-01	kg	
241-AP-104	Se	Supernatant	NA	2.85E+01	kg	
241-AP-104	Se	Total		2.85E+01	kg	
241-AP-104	Si	Supernatant	NA	1.51E+02	kg	
241-AP-104	Si	Total		1.51E+02	kg	
241-AP-104	SO4	Supernatant	NA	1.51E+04	kg	
241-AP-104	SO4	Total		1.51E+04	kg	
241-AP-104	Sr	Supernatant	NA	1.12E+00	kg	
241-AP-104	Sr	Total		1.12E+00	kg	
241-AP-104	Ta	Supernatant	NA	1.44E-01	kg	
241-AP-104	Ta	Total		1.44E-01	kg	
241-AP-104	Te	Supernatant	NA	7.13E-01	kg	
241-AP-104	Te	Total		7.13E-01	kg	
241-AP-104	Th	Supernatant	NA	1.06E+00	kg	
241-AP-104	Th	Total		1.06E+00	kg	
241-AP-104	Ti	Supernatant	NA	1.33E+00	kg	
241-AP-104	Ti	Total		1.33E+00	kg	
241-AP-104	TIC as CO3	Supernatant	NA	7.21E+04	kg	
241-AP-104	TIC as CO3	Total		7.21E+04	kg	
241-AP-104	Tl	Supernatant	NA	2.10E-01	kg	
241-AP-104	Tl	Total		2.10E-01	kg	
241-AP-104	TOC	Supernatant	NA	1.73E+04	kg	
241-AP-104	TOC	Total		1.73E+04	kg	
241-AP-104	UTOTAL	Supernatant	NA	4.93E+01	kg	
241-AP-104	UTOTAL	Total		4.93E+01	kg	
241-AP-104	V	Supernatant	NA	5.39E+00	kg	
241-AP-104	V	Total		5.39E+00	kg	
241-AP-104	W	Supernatant	NA	3.75E+02	kg	
241-AP-104	W	Total		3.75E+02	kg	
241-AP-104	Y	Supernatant	NA	1.27E+00	kg	
241-AP-104	Y	Total		1.27E+00	kg	
241-AP-104	Zn	Supernatant	NA	2.23E+00	kg	
241-AP-104	Zn	Total		2.23E+00	kg	
241-AP-104	Zr	Supernatant	NA	2.46E+00	kg	
241-AP-104	Zr	Total		2.46E+00	kg	

241-AP-105	106Ru	Salt Cake	A2-SltSlr (Solid)	9.54E-03	Ci	Summary	
241-AP-105	106Ru	Supernatant	Waste Transfer	1.81E-05	Ci	106Ru	1.81E-05 Ci
241-AP-105	106Ru	Total		9.56E-03	Ci	113mCd	7.53E+01 Ci
241-AP-105	113mCd	Salt Cake	A2-SltSlr (Solid)	5.72E+00	Ci	125Sb	2.07E+01 Ci
241-AP-105	113mCd	Supernatant	Waste Transfer	7.53E+01	Ci	126Sn	2.93E+00 Ci
241-AP-105	113mCd	Total		8.10E+01	Ci	129I	8.51E-01 Ci
241-AP-105	125Sb	Salt Cake	A2-SltSlr (Solid)	2.27E+00	Ci	134Cs	1.90E+00 Ci
241-AP-105	125Sb	Supernatant	Waste Transfer	2.07E+01	Ci	137Cs	5.39E+05 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-35

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AP-105	125Sb	Total		2.30E+01	Ci
241-AP-105	126Sn	Salt Cake	A2-SltSlr (Solid)	4.65E-01	Ci
241-AP-105	126Sn	Supernatant	Waste Transfer	2.93E+00	Ci
241-AP-105	126Sn	Total		3.40E+00	Ci
241-AP-105	129I	Salt Cake	A2-SltSlr (Solid)	4.31E-02	Ci
241-AP-105	129I	Supernatant	Waste Transfer	8.51E-01	Ci
241-AP-105	129I	Total		8.94E-01	Ci
241-AP-105	134Cs	Salt Cake	A2-SltSlr (Solid)	7.50E-01	Ci
241-AP-105	134Cs	Supernatant	Waste Transfer	1.90E+00	Ci
241-AP-105	134Cs	Total		2.65E+00	Ci
241-AP-105	137Cs	Salt Cake	A2-SltSlr (Solid)	1.22E+05	Ci
241-AP-105	137Cs	Supernatant	Waste Transfer	5.39E+05	Ci
241-AP-105	137Cs	Total		6.61E+05	Ci
241-AP-105	137mBa	Salt Cake	A2-SltSlr (Solid)	1.15E+05	Ci
241-AP-105	137mBa	Supernatant	Waste Transfer	5.09E+05	Ci
241-AP-105	137mBa	Total		6.24E+05	Ci
241-AP-105	14C	Salt Cake	A2-SltSlr (Solid)	2.23E+00	Ci
241-AP-105	14C	Supernatant	Waste Transfer	2.61E+01	Ci
241-AP-105	14C	Total		2.83E+01	Ci
241-AP-105	151Sm	Salt Cake	A2-SltSlr (Solid)	3.18E+03	Ci
241-AP-105	151Sm	Supernatant	Waste Transfer	1.58E+04	Ci
241-AP-105	151Sm	Total		1.90E+04	Ci
241-AP-105	152Eu	Salt Cake	A2-SltSlr (Solid)	3.69E-01	Ci
241-AP-105	152Eu	Supernatant	Waste Transfer	3.40E+00	Ci
241-AP-105	152Eu	Total		3.77E+00	Ci
241-AP-105	154Eu	Salt Cake	A2-SltSlr (Solid)	2.55E+01	Ci
241-AP-105	154Eu	Supernatant	Waste Transfer	8.05E+01	Ci
241-AP-105	154Eu	Total		1.06E+02	Ci
241-AP-105	155Eu	Salt Cake	A2-SltSlr (Solid)	9.82E+00	Ci
241-AP-105	155Eu	Supernatant	Waste Transfer	6.18E+01	Ci
241-AP-105	155Eu	Total		7.16E+01	Ci
241-AP-105	226Ra	Salt Cake	A2-SltSlr (Solid)	9.61E-06	Ci
241-AP-105	226Ra	Supernatant	Waste Transfer	2.15E-04	Ci
241-AP-105	226Ra	Total		2.25E-04	Ci
241-AP-105	227Ac	Salt Cake	A2-SltSlr (Solid)	1.18E-03	Ci
241-AP-105	227Ac	Supernatant	Waste Transfer	2.61E-03	Ci
241-AP-105	227Ac	Total		3.79E-03	Ci
241-AP-105	228Ra	Salt Cake	A2-SltSlr (Solid)	2.73E-03	Ci
241-AP-105	228Ra	Supernatant	Waste Transfer	6.51E-02	Ci
241-AP-105	228Ra	Total		6.78E-02	Ci
241-AP-105	229Th	Salt Cake	A2-SltSlr (Solid)	4.75E-06	Ci
241-AP-105	229Th	Supernatant	Waste Transfer	3.71E-03	Ci
241-AP-105	229Th	Total		3.71E-03	Ci
241-AP-105	231Pa	Salt Cake	A2-SltSlr (Solid)	1.24E-02	Ci
241-AP-105	231Pa	Supernatant	Waste Transfer	5.90E-03	Ci
241-AP-105	231Pa	Total		1.83E-02	Ci
241-AP-105	232Th	Salt Cake	A2-SltSlr (Solid)	1.72E-05	Ci
241-AP-105	232Th	Supernatant	Waste Transfer	5.97E-03	Ci
241-AP-105	232Th	Total		5.99E-03	Ci
241-AP-105	232U	Salt Cake	A2-SltSlr (Solid)	1.13E-03	Ci
241-AP-105	232U	Supernatant	Waste Transfer	4.30E-03	Ci
241-AP-105	232U	Total		5.43E-03	Ci
241-AP-105	233U	Salt Cake	A2-SltSlr (Solid)	6.92E-02	Ci
241-AP-105	233U	Supernatant	Waste Transfer	1.81E-02	Ci
241-AP-105	233U	Total		8.73E-02	Ci
241-AP-105	234U	Salt Cake	A2-SltSlr (Solid)	4.90E-02	Ci
241-AP-105	234U	Supernatant	Waste Transfer	1.31E-02	Ci
241-AP-105	234U	Total		6.20E-02	Ci
241-AP-105	235U	Salt Cake	A2-SltSlr (Solid)	1.93E-03	Ci
241-AP-105	235U	Supernatant	Waste Transfer	5.31E-04	Ci
241-AP-105	235U	Total		2.47E-03	Ci
241-AP-105	236U	Salt Cake	A2-SltSlr (Solid)	3.31E-03	Ci
241-AP-105	236U	Supernatant	Waste Transfer	5.32E-04	Ci
241-AP-105	236U	Total		3.85E-03	Ci
241-AP-105	237Np	Salt Cake	A2-SltSlr (Solid)	7.78E-02	Ci
241-AP-105	237Np	Supernatant	Waste Transfer	1.14E+00	Ci
241-AP-105	237Np	Total		1.22E+00	Ci
241-AP-105	238Pu	Salt Cake	A2-SltSlr (Solid)	1.35E-01	Ci

Summary	
137mBa	5.09E+05 Ci
14C	2.61E+01 Ci
151Sm	1.58E+04 Ci
152Eu	3.40E+00 Ci
154Eu	8.05E+01 Ci
155Eu	6.18E+01 Ci
226Ra	2.15E-04 Ci
227Ac	2.61E-03 Ci
228Ra	6.51E-02 Ci
229Th	3.71E-03 Ci
231Pa	5.90E-03 Ci
232Th	5.97E-03 Ci
232U	4.30E-03 Ci
233U	1.81E-02 Ci
234U	1.31E-02 Ci
235U	5.31E-04 Ci
236U	5.32E-04 Ci
237Np	1.14E+00 Ci
238Pu	6.38E-02 Ci
238U	1.15E-02 Ci
239Pu	1.12E+00 Ci
240Pu	1.84E-01 Ci
241Am	2.75E+00 Ci
241Pu	1.35E+00 Ci
242Cm	5.01E-03 Ci
242Pu	1.08E-05 Ci
243Am	9.73E-05 Ci
243Cm	1.78E-03 Ci
244Cm	3.51E-02 Ci
3H	3.52E+02 Ci
59Ni	1.17E+00 Ci
60Co	1.83E+01 Ci
63Ni	1.02E+02 Ci
79Se	1.79E+00 Ci
90Sr	1.08E+03 Ci
90Y	1.08E+03 Ci
93mNb	2.06E+01 Ci
93Zr	2.37E+01 Ci
99Tc	6.11E+02 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-36

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AP-105	238Pu	Supernatant	Waste Transfer	6.38E-02	Ci
241-AP-105	238Pu	Total		1.98E-01	Ci
241-AP-105	238U	Salt Cake	A2-SltSlr (Solid)	3.83E-02	Ci
241-AP-105	238U	Supernatant	Waste Transfer	1.15E-02	Ci
241-AP-105	238U	Total		4.98E-02	Ci
241-AP-105	239Pu	Salt Cake	A2-SltSlr (Solid)	1.86E+00	Ci
241-AP-105	239Pu	Supernatant	Waste Transfer	1.12E+00	Ci
241-AP-105	239Pu	Total		2.98E+00	Ci
241-AP-105	240Pu	Salt Cake	A2-SltSlr (Solid)	4.83E-01	Ci
241-AP-105	240Pu	Supernatant	Waste Transfer	1.84E-01	Ci
241-AP-105	240Pu	Total		6.67E-01	Ci
241-AP-105	241Am	Salt Cake	A2-SltSlr (Solid)	2.83E+00	Ci
241-AP-105	241Am	Supernatant	Waste Transfer	2.75E+00	Ci
241-AP-105	241Am	Total		5.58E+00	Ci
241-AP-105	241Pu	Salt Cake	A2-SltSlr (Solid)	8.48E+00	Ci
241-AP-105	241Pu	Supernatant	Waste Transfer	1.35E+00	Ci
241-AP-105	241Pu	Total		9.83E+00	Ci
241-AP-105	242Cm	Salt Cake	A2-SltSlr (Solid)	7.18E-04	Ci
241-AP-105	242Cm	Supernatant	Waste Transfer	5.01E-03	Ci
241-AP-105	242Cm	Total		5.73E-03	Ci
241-AP-105	242Pu	Salt Cake	A2-SltSlr (Solid)	5.11E-05	Ci
241-AP-105	242Pu	Supernatant	Waste Transfer	1.08E-05	Ci
241-AP-105	242Pu	Total		6.19E-05	Ci
241-AP-105	243Am	Salt Cake	A2-SltSlr (Solid)	1.84E-03	Ci
241-AP-105	243Am	Supernatant	Waste Transfer	9.73E-05	Ci
241-AP-105	243Am	Total		1.94E-03	Ci
241-AP-105	243Cm	Salt Cake	A2-SltSlr (Solid)	3.96E-05	Ci
241-AP-105	243Cm	Supernatant	Waste Transfer	1.78E-03	Ci
241-AP-105	243Cm	Total		1.82E-03	Ci
241-AP-105	244Cm	Salt Cake	A2-SltSlr (Solid)	9.37E-04	Ci
241-AP-105	244Cm	Supernatant	Waste Transfer	3.51E-02	Ci
241-AP-105	244Cm	Total		3.60E-02	Ci
241-AP-105	3H	Salt Cake	A2-SltSlr (Solid)	2.09E+00	Ci
241-AP-105	3H	Supernatant	Waste Transfer	3.52E+02	Ci
241-AP-105	3H	Total		3.54E+02	Ci
241-AP-105	59Ni	Salt Cake	A2-SltSlr (Solid)	2.03E+00	Ci
241-AP-105	59Ni	Supernatant	Waste Transfer	1.17E+00	Ci
241-AP-105	59Ni	Total		3.20E+00	Ci
241-AP-105	60Co	Salt Cake	A2-SltSlr (Solid)	3.90E+00	Ci
241-AP-105	60Co	Supernatant	Waste Transfer	1.83E+01	Ci
241-AP-105	60Co	Total		2.22E+01	Ci
241-AP-105	63Ni	Salt Cake	A2-SltSlr (Solid)	1.89E+02	Ci
241-AP-105	63Ni	Supernatant	Waste Transfer	1.02E+02	Ci
241-AP-105	63Ni	Total		2.91E+02	Ci
241-AP-105	79Se	Salt Cake	A2-SltSlr (Solid)	1.12E-01	Ci
241-AP-105	79Se	Supernatant	Waste Transfer	1.79E+00	Ci
241-AP-105	79Se	Total		1.90E+00	Ci
241-AP-105	90Sr	Salt Cake	A2-SltSlr (Solid)	9.69E+03	Ci
241-AP-105	90Sr	Supernatant	Waste Transfer	1.08E+03	Ci
241-AP-105	90Sr	Total		1.08E+04	Ci
241-AP-105	90Y	Salt Cake	A2-SltSlr (Solid)	9.69E+03	Ci
241-AP-105	90Y	Supernatant	Waste Transfer	1.08E+03	Ci
241-AP-105	90Y	Total		1.08E+04	Ci
241-AP-105	93mNb	Salt Cake	A2-SltSlr (Solid)	5.54E+00	Ci
241-AP-105	93mNb	Supernatant	Waste Transfer	2.06E+01	Ci
241-AP-105	93mNb	Total		2.61E+01	Ci
241-AP-105	93Zr	Salt Cake	A2-SltSlr (Solid)	6.68E+00	Ci
241-AP-105	93Zr	Supernatant	Waste Transfer	2.37E+01	Ci
241-AP-105	93Zr	Total		3.04E+01	Ci
241-AP-105	99Tc	Salt Cake	A2-SltSlr (Solid)	7.68E+01	Ci
241-AP-105	99Tc	Supernatant	Waste Transfer	6.11E+02	Ci
241-AP-105	99Tc	Total		6.88E+02	Ci
241-AP-105	Al	Salt Cake	A2-SltSlr (Solid)	4.73E+03	kg
241-AP-105	Al	Supernatant	Waste Transfer	7.63E+04	kg
241-AP-105	Al	Total		8.11E+04	kg
241-AP-105	Bi	Salt Cake	A2-SltSlr (Solid)	6.68E+00	kg
241-AP-105	Bi	Supernatant	Waste Transfer	6.32E+01	kg
241-AP-105	Bi	Total		6.99E+01	kg

Summary	
Ag	0.00E+00 kg
Al	7.63E+04 kg
As	0.00E+00 kg
B	0.00E+00 kg
Ba	0.00E+00 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-37

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AP-105	Ca	Salt Cake	A2-SltSlr (Solid)	6.67E+01	kg
241-AP-105	Ca	Supernatant	Waste Transfer	1.13E+02	kg
241-AP-105	Ca	Total		1.80E+02	kg
241-AP-105	Cl	Salt Cake	A2-SltSlr (Solid)	6.86E+02	kg
241-AP-105	Cl	Supernatant	Waste Transfer	1.71E+04	kg
241-AP-105	Cl	Total		1.77E+04	kg
241-AP-105	Cr	Salt Cake	A2-SltSlr (Solid)	8.03E+01	kg
241-AP-105	Cr	Supernatant	Waste Transfer	1.69E+04	kg
241-AP-105	Cr	Total		1.69E+04	kg
241-AP-105	F	Salt Cake	A2-SltSlr (Solid)	1.12E+04	kg
241-AP-105	F	Supernatant	Waste Transfer	7.15E+02	kg
241-AP-105	F	Total		1.19E+04	kg
241-AP-105	Fe	Salt Cake	A2-SltSlr (Solid)	2.59E+01	kg
241-AP-105	Fe	Supernatant	Waste Transfer	4.37E+01	kg
241-AP-105	Fe	Total		6.96E+01	kg
241-AP-105	Free OH	Salt Cake	A2-SltSlr (Solid)	1.84E+04	kg
241-AP-105	Free OH	Supernatant	Waste Transfer	1.03E+05	kg
241-AP-105	Free OH	Total		1.22E+05	kg
241-AP-105	Hg	Salt Cake	A2-SltSlr (Solid)	2.34E-01	kg
241-AP-105	Hg	Supernatant	Waste Transfer	7.41E-03	kg
241-AP-105	Hg	Total		2.42E-01	kg
241-AP-105	K	Salt Cake	A2-SltSlr (Solid)	1.39E+04	kg
241-AP-105	K	Supernatant	Waste Transfer	8.82E+03	kg
241-AP-105	K	Total		2.28E+04	kg
241-AP-105	La	Salt Cake	A2-SltSlr (Solid)	1.38E-04	kg
241-AP-105	La	Supernatant	Waste Transfer	3.62E+00	kg
241-AP-105	La	Total		3.62E+00	kg
241-AP-105	Mn	Salt Cake	A2-SltSlr (Solid)	2.85E+00	kg
241-AP-105	Mn	Supernatant	Waste Transfer	9.15E+00	kg
241-AP-105	Mn	Total		1.20E+01	kg
241-AP-105	Na	Salt Cake	A2-SltSlr (Solid)	1.04E+05	kg
241-AP-105	Na	Supernatant	Waste Transfer	5.31E+05	kg
241-AP-105	Na	Total		6.35E+05	kg
241-AP-105	Ni	Salt Cake	A2-SltSlr (Solid)	8.95E+00	kg
241-AP-105	Ni	Supernatant	Waste Transfer	4.39E+01	kg
241-AP-105	Ni	Total		5.29E+01	kg
241-AP-105	NO2	Salt Cake	A2-SltSlr (Solid)	1.62E+04	kg
241-AP-105	NO2	Supernatant	Waste Transfer	1.88E+05	kg
241-AP-105	NO2	Total		2.04E+05	kg
241-AP-105	NO3	Salt Cake	A2-SltSlr (Solid)	6.31E+04	kg
241-AP-105	NO3	Supernatant	Waste Transfer	4.21E+05	kg
241-AP-105	NO3	Total		4.84E+05	kg
241-AP-105	Oxalate	Salt Cake	A2-SltSlr (Solid)	3.41E+03	kg
241-AP-105	Oxalate	Supernatant	Waste Transfer	5.60E+03	kg
241-AP-105	Oxalate	Total		9.01E+03	kg
241-AP-105	Pb	Salt Cake	A2-SltSlr (Solid)	2.85E+01	kg
241-AP-105	Pb	Supernatant	Waste Transfer	9.09E+01	kg
241-AP-105	Pb	Total		1.19E+02	kg
241-AP-105	PO4	Salt Cake	A2-SltSlr (Solid)	4.92E+03	kg
241-AP-105	PO4	Supernatant	Waste Transfer	9.13E+03	kg
241-AP-105	PO4	Total		1.40E+04	kg
241-AP-105	Si	Salt Cake	A2-SltSlr (Solid)	8.19E+01	kg
241-AP-105	Si	Supernatant	Waste Transfer	8.06E+01	kg
241-AP-105	Si	Total		1.63E+02	kg
241-AP-105	SO4	Salt Cake	A2-SltSlr (Solid)	9.66E+03	kg
241-AP-105	SO4	Supernatant	Waste Transfer	1.19E+04	kg
241-AP-105	SO4	Total		2.16E+04	kg
241-AP-105	Sr	Salt Cake	A2-SltSlr (Solid)	1.10E+00	kg
241-AP-105	Sr	Supernatant	Waste Transfer	3.66E-01	kg
241-AP-105	Sr	Total		1.47E+00	kg
241-AP-105	Th	Salt Cake	A2-SltSlr (Solid)	1.56E-01	kg
241-AP-105	Th	Supernatant	Waste Transfer	5.41E+01	kg
241-AP-105	Th	Total		5.43E+01	kg
241-AP-105	TIC as CO3	Salt Cake	A2-SltSlr (Solid)	4.49E+04	kg
241-AP-105	TIC as CO3	Supernatant	Waste Transfer	6.03E+04	kg
241-AP-105	TIC as CO3	Total		1.05E+05	kg
241-AP-105	TOC	Salt Cake	A2-SltSlr (Solid)	2.94E+03	kg
241-AP-105	TOC	Supernatant	Waste Transfer	5.94E+03	kg

Summary	
Be	0.00E+00 kg
Bi	6.32E+01 kg
Ca	1.13E+02 kg
Cd	0.00E+00 kg
Ce	0.00E+00 kg
Cl	1.71E+04 kg
CN	0.00E+00 kg
Co	0.00E+00 kg
Cr	1.69E+04 kg
Cu	0.00E+00 kg
F	7.15E+02 kg
Fe	4.37E+01 kg
Free OH	1.03E+05 kg
Hg	7.41E-03 kg
K	8.82E+03 kg
La	3.62E+00 kg
Li	0.00E+00 kg
Mg	0.00E+00 kg
Mn	9.15E+00 kg
Mo	0.00E+00 kg
Na	5.31E+05 kg
Nd	0.00E+00 kg
NH3	0.00E+00 kg
Ni	4.39E+01 kg
NO2	1.88E+05 kg
NO3	4.21E+05 kg
Oxalate	5.60E+03 kg
Pb	9.09E+01 kg
Pd	0.00E+00 kg
PO4	9.13E+03 kg
Pr	0.00E+00 kg
Rb	0.00E+00 kg
Rh	0.00E+00 kg
Ru	0.00E+00 kg
Sb	0.00E+00 kg
Se	0.00E+00 kg
Si	8.06E+01 kg
SO4	1.19E+04 kg
Sr	3.66E-01 kg
Ta	0.00E+00 kg
Te	0.00E+00 kg
Th	5.41E+01 kg
Ti	0.00E+00 kg
TIC as CO3	6.03E+04 kg
Tl	0.00E+00 kg
TOC	5.94E+03 kg
UTOTAL	3.44E+01 kg
V	0.00E+00 kg
W	0.00E+00 kg
Y	0.00E+00 kg
Zn	0.00E+00 kg
Zr	8.36E+00 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-38

BY:. E. Bermos
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AP-105	TOC	Total		8.88E+03	kg
241-AP-105	UTOTAL	Salt Cake	A2-SltSlr (Solid)	1.15E+02	kg
241-AP-105	UTOTAL	Supernatant	Waste Transfer	3.44E+01	kg
241-AP-105	UTOTAL	Total		1.49E+02	kg
241-AP-105	Zr	Salt Cake	A2-SltSlr (Solid)	5.34E+00	kg
241-AP-105	Zr	Supernatant	Waste Transfer	8.36E+00	kg
241-AP-105	Zr	Total		1.37E+01	kg

241-AW-101	106Ru	Supernatant	A2-SltSlr (Liquid)	1.63E-05	Ci
241-AW-101	106Ru	Salt Cake	A2-SltSlr (Solid)	4.21E-02	Ci
241-AW-101	106Ru	Total		4.21E-02	Ci
241-AW-101	113mCd	Supernatant	A2-SltSlr (Liquid)	7.11E+01	Ci
241-AW-101	113mCd	Salt Cake	A2-SltSlr (Solid)	2.52E+01	Ci
241-AW-101	113mCd	Total		9.64E+01	Ci
241-AW-101	125Sb	Supernatant	A2-SltSlr (Liquid)	1.01E+01	Ci
241-AW-101	125Sb	Salt Cake	A2-SltSlr (Solid)	1.00E+01	Ci
241-AW-101	125Sb	Total		2.01E+01	Ci
241-AW-101	126Sn	Supernatant	A2-SltSlr (Liquid)	2.08E+01	Ci
241-AW-101	126Sn	Salt Cake	A2-SltSlr (Solid)	2.05E+00	Ci
241-AW-101	126Sn	Total		2.29E+01	Ci
241-AW-101	129I	Supernatant	A2-SltSlr (Liquid)	4.76E-01	Ci
241-AW-101	129I	Salt Cake	A2-SltSlr (Solid)	1.90E-01	Ci
241-AW-101	129I	Total		6.67E-01	Ci
241-AW-101	134Cs	Supernatant	A2-SltSlr (Liquid)	4.95E+01	Ci
241-AW-101	134Cs	Salt Cake	A2-SltSlr (Solid)	3.31E+00	Ci
241-AW-101	134Cs	Total		5.28E+01	Ci
241-AW-101	137Cs	Supernatant	A2-SltSlr (Liquid)	1.05E+06	Ci
241-AW-101	137Cs	Salt Cake	A2-SltSlr (Solid)	4.75E+05	Ci
241-AW-101	137Cs	Total		1.52E+06	Ci
241-AW-101	137mBa	Supernatant	A2-SltSlr (Liquid)	9.87E+05	Ci
241-AW-101	137mBa	Salt Cake	A2-SltSlr (Solid)	4.48E+05	Ci
241-AW-101	137mBa	Total		1.44E+06	Ci
241-AW-101	14C	Supernatant	A2-SltSlr (Liquid)	8.36E-01	Ci
241-AW-101	14C	Salt Cake	A2-SltSlr (Solid)	9.83E+00	Ci
241-AW-101	14C	Total		1.07E+01	Ci
241-AW-101	151Sm	Supernatant	A2-SltSlr (Liquid)	1.08E+04	Ci
241-AW-101	151Sm	Salt Cake	A2-SltSlr (Solid)	1.40E+04	Ci
241-AW-101	151Sm	Total		2.49E+04	Ci
241-AW-101	152Eu	Supernatant	A2-SltSlr (Liquid)	1.20E+00	Ci
241-AW-101	152Eu	Salt Cake	A2-SltSlr (Solid)	1.63E+00	Ci
241-AW-101	152Eu	Total		2.82E+00	Ci
241-AW-101	154Eu	Supernatant	A2-SltSlr (Liquid)	6.52E+01	Ci
241-AW-101	154Eu	Salt Cake	A2-SltSlr (Solid)	1.13E+02	Ci
241-AW-101	154Eu	Total		1.78E+02	Ci
241-AW-101	155Eu	Supernatant	A2-SltSlr (Liquid)	3.18E+01	Ci
241-AW-101	155Eu	Salt Cake	A2-SltSlr (Solid)	4.33E+01	Ci
241-AW-101	155Eu	Total		7.51E+01	Ci
241-AW-101	226Ra	Supernatant	A2-SltSlr (Liquid)	1.19E-04	Ci
241-AW-101	226Ra	Salt Cake	A2-SltSlr (Solid)	4.24E-05	Ci
241-AW-101	226Ra	Total		1.62E-04	Ci
241-AW-101	227Ac	Supernatant	A2-SltSlr (Liquid)	1.47E-02	Ci
241-AW-101	227Ac	Salt Cake	A2-SltSlr (Solid)	5.22E-03	Ci
241-AW-101	227Ac	Total		1.99E-02	Ci
241-AW-101	228Ra	Supernatant	A2-SltSlr (Liquid)	3.39E-02	Ci
241-AW-101	228Ra	Salt Cake	A2-SltSlr (Solid)	1.20E-02	Ci
241-AW-101	228Ra	Total		4.60E-02	Ci
241-AW-101	229Th	Supernatant	A2-SltSlr (Liquid)	5.92E-05	Ci
241-AW-101	229Th	Salt Cake	A2-SltSlr (Solid)	2.10E-05	Ci
241-AW-101	229Th	Total		8.01E-05	Ci
241-AW-101	231Pa	Supernatant	A2-SltSlr (Liquid)	1.55E-01	Ci
241-AW-101	231Pa	Salt Cake	A2-SltSlr (Solid)	5.48E-02	Ci
241-AW-101	231Pa	Total		2.09E-01	Ci
241-AW-101	232Th	Supernatant	A2-SltSlr (Liquid)	5.24E-05	Ci
241-AW-101	232Th	Salt Cake	A2-SltSlr (Solid)	7.57E-05	Ci
241-AW-101	232Th	Total		1.28E-04	Ci
241-AW-101	232U	Supernatant	A2-SltSlr (Liquid)	7.16E-05	Ci

Summary		
106Ru	4.21E-02	Ci
113mCd	9.64E+01	Ci
125Sb	2.01E+01	Ci
126Sn	2.29E+01	Ci
129I	6.67E-01	Ci
134Cs	5.28E+01	Ci
137Cs	1.52E+06	Ci
137mBa	1.44E+06	Ci
14C	1.07E+01	Ci
151Sm	2.49E+04	Ci
152Eu	2.82E+00	Ci
154Eu	1.78E+02	Ci
155Eu	7.51E+01	Ci
226Ra	1.62E-04	Ci
227Ac	1.99E-02	Ci
228Ra	4.60E-02	Ci
229Th	8.01E-05	Ci
231Pa	2.09E-01	Ci
232Th	1.28E-04	Ci
232U	2.64E-02	Ci
233U	1.62E+00	Ci
234U	1.15E+00	Ci
235U	4.53E-02	Ci
236U	7.76E-02	Ci
237Np	3.46E-01	Ci
238Pu	7.29E+00	Ci
238U	8.98E-01	Ci
239Pu	1.00E+02	Ci
240Pu	2.61E+01	Ci
241Am	1.05E+02	Ci
241Pu	4.59E+02	Ci
242Cm	2.75E-02	Ci
242Pu	2.77E-03	Ci
243Am	6.76E-02	Ci
243Cm	7.07E-02	Ci
244Cm	1.58E+00	Ci
3H	2.88E+01	Ci
59Ni	9.71E+00	Ci
60Co	3.19E+01	Ci
63Ni	9.07E+02	Ci
79Se	6.36E-01	Ci
90Sr	8.30E+04	Ci
90Y	8.30E+04	Ci
93mNb	9.34E+01	Ci
93Zr	1.13E+02	Ci
99Tc	8.18E+02	Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-39

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AW-101	232U	Salt Cake	A2-SltSlr (Solid)	2.63E-02	Ci	
241-AW-101	232U	Total		2.64E-02	Ci	
241-AW-101	233U	Supernatant	A2-SltSlr (Liquid)	4.40E-03	Ci	
241-AW-101	233U	Salt Cake	A2-SltSlr (Solid)	1.61E+00	Ci	
241-AW-101	233U	Total		1.62E+00	Ci	
241-AW-101	234U	Supernatant	A2-SltSlr (Liquid)	3.11E-03	Ci	
241-AW-101	234U	Salt Cake	A2-SltSlr (Solid)	1.14E+00	Ci	
241-AW-101	234U	Total		1.15E+00	Ci	
241-AW-101	235U	Supernatant	A2-SltSlr (Liquid)	1.23E-04	Ci	
241-AW-101	235U	Salt Cake	A2-SltSlr (Solid)	4.52E-02	Ci	
241-AW-101	235U	Total		4.53E-02	Ci	
241-AW-101	236U	Supernatant	A2-SltSlr (Liquid)	2.11E-04	Ci	
241-AW-101	236U	Salt Cake	A2-SltSlr (Solid)	7.74E-02	Ci	
241-AW-101	236U	Total		7.76E-02	Ci	
241-AW-101	237Np	Supernatant	A2-SltSlr (Liquid)	2.36E-03	Ci	
241-AW-101	237Np	Salt Cake	A2-SltSlr (Solid)	3.43E-01	Ci	
241-AW-101	237Np	Total		3.46E-01	Ci	
241-AW-101	238Pu	Supernatant	A2-SltSlr (Liquid)	8.25E-02	Ci	
241-AW-101	238Pu	Salt Cake	A2-SltSlr (Solid)	7.20E+00	Ci	
241-AW-101	238Pu	Total		7.29E+00	Ci	
241-AW-101	238U	Supernatant	A2-SltSlr (Liquid)	2.44E-03	Ci	
241-AW-101	238U	Salt Cake	A2-SltSlr (Solid)	8.95E-01	Ci	
241-AW-101	238U	Total		8.98E-01	Ci	
241-AW-101	239Pu	Supernatant	A2-SltSlr (Liquid)	1.14E+00	Ci	
241-AW-101	239Pu	Salt Cake	A2-SltSlr (Solid)	9.93E+01	Ci	
241-AW-101	239Pu	Total		1.00E+02	Ci	
241-AW-101	240Pu	Supernatant	A2-SltSlr (Liquid)	2.96E-01	Ci	
241-AW-101	240Pu	Salt Cake	A2-SltSlr (Solid)	2.58E+01	Ci	
241-AW-101	240Pu	Total		2.61E+01	Ci	
241-AW-101	241Am	Supernatant	A2-SltSlr (Liquid)	7.21E-01	Ci	
241-AW-101	241Am	Salt Cake	A2-SltSlr (Solid)	1.04E+02	Ci	
241-AW-101	241Am	Total		1.05E+02	Ci	
241-AW-101	241Pu	Supernatant	A2-SltSlr (Liquid)	5.20E+00	Ci	
241-AW-101	241Pu	Salt Cake	A2-SltSlr (Solid)	4.54E+02	Ci	
241-AW-101	241Pu	Total		4.59E+02	Ci	
241-AW-101	242Cm	Supernatant	A2-SltSlr (Liquid)	1.32E-03	Ci	
241-AW-101	242Cm	Salt Cake	A2-SltSlr (Solid)	2.62E-02	Ci	
241-AW-101	242Cm	Total		2.75E-02	Ci	
241-AW-101	242Pu	Supernatant	A2-SltSlr (Liquid)	3.13E-05	Ci	
241-AW-101	242Pu	Salt Cake	A2-SltSlr (Solid)	2.73E-03	Ci	
241-AW-101	242Pu	Total		2.77E-03	Ci	
241-AW-101	243/244Cm	Salt Cake	A2-SltSlr (Solid)	1.98E+00	Ci	
241-AW-101	243/244Cm	Total		1.98E+00	Ci	
241-AW-101	243Am	Supernatant	A2-SltSlr (Liquid)	4.43E-04	Ci	
241-AW-101	243Am	Salt Cake	A2-SltSlr (Solid)	6.71E-02	Ci	
241-AW-101	243Am	Total		6.76E-02	Ci	
241-AW-101	243Cm	Supernatant	A2-SltSlr (Liquid)	7.28E-05	Ci	
241-AW-101	243Cm	Salt Cake	A2-SltSlr (Solid)	7.06E-02	Ci	
241-AW-101	243Cm	Total		7.07E-02	Ci	
241-AW-101	244Cm	Supernatant	A2-SltSlr (Liquid)	1.72E-03	Ci	
241-AW-101	244Cm	Salt Cake	A2-SltSlr (Solid)	1.58E+00	Ci	
241-AW-101	244Cm	Total		1.58E+00	Ci	
241-AW-101	3H	Supernatant	A2-SltSlr (Liquid)	1.41E+01	Ci	
241-AW-101	3H	Salt Cake	A2-SltSlr (Solid)	1.47E+01	Ci	
241-AW-101	3H	Total		2.88E+01	Ci	
241-AW-101	59Ni	Supernatant	A2-SltSlr (Liquid)	7.59E-01	Ci	
241-AW-101	59Ni	Salt Cake	A2-SltSlr (Solid)	8.95E+00	Ci	
241-AW-101	59Ni	Total		9.71E+00	Ci	
241-AW-101	60Co	Supernatant	A2-SltSlr (Liquid)	1.47E+01	Ci	
241-AW-101	60Co	Salt Cake	A2-SltSlr (Solid)	1.72E+01	Ci	
241-AW-101	60Co	Total		3.19E+01	Ci	
241-AW-101	63Ni	Supernatant	A2-SltSlr (Liquid)	7.07E+01	Ci	
241-AW-101	63Ni	Salt Cake	A2-SltSlr (Solid)	8.36E+02	Ci	
241-AW-101	63Ni	Total		9.07E+02	Ci	
241-AW-101	79Se	Supernatant	A2-SltSlr (Liquid)	1.41E-01	Ci	
241-AW-101	79Se	Salt Cake	A2-SltSlr (Solid)	4.95E-01	Ci	
241-AW-101	79Se	Total		6.36E-01	Ci	
241-AW-101	90Sr	Supernatant	A2-SltSlr (Liquid)	1.04E+03	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-40

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AW-101	90Sr	Salt Cake	A2-SltSlr (Solid)	8.20E+04	Ci
241-AW-101	90Sr	Total		8.30E+04	Ci
241-AW-101	90Y	Supernatant	A2-SltSlr (Liquid)	1.04E+03	Ci
241-AW-101	90Y	Salt Cake	A2-SltSlr (Solid)	8.20E+04	Ci
241-AW-101	90Y	Total		8.30E+04	Ci
241-AW-101	93mNb	Supernatant	A2-SltSlr (Liquid)	6.89E+01	Ci
241-AW-101	93mNb	Salt Cake	A2-SltSlr (Solid)	2.45E+01	Ci
241-AW-101	93mNb	Total		9.34E+01	Ci
241-AW-101	93Zr	Supernatant	A2-SltSlr (Liquid)	8.31E+01	Ci
241-AW-101	93Zr	Salt Cake	A2-SltSlr (Solid)	2.95E+01	Ci
241-AW-101	93Zr	Total		1.13E+02	Ci
241-AW-101	99Tc	Supernatant	A2-SltSlr (Liquid)	4.68E+02	Ci
241-AW-101	99Tc	Salt Cake	A2-SltSlr (Solid)	3.50E+02	Ci
241-AW-101	99Tc	Total		8.18E+02	Ci
241-AW-101	Ag	Supernatant	A2-SltSlr (Liquid)	5.54E+00	kg
241-AW-101	Ag	Salt Cake	A2-SltSlr (Solid)	5.68E+01	kg
241-AW-101	Ag	Total		6.23E+01	kg
241-AW-101	Al	Supernatant	A2-SltSlr (Liquid)	8.17E+04	kg
241-AW-101	Al	Salt Cake	A2-SltSlr (Solid)	3.34E+04	kg
241-AW-101	Al	Total		1.15E+05	kg
241-AW-101	As	Supernatant	A2-SltSlr (Liquid)	1.52E+02	kg
241-AW-101	As	Salt Cake	A2-SltSlr (Solid)	8.31E+01	kg
241-AW-101	As	Total		2.35E+02	kg
241-AW-101	B	Supernatant	A2-SltSlr (Liquid)	1.26E+02	kg
241-AW-101	B	Salt Cake	A2-SltSlr (Solid)	2.44E+02	kg
241-AW-101	B	Total		3.70E+02	kg
241-AW-101	Ba	Supernatant	A2-SltSlr (Liquid)	5.77E+00	kg
241-AW-101	Ba	Salt Cake	A2-SltSlr (Solid)	1.10E+01	kg
241-AW-101	Ba	Total		1.68E+01	kg
241-AW-101	Be	Supernatant	A2-SltSlr (Liquid)	7.48E+00	kg
241-AW-101	Be	Salt Cake	A2-SltSlr (Solid)	2.45E+00	kg
241-AW-101	Be	Total		9.93E+00	kg
241-AW-101	Bi	Supernatant	A2-SltSlr (Liquid)	2.22E+01	kg
241-AW-101	Bi	Salt Cake	A2-SltSlr (Solid)	2.57E+01	kg
241-AW-101	Bi	Total		4.78E+01	kg
241-AW-101	Ca	Supernatant	A2-SltSlr (Liquid)	2.69E+01	kg
241-AW-101	Ca	Salt Cake	A2-SltSlr (Solid)	7.30E+02	kg
241-AW-101	Ca	Total		7.56E+02	kg
241-AW-101	Cd	Supernatant	A2-SltSlr (Liquid)	7.17E+00	kg
241-AW-101	Cd	Salt Cake	A2-SltSlr (Solid)	1.67E+01	kg
241-AW-101	Cd	Total		2.38E+01	kg
241-AW-101	Ce	Supernatant	A2-SltSlr (Liquid)	7.20E+00	kg
241-AW-101	Ce	Salt Cake	A2-SltSlr (Solid)	5.13E+01	kg
241-AW-101	Ce	Total		5.85E+01	kg
241-AW-101	Cl	Supernatant	A2-SltSlr (Liquid)	1.71E+04	kg
241-AW-101	Cl	Salt Cake	A2-SltSlr (Solid)	7.81E+03	kg
241-AW-101	Cl	Total		2.50E+04	kg
241-AW-101	Co	Supernatant	A2-SltSlr (Liquid)	1.11E+01	kg
241-AW-101	Co	Salt Cake	A2-SltSlr (Solid)	1.23E+01	kg
241-AW-101	Co	Total		2.33E+01	kg
241-AW-101	Cr	Supernatant	A2-SltSlr (Liquid)	2.88E+02	kg
241-AW-101	Cr	Salt Cake	A2-SltSlr (Solid)	8.76E+02	kg
241-AW-101	Cr	Total		1.16E+03	kg
241-AW-101	Cu	Supernatant	A2-SltSlr (Liquid)	7.48E+00	kg
241-AW-101	Cu	Salt Cake	A2-SltSlr (Solid)	2.44E+01	kg
241-AW-101	Cu	Total		3.18E+01	kg
241-AW-101	F	Supernatant	A2-SltSlr (Liquid)	1.94E+03	kg
241-AW-101	F	Salt Cake	A2-SltSlr (Solid)	7.47E+03	kg
241-AW-101	F	Total		9.42E+03	kg
241-AW-101	Fe	Supernatant	A2-SltSlr (Liquid)	1.45E+01	kg
241-AW-101	Fe	Salt Cake	A2-SltSlr (Solid)	8.04E+02	kg
241-AW-101	Fe	Total		8.19E+02	kg
241-AW-101	Free OH	Supernatant	A2-SltSlr (Liquid)	2.76E+05	kg
241-AW-101	Free OH	Salt Cake	A2-SltSlr (Solid)	1.17E+05	kg
241-AW-101	Free OH	Total		3.93E+05	kg
241-AW-101	Hg	Supernatant	A2-SltSlr (Liquid)	7.02E-01	kg
241-AW-101	Hg	Salt Cake	A2-SltSlr (Solid)	1.03E+00	kg
241-AW-101	Hg	Total		1.74E+00	kg

Summary		
Ag	6.23E+01	kg
Al	1.15E+05	kg
As	2.35E+02	kg
B	3.70E+02	kg
Ba	1.68E+01	kg
Be	9.93E+00	kg
Bi	4.78E+01	kg
Ca	7.56E+02	kg
Cd	2.38E+01	kg
Ce	5.85E+01	kg
Cl	2.50E+04	kg
CN	0.00E+00	kg
Co	2.33E+01	kg
Cr	1.16E+03	kg
Cu	3.18E+01	kg
F	9.42E+03	kg
Fe	8.19E+02	kg
Free OH	3.93E+05	kg
Hg	1.74E+00	kg
K	1.67E+05	kg
La	6.76E+00	kg
Li	4.37E+01	kg
Mg	1.63E+02	kg
Mn	6.36E+02	kg
Mo	2.51E+02	kg
Na	1.02E+06	kg
Nd	4.78E+01	kg
NH3	0.00E+00	kg
Ni	1.08E+02	kg
NO2	4.22E+05	kg
NO3	8.19E+05	kg
Oxalate	2.61E+04	kg
Pb	6.93E+02	kg
Pd	0.00E+00	kg
PO4	1.07E+04	kg
Pr	0.00E+00	kg
Rb	0.00E+00	kg
Rh	0.00E+00	kg
Ru	0.00E+00	kg
Sb	1.41E+02	kg
Se	1.20E+02	kg
Si	1.31E+03	kg
SO4	1.23E+04	kg
Sr	1.58E+01	kg
Ta	0.00E+00	kg
Te	0.00E+00	kg
Th	1.16E+00	kg
Ti	2.39E+01	kg
TIC as CO3	1.14E+05	kg
Tl	2.42E+02	kg
TOC	2.04E+04	kg
UTOTAL	2.69E+03	kg
V	1.28E+01	kg
W	0.00E+00	kg
Y	0.00E+00	kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-41

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AW-101	K	Supernatant	A2-SltSlr (Liquid)	9.75E+04	kg
241-AW-101	K	Salt Cake	A2-SltSlr (Solid)	6.97E+04	kg
241-AW-101	K	Total		1.67E+05	kg
241-AW-101	La	Supernatant	A2-SltSlr (Liquid)	6.76E+00	kg
241-AW-101	La	Salt Cake	A2-SltSlr (Solid)	6.09E-04	kg
241-AW-101	La	Total		6.76E+00	kg
241-AW-101	Li	Supernatant	A2-SltSlr (Liquid)	1.76E+01	kg
241-AW-101	Li	Salt Cake	A2-SltSlr (Solid)	2.62E+01	kg
241-AW-101	Li	Total		4.37E+01	kg
241-AW-101	Mg	Supernatant	A2-SltSlr (Liquid)	5.45E+00	kg
241-AW-101	Mg	Salt Cake	A2-SltSlr (Solid)	1.57E+02	kg
241-AW-101	Mg	Total		1.63E+02	kg
241-AW-101	Mn	Supernatant	A2-SltSlr (Liquid)	1.11E+01	kg
241-AW-101	Mn	Salt Cake	A2-SltSlr (Solid)	6.25E+02	kg
241-AW-101	Mn	Total		6.36E+02	kg
241-AW-101	Mo	Supernatant	A2-SltSlr (Liquid)	1.74E+02	kg
241-AW-101	Mo	Salt Cake	A2-SltSlr (Solid)	7.63E+01	kg
241-AW-101	Mo	Total		2.51E+02	kg
241-AW-101	Na	Supernatant	A2-SltSlr (Liquid)	6.45E+05	kg
241-AW-101	Na	Salt Cake.	A2-SltSlr (Solid)	3.77E+05	kg
241-AW-101	Na	Total		1.02E+06	kg
241-AW-101	Nd	Supernatant	A2-SltSlr (Liquid)	2.22E+01	kg
241-AW-101	Nd	Salt Cake	A2-SltSlr (Solid)	2.57E+01	kg
241-AW-101	Nd	Total		4.78E+01	kg
241-AW-101	Ni	Supernatant	A2-SltSlr (Liquid)	1.65E+01	kg
241-AW-101	Ni	Salt Cake	A2-SltSlr (Solid)	9.18E+01	kg
241-AW-101	Ni	Total		1.08E+02	kg
241-AW-101	NO2	Supernatant	A2-SltSlr (Liquid)	2.92E+05	kg
241-AW-101	NO2	Salt Cake	A2-SltSlr (Solid)	1.30E+05	kg
241-AW-101	NO2	Total		4.22E+05	kg
241-AW-101	NO3	Supernatant	A2-SltSlr (Liquid)	4.74E+05	kg
241-AW-101	NO3	Salt Cake	A2-SltSlr (Solid)	3.46E+05	kg
241-AW-101	NO3	Total		8.19E+05	kg
241-AW-101	Oxalate	Supernatant	A2-SltSlr (Liquid)	2.02E+02	kg
241-AW-101	Oxalate	Salt Cake	A2-SltSlr (Solid)	2.59E+04	kg
241-AW-101	Oxalate	Total		2.61E+04	kg
241-AW-101	Pb	Supernatant	A2-SltSlr (Liquid)	1.59E+02	kg
241-AW-101	Pb	Salt Cake	A2-SltSlr (Solid)	5.34E+02	kg
241-AW-101	Pb	Total		6.93E+02	kg
241-AW-101	PO4	Supernatant	A2-SltSlr (Liquid)	1.43E+03	kg
241-AW-101	PO4	Salt Cake	A2-SltSlr (Solid)	9.26E+03	kg
241-AW-101	PO4	Total		1.07E+04	kg
241-AW-101	Sb	Supernatant	A2-SltSlr (Liquid)	9.14E+01	kg
241-AW-101	Sb	Salt Cake	A2-SltSlr (Solid)	4.99E+01	kg
241-AW-101	Sb	Total		1.41E+02	kg
241-AW-101	Se	Supernatant	A2-SltSlr (Liquid)	5.68E+01	kg
241-AW-101	Se	Salt Cake	A2-SltSlr (Solid)	6.36E+01	kg
241-AW-101	Se	Total		1.20E+02	kg
241-AW-101	Si	Supernatant	A2-SltSlr (Liquid)	4.18E+02	kg
241-AW-101	Si	Salt Cake	A2-SltSlr (Solid)	8.95E+02	kg
241-AW-101	Si	Total		1.31E+03	kg
241-AW-101	SO4	Supernatant	A2-SltSlr (Liquid)	3.13E+03	kg
241-AW-101	SO4	Salt Cake	A2-SltSlr (Solid)	9.17E+03	kg
241-AW-101	SO4	Total		1.23E+04	kg
241-AW-101	Sr	Supernatant	A2-SltSlr (Liquid)	7.84E+00	kg
241-AW-101	Sr	Salt Cake	A2-SltSlr (Solid)	7.92E+00	kg
241-AW-101	Sr	Total		1.58E+01	kg
241-AW-101	Th	Supernatant	A2-SltSlr (Liquid)	4.76E-01	kg
241-AW-101	Th	Salt Cake	A2-SltSlr (Solid)	6.89E-01	kg
241-AW-101	Th	Total		1.16E+00	kg
241-AW-101	Ti	Supernatant	A2-SltSlr (Liquid)	1.52E+01	kg
241-AW-101	Ti	Salt Cake	A2-SltSlr (Solid)	8.67E+00	kg
241-AW-101	Ti	Total		2.39E+01	kg
241-AW-101	TIC as CO3	Supernatant	A2-SltSlr (Liquid)	2.01E+04	kg
241-AW-101	TIC as CO3	Salt Cake	A2-SltSlr (Solid)	9.35E+04	kg
241-AW-101	TIC as CO3	Total		1.14E+05	kg
241-AW-101	Tl	Supernatant	A2-SltSlr (Liquid)	1.15E+02	kg
241-AW-101	Tl	Salt Cake	A2-SltSlr (Solid)	1.27E+02	kg

Summary	
Zn	8.90E+01 kg
Zr	2.00E+02 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-42

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AW-101	Tl	Total		2.42E+02	kg	
241-AW-101	TOC	Supernatant	A2-SltSlr (Liquid)	7.24E+03	kg	
241-AW-101	TOC	Salt Cake	A2-SltSlr (Solid)	1.32E+04	kg	
241-AW-101	TOC	Total		2.04E+04	kg	
241-AW-101	UTOTAL	Supernatant	A2-SltSlr (Liquid)	7.31E+00	kg	
241-AW-101	UTOTAL	Salt Cake	A2-SltSlr (Solid)	2.69E+03	kg	
241-AW-101	UTOTAL	Total		2.69E+03	kg	
241-AW-101	V	Supernatant	A2-SltSlr (Liquid)	5.45E-01	kg	
241-AW-101	V	Salt Cake	A2-SltSlr (Solid)	1.23E+01	kg	
241-AW-101	V	Total		1.28E+01	kg	
241-AW-101	Zn	Supernatant	A2-SltSlr (Liquid)	1.66E+01	kg	
241-AW-101	Zn	Salt Cake	A2-SltSlr (Solid)	7.24E+01	kg	
241-AW-101	Zn	Total		8.90E+01	kg	
241-AW-101	Zr	Supernatant	A2-SltSlr (Liquid)	3.21E+01	kg	
241-AW-101	Zr	Salt Cake	A2-SltSlr (Solid)	1.68E+02	kg	
241-AW-101	Zr	Total		2.00E+02	kg	

241-AZ-101	106Ru	Sludge	NA	1.07E-03	Ci	Summary	
241-AZ-101	106Ru	Supernatant	P3AZ1 (Liquid)	2.87E+01	Ci	106Ru	2.87E+01 Ci
241-AZ-101	106Ru	Sludge	P3AZ1 (Solid)	5.12E+01	Ci	113mCd	1.33E+02 Ci
241-AZ-101	106Ru	Total		7.99E+01	Ci	125Sb	1.88E+03 Ci
241-AZ-101	113mCd	Sludge	NA	6.40E-01	Ci	126Sn	7.85E+00 Ci
241-AZ-101	113mCd	Supernatant	P3AZ1 (Liquid)	1.33E+02	Ci	129I	3.24E-02 Ci
241-AZ-101	113mCd	Sludge	P3AZ1 (Solid)	3.87E+02	Ci	134Cs	1.44E+03 Ci
241-AZ-101	113mCd	Total		5.21E+02	Ci	137Cs	5.06E+06 Ci
241-AZ-101	125Sb	Sludge	NA	4.47E+02	Ci	137mBa	4.78E+06 Ci
241-AZ-101	125Sb	Supernatant	P3AZ1 (Liquid)	1.88E+03	Ci	14C	6.25E+00 Ci
241-AZ-101	125Sb	Sludge	P3AZ1 (Solid)	2.49E+03	Ci	151Sm	1.26E+04 Ci
241-AZ-101	125Sb	Total		4.82E+03	Ci	152Eu	1.52E+01 Ci
241-AZ-101	126Sn	Sludge	NA	5.20E-02	Ci	154Eu	1.55E+02 Ci
241-AZ-101	126Sn	Supernatant	P3AZ1 (Liquid)	7.85E+00	Ci	155Eu	9.11E+02 Ci
241-AZ-101	126Sn	Sludge	P3AZ1 (Solid)	4.87E-01	Ci	226Ra	2.22E-04 Ci
241-AZ-101	126Sn	Total		8.39E+00	Ci	227Ac	1.46E-03 Ci
241-AZ-101	129I	Sludge	NA	5.49E-02	Ci	228Ra	1.45E-08 Ci
241-AZ-101	129I	Supernatant	P3AZ1 (Liquid)	3.24E-02	Ci	229Th	1.90E-06 Ci
241-AZ-101	129I	Sludge	P3AZ1 (Solid)	3.06E-01	Ci	231Pa	3.18E-03 Ci
241-AZ-101	129I	Total		3.93E-01	Ci	232Th	1.86E-08 Ci
241-AZ-101	134Cs	Sludge	NA	8.40E-02	Ci	232U	1.49E-06 Ci
241-AZ-101	134Cs	Supernatant	P3AZ1 (Liquid)	1.44E+03	Ci	233U	4.92E-07 Ci
241-AZ-101	134Cs	Sludge	P3AZ1 (Solid)	4.87E+01	Ci	234U	4.42E-03 Ci
241-AZ-101	134Cs	Total		1.49E+03	Ci	235U	1.65E-04 Ci
241-AZ-101	137Cs	Sludge	NA	3.70E+04	Ci	236U	4.22E-04 Ci
241-AZ-101	137Cs	Supernatant	P3AZ1 (Liquid)	5.06E+06	Ci	237Np	1.22E-01 Ci
241-AZ-101	137Cs	Sludge	P3AZ1 (Solid)	2.06E+05	Ci	238Pu	4.70E-01 Ci
241-AZ-101	137Cs	Total		5.30E+06	Ci	238U	3.04E-03 Ci
241-AZ-101	137mBa	Sludge	NA	3.49E+04	Ci	239Pu	4.55E+00 Ci
241-AZ-101	137mBa	Supernatant	P3AZ1 (Liquid)	4.78E+06	Ci	240Pu	1.30E+00 Ci
241-AZ-101	137mBa	Sludge	P3AZ1 (Solid)	1.94E+05	Ci	241Am	4.67E-01 Ci
241-AZ-101	137mBa	Total		5.01E+06	Ci	241Pu	3.37E+01 Ci
241-AZ-101	14C	Sludge	NA	5.26E-02	Ci	242Cm	2.37E-04 Ci
241-AZ-101	14C	Supernatant	P3AZ1 (Liquid)	6.25E+00	Ci	242Pu	1.69E-04 Ci
241-AZ-101	14C	Sludge	P3AZ1 (Solid)	2.93E-01	Ci	243Am	1.06E-04 Ci
241-AZ-101	14C	Total		6.59E+00	Ci	243Cm	4.24E-03 Ci
241-AZ-101	151Sm	Sludge	NA	3.56E+02	Ci	244Cm	9.86E-02 Ci
241-AZ-101	151Sm	Supernatant	P3AZ1 (Liquid)	1.26E+04	Ci	3H	5.17E+01 Ci
241-AZ-101	151Sm	Sludge	P3AZ1 (Solid)	1.18E+05	Ci	59Ni	6.93E+00 Ci
241-AZ-101	151Sm	Total		1.31E+05	Ci	60Co	3.97E+01 Ci
241-AZ-101	152Eu	Sludge	NA	4.12E-02	Ci	63Ni	6.54E+02 Ci
241-AZ-101	152Eu	Supernatant	P3AZ1 (Liquid)	1.52E+01	Ci	79Se	3.14E+00 Ci
241-AZ-101	152Eu	Sludge	P3AZ1 (Solid)	1.42E+02	Ci	90Sr	2.81E+03 Ci
241-AZ-101	152Eu	Total		1.57E+02	Ci	90Y	2.81E+03 Ci
241-AZ-101	154Eu	Sludge	NA	1.62E+03	Ci	93mNb	1.20E+02 Ci
241-AZ-101	154Eu	Supernatant	P3AZ1 (Liquid)	1.55E+02	Ci	93Zr	1.95E+02 Ci
241-AZ-101	154Eu	Sludge	P3AZ1 (Solid)	9.00E+03	Ci	99Tc	1.06E+03 Ci
241-AZ-101	154Eu	Total		1.08E+04	Ci		
241-AZ-101	155Eu	Sludge	NA	1.72E+03	Ci		

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-43

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-101	155Eu	Supernatant	P3AZ1 (Liquid)	9.11E+02	Ci	
241-AZ-101	155Eu	Sludge	P3AZ1 (Solid)	9.56E+03	Ci	
241-AZ-101	155Eu	Total		1.22E+04	Ci	
241-AZ-101	226Ra	Sludge	NA	1.08E-06	Ci	
241-AZ-101	226Ra	Supernatant	P3AZ1 (Liquid)	2.22E-04	Ci	
241-AZ-101	226Ra	Sludge	P3AZ1 (Solid)	7.62E-05	Ci	
241-AZ-101	226Ra	Total		3.00E-04	Ci	
241-AZ-101	227Ac	Sludge	NA	1.32E-04	Ci	
241-AZ-101	227Ac	Supernatant	P3AZ1 (Liquid)	1.46E-03	Ci	
241-AZ-101	227Ac	Sludge	P3AZ1 (Solid)	1.78E-04	Ci	
241-AZ-101	227Ac	Total		1.77E-03	Ci	
241-AZ-101	228Ra	Sludge	NA	7.35E-04	Ci	
241-AZ-101	228Ra	Supernatant	P3AZ1 (Liquid)	1.45E-08	Ci	
241-AZ-101	228Ra	Sludge	P3AZ1 (Solid)	2.01E-03	Ci	
241-AZ-101	228Ra	Total		2.74E-03	Ci	
241-AZ-101	229Th	Sludge	NA	5.31E-07	Ci	
241-AZ-101	229Th	Supernatant	P3AZ1 (Liquid)	1.90E-06	Ci	
241-AZ-101	229Th	Sludge	P3AZ1 (Solid)	6.41E-08	Ci	
241-AZ-101	229Th	Total		2.49E-06	Ci	
241-AZ-101	231Pa	Sludge	NA	1.39E-03	Ci	
241-AZ-101	231Pa	Supernatant	P3AZ1 (Liquid)	3.18E-03	Ci	
241-AZ-101	231Pa	Sludge	P3AZ1 (Solid)	1.07E-04	Ci	
241-AZ-101	231Pa	Total		4.67E-03	Ci	
241-AZ-101	232Th	Sludge	NA	1.24E-03	Ci	
241-AZ-101	232Th	Supernatant	P3AZ1 (Liquid)	1.86E-08	Ci	
241-AZ-101	232Th	Sludge	P3AZ1 (Solid)	6.92E-03	Ci	
241-AZ-101	232Th	Total		8.17E-03	Ci	
241-AZ-101	232U	Sludge	NA	2.45E-03	Ci	
241-AZ-101	232U	Supernatant	P3AZ1 (Liquid)	1.49E-06	Ci	
241-AZ-101	232U	Sludge	P3AZ1 (Solid)	2.27E-04	Ci	
241-AZ-101	232U	Total		2.68E-03	Ci	
241-AZ-101	233U	Sludge	NA	1.50E-01	Ci	
241-AZ-101	233U	Supernatant	P3AZ1 (Liquid)	4.92E-07	Ci	
241-AZ-101	233U	Sludge	P3AZ1 (Solid)	7.48E-05	Ci	
241-AZ-101	233U	Total		1.50E-01	Ci	
241-AZ-101	234U	Sludge	NA	1.06E-01	Ci	
241-AZ-101	234U	Supernatant	P3AZ1 (Liquid)	4.42E-03	Ci	
241-AZ-101	234U	Sludge	P3AZ1 (Solid)	6.72E-01	Ci	
241-AZ-101	234U	Total		7.82E-01	Ci	
241-AZ-101	235U	Sludge	NA	4.20E-03	Ci	
241-AZ-101	235U	Supernatant	P3AZ1 (Liquid)	1.65E-04	Ci	
241-AZ-101	235U	Sludge	P3AZ1 (Solid)	2.52E-02	Ci	
241-AZ-101	235U	Total		2.96E-02	Ci	
241-AZ-101	236U	Sludge	NA	7.20E-03	Ci	
241-AZ-101	236U	Supernatant	P3AZ1 (Liquid)	4.22E-04	Ci	
241-AZ-101	236U	Sludge	P3AZ1 (Solid)	6.39E-02	Ci	
241-AZ-101	236U	Total		7.16E-02	Ci	
241-AZ-101	237Np	Sludge	NA	2.05E+00	Ci	
241-AZ-101	237Np	Supernatant	P3AZ1 (Liquid)	1.22E-01	Ci	
241-AZ-101	237Np	Sludge	P3AZ1 (Solid)	1.14E+01	Ci	
241-AZ-101	237Np	Total		1.36E+01	Ci	
241-AZ-101	238Pu	Sludge	NA	1.32E+01	Ci	
241-AZ-101	238Pu	Supernatant	P3AZ1 (Liquid)	4.70E-01	Ci	
241-AZ-101	238Pu	Sludge	P3AZ1 (Solid)	1.02E+02	Ci	
241-AZ-101	238Pu	Total		1.15E+02	Ci	
241-AZ-101	238U	Sludge	NA	8.33E-02	Ci	
241-AZ-101	238U	Supernatant	P3AZ1 (Liquid)	3.04E-03	Ci	
241-AZ-101	238U	Sludge	P3AZ1 (Solid)	4.65E-01	Ci	
241-AZ-101	238U	Total		5.52E-01	Ci	
241-AZ-101	239Pu	Sludge	NA	1.81E+02	Ci	
241-AZ-101	239Pu	Supernatant	P3AZ1 (Liquid)	4.55E+00	Ci	
241-AZ-101	239Pu	Sludge	P3AZ1 (Solid)	9.89E+02	Ci	
241-AZ-101	239Pu	Total		1.18E+03	Ci	
241-AZ-101	240Pu	Sludge	NA	4.72E+01	Ci	
241-AZ-101	240Pu	Supernatant	P3AZ1 (Liquid)	1.30E+00	Ci	
241-AZ-101	240Pu	Sludge	P3AZ1 (Solid)	2.84E+02	Ci	
241-AZ-101	240Pu	Total		3.32E+02	Ci	
241-AZ-101	241Am	Sludge	NA	3.89E+03	Ci	

CALCULATION SHEET

BY:. E. Berrios
DATE: 12/05/05

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-44

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents *Feed Vector*

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-101	241Am	Supernatant	P3AZ1 (Liquid)	4.67E-01	Ci	
241-AZ-101	241Am	Sludge	P3AZ1 (Solid)	2.17E+04	Ci	
241-AZ-101	241Am	Total		2.56E+04	Ci	
241-AZ-101	241Pu	Sludge	NA	8.29E+02	Ci	
241-AZ-101	241Pu	Supernatant	P3AZ1 (Liquid)	3.37E+01	Ci	
241-AZ-101	241Pu	Sludge	P3AZ1 (Solid)	7.33E+03	Ci	
241-AZ-101	241Pu	Total		8.19E+03	Ci	
241-AZ-101	242Cm	Sludge	NA	1.71E+00	Ci	
241-AZ-101	242Cm	Supernatant	P3AZ1 (Liquid)	2.37E-04	Ci	
241-AZ-101	242Cm	Sludge	P3AZ1 (Solid)	9.52E+00	Ci	
241-AZ-101	242Cm	Total		1.12E+01	Ci	
241-AZ-101	242Pu	Sludge	NA	5.00E-03	Ci	
241-AZ-101	242Pu	Supernatant	P3AZ1 (Liquid)	1.69E-04	Ci	
241-AZ-101	242Pu	Sludge	P3AZ1 (Solid)	3.66E-02	Ci	
241-AZ-101	242Pu	Total		4.18E-02	Ci	
241-AZ-101	243/244Cm	Sludge	NA	4.16E+00	Ci	
241-AZ-101	243/244Cm	Supernatant	P3AZ1 (Liquid)	1.12E-01	Ci	
241-AZ-101	243/244Cm	Sludge	P3AZ1 (Solid)	2.32E+01	Ci	
241-AZ-101	243/244Cm	Total		2.74E+01	Ci	
241-AZ-101	243Am	Sludge	NA	2.58E+00	Ci	
241-AZ-101	243Am	Supernatant	P3AZ1 (Liquid)	1.06E-04	Ci	
241-AZ-101	243Am	Sludge	P3AZ1 (Solid)	6.83E+00	Ci	
241-AZ-101	243Am	Total		9.41E+00	Ci	
241-AZ-101	243Cm	Sludge	NA	1.58E-01	Ci	
241-AZ-101	243Cm	Supernatant	P3AZ1 (Liquid)	4.24E-03	Ci	
241-AZ-101	243Cm	Sludge	P3AZ1 (Solid)	8.79E-01	Ci	
241-AZ-101	243Cm	Total		1.04E+00	Ci	
241-AZ-101	244Cm	Sludge	NA	3.67E+00	Ci	
241-AZ-101	244Cm	Supernatant	P3AZ1 (Liquid)	9.86E-02	Ci	
241-AZ-101	244Cm	Sludge	P3AZ1 (Solid)	2.04E+01	Ci	
241-AZ-101	244Cm	Total		2.42E+01	Ci	
241-AZ-101	3H	Sludge	NA	3.32E-01	Ci	
241-AZ-101	3H	Supernatant	P3AZ1 (Liquid)	5.17E+01	Ci	
241-AZ-101	3H	Sludge	P3AZ1 (Solid)	1.85E+00	Ci	
241-AZ-101	3H	Total		5.39E+01	Ci	
241-AZ-101	59Ni	Sludge	NA	2.27E-01	Ci	
241-AZ-101	59Ni	Supernatant	P3AZ1 (Liquid)	6.93E+00	Ci	
241-AZ-101	59Ni	Sludge	P3AZ1 (Solid)	1.41E+01	Ci	
241-AZ-101	59Ni	Total		2.13E+01	Ci	
241-AZ-101	60Co	Sludge	NA	1.13E+02	Ci	
241-AZ-101	60Co	Supernatant	P3AZ1 (Liquid)	3.97E+01	Ci	
241-AZ-101	60Co	Sludge	P3AZ1 (Solid)	6.27E+02	Ci	
241-AZ-101	60Co	Total		7.80E+02	Ci	
241-AZ-101	63Ni	Sludge	NA	2.12E+01	Ci	
241-AZ-101	63Ni	Supernatant	P3AZ1 (Liquid)	6.54E+02	Ci	
241-AZ-101	63Ni	Sludge	P3AZ1 (Solid)	1.34E+03	Ci	
241-AZ-101	63Ni	Total		2.01E+03	Ci	
241-AZ-101	79Se	Sludge	NA	8.10E-02	Ci	
241-AZ-101	79Se	Supernatant	P3AZ1 (Liquid)	3.14E+00	Ci	
241-AZ-101	79Se	Sludge	P3AZ1 (Solid)	4.51E-01	Ci	
241-AZ-101	79Se	Total		3.68E+00	Ci	
241-AZ-101	90Sr	Sludge	NA	8.40E+05	Ci	
241-AZ-101	90Sr	Supernatant	P3AZ1 (Liquid)	2.81E+03	Ci	
241-AZ-101	90Sr	Sludge	P3AZ1 (Solid)	4.68E+06	Ci	
241-AZ-101	90Sr	Total		5.52E+06	Ci	
241-AZ-101	90Y	Sludge	NA	8.40E+05	Ci	
241-AZ-101	90Y	Supernatant	P3AZ1 (Liquid)	2.81E+03	Ci	
241-AZ-101	90Y	Sludge	P3AZ1 (Solid)	4.68E+06	Ci	
241-AZ-101	90Y	Total		5.52E+06	Ci	
241-AZ-101	93mNb	Sludge	NA	6.20E-01	Ci	
241-AZ-101	93mNb	Supernatant	P3AZ1 (Liquid)	1.20E+02	Ci	
241-AZ-101	93mNb	Sludge	P3AZ1 (Solid)	4.05E+00	Ci	
241-AZ-101	93mNb	Total		1.25E+02	Ci	
241-AZ-101	93Zr	Sludge	NA	7.48E-01	Ci	
241-AZ-101	93Zr	Supernatant	P3AZ1 (Liquid)	1.95E+02	Ci	
241-AZ-101	93Zr	Sludge	P3AZ1 (Solid)	6.59E+00	Ci	
241-AZ-101	93Zr	Total		2.02E+02	Ci	
241-AZ-101	99Tc	Sludge	NA	7.65E+00	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-45

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AZ-101	99Tc	Supernatant	P3AZ1 (Liquid)	1.06E+03	Ci
241-AZ-101	99Tc	Sludge	P3AZ1 (Solid)	4.26E+01	Ci
241-AZ-101	99Tc	Total		1.11E+03	Ci
241-AZ-101	Ag	Sludge	NA	2.43E+00	kg
241-AZ-101	Ag	Supernatant	P3AZ1 (Liquid)	2.05E+00	kg
241-AZ-101	Ag	Sludge	P3AZ1 (Solid)	1.35E+01	kg
241-AZ-101	Ag	Total		1.80E+01	kg
241-AZ-101	Al	Sludge	NA	5.99E+03	kg
241-AZ-101	Al	Supernatant	P3AZ1 (Liquid)	1.96E+04	kg
241-AZ-101	Al	Sludge	P3AZ1 (Solid)	3.34E+04	kg
241-AZ-101	Al	Total		5.90E+04	kg
241-AZ-101	As	Sludge	NA	2.06E+00	kg
241-AZ-101	As	Supernatant	P3AZ1 (Liquid)	3.21E+01	kg
241-AZ-101	As	Sludge	P3AZ1 (Solid)	1.15E+01	kg
241-AZ-101	As	Total		4.56E+01	kg
241-AZ-101	B	Sludge	NA	1.30E+00	kg
241-AZ-101	B	Supernatant	P3AZ1 (Liquid)	6.07E+01	kg
241-AZ-101	B	Sludge	P3AZ1 (Solid)	7.26E+00	kg
241-AZ-101	B	Total		6.93E+01	kg
241-AZ-101	Ba	Sludge	NA	2.15E+01	kg
241-AZ-101	Ba	Supernatant	P3AZ1 (Liquid)	2.52E-01	kg
241-AZ-101	Ba	Sludge	P3AZ1 (Solid)	1.19E+02	kg
241-AZ-101	Ba	Total		1.41E+02	kg
241-AZ-101	Be	Sludge	NA	3.96E-01	kg
241-AZ-101	Be	Supernatant	P3AZ1 (Liquid)	9.53E-01	kg
241-AZ-101	Be	Sludge	P3AZ1 (Solid)	2.21E+00	kg
241-AZ-101	Be	Total		3.55E+00	kg
241-AZ-101	Bi	Sludge	NA	7.48E-01	kg
241-AZ-101	Bi	Supernatant	P3AZ1 (Liquid)	0.00E+00	kg
241-AZ-101	Bi	Sludge	P3AZ1 (Solid)	0.00E+00	kg
241-AZ-101	Bi	Total		7.48E-01	kg
241-AZ-101	Ca	Sludge	NA	1.05E+02	kg
241-AZ-101	Ca	Supernatant	P3AZ1 (Liquid)	2.38E+01	kg
241-AZ-101	Ca	Sludge	P3AZ1 (Solid)	5.87E+02	kg
241-AZ-101	Ca	Total		7.16E+02	kg
241-AZ-101	Cd	Sludge	NA	2.05E+02	kg
241-AZ-101	Cd	Supernatant	P3AZ1 (Liquid)	2.60E+00	kg
241-AZ-101	Cd	Sludge	P3AZ1 (Solid)	1.14E+03	kg
241-AZ-101	Cd	Total		1.35E+03	kg
241-AZ-101	Ce	Sludge	NA	3.52E+01	kg
241-AZ-101	Ce	Supernatant	P3AZ1 (Liquid)	1.91E-01	kg
241-AZ-101	Ce	Sludge	P3AZ1 (Solid)	1.96E+02	kg
241-AZ-101	Ce	Total		2.31E+02	kg
241-AZ-101	Cl	Sludge	NA	5.83E+00	kg
241-AZ-101	Cl	Supernatant	P3AZ1 (Liquid)	7.89E+02	kg
241-AZ-101	Cl	Sludge	P3AZ1 (Solid)	3.25E+01	kg
241-AZ-101	Cl	Total		8.28E+02	kg
241-AZ-101	CN	Sludge	NA	2.16E-01	kg
241-AZ-101	CN	Supernatant	P3AZ1 (Liquid)	6.62E+00	kg
241-AZ-101	CN	Sludge	P3AZ1 (Solid)	1.20E+00	kg
241-AZ-101	CN	Total		8.04E+00	kg
241-AZ-101	Co	Sludge	NA	1.38E+00	kg
241-AZ-101	Co	Supernatant	P3AZ1 (Liquid)	1.91E-01	kg
241-AZ-101	Co	Sludge	P3AZ1 (Solid)	7.67E+00	kg
241-AZ-101	Co	Total		9.24E+00	kg
241-AZ-101	Cr	Sludge	NA	3.76E+01	kg
241-AZ-101	Cr	Supernatant	P3AZ1 (Liquid)	2.22E+03	kg
241-AZ-101	Cr	Sludge	P3AZ1 (Solid)	2.09E+02	kg
241-AZ-101	Cr	Total		2.47E+03	kg
241-AZ-101	Cu	Sludge	NA	1.04E+01	kg
241-AZ-101	Cu	Supernatant	P3AZ1 (Liquid)	2.05E+00	kg
241-AZ-101	Cu	Sludge	P3AZ1 (Solid)	5.82E+01	kg
241-AZ-101	Cu	Total		7.07E+01	kg
241-AZ-101	F	Sludge	NA	1.88E+02	kg
241-AZ-101	F	Supernatant	P3AZ1 (Liquid)	6.51E+03	kg
241-AZ-101	F	Sludge	P3AZ1 (Solid)	1.04E+03	kg
241-AZ-101	F	Total		7.74E+03	kg
241-AZ-101	Fe	Sludge	NA	2.93E+03	kg

Summary		
Summary		
Ag	2.05E+00	kg
Al	1.96E+04	kg
As	3.21E+01	kg
B	6.07E+01	kg
Ba	2.52E-01	kg
Be	9.53E-01	kg
Bi	0.00E+00	kg
Ca	2.38E+01	kg
Cd	2.60E+00	kg
Ce	1.91E-01	kg
Cl	7.89E+02	kg
CN	6.62E+00	kg
Co	1.91E-01	kg
Cr	2.22E+03	kg
Cu	2.05E+00	kg
F	6.51E+03	kg
Fe	4.87E+00	kg
Free OH	3.69E+04	kg
Hg	1.80E-01	kg
K	1.45E+04	kg
La	0.00E+00	kg
Li	2.92E+00	kg
Mg	8.43E+00	kg
Mn	0.00E+00	kg
Mo	2.88E+02	kg
Na	3.60E+05	kg
Nd	8.43E+00	kg
NH3	0.00E+00	kg
Ni	3.24E+00	kg
NO2	1.99E+05	kg
NO3	1.71E+05	kg
Oxalate	3.27E+03	kg
Pb	1.08E+01	kg
Pd	6.49E+01	kg
PO4	5.01E+03	kg
Pr	1.91E-01	kg
Rb	2.98E+01	kg
Rh	6.79E+00	kg
Ru	1.52E+00	kg
Sb	1.91E-01	kg
Se	2.10E+01	kg
Si	2.22E+02	kg
SO4	5.24E+04	kg
Sr	1.29E-01	kg
Ta	1.91E-01	kg
Te	1.91E-01	kg
Th	1.69E-04	kg
Ti	2.05E+00	kg
TIC as CO3	1.60E+05	kg
Tl	1.91E-01	kg
TOC	1.65E+03	kg
UTOTAL	9.14E+00	kg
V	4.87E+00	kg
W	1.88E+02	kg
Y	4.22E+00	kg
Zn	4.22E+00	kg
Zr	0.00E+00	kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-46

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-101	Fe	Supernatant	P3AZ1 (Liquid)	4.87E+00	kg	
241-AZ-101	Fe	Sludge	P3AZ1 (Solid)	1.63E+04	kg	
241-AZ-101	Fe	Total		1.93E+04	kg	
241-AZ-101	Free OH	Sludge	NA	4.10E+01	kg	
241-AZ-101	Free OH	Supernatant	P3AZ1 (Liquid)	3.69E+04	kg	
241-AZ-101	Free OH	Sludge	P3AZ1 (Solid)	2.28E+02	kg	
241-AZ-101	Free OH	Total		3.71E+04	kg	
241-AZ-101	Hg	Sludge	NA	1.38E-01	kg	
241-AZ-101	Hg	Supernatant	P3AZ1 (Liquid)	1.80E-01	kg	
241-AZ-101	Hg	Sludge	P3AZ1 (Solid)	7.66E-01	kg	
241-AZ-101	Hg	Total		1.08E+00	kg	
241-AZ-101	K	Sludge	NA	7.62E+01	kg	
241-AZ-101	K	Supernatant	P3AZ1 (Liquid)	1.45E+04	kg	
241-AZ-101	K	Sludge	P3AZ1 (Solid)	4.24E+02	kg	
241-AZ-101	K	Total		1.50E+04	kg	
241-AZ-101	La	Sludge	NA	7.86E+01	kg	
241-AZ-101	La	Supernatant	P3AZ1 (Liquid)	0.00E+00	kg	
241-AZ-101	La	Sludge	P3AZ1 (Solid)	4.37E+02	kg	
241-AZ-101	La	Total		5.16E+02	kg	
241-AZ-101	Li	Sludge	NA	3.09E+00	kg	
241-AZ-101	Li	Supernatant	P3AZ1 (Liquid)	2.92E+00	kg	
241-AZ-101	Li	Sludge	P3AZ1 (Solid)	1.72E+01	kg	
241-AZ-101	Li	Total		2.32E+01	kg	
241-AZ-101	Mg	Sludge	NA	1.93E+01	kg	
241-AZ-101	Mg	Supernatant	P3AZ1 (Liquid)	8.43E+00	kg	
241-AZ-101	Mg	Sludge	P3AZ1 (Solid)	1.08E+02	kg	
241-AZ-101	Mg	Total		1.35E+02	kg	
241-AZ-101	Mn	Sludge	NA	6.50E+01	kg	
241-AZ-101	Mn	Supernatant	P3AZ1 (Liquid)	0.00E+00	kg	
241-AZ-101	Mn	Sludge	P3AZ1 (Solid)	3.62E+02	kg	
241-AZ-101	Mn	Total		4.27E+02	kg	
241-AZ-101	Mo	Sludge	NA	3.12E+00	kg	
241-AZ-101	Mo	Supernatant	P3AZ1 (Liquid)	2.88E+02	kg	
241-AZ-101	Mo	Sludge	P3AZ1 (Solid)	1.73E+01	kg	
241-AZ-101	Mo	Total		3.08E+02	kg	
241-AZ-101	Na	Sludge	NA	3.48E+03	kg	
241-AZ-101	Na	Supernatant	P3AZ1 (Liquid)	3.60E+05	kg	
241-AZ-101	Na	Sludge	P3AZ1 (Solid)	1.94E+04	kg	
241-AZ-101	Na	Total		3.83E+05	kg	
241-AZ-101	Nd	Sludge	NA	9.19E+01	kg	
241-AZ-101	Nd	Supernatant	P3AZ1 (Liquid)	8.43E+00	kg	
241-AZ-101	Nd	Sludge	P3AZ1 (Solid)	5.12E+02	kg	
241-AZ-101	Nd	Total		6.12E+02	kg	
241-AZ-101	Ni	Sludge	NA	1.22E+02	kg	
241-AZ-101	Ni	Supernatant	P3AZ1 (Liquid)	3.24E+00	kg	
241-AZ-101	Ni	Sludge	P3AZ1 (Solid)	6.77E+02	kg	
241-AZ-101	Ni	Total		8.02E+02	kg	
241-AZ-101	NO2	Sludge	NA	1.42E+03	kg	
241-AZ-101	NO2	Supernatant	P3AZ1 (Liquid)	1.99E+05	kg	
241-AZ-101	NO2	Sludge	P3AZ1 (Solid)	7.92E+03	kg	
241-AZ-101	NO2	Total		2.08E+05	kg	
241-AZ-101	NO3	Sludge	NA	1.19E+03	kg	
241-AZ-101	NO3	Supernatant	P3AZ1 (Liquid)	1.71E+05	kg	
241-AZ-101	NO3	Sludge	P3AZ1 (Solid)	6.65E+03	kg	
241-AZ-101	NO3	Total		1.78E+05	kg	
241-AZ-101	Oxalate	Sludge	NA	1.42E+02	kg	
241-AZ-101	Oxalate	Supernatant	P3AZ1 (Liquid)	3.27E+03	kg	
241-AZ-101	Oxalate	Sludge	P3AZ1 (Solid)	7.90E+02	kg	
241-AZ-101	Oxalate	Total		4.20E+03	kg	
241-AZ-101	Pb	Sludge	NA	2.15E+01	kg	
241-AZ-101	Pb	Supernatant	P3AZ1 (Liquid)	1.08E+01	kg	
241-AZ-101	Pb	Sludge	P3AZ1 (Solid)	1.20E+02	kg	
241-AZ-101	Pb	Total		1.52E+02	kg	
241-AZ-101	Pd	Sludge	NA	1.05E+02	kg	
241-AZ-101	Pd	Supernatant	P3AZ1 (Liquid)	6.49E+01	kg	
241-AZ-101	Pd	Sludge	P3AZ1 (Solid)	5.87E+02	kg	
241-AZ-101	Pd	Total		7.57E+02	kg	
241-AZ-101	PO4	Sludge	NA	2.46E+02	kg	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-47

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-101	PO4	Supernatant	P3AZ1 (Liquid)	5.01E+03	kg	
241-AZ-101	PO4	Sludge	P3AZ1 (Solid)	1.37E+03	kg	
241-AZ-101	PO4	Total		6.63E+03	kg	
241-AZ-101	Pr	Sludge	NA	2.17E+01	kg	
241-AZ-101	Pr	Supernatant	P3AZ1 (Liquid)	1.91E-01	kg	
241-AZ-101	Pr	Sludge	P3AZ1 (Solid)	1.21E+02	kg	
241-AZ-101	Pr	Total		1.43E+02	kg	
241-AZ-101	Rb	Sludge	NA	1.15E+01	kg	
241-AZ-101	Rb	Supernatant	P3AZ1 (Liquid)	2.98E+01	kg	
241-AZ-101	Rb	Sludge	P3AZ1 (Solid)	6.42E+01	kg	
241-AZ-101	Rb	Total		1.06E+02	kg	
241-AZ-101	Rh	Sludge	NA	4.01E+00	kg	
241-AZ-101	Rh	Supernatant	P3AZ1 (Liquid)	6.79E+00	kg	
241-AZ-101	Rh	Sludge	P3AZ1 (Solid)	2.23E+01	kg	
241-AZ-101	Rh	Total		3.32E+01	kg	
241-AZ-101	Ru	Sludge	NA	3.16E+01	kg	
241-AZ-101	Ru	Supernatant	P3AZ1 (Liquid)	1.52E+00	kg	
241-AZ-101	Ru	Sludge	P3AZ1 (Solid)	1.76E+02	kg	
241-AZ-101	Ru	Total		2.09E+02	kg	
241-AZ-101	Sb	Sludge	NA	1.49E-01	kg	
241-AZ-101	Sb	Supernatant	P3AZ1 (Liquid)	1.91E-01	kg	
241-AZ-101	Sb	Sludge	P3AZ1 (Solid)	8.31E-01	kg	
241-AZ-101	Sb	Total		1.17E+00	kg	
241-AZ-101	Se	Sludge	NA	6.72E-02	kg	
241-AZ-101	Se	Supernatant	P3AZ1 (Liquid)	2.10E+01	kg	
241-AZ-101	Se	Sludge	P3AZ1 (Solid)	3.74E-01	kg	
241-AZ-101	Se	Total		2.14E+01	kg	
241-AZ-101	Si	Sludge	NA	1.67E+02	kg	
241-AZ-101	Si	Supernatant	P3AZ1 (Liquid)	2.22E+02	kg	
241-AZ-101	Si	Sludge	P3AZ1 (Solid)	9.29E+02	kg	
241-AZ-101	Si	Total		1.32E+03	kg	
241-AZ-101	SO4	Sludge	NA	1.11E+03	kg	
241-AZ-101	SO4	Supernatant	P3AZ1 (Liquid)	5.24E+04	kg	
241-AZ-101	SO4	Sludge	P3AZ1 (Solid)	6.19E+03	kg	
241-AZ-101	SO4	Total		5.97E+04	kg	
241-AZ-101	Sr	Sludge	NA	1.56E+01	kg	
241-AZ-101	Sr	Supernatant	P3AZ1 (Liquid)	1.29E-01	kg	
241-AZ-101	Sr	Sludge	P3AZ1 (Solid)	8.70E+01	kg	
241-AZ-101	Sr	Total		1.03E+02	kg	
241-AZ-101	Ta	Sludge	NA	1.60E-01	kg	
241-AZ-101	Ta	Supernatant	P3AZ1 (Liquid)	1.91E-01	kg	
241-AZ-101	Ta	Sludge	P3AZ1 (Solid)	8.92E-01	kg	
241-AZ-101	Ta	Total		1.24E+00	kg	
241-AZ-101	Te	Sludge	NA	8.74E+00	kg	
241-AZ-101	Te	Supernatant	P3AZ1 (Liquid)	1.91E-01	kg	
241-AZ-101	Te	Sludge	P3AZ1 (Solid)	4.87E+01	kg	
241-AZ-101	Te	Total		5.76E+01	kg	
241-AZ-101	Th	Sludge	NA	1.13E+01	kg	
241-AZ-101	Th	Supernatant	P3AZ1 (Liquid)	1.69E-04	kg	
241-AZ-101	Th	Sludge	P3AZ1 (Solid)	6.29E+01	kg	
241-AZ-101	Th	Total		7.42E+01	kg	
241-AZ-101	Ti	Sludge	NA	2.82E+00	kg	
241-AZ-101	Ti	Supernatant	P3AZ1 (Liquid)	2.05E+00	kg	
241-AZ-101	Ti	Sludge	P3AZ1 (Solid)	1.57E+01	kg	
241-AZ-101	Ti	Total		2.06E+01	kg	
241-AZ-101	TIC as CO3	Sludge	NA	2.02E+03	kg	
241-AZ-101	TIC as CO3	Supernatant	P3AZ1 (Liquid)	1.60E+05	kg	
241-AZ-101	TIC as CO3	Sludge	P3AZ1 (Solid)	1.12E+04	kg	
241-AZ-101	TIC as CO3	Total		1.73E+05	kg	
241-AZ-101	Tl	Sludge	NA	6.89E-03	kg	
241-AZ-101	Tl	Supernatant	P3AZ1 (Liquid)	1.91E-01	kg	
241-AZ-101	Tl	Sludge	P3AZ1 (Solid)	3.84E-02	kg	
241-AZ-101	Tl	Total		2.36E-01	kg	
241-AZ-101	TOC	Sludge	NA	3.95E+01	kg	
241-AZ-101	TOC	Supernatant	P3AZ1 (Liquid)	1.65E+03	kg	
241-AZ-101	TOC	Sludge	P3AZ1 (Solid)	2.20E+02	kg	
241-AZ-101	TOC	Total		1.91E+03	kg	
241-AZ-101	UTOTAL	Sludge	NA	2.50E+02	kg	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO : C-48

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-101	UTOTAL	Supernatant	P3AZ1 (Liquid)	9.14E+00	kg	
241-AZ-101	UTOTAL	Sludge	P3AZ1 (Solid)	1.39E+03	kg	
241-AZ-101	UTOTAL	Total		1.65E+03	kg	
241-AZ-101	V	Sludge	NA	1.03E+00	kg	
241-AZ-101	V	Supernatant	P3AZ1 (Liquid)	4.87E+00	kg	
241-AZ-101	V	Sludge	P3AZ1 (Solid)	5.75E+00	kg	
241-AZ-101	V	Total		1.16E+01	kg	
241-AZ-101	W	Sludge	NA	1.67E+00	kg	
241-AZ-101	W	Supernatant	P3AZ1 (Liquid)	1.88E+02	kg	
241-AZ-101	W	Sludge	P3AZ1 (Solid)	9.30E+00	kg	
241-AZ-101	W	Total		1.99E+02	kg	
241-AZ-101	Y	Sludge	NA	4.97E+00	kg	
241-AZ-101	Y	Supernatant	P3AZ1 (Liquid)	4.22E+00	kg	
241-AZ-101	Y	Sludge	P3AZ1 (Solid)	2.76E+01	kg	
241-AZ-101	Y	Total		3.68E+01	kg	
241-AZ-101	Zn	Sludge	NA	3.47E+00	kg	
241-AZ-101	Zn	Supernatant	P3AZ1 (Liquid)	4.22E+00	kg	
241-AZ-101	Zn	Sludge	P3AZ1 (Solid)	1.93E+01	kg	
241-AZ-101	Zn	Total		2.70E+01	kg	
241-AZ-101	Zr	Sludge	NA	8.56E+02	kg	
241-AZ-101	Zr	Supernatant	P3AZ1 (Liquid)	0.00E+00	kg	
241-AZ-101	Zr	Sludge	P3AZ1 (Solid)	4.77E+03	kg	
241-AZ-101	Zr	Total		5.62E+03	kg	

241-AZ-102	106Ru	Sludge	NA sludge	6.81E-08	Ci	Summary	
241-AZ-102	106Ru	Supernatant	P3AZ2 (Liquid)	8.60E+01	Ci	106Ru	8.60E+01 Ci
241-AZ-102	106Ru	Sludge	P3AZ2 (Solid)	5.93E+00	Ci	113mCd	1.24E+02 Ci
241-AZ-102	106Ru	Sludge	PL2 (Solid)	1.37E-03	Ci	125Sb	1.75E+03 Ci
241-AZ-102	106Ru	Sludge	SRR (Solid)	4.72E-04	Ci	126Sn	2.11E+00 Ci
241-AZ-102	106Ru	Total		9.19E+01	Ci	129I	4.46E-02 Ci
241-AZ-102	113mCd	Sludge	NA sludge	3.39E-01	Ci	134Cs	8.71E+02 Ci
241-AZ-102	113mCd	Supernatant	P3AZ2 (Liquid)	1.24E+02	Ci	137Cs	3.13E+06 Ci
241-AZ-102	113mCd	Sludge	P3AZ2 (Solid)	1.74E+02	Ci	137mBa	2.95E+06 Ci
241-AZ-102	113mCd	Sludge	PL2 (Solid)	1.40E-04	Ci	14C	3.17E+00 Ci
241-AZ-102	113mCd	Sludge	SRR (Solid)	8.08E-01	Ci	151Sm	1.24E+04 Ci
241-AZ-102	113mCd	Total		2.99E+02	Ci	152Eu	1.33E+01 Ci
241-AZ-102	125Sb	Sludge	NA sludge	4.82E+01	Ci	154Eu	1.57E+02 Ci
241-AZ-102	125Sb	Supernatant	P3AZ2 (Liquid)	1.75E+03	Ci	155Eu	2.45E+02 Ci
241-AZ-102	125Sb	Sludge	P3AZ2 (Solid)	1.66E+03	Ci	226Ra	1.41E-04 Ci
241-AZ-102	125Sb	Sludge	PL2 (Solid)	9.04E+01	Ci	227Ac	8.24E-04 Ci
241-AZ-102	125Sb	Sludge	SRR (Solid)	5.90E+02	Ci	228Ra	9.85E-09 Ci
241-AZ-102	125Sb	Total		4.14E+03	Ci	229Th	9.38E-07 Ci
241-AZ-102	126Sn	Sludge	NA sludge	1.13E-02	Ci	231Pa	1.78E-03 Ci
241-AZ-102	126Sn	Supernatant	P3AZ2 (Liquid)	2.11E+00	Ci	232Th	1.10E-08 Ci
241-AZ-102	126Sn	Sludge	P3AZ2 (Solid)	5.20E-01	Ci	232U	3.64E-05 Ci
241-AZ-102	126Sn	Sludge	PL2 (Solid)	3.96E-06	Ci	233U	1.16E-05 Ci
241-AZ-102	126Sn	Sludge	SRR (Solid)	4.90E-02	Ci	234U	1.25E-01 Ci
241-AZ-102	126Sn	Total		2.69E+00	Ci	235U	4.97E-03 Ci
241-AZ-102	129I	Sludge	NA sludge	9.11E-04	Ci	236U	1.23E-02 Ci
241-AZ-102	129I	Supernatant	P3AZ2 (Liquid)	4.46E-02	Ci	237Np	3.57E-01 Ci
241-AZ-102	129I	Sludge	P3AZ2 (Solid)	3.07E-03	Ci	238Pu	2.34E+00 Ci
241-AZ-102	129I	Sludge	PL2 (Solid)	3.59E-04	Ci	238U	8.59E-02 Ci
241-AZ-102	129I	Sludge	SRR (Solid)	2.17E-04	Ci	239Pu	2.42E+01 Ci
241-AZ-102	129I	Total		4.91E-02	Ci	240Pu	6.61E+00 Ci
241-AZ-102	134Cs	Sludge	NA sludge	2.49E+00	Ci	241Am	2.07E+00 Ci
241-AZ-102	134Cs	Supernatant	P3AZ2 (Liquid)	8.71E+02	Ci	241Pu	1.67E+02 Ci
241-AZ-102	134Cs	Sludge	P3AZ2 (Solid)	8.54E+01	Ci	242Cm	6.57E-04 Ci
241-AZ-102	134Cs	Sludge	PL2 (Solid)	4.66E+00	Ci	242Pu	7.97E-04 Ci
241-AZ-102	134Cs	Sludge	SRR (Solid)	3.04E+01	Ci	243Am	1.85E-04 Ci
241-AZ-102	134Cs	Total		9.94E+02	Ci	243Cm	8.91E-05 Ci
241-AZ-102	137Cs	Sludge	NA sludge	7.47E+03	Ci	244Cm	2.11E-03 Ci
241-AZ-102	137Cs	Supernatant	P3AZ2 (Liquid)	3.13E+06	Ci	3H	9.77E+01 Ci
241-AZ-102	137Cs	Sludge	P3AZ2 (Solid)	2.57E+05	Ci	59Ni	2.14E+00 Ci
241-AZ-102	137Cs	Sludge	PL2 (Solid)	1.40E+04	Ci	60Co	3.94E+01 Ci
241-AZ-102	137Cs	Sludge	SRR (Solid)	9.15E+04	Ci	63Ni	2.05E+02 Ci
241-AZ-102	137Cs	Total		3.50E+06	Ci	79Se	1.43E+00 Ci

CALCULATION SHEET

PROJECT. RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-49

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary	
241-AZ-102	137mBa	Sludge	NA sludge	7.05E+03	Ci	90Sr	6.51E+03 Ci
241-AZ-102	137mBa	Supernatant	P3AZ2 (Liquid)	2.95E+06	Ci	90Y	6.51E+03 Ci
241-AZ-102	137mBa	Sludge	P3AZ2 (Solid)	2.42E+05	Ci	93mNb	6.13E+01 Ci
241-AZ-102	137mBa	Sludge	PL2 (Solid)	1.32E+04	Ci	93Zr	1.05E+02 Ci
241-AZ-102	137mBa	Sludge	SRR (Solid)	8.64E+04	Ci	99Tc	6.98E+02 Ci
241-AZ-102	137mBa	Total		3.30E+06	Ci		
241-AZ-102	14C	Sludge	NA sludge	7.97E-03	Ci		
241-AZ-102	14C	Supernatant	P3AZ2 (Liquid)	3.17E+00	Ci		
241-AZ-102	14C	Sludge	P3AZ2 (Solid)	2.74E-01	Ci		
241-AZ-102	14C	Sludge	PL2 (Solid)	1.49E-02	Ci		
241-AZ-102	14C	Sludge	SRR (Solid)	9.77E-02	Ci		
241-AZ-102	14C	Total		3.57E+00	Ci		
241-AZ-102	151Sm	Sludge	NA sludge	5.54E+01	Ci		
241-AZ-102	151Sm	Supernatant	P3AZ2 (Liquid)	1.24E+04	Ci		
241-AZ-102	151Sm	Sludge	P3AZ2 (Solid)	6.16E+04	Ci		
241-AZ-102	151Sm	Sludge	PL2 (Solid)	3.51E-02	Ci		
241-AZ-102	151Sm	Sludge	SRR (Solid)	1.43E+05	Ci		
241-AZ-102	151Sm	Total		2.17E+05	Ci		
241-AZ-102	152Eu	Sludge	NA sludge	9.99E-03	Ci		
241-AZ-102	152Eu	Supernatant	P3AZ2 (Liquid)	1.33E+01	Ci		
241-AZ-102	152Eu	Sludge	P3AZ2 (Solid)	6.64E+01	Ci		
241-AZ-102	152Eu	Sludge	PL2 (Solid)	4.05E-05	Ci		
241-AZ-102	152Eu	Sludge	SRR (Solid)	3.09E+01	Ci		
241-AZ-102	152Eu	Total		1.11E+02	Ci		
241-AZ-102	154Eu	Sludge	NA sludge	1.73E+02	Ci		
241-AZ-102	154Eu	Supernatant	P3AZ2 (Liquid)	1.57E+02	Ci		
241-AZ-102	154Eu	Sludge	P3AZ2 (Solid)	5.95E+03	Ci		
241-AZ-102	154Eu	Sludge	PL2 (Solid)	3.25E+02	Ci		
241-AZ-102	154Eu	Sludge	SRR (Solid)	2.12E+03	Ci		
241-AZ-102	154Eu	Total		8.73E+03	Ci		
241-AZ-102	155Eu	Sludge	NA sludge	2.51E+02	Ci		
241-AZ-102	155Eu	Supernatant	P3AZ2 (Liquid)	2.45E+02	Ci		
241-AZ-102	155Eu	Sludge	P3AZ2 (Solid)	8.64E+03	Ci		
241-AZ-102	155Eu	Sludge	PL2 (Solid)	4.71E+02	Ci		
241-AZ-102	155Eu	Sludge	SRR (Solid)	3.08E+03	Ci		
241-AZ-102	155Eu	Total		1.27E+04	Ci		
241-AZ-102	226Ra	Sludge	NA sludge	3.06E-07	Ci		
241-AZ-102	226Ra	Supernatant	P3AZ2 (Liquid)	1.41E-04	Ci		
241-AZ-102	226Ra	Sludge	P3AZ2 (Solid)	9.70E-06	Ci		
241-AZ-102	226Ra	Sludge	PL2 (Solid)	7.69E-11	Ci		
241-AZ-102	226Ra	Sludge	SRR (Solid)	6.20E-07	Ci		
241-AZ-102	226Ra	Total		1.52E-04	Ci		
241-AZ-102	227Ac	Sludge	NA sludge	3.27E-05	Ci		
241-AZ-102	227Ac	Supernatant	P3AZ2 (Liquid)	8.24E-04	Ci		
241-AZ-102	227Ac	Sludge	P3AZ2 (Solid)	5.67E-05	Ci		
241-AZ-102	227Ac	Sludge	PL2 (Solid)	4.32E-10	Ci		
241-AZ-102	227Ac	Sludge	SRR (Solid)	3.13E-06	Ci		
241-AZ-102	227Ac	Total		9.16E-04	Ci		
241-AZ-102	228Ra	Sludge	NA sludge	1.92E-04	Ci		
241-AZ-102	228Ra	Supernatant	P3AZ2 (Liquid)	9.85E-09	Ci		
241-AZ-102	228Ra	Sludge	P3AZ2 (Solid)	4.24E-03	Ci		
241-AZ-102	228Ra	Sludge	PL2 (Solid)	3.42E-04	Ci		
241-AZ-102	228Ra	Sludge	SRR (Solid)	1.85E-03	Ci		
241-AZ-102	228Ra	Total		6.62E-03	Ci		
241-AZ-102	229Th	Sludge	NA sludge	1.22E-07	Ci		
241-AZ-102	229Th	Supernatant	P3AZ2 (Liquid)	9.38E-07	Ci		
241-AZ-102	229Th	Sludge	P3AZ2 (Solid)	6.45E-08	Ci		
241-AZ-102	229Th	Sludge	PL2 (Solid)	5.09E-13	Ci		
241-AZ-102	229Th	Sludge	SRR (Solid)	3.69E-09	Ci		
241-AZ-102	229Th	Total		1.13E-06	Ci		
241-AZ-102	231Pa	Sludge	NA sludge	3.34E-04	Ci		
241-AZ-102	231Pa	Supernatant	P3AZ2 (Liquid)	1.78E-03	Ci		
241-AZ-102	231Pa	Sludge	P3AZ2 (Solid)	1.23E-04	Ci		
241-AZ-102	231Pa	Sludge	PL2 (Solid)	8.89E-10	Ci		
241-AZ-102	231Pa	Sludge	SRR (Solid)	4.76E-06	Ci		
241-AZ-102	231Pa	Total		2.24E-03	Ci		
241-AZ-102	232Th	Sludge	NA sludge	4.15E-04	Ci		
241-AZ-102	232Th	Supernatant	P3AZ2 (Liquid)	1.10E-08	Ci		

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-50

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-102	232Th	Sludge	P3AZ2 (Solid)	1.43E-02	Ci	
241-AZ-102	232Th	Sludge	PL2 (Solid)	7.79E-04	Ci	
241-AZ-102	232Th	Sludge	SRR (Solid)	5.09E-03	Ci	
241-AZ-102	232Th	Total		2.06E-02	Ci	
241-AZ-102	232U	Sludge	NA sludge	4.88E-03	Ci	
241-AZ-102	232U	Supernatant	P3AZ2 (Liquid)	3.64E-05	Ci	
241-AZ-102	232U	Sludge	P3AZ2 (Solid)	6.94E-04	Ci	
241-AZ-102	232U	Sludge	PL2 (Solid)	4.14E-05	Ci	
241-AZ-102	232U	Sludge	SRR (Solid)	5.49E-05	Ci	
241-AZ-102	232U	Total		5.71E-03	Ci	
241-AZ-102	233U	Sludge	NA sludge	3.03E-01	Ci	
241-AZ-102	233U	Supernatant	P3AZ2 (Liquid)	1.16E-05	Ci	
241-AZ-102	233U	Sludge	P3AZ2 (Solid)	2.20E-04	Ci	
241-AZ-102	233U	Sludge	PL2 (Solid)	1.35E-05	Ci	
241-AZ-102	233U	Sludge	SRR (Solid)	1.72E-04	Ci	
241-AZ-102	233U	Total		3.03E-01	Ci	
241-AZ-102	234U	Sludge	NA sludge	5.29E-02	Ci	
241-AZ-102	234U	Supernatant	P3AZ2 (Liquid)	1.25E-01	Ci	
241-AZ-102	234U	Sludge	P3AZ2 (Solid)	2.38E+00	Ci	
241-AZ-102	234U	Sludge	PL2 (Solid)	1.29E-01	Ci	
241-AZ-102	234U	Sludge	SRR (Solid)	5.99E-01	Ci	
241-AZ-102	234U	Total		3.28E+00	Ci	
241-AZ-102	235U	Sludge	NA sludge	2.15E-03	Ci	
241-AZ-102	235U	Supernatant	P3AZ2 (Liquid)	4.97E-03	Ci	
241-AZ-102	235U	Sludge	P3AZ2 (Solid)	9.46E-02	Ci	
241-AZ-102	235U	Sludge	PL2 (Solid)	4.94E-03	Ci	
241-AZ-102	235U	Sludge	SRR (Solid)	2.53E-02	Ci	
241-AZ-102	235U	Total		1.32E-01	Ci	
241-AZ-102	236U	Sludge	NA sludge	1.39E-03	Ci	
241-AZ-102	236U	Supernatant	P3AZ2 (Liquid)	1.23E-02	Ci	
241-AZ-102	236U	Sludge	P3AZ2 (Solid)	2.35E-01	Ci	
241-AZ-102	236U	Sludge	PL2 (Solid)	1.24E-02	Ci	
241-AZ-102	236U	Sludge	SRR (Solid)	1.58E-02	Ci	
241-AZ-102	236U	Total		2.76E-01	Ci	
241-AZ-102	237Np	Sludge	NA sludge	3.83E-01	Ci	
241-AZ-102	237Np	Supernatant	P3AZ2 (Liquid)	3.57E-01	Ci	
241-AZ-102	237Np	Sludge	P3AZ2 (Solid)	1.32E+01	Ci	
241-AZ-102	237Np	Sludge	PL2 (Solid)	7.19E-01	Ci	
241-AZ-102	237Np	Sludge	SRR (Solid)	4.70E+00	Ci	
241-AZ-102	237Np	Total		1.93E+01	Ci	
241-AZ-102	238Pu	Sludge	NA sludge	3.93E+00	Ci	
241-AZ-102	238Pu	Supernatant	P3AZ2 (Liquid)	2.34E+00	Ci	
241-AZ-102	238Pu	Sludge	P3AZ2 (Solid)	1.35E+02	Ci	
241-AZ-102	238Pu	Sludge	PL2 (Solid)	7.36E+00	Ci	
241-AZ-102	238Pu	Sludge	SRR (Solid)	4.81E+01	Ci	
241-AZ-102	238Pu	Total		1.97E+02	Ci	
241-AZ-102	238U	Sludge	NA sludge	4.75E-02	Ci	
241-AZ-102	238U	Supernatant	P3AZ2 (Liquid)	8.59E-02	Ci	
241-AZ-102	238U	Sludge	P3AZ2 (Solid)	1.63E+00	Ci	
241-AZ-102	238U	Sludge	PL2 (Solid)	8.89E-02	Ci	
241-AZ-102	238U	Sludge	SRR (Solid)	5.82E-01	Ci	
241-AZ-102	238U	Total		2.44E+00	Ci	
241-AZ-102	239Pu	Sludge	NA sludge	2.71E+01	Ci	
241-AZ-102	239Pu	Supernatant	P3AZ2 (Liquid)	2.42E+01	Ci	
241-AZ-102	239Pu	Sludge	P3AZ2 (Solid)	9.01E+02	Ci	
241-AZ-102	239Pu	Sludge	PL2 (Solid)	4.88E+01	Ci	
241-AZ-102	239Pu	Sludge	SRR (Solid)	3.32E+02	Ci	
241-AZ-102	239Pu	Total		1.33E+03	Ci	
241-AZ-102	240Pu	Sludge	NA sludge	6.29E+00	Ci	
241-AZ-102	240Pu	Supernatant	P3AZ2 (Liquid)	6.61E+00	Ci	
241-AZ-102	240Pu	Sludge	P3AZ2 (Solid)	2.47E+02	Ci	
241-AZ-102	240Pu	Sludge	PL2 (Solid)	1.38E+01	Ci	
241-AZ-102	240Pu	Sludge	SRR (Solid)	7.70E+01	Ci	
241-AZ-102	240Pu	Total		3.51E+02	Ci	
241-AZ-102	241Am	Sludge	NA sludge	5.72E+02	Ci	
241-AZ-102	241Am	Supernatant	P3AZ2 (Liquid)	2.07E+00	Ci	
241-AZ-102	241Am	Sludge	P3AZ2 (Solid)	1.97E+04	Ci	
241-AZ-102	241Am	Sludge	PL2 (Solid)	1.07E+03	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-51

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-102	241Am	Sludge	SRR (Solid)	7.01E+03	Ci	
241-AZ-102	241Am	Total		2.84E+04	Ci	
241-AZ-102	241Pu	Sludge	NA sludge	4.89E+01	Ci	
241-AZ-102	241Pu	Supernatant	P3AZ2 (Liquid)	1.67E+02	Ci	
241-AZ-102	241Pu	Sludge	P3AZ2 (Solid)	6.21E+03	Ci	
241-AZ-102	241Pu	Sludge	PL2 (Solid)	3.53E+02	Ci	
241-AZ-102	241Pu	Sludge	SRR (Solid)	5.64E+02	Ci	
241-AZ-102	241Pu	Total		7.34E+03	Ci	
241-AZ-102	242Cm	Sludge	NA sludge	5.01E-01	Ci	
241-AZ-102	242Cm	Supernatant	P3AZ2 (Liquid)	6.57E-04	Ci	
241-AZ-102	242Cm	Sludge	P3AZ2 (Solid)	1.72E+01	Ci	
241-AZ-102	242Cm	Sludge	PL2 (Solid)	9.40E-01	Ci	
241-AZ-102	242Cm	Sludge	SRR (Solid)	6.14E+00	Ci	
241-AZ-102	242Cm	Total		2.48E+01	Ci	
241-AZ-102	242Pu	Sludge	NA sludge	4.70E-04	Ci	
241-AZ-102	242Pu	Supernatant	P3AZ2 (Liquid)	7.97E-04	Ci	
241-AZ-102	242Pu	Sludge	P3AZ2 (Solid)	2.95E-02	Ci	
241-AZ-102	242Pu	Sludge	PL2 (Solid)	1.74E-03	Ci	
241-AZ-102	242Pu	Sludge	SRR (Solid)	5.36E-03	Ci	
241-AZ-102	242Pu	Total		3.79E-02	Ci	
241-AZ-102	243/244Cm	Sludge	NA sludge	1.58E+00	Ci	
241-AZ-102	243/244Cm	Sludge	P3AZ2 (Solid)	5.45E+01	Ci	
241-AZ-102	243/244Cm	Sludge	PL2 (Solid)	2.97E+00	Ci	
241-AZ-102	243/244Cm	Sludge	SRR (Solid)	1.94E+01	Ci	
241-AZ-102	243/244Cm	Total		7.84E+01	Ci	
241-AZ-102	243Am	Sludge	NA sludge	3.55E-01	Ci	
241-AZ-102	243Am	Supernatant	P3AZ2 (Liquid)	1.85E-04	Ci	
241-AZ-102	243Am	Sludge	P3AZ2 (Solid)	4.41E+00	Ci	
241-AZ-102	243Am	Sludge	PL2 (Solid)	3.00E-01	Ci	
241-AZ-102	243Am	Sludge	SRR (Solid)	4.32E+00	Ci	
241-AZ-102	243Am	Total		9.39E+00	Ci	
241-AZ-102	243Cm	Sludge	NA sludge	5.78E-02	Ci	
241-AZ-102	243Cm	Supernatant	P3AZ2 (Liquid)	8.91E-05	Ci	
241-AZ-102	243Cm	Sludge	P3AZ2 (Solid)	1.99E+00	Ci	
241-AZ-102	243Cm	Sludge	PL2 (Solid)	1.08E-01	Ci	
241-AZ-102	243Cm	Sludge	SRR (Solid)	7.09E-01	Ci	
241-AZ-102	243Cm	Total		2.86E+00	Ci	
241-AZ-102	244Cm	Sludge	NA sludge	1.31E+00	Ci	
241-AZ-102	244Cm	Supernatant	P3AZ2 (Liquid)	2.11E-03	Ci	
241-AZ-102	244Cm	Sludge	P3AZ2 (Solid)	4.51E+01	Ci	
241-AZ-102	244Cm	Sludge	PL2 (Solid)	2.46E+00	Ci	
241-AZ-102	244Cm	Sludge	SRR (Solid)	1.61E+01	Ci	
241-AZ-102	244Cm	Total		6.50E+01	Ci	
241-AZ-102	3H	Sludge	NA sludge	3.52E-01	Ci	
241-AZ-102	3H	Supernatant	P3AZ2 (Liquid)	9.77E+01	Ci	
241-AZ-102	3H	Sludge	P3AZ2 (Solid)	1.21E+01	Ci	
241-AZ-102	3H	Sludge	PL2 (Solid)	6.59E-01	Ci	
241-AZ-102	3H	Sludge	SRR (Solid)	4.31E+00	Ci	
241-AZ-102	3H	Total		1.15E+02	Ci	
241-AZ-102	59Ni	Sludge	NA sludge	6.26E-02	Ci	
241-AZ-102	59Ni	Supernatant	P3AZ2 (Liquid)	2.14E+00	Ci	
241-AZ-102	59Ni	Sludge	P3AZ2 (Solid)	9.26E+00	Ci	
241-AZ-102	59Ni	Sludge	PL2 (Solid)	1.80E-04	Ci	
241-AZ-102	59Ni	Sludge	SRR (Solid)	4.90E-01	Ci	
241-AZ-102	59Ni	Total		1.20E+01	Ci	
241-AZ-102	60Co	Sludge	NA sludge	1.50E+01	Ci	
241-AZ-102	60Co	Supernatant	P3AZ2 (Liquid)	3.94E+01	Ci	
241-AZ-102	60Co	Sludge	P3AZ2 (Solid)	5.16E+02	Ci	
241-AZ-102	60Co	Sludge	PL2 (Solid)	2.82E+01	Ci	
241-AZ-102	60Co	Sludge	SRR (Solid)	1.84E+02	Ci	
241-AZ-102	60Co	Total		7.83E+02	Ci	
241-AZ-102	63Ni	Sludge	NA sludge	5.85E+00	Ci	
241-AZ-102	63Ni	Supernatant	P3AZ2 (Liquid)	2.05E+02	Ci	
241-AZ-102	63Ni	Sludge	P3AZ2 (Solid)	8.85E+02	Ci	
241-AZ-102	63Ni	Sludge	PL2 (Solid)	1.71E-02	Ci	
241-AZ-102	63Ni	Sludge	SRR (Solid)	4.52E+01	Ci	
241-AZ-102	63Ni	Total		1.14E+03	Ci	
241-AZ-102	79Se	Sludge	NA sludge	2.72E-03	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.. 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-52

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AZ-102	79Se	Supernatant	P3AZ2 (Liquid)	1.43E+00	Ci
241-AZ-102	79Se	Sludge	P3AZ2 (Solid)	1.19E-01	Ci
241-AZ-102	79Se	Sludge	PL2 (Solid)	8.89E-07	Ci
241-AZ-102	79Se	Sludge	SRR (Solid)	1.15E-02	Ci
241-AZ-102	79Se	Total		1.56E+00	Ci
241-AZ-102	90Sr	Sludge	NA sludge	7.90E+04	Ci
241-AZ-102	90Sr	Supernatant	P3AZ2 (Liquid)	6.51E+03	Ci
241-AZ-102	90Sr	Sludge	P3AZ2 (Solid)	2.71E+06	Ci
241-AZ-102	90Sr	Sludge	PL2 (Solid)	1.48E+05	Ci
241-AZ-102	90Sr	Sludge	SRR (Solid)	9.67E+05	Ci
241-AZ-102	90Sr	Total		3.92E+06	Ci
241-AZ-102	90Y	Sludge	NA sludge	7.90E+04	Ci
241-AZ-102	90Y	Supernatant	P3AZ2 (Liquid)	6.51E+03	Ci
241-AZ-102	90Y	Sludge	P3AZ2 (Solid)	2.71E+06	Ci
241-AZ-102	90Y	Sludge	PL2 (Solid)	1.48E+05	Ci
241-AZ-102	90Y	Sludge	SRR (Solid)	9.67E+05	Ci
241-AZ-102	90Y	Total		3.92E+06	Ci
241-AZ-102	93mNb	Sludge	NA sludge	1.34E-01	Ci
241-AZ-102	93mNb	Supernatant	P3AZ2 (Liquid)	6.13E+01	Ci
241-AZ-102	93mNb	Sludge	P3AZ2 (Solid)	4.24E+00	Ci
241-AZ-102	93mNb	Sludge	PL2 (Solid)	3.25E-05	Ci
241-AZ-102	93mNb	Sludge	SRR (Solid)	5.41E-01	Ci
241-AZ-102	93mNb	Total		6.62E+01	Ci
241-AZ-102	93Zr	Sludge	NA sludge	1.62E-01	Ci
241-AZ-102	93Zr	Supernatant	P3AZ2 (Liquid)	1.05E+02	Ci
241-AZ-102	93Zr	Sludge	P3AZ2 (Solid)	7.21E+00	Ci
241-AZ-102	93Zr	Sludge	PL2 (Solid)	5.37E-05	Ci
241-AZ-102	93Zr	Sludge	SRR (Solid)	6.83E-01	Ci
241-AZ-102	93Zr	Total		1.13E+02	Ci
241-AZ-102	99Tc	Sludge	NA sludge	1.75E+00	Ci
241-AZ-102	99Tc	Supernatant	P3AZ2 (Liquid)	6.98E+02	Ci
241-AZ-102	99Tc	Sludge	P3AZ2 (Solid)	6.02E+01	Ci
241-AZ-102	99Tc	Sludge	PL2 (Solid)	3.28E+00	Ci
241-AZ-102	99Tc	Sludge	SRR (Solid)	2.15E+01	Ci
241-AZ-102	99Tc	Total		7.85E+02	Ci
241-AZ-102	Ag	Sludge	NA sludge	2.63E+00	kg
241-AZ-102	Ag	Supernatant	P3AZ2 (Liquid)	1.61E+00	kg
241-AZ-102	Ag	Sludge	P3AZ2 (Solid)	9.05E+01	kg
241-AZ-102	Ag	Sludge	PL2 (Solid)	4.94E+00	kg
241-AZ-102	Ag	Sludge	SRR (Solid)	3.22E+01	kg
241-AZ-102	Ag	Total		1.32E+02	kg
241-AZ-102	Al	Sludge	NA sludge	6.11E+02	kg
241-AZ-102	Al	Supernatant	P3AZ2 (Liquid)	1.13E+03	kg
241-AZ-102	Al	Sludge	P3AZ2 (Solid)	2.10E+04	kg
241-AZ-102	Al	Sludge	PL2 (Solid)	1.15E+03	kg
241-AZ-102	Al	Sludge	SRR (Solid)	7.49E+03	kg
241-AZ-102	Al	Total		3.14E+04	kg
241-AZ-102	As	Sludge	NA sludge	4.67E-01	kg
241-AZ-102	As	Supernatant	P3AZ2 (Liquid)	1.28E+01	kg
241-AZ-102	As	Sludge	P3AZ2 (Solid)	1.61E+01	kg
241-AZ-102	As	Sludge	PL2 (Solid)	8.77E-01	kg
241-AZ-102	As	Sludge	SRR (Solid)	5.73E+00	kg
241-AZ-102	As	Total		3.60E+01	kg
241-AZ-102	B	Sludge	NA sludge	6.07E-01	kg
241-AZ-102	B	Supernatant	P3AZ2 (Liquid)	2.57E+01	kg
241-AZ-102	B	Sludge	P3AZ2 (Solid)	2.09E+01	kg
241-AZ-102	B	Sludge	PL2 (Solid)	1.14E+00	kg
241-AZ-102	B	Sludge	SRR (Solid)	7.43E+00	kg
241-AZ-102	B	Total		5.58E+01	kg
241-AZ-102	Ba	Sludge	NA sludge	4.03E+00	kg
241-AZ-102	Ba	Supernatant	P3AZ2 (Liquid)	1.57E-01	kg
241-AZ-102	Ba	Sludge	P3AZ2 (Solid)	1.39E+02	kg
241-AZ-102	Ba	Sludge	PL2 (Solid)	7.56E+00	kg
241-AZ-102	Ba	Sludge	SRR (Solid)	4.94E+01	kg
241-AZ-102	Ba	Total		2.00E+02	kg
241-AZ-102	Be	Sludge	NA sludge	6.46E-02	kg
241-AZ-102	Be	Supernatant	P3AZ2 (Liquid)	7.42E-02	kg
241-AZ-102	Be	Sludge	P3AZ2 (Solid)	2.22E+00	kg

Summary	
Ag	1.61E+00 kg
Al	1.13E+03 kg
As	1.28E+01 kg
B	2.57E+01 kg
Ba	1.57E-01 kg
Be	7.42E-02 kg
Bi	0.00E+00 kg
Ca	5.73E+00 kg
Cd	1.67E+00 kg
Ce	7.61E-02 kg
Cl	2.36E+02 kg
CN	2.44E+01 kg
Co	7.42E-02 kg
Cr	2.53E+03 kg
Cu	1.30E+00 kg
F	3.42E+03 kg
Fe	2.23E+00 kg
Free OH	8.13E+03 kg
Hg	2.03E-01 kg
K	1.05E+04 kg
La	0.00E+00 kg
Li	4.93E-01 kg
Mg	1.71E+01 kg
Mn	0.00E+00 kg
Mo	1.78E+02 kg
Na	2.04E+05 kg
Nd	6.62E+00 kg
NH3	0.00E+00 kg
Ni	3.81E+00 kg
NO2	1.35E+05 kg
NO3	2.73E+04 kg
Oxalate	7.37E+03 kg

CALCULATION SHEET

PROJECT. RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-53

BY:. E. Bernos
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AZ-102	Be	Sludge	PL2 (Solid)	1.21E-01	kg
241-AZ-102	Be	Sludge	SRR (Solid)	7.92E-01	kg
241-AZ-102	Be	Total		3.27E+00	kg
241-AZ-102	Bi	Sludge	NA sludge	1.83E+00	kg
241-AZ-102	Bi	Supernatant	P3AZ2 (Liquid)	0.00E+00	kg
241-AZ-102	Bi	Sludge	P3AZ2 (Solid)	6.28E+01	kg
241-AZ-102	Bi	Sludge	PL2 (Solid)	3.43E+00	kg
241-AZ-102	Bi	Sludge	SRR (Solid)	2.24E+01	kg
241-AZ-102	Bi	Total		9.05E+01	kg
241-AZ-102	Ca	Sludge	NA sludge	2.65E+01	kg
241-AZ-102	Ca	Supernatant	P3AZ2 (Liquid)	5.73E+00	kg
241-AZ-102	Ca	Sludge	P3AZ2 (Solid)	9.09E+02	kg
241-AZ-102	Ca	Sludge	PL2 (Solid)	4.96E+01	kg
241-AZ-102	Ca	Sludge	SRR (Solid)	3.24E+02	kg
241-AZ-102	Ca	Total		1.32E+03	kg
241-AZ-102	Cd	Sludge	NA sludge	9.53E+01	kg
241-AZ-102	Cd	Supernatant	P3AZ2 (Liquid)	1.67E+00	kg
241-AZ-102	Cd	Sludge	P3AZ2 (Solid)	3.28E+03	kg
241-AZ-102	Cd	Sludge	PL2 (Solid)	1.79E+02	kg
241-AZ-102	Cd	Sludge	SRR (Solid)	1.17E+03	kg
241-AZ-102	Cd	Total		4.72E+03	kg
241-AZ-102	Ce	Sludge	NA sludge	6.40E+00	kg
241-AZ-102	Ce	Supernatant	P3AZ2 (Liquid)	7.61E-02	kg
241-AZ-102	Ce	Sludge	P3AZ2 (Solid)	2.20E+02	kg
241-AZ-102	Ce	Sludge	PL2 (Solid)	1.20E+01	kg
241-AZ-102	Ce	Sludge	SRR (Solid)	7.84E+01	kg
241-AZ-102	Ce	Total		3.17E+02	kg
241-AZ-102	Cl	Sludge	NA sludge	1.55E+00	kg
241-AZ-102	Cl	Supernatant	P3AZ2 (Liquid)	2.36E+02	kg
241-AZ-102	Cl	Sludge	P3AZ2 (Solid)	5.32E+01	kg
241-AZ-102	Cl	Sludge	PL2 (Solid)	2.90E+00	kg
241-AZ-102	Cl	Sludge	SRR (Solid)	1.90E+01	kg
241-AZ-102	Cl	Total		3.13E+02	kg
241-AZ-102	CN	Sludge	NA sludge	5.97E-02	kg
241-AZ-102	CN	Supernatant	P3AZ2 (Liquid)	2.44E+01	kg
241-AZ-102	CN	Sludge	P3AZ2 (Solid)	2.05E+00	kg
241-AZ-102	CN	Sludge	PL2 (Solid)	1.12E-01	kg
241-AZ-102	CN	Sludge	SRR (Solid)	7.32E-01	kg
241-AZ-102	CN	Total		2.74E+01	kg
241-AZ-102	Co	Sludge	NA sludge	2.24E-01	kg
241-AZ-102	Co	Supernatant	P3AZ2 (Liquid)	7.42E-02	kg
241-AZ-102	Co	Sludge	P3AZ2 (Solid)	7.69E+00	kg
241-AZ-102	Co	Sludge	PL2 (Solid)	4.20E-01	kg
241-AZ-102	Co	Sludge	SRR (Solid)	2.74E+00	kg
241-AZ-102	Co	Total		1.12E+01	kg
241-AZ-102	Cr	Sludge	NA sludge	1.10E+01	kg
241-AZ-102	Cr	Supernatant	P3AZ2 (Liquid)	2.53E+03	kg
241-AZ-102	Cr	Sludge	P3AZ2 (Solid)	3.79E+02	kg
241-AZ-102	Cr	Sludge	PL2 (Solid)	2.07E+01	kg
241-AZ-102	Cr	Sludge	SRR (Solid)	1.35E+02	kg
241-AZ-102	Cr	Total		3.08E+03	kg
241-AZ-102	Cu	Sludge	NA sludge	1.06E+00	kg
241-AZ-102	Cu	Supernatant	P3AZ2 (Liquid)	1.30E+00	kg
241-AZ-102	Cu	Sludge	P3AZ2 (Solid)	3.64E+01	kg
241-AZ-102	Cu	Sludge	PL2 (Solid)	1.99E+00	kg
241-AZ-102	Cu	Sludge	SRR (Solid)	1.30E+01	kg
241-AZ-102	Cu	Total		5.38E+01	kg
241-AZ-102	F	Sludge	NA sludge	9.38E+00	kg
241-AZ-102	F	Supernatant	P3AZ2 (Liquid)	3.42E+03	kg
241-AZ-102	F	Sludge	P3AZ2 (Solid)	3.22E+02	kg
241-AZ-102	F	Sludge	PL2 (Solid)	1.76E+01	kg
241-AZ-102	F	Sludge	SRR (Solid)	1.15E+02	kg
241-AZ-102	F	Total		3.88E+03	kg
241-AZ-102	Fe	Sludge	NA sludge	7.29E+02	kg
241-AZ-102	Fe	Supernatant	P3AZ2 (Liquid)	2.23E+00	kg
241-AZ-102	Fe	Sludge	P3AZ2 (Solid)	2.51E+04	kg
241-AZ-102	Fe	Sludge	PL2 (Solid)	1.37E+03	kg
241-AZ-102	Fe	Sludge	SRR (Solid)	8.93E+03	kg

Summary	
Pb	0.00E+00 kg
Pd	0.00E+00 kg
PO4	1.49E+03 kg
Pr	0.00E+00 kg
Rb	0.00E+00 kg
Rh	0.00E+00 kg
Ru	0.00E+00 kg
Sb	1.13E-01 kg
Se	2.19E+01 kg
Si	1.62E+02 kg
SO4	5.84E+04 kg
Sr	1.20E-01 kg
Ta	0.00E+00 kg
Te	0.00E+00 kg
Th	9.99E-05 kg
Ti	5.48E-01 kg
TIC as CO3	1.07E+05 kg
Tl	0.00E+00 kg
TOC	6.61E+03 kg
UTOTAL	2.58E+02 kg
V	1.76E+00 kg
W	0.00E+00 kg
Y	7.42E-02 kg
Zn	1.11E+00 kg
Zr	1.04E+00 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-54

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-102	Fe	Total		3.61E+04	kg	
241-AZ-102	Free OH	Sludge	NA sludge	8.03E-01	kg	
241-AZ-102	Free OH	Supernatant	P3AZ2 (Liquid)	8.13E+03	kg	
241-AZ-102	Free OH	Sludge	P3AZ2 (Solid)	2.76E+01	kg	
241-AZ-102	Free OH	Sludge	PL2 (Solid)	1.51E+00	kg	
241-AZ-102	Free OH	Sludge	SRR (Solid)	9.83E+00	kg	
241-AZ-102	Free OH	Total		8.17E+03	kg	
241-AZ-102	Hg	Sludge	NA sludge	1.01E-01	kg	
241-AZ-102	Hg	Supernatant	P3AZ2 (Liquid)	2.03E-01	kg	
241-AZ-102	Hg	Sludge	P3AZ2 (Solid)	3.46E+00	kg	
241-AZ-102	Hg	Sludge	PL2 (Solid)	1.89E-01	kg	
241-AZ-102	Hg	Sludge	SRR (Solid)	1.23E+00	kg	
241-AZ-102	Hg	Total		5.18E+00	kg	
241-AZ-102	K	Sludge	NA sludge	3.03E+01	kg	
241-AZ-102	K	Supernatant	P3AZ2 (Liquid)	1.05E+04	kg	
241-AZ-102	K	Sludge	P3AZ2 (Solid)	1.04E+03	kg	
241-AZ-102	K	Sludge	PL2 (Solid)	5.69E+01	kg	
241-AZ-102	K	Sludge	SRR (Solid)	3.72E+02	kg	
241-AZ-102	K	Total		1.20E+04	kg	
241-AZ-102	La	Sludge	NA sludge	2.42E+01	kg	
241-AZ-102	La	Supernatant	P3AZ2 (Liquid)	0.00E+00	kg	
241-AZ-102	La	Sludge	P3AZ2 (Solid)	8.32E+02	kg	
241-AZ-102	La	Sludge	PL2 (Solid)	4.54E+01	kg	
241-AZ-102	La	Sludge	SRR (Solid)	2.97E+02	kg	
241-AZ-102	La	Total		1.20E+03	kg	
241-AZ-102	Li	Sludge	NA sludge	5.39E-01	kg	
241-AZ-102	Li	Supernatant	P3AZ2 (Liquid)	4.93E-01	kg	
241-AZ-102	Li	Sludge	P3AZ2 (Solid)	1.85E+01	kg	
241-AZ-102	Li	Sludge	PL2 (Solid)	1.01E+00	kg	
241-AZ-102	Li	Sludge	SRR (Solid)	6.60E+00	kg	
241-AZ-102	Li	Total		2.72E+01	kg	
241-AZ-102	Mg	Sludge	NA sludge	4.25E+00	kg	
241-AZ-102	Mg	Supernatant	P3AZ2 (Liquid)	1.71E+01	kg	
241-AZ-102	Mg	Sludge	P3AZ2 (Solid)	1.46E+02	kg	
241-AZ-102	Mg	Sludge	PL2 (Solid)	7.97E+00	kg	
241-AZ-102	Mg	Sludge	SRR (Solid)	5.21E+01	kg	
241-AZ-102	Mg	Total		2.27E+02	kg	
241-AZ-102	Mn	Sludge	NA sludge	1.91E+01	kg	
241-AZ-102	Mn	Supernatant	P3AZ2 (Liquid)	0.00E+00	kg	
241-AZ-102	Mn	Sludge	P3AZ2 (Solid)	6.57E+02	kg	
241-AZ-102	Mn	Sludge	PL2 (Solid)	3.58E+01	kg	
241-AZ-102	Mn	Sludge	SRR (Solid)	2.34E+02	kg	
241-AZ-102	Mn	Total		9.46E+02	kg	
241-AZ-102	Mo	Sludge	NA sludge	3.93E-01	kg	
241-AZ-102	Mo	Supernatant	P3AZ2 (Liquid)	1.78E+02	kg	
241-AZ-102	Mo	Sludge	P3AZ2 (Solid)	1.35E+01	kg	
241-AZ-102	Mo	Sludge	PL2 (Solid)	7.37E-01	kg	
241-AZ-102	Mo	Sludge	SRR (Solid)	4.81E+00	kg	
241-AZ-102	Mo	Total		1.98E+02	kg	
241-AZ-102	Na	Sludge	NA sludge	5.39E+02	kg	
241-AZ-102	Na	Supernatant	P3AZ2 (Liquid)	2.04E+05	kg	
241-AZ-102	Na	Sludge	P3AZ2 (Solid)	1.85E+04	kg	
241-AZ-102	Na	Sludge	PL2 (Solid)	1.01E+03	kg	
241-AZ-102	Na	Sludge	SRR (Solid)	6.60E+03	kg	
241-AZ-102	Na	Total		2.31E+05	kg	
241-AZ-102	Nd	Sludge	NA sludge	1.83E+01	kg	
241-AZ-102	Nd	Supernatant	P3AZ2 (Liquid)	6.62E+00	kg	
241-AZ-102	Nd	Sludge	P3AZ2 (Solid)	6.29E+02	kg	
241-AZ-102	Nd	Sludge	PL2 (Solid)	3.43E+01	kg	
241-AZ-102	Nd	Sludge	SRR (Solid)	2.24E+02	kg	
241-AZ-102	Nd	Total		9.13E+02	kg	
241-AZ-102	Ni	Sludge	NA sludge	4.92E+01	kg	
241-AZ-102	Ni	Supernatant	P3AZ2 (Liquid)	3.81E+00	kg	
241-AZ-102	Ni	Sludge	P3AZ2 (Solid)	1.69E+03	kg	
241-AZ-102	Ni	Sludge	PL2 (Solid)	9.22E+01	kg	
241-AZ-102	Ni	Sludge	SRR (Solid)	6.02E+02	kg	
241-AZ-102	Ni	Total		2.44E+03	kg	
241-AZ-102	NO2	Sludge	NA sludge	3.34E+02	kg	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-55

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: *WTP Air Emissions* Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-102	NO2	Supernatant	P3AZ2 (Liquid)	1.35E+05	kg	
241-AZ-102	NO2	Sludge	P3AZ2 (Solid)	1.15E+04	kg	
241-AZ-102	NO2	Sludge	PL2 (Solid)	6.26E+02	kg	
241-AZ-102	NO2	Sludge	SRR (Solid)	4.09E+03	kg	
241-AZ-102	NO2	Total		1.51E+05	kg	
241-AZ-102	NO3	Sludge	NA sludge	8.61E+01	kg	
241-AZ-102	NO3	Supernatant	P3AZ2 (Liquid)	2.73E+04	kg	
241-AZ-102	NO3	Sludge	P3AZ2 (Solid)	2.96E+03	kg	
241-AZ-102	NO3	Sludge	PL2 (Solid)	1.61E+02	kg	
241-AZ-102	NO3	Sludge	SRR (Solid)	1.05E+03	kg	
241-AZ-102	NO3	Total		3.16E+04	kg	
241-AZ-102	Oxalate	Sludge	NA sludge	2.10E+01	kg	
241-AZ-102	Oxalate	Supernatant	P3AZ2 (Liquid)	7.37E+03	kg	
241-AZ-102	Oxalate	Sludge	P3AZ2 (Solid)	7.20E+02	kg	
241-AZ-102	Oxalate	Sludge	PL2 (Solid)	3.93E+01	kg	
241-AZ-102	Oxalate	Sludge	SRR (Solid)	2.57E+02	kg	
241-AZ-102	Oxalate	Total		8.41E+03	kg	
241-AZ-102	Pb	Sludge	NA sludge	1.58E+01	kg	
241-AZ-102	Pb	Supernatant	P3AZ2 (Liquid)	0.00E+00	kg	
241-AZ-102	Pb	Sludge	P3AZ2 (Solid)	5.43E+02	kg	
241-AZ-102	Pb	Sludge	PL2 (Solid)	2.96E+01	kg	
241-AZ-102	Pb	Sludge	SRR (Solid)	1.94E+02	kg	
241-AZ-102	Pb	Total		7.82E+02	kg	
241-AZ-102	PO4	Sludge	NA sludge	2.31E+01	kg	
241-AZ-102	PO4	Supernatant	P3AZ2 (Liquid)	1.49E+03	kg	
241-AZ-102	PO4	Sludge	P3AZ2 (Solid)	7.94E+02	kg	
241-AZ-102	PO4	Sludge	PL2 (Solid)	4.33E+01	kg	
241-AZ-102	PO4	Sludge	SRR (Solid)	2.83E+02	kg	
241-AZ-102	PO4	Total		2.63E+03	kg	
241-AZ-102	Sb	Sludge	NA sludge	1.96E-01	kg	
241-AZ-102	Sb	Supernatant	P3AZ2 (Liquid)	1.13E-01	kg	
241-AZ-102	Sb	Sludge	P3AZ2 (Solid)	6.73E+00	kg	
241-AZ-102	Sb	Sludge	PL2 (Solid)	3.67E-01	kg	
241-AZ-102	Sb	Sludge	SRR (Solid)	2.40E+00	kg	
241-AZ-102	Sb	Total		9.81E+00	kg	
241-AZ-102	Se	Sludge	NA sludge	4.75E-01	kg	
241-AZ-102	Se	Supernatant	P3AZ2 (Liquid)	2.19E+01	kg	
241-AZ-102	Se	Sludge	P3AZ2 (Solid)	1.63E+01	kg	
241-AZ-102	Se	Sludge	PL2 (Solid)	8.90E-01	kg	
241-AZ-102	Se	Sludge	SRR (Solid)	5.82E+00	kg	
241-AZ-102	Se	Total		4.54E+01	kg	
241-AZ-102	Si	Sludge	NA sludge	3.66E+01	kg	
241-AZ-102	Si	Supernatant	P3AZ2 (Liquid)	1.62E+02	kg	
241-AZ-102	Si	Sludge	P3AZ2 (Solid)	1.26E+03	kg	
241-AZ-102	Si	Sludge	PL2 (Solid)	6.87E+01	kg	
241-AZ-102	Si	Sludge	SRR (Solid)	4.49E+02	kg	
241-AZ-102	Si	Total		1.98E+03	kg	
241-AZ-102	SO4	Sludge	NA sludge	1.31E+02	kg	
241-AZ-102	SO4	Supernatant	P3AZ2 (Liquid)	5.84E+04	kg	
241-AZ-102	SO4	Sludge	P3AZ2 (Solid)	4.51E+03	kg	
241-AZ-102	SO4	Sludge	PL2 (Solid)	2.46E+02	kg	
241-AZ-102	SO4	Sludge	SRR (Solid)	1.61E+03	kg	
241-AZ-102	SO4	Total		6.49E+04	kg	
241-AZ-102	Sr	Sludge	NA sludge	1.24E+00	kg	
241-AZ-102	Sr	Supernatant	P3AZ2 (Liquid)	1.20E-01	kg	
241-AZ-102	Sr	Sludge	P3AZ2 (Solid)	4.27E+01	kg	
241-AZ-102	Sr	Sludge	PL2 (Solid)	2.33E+00	kg	
241-AZ-102	Sr	Sludge	SRR (Solid)	1.52E+01	kg	
241-AZ-102	Sr	Total		6.16E+01	kg	
241-AZ-102	Th	Sludge	NA sludge	3.77E+00	kg	
241-AZ-102	Th	Supernatant	P3AZ2 (Liquid)	9.99E-05	kg	
241-AZ-102	Th	Sludge	P3AZ2 (Solid)	1.30E+02	kg	
241-AZ-102	Th	Sludge	PL2 (Solid)	7.08E+00	kg	
241-AZ-102	Th	Sludge	SRR (Solid)	4.62E+01	kg	
241-AZ-102	Th	Total		1.87E+02	kg	
241-AZ-102	Ti	Sludge	NA sludge	4.99E-01	kg	
241-AZ-102	Ti	Supernatant	P3AZ2 (Liquid)	5.48E-01	kg	
241-AZ-102	Ti	Sludge	P3AZ2 (Solid)	1.71E+01	kg	

CALCULATION SHEET

BY:. E. Berrios
DATE: 12/05/05

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-56

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-102	Ti	Sludge	PL2 (Solid)	9.35E-01	kg	
241-AZ-102	Ti	Sludge	SRR (Solid)	6.11E+00	kg	
241-AZ-102	Ti	Total		2.52E+01	kg	
241-AZ-102	TIC as CO3	Sludge	NA sludge	1.59E+02	kg	
241-AZ-102	TIC as CO3	Supernatant	P3AZ2 (Liquid)	1.07E+05	kg	
241-AZ-102	TIC as CO3	Sludge	P3AZ2 (Solid)	5.47E+03	kg	
241-AZ-102	TIC as CO3	Sludge	PL2 (Solid)	2.98E+02	kg	
241-AZ-102	TIC as CO3	Sludge	SRR (Solid)	1.95E+03	kg	
241-AZ-102	TIC as CO3	Total		1.15E+05	kg	
241-AZ-102	TOC	Sludge	NA sludge	5.73E+00	kg	
241-AZ-102	TOC	Supernatant	P3AZ2 (Liquid)	6.61E+03	kg	
241-AZ-102	TOC	Sludge	P3AZ2 (Solid)	1.97E+02	kg	
241-AZ-102	TOC	Sludge	PL2 (Solid)	1.07E+01	kg	
241-AZ-102	TOC	Sludge	SRR (Solid)	7.02E+01	kg	
241-AZ-102	TOC	Total		6.90E+03	kg	
241-AZ-102	UTOTAL	Sludge	NA sludge	1.43E+02	kg	
241-AZ-102	UTOTAL	Supernatant	P3AZ2 (Liquid)	2.58E+02	kg	
241-AZ-102	UTOTAL	Sludge	P3AZ2 (Solid)	4.90E+03	kg	
241-AZ-102	UTOTAL	Sludge	PL2 (Solid)	2.67E+02	kg	
241-AZ-102	UTOTAL	Sludge	SRR (Solid)	1.75E+03	kg	
241-AZ-102	UTOTAL	Total		7.32E+03	kg	
241-AZ-102	V	Sludge	NA sludge	4.71E-02	kg	
241-AZ-102	V	Supernatant	P3AZ2 (Liquid)	1.76E+00	kg	
241-AZ-102	V	Sludge	P3AZ2 (Solid)	1.62E+00	kg	
241-AZ-102	V	Sludge	PL2 (Solid)	8.83E-02	kg	
241-AZ-102	V	Sludge	SRR (Solid)	5.77E-01	kg	
241-AZ-102	V	Total		4.09E+00	kg	
241-AZ-102	Y	Sludge	NA sludge	6.12E-01	kg	
241-AZ-102	Y	Supernatant	P3AZ2 (Liquid)	7.42E-02	kg	
241-AZ-102	Y	Sludge	P3AZ2 (Solid)	2.10E+01	kg	
241-AZ-102	Y	Sludge	PL2 (Solid)	1.15E+00	kg	
241-AZ-102	Y	Sludge	SRR (Solid)	7.49E+00	kg	
241-AZ-102	Y	Total		3.04E+01	kg	
241-AZ-102	Zn	Sludge	NA sludge	2.66E+00	kg	
241-AZ-102	Zn	Supernatant	P3AZ2 (Liquid)	1.11E+00	kg	
241-AZ-102	Zn	Sludge	P3AZ2 (Solid)	9.13E+01	kg	
241-AZ-102	Zn	Sludge	PL2 (Solid)	4.98E+00	kg	
241-AZ-102	Zn	Total		1.00E+02	kg	
241-AZ-102	Zr	Sludge	NA sludge	9.20E+01	kg	
241-AZ-102	Zr	Supernatant	P3AZ2 (Liquid)	1.04E+00	kg	
241-AZ-102	Zr	Sludge	P3AZ2 (Solid)	3.16E+03	kg	
241-AZ-102	Zr	Sludge	PL2 (Solid)	1.73E+02	kg	
241-AZ-102	Zr	Sludge	SRR (Solid)	1.13E+03	kg	
241-AZ-102	Zr	Total		4.56E+03	kg	

241-SY-101	106Ru	Supernatant	NA	9.22E-07	Ci	Summary	
241-SY-101	106Ru	Salt Cake	S2-SltSlr (Solid)	6.63E-06	Ci	106Ru	9.22E-07 Ci
241-SY-101	106Ru	Total		7.55E-06	Ci	113mCd	7.39E+00 Ci
241-SY-101	113mCd	Supernatant	NA	7.39E+00	Ci	125Sb	1.84E+00 Ci
241-SY-101	113mCd	Salt Cake	S2-SltSlr (Solid)	2.04E+01	Ci	126Sn	2.87E-01 Ci
241-SY-101	113mCd	Total		2.77E+01	Ci	129I	8.11E-02 Ci
241-SY-101	125Sb	Supernatant	NA	1.84E+00	Ci	134Cs	3.57E-02 Ci
241-SY-101	125Sb	Salt Cake	S2-SltSlr (Solid)	1.40E+00	Ci	137Cs	5.58E+04 Ci
241-SY-101	125Sb	Total		3.24E+00	Ci	137mBa	5.27E+04 Ci
241-SY-101	126Sn	Supernatant	NA	2.87E-01	Ci	14C	1.74E+00 Ci
241-SY-101	126Sn	Salt Cake	S2-SltSlr (Solid)	1.57E+00	Ci	151Sm	1.55E+03 Ci
241-SY-101	126Sn	Total		1.86E+00	Ci	152Eu	3.34E-01 Ci
241-SY-101	129I	Supernatant	NA	8.11E-02	Ci	154Eu	3.23E+00 Ci
241-SY-101	129I	Salt Cake	S2-SltSlr (Solid)	1.23E-01	Ci	155Eu	1.12E+01 Ci
241-SY-101	129I	Total		2.04E-01	Ci	226Ra	2.12E-05 Ci
241-SY-101	134Cs	Supernatant	NA	3.57E-02	Ci	227Ac	2.58E-04 Ci
241-SY-101	134Cs	Salt Cake	S2-SltSlr (Solid)	7.01E-02	Ci	228Ra	4.97E-03 Ci
241-SY-101	134Cs	Total		1.06E-01	Ci	229Th	2.79E-04 Ci
241-SY-101	137Cs	Supernatant	NA	5.58E+04	Ci	231Pa	5.86E-04 Ci
241-SY-101	137Cs	Salt Cake	S2-SltSlr (Solid)	1.91E+05	Ci	232Th	1.87E-04 Ci
241-SY-101	137Cs	Total		2.47E+05	Ci	232U	2.50E-04 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO : 24590
CALC NO.. 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-57

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-SY-101	137mBa	Supernatant	NA	5.27E+04	Ci
241-SY-101	137mBa	Salt Cake	S2-SltSlr (Solid)	1.80E+05	Ci
241-SY-101	137mBa	Total		2.33E+05	Ci
241-SY-101	14C	Supernatant	NA	1.74E+00	Ci
241-SY-101	14C	Salt Cake	S2-SltSlr (Solid)	6.53E-01	Ci
241-SY-101	14C	Total		2.40E+00	Ci
241-SY-101	151Sm	Supernatant	NA	1.55E+03	Ci
241-SY-101	151Sm	Salt Cake	S2-SltSlr (Solid)	2.86E+03	Ci
241-SY-101	151Sm	Total		4.41E+03	Ci
241-SY-101	152Eu	Supernatant	NA	3.34E-01	Ci
241-SY-101	152Eu	Salt Cake	S2-SltSlr (Solid)	3.27E+00	Ci
241-SY-101	152Eu	Total		3.60E+00	Ci
241-SY-101	154Eu	Supernatant	NA	3.23E+00	Ci
241-SY-101	154Eu	Salt Cake	S2-SltSlr (Solid)	3.60E+02	Ci
241-SY-101	154Eu	Total		3.64E+02	Ci
241-SY-101	155Eu	Supernatant	NA	1.12E+01	Ci
241-SY-101	155Eu	Salt Cake	S2-SltSlr (Solid)	8.21E+01	Ci
241-SY-101	155Eu	Total		9.34E+01	Ci
241-SY-101	226Ra	Supernatant	NA	2.12E-05	Ci
241-SY-101	226Ra	Salt Cake	S2-SltSlr (Solid)	3.45E-05	Ci
241-SY-101	226Ra	Total		5.57E-05	Ci
241-SY-101	227Ac	Supernatant	NA	2.58E-04	Ci
241-SY-101	227Ac	Salt Cake	S2-SltSlr (Solid)	1.19E-03	Ci
241-SY-101	227Ac	Total		1.45E-03	Ci
241-SY-101	228Ra	Supernatant	NA	4.97E-03	Ci
241-SY-101	228Ra	Salt Cake	S2-SltSlr (Solid)	3.05E-03	Ci
241-SY-101	228Ra	Total		8.02E-03	Ci
241-SY-101	229Th	Supernatant	NA	2.79E-04	Ci
241-SY-101	229Th	Salt Cake	S2-SltSlr (Solid)	1.04E-05	Ci
241-SY-101	229Th	Total		2.89E-04	Ci
241-SY-101	231Pa	Supernatant	NA	5.86E-04	Ci
241-SY-101	231Pa	Salt Cake	S2-SltSlr (Solid)	1.10E-02	Ci
241-SY-101	231Pa	Total		1.16E-02	Ci
241-SY-101	232Th	Supernatant	NA	1.87E-04	Ci
241-SY-101	232Th	Salt Cake	S2-SltSlr (Solid)	3.62E-05	Ci
241-SY-101	232Th	Total		2.24E-04	Ci
241-SY-101	232U	Supernatant	NA	2.50E-04	Ci
241-SY-101	232U	Salt Cake	S2-SltSlr (Solid)	3.38E-03	Ci
241-SY-101	232U	Total		3.63E-03	Ci
241-SY-101	233U	Supernatant	NA	1.06E-03	Ci
241-SY-101	233U	Salt Cake	S2-SltSlr (Solid)	2.09E-01	Ci
241-SY-101	233U	Total		2.10E-01	Ci
241-SY-101	234U	Supernatant	NA	6.29E-04	Ci
241-SY-101	234U	Salt Cake	S2-SltSlr (Solid)	1.06E-01	Ci
241-SY-101	234U	Total		1.06E-01	Ci
241-SY-101	235U	Supernatant	NA	2.61E-05	Ci
241-SY-101	235U	Salt Cake	S2-SltSlr (Solid)	4.41E-03	Ci
241-SY-101	235U	Total		4.43E-03	Ci
241-SY-101	236U	Supernatant	NA	1.72E-05	Ci
241-SY-101	236U	Salt Cake	S2-SltSlr (Solid)	2.56E-03	Ci
241-SY-101	236U	Total		2.57E-03	Ci
241-SY-101	237Np	Supernatant	NA	9.58E-02	Ci
241-SY-101	237Np	Salt Cake	S2-SltSlr (Solid)	4.77E-01	Ci
241-SY-101	237Np	Total		5.73E-01	Ci
241-SY-101	238Pu	Supernatant	NA	1.45E-03	Ci
241-SY-101	238Pu	Salt Cake	S2-SltSlr (Solid)	1.34E+00	Ci
241-SY-101	238Pu	Total		1.34E+00	Ci
241-SY-101	238U	Supernatant	NA	5.90E-04	Ci
241-SY-101	238U	Salt Cake	S2-SltSlr (Solid)	9.87E-02	Ci
241-SY-101	238U	Total		9.93E-02	Ci
241-SY-101	239Pu	Supernatant	NA	6.81E-02	Ci
241-SY-101	239Pu	Salt Cake	S2-SltSlr (Solid)	3.83E+01	Ci
241-SY-101	239Pu	Total		3.84E+01	Ci
241-SY-101	240Pu	Supernatant	NA	1.08E-02	Ci
241-SY-101	240Pu	Salt Cake	S2-SltSlr (Solid)	8.22E+00	Ci
241-SY-101	240Pu	Total		8.23E+00	Ci
241-SY-101	241Am	Supernatant	NA	2.69E-01	Ci
241-SY-101	241Am	Salt Cake	S2-SltSlr (Solid)	4.39E+02	Ci

Summary	
233U	1.06E-03 Ci
234U	6.29E-04 Ci
235U	2.61E-05 Ci
236U	1.72E-05 Ci
237Np	9.58E-02 Ci
238Pu	1.45E-03 Ci
238U	5.90E-04 Ci
239Pu	6.81E-02 Ci
240Pu	1.08E-02 Ci
241Am	2.69E-01 Ci
241Pu	6.28E-02 Ci
242Cm	5.72E-04 Ci
242Pu	5.31E-07 Ci
243Am	9.17E-06 Ci
243Cm	1.39E-04 Ci
244Cm	2.57E-03 Ci
3H	2.17E+01 Ci
59Ni	7.30E-02 Ci
60Co	1.29E+00 Ci
63Ni	6.66E+00 Ci
79Se	2.58E-01 Ci
90Sr	1.04E+03 Ci
90Y	1.04E+03 Ci
93mNb	1.37E+00 Ci
93Zr	1.55E+00 Ci
99Tc	7.20E+01 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-58

BY:. E Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-SY-101	241Am	Total		4.39E+02	Ci
241-SY-101	241Pu	Supernatant	NA	6.28E-02	Ci
241-SY-101	241Pu	Salt Cake	S2-SltSlr (Solid)	5.41E+01	Ci
241-SY-101	241Pu	Total		5.42E+01	Ci
241-SY-101	242Cm	Supernatant	NA	5.72E-04	Ci
241-SY-101	242Cm	Salt Cake	S2-SltSlr (Solid)	1.14E+00	Ci
241-SY-101	242Cm	Total		1.14E+00	Ci
241-SY-101	242Pu	Supernatant	NA	5.31E-07	Ci
241-SY-101	242Pu	Salt Cake	S2-SltSlr (Solid)	5.13E-04	Ci
241-SY-101	242Pu	Total		5.14E-04	Ci
241-SY-101	243Am	Supernatant	NA	9.17E-06	Ci
241-SY-101	243Am	Salt Cake	S2-SltSlr (Solid)	2.56E-01	Ci
241-SY-101	243Am	Total		2.56E-01	Ci
241-SY-101	243Cm	Supernatant	NA	1.39E-04	Ci
241-SY-101	243Cm	Salt Cake	S2-SltSlr (Solid)	3.87E-02	Ci
241-SY-101	243Cm	Total		3.88E-02	Ci
241-SY-101	244Cm	Supernatant	NA	2.57E-03	Ci
241-SY-101	244Cm	Salt Cake	S2-SltSlr (Solid)	9.04E-01	Ci
241-SY-101	244Cm	Total		9.06E-01	Ci
241-SY-101	3H	Supernatant	NA	2.17E+01	Ci
241-SY-101	3H	Salt Cake	S2-SltSlr (Solid)	1.44E+01	Ci
241-SY-101	3H	Total		3.61E+01	Ci
241-SY-101	59Ni	Supernatant	NA	7.30E-02	Ci
241-SY-101	59Ni	Salt Cake	S2-SltSlr (Solid)	1.00E+00	Ci
241-SY-101	59Ni	Total		1.08E+00	Ci
241-SY-101	60Co	Supernatant	NA	1.29E+00	Ci
241-SY-101	60Co	Salt Cake	S2-SltSlr (Solid)	1.38E+01	Ci
241-SY-101	60Co	Total		1.51E+01	Ci
241-SY-101	63Ni	Supernatant	NA	6.66E+00	Ci
241-SY-101	63Ni	Salt Cake	S2-SltSlr (Solid)	9.39E+01	Ci
241-SY-101	63Ni	Total		1.01E+02	Ci
241-SY-101	79Se	Supernatant	NA	2.58E-01	Ci
241-SY-101	79Se	Salt Cake	S2-SltSlr (Solid)	1.90E-01	Ci
241-SY-101	79Se	Total		4.49E-01	Ci
241-SY-101	90Sr	Supernatant	NA	1.04E+03	Ci
241-SY-101	90Sr	Salt Cake	S2-SltSlr (Solid)	5.54E+04	Ci
241-SY-101	90Sr	Total		5.64E+04	Ci
241-SY-101	90Y	Supernatant	NA	1.04E+03	Ci
241-SY-101	90Y	Salt Cake	S2-SltSlr (Solid)	5.54E+04	Ci
241-SY-101	90Y	Total		5.64E+04	Ci
241-SY-101	93mNb	Supernatant	NA	1.37E+00	Ci
241-SY-101	93mNb	Salt Cake	S2-SltSlr (Solid)	4.89E+00	Ci
241-SY-101	93mNb	Total		6.25E+00	Ci
241-SY-101	93Zr	Supernatant	NA	1.55E+00	Ci
241-SY-101	93Zr	Salt Cake	S2-SltSlr (Solid)	5.84E+00	Ci
241-SY-101	93Zr	Total		7.38E+00	Ci
241-SY-101	99Tc	Supernatant	NA	7.20E+01	Ci
241-SY-101	99Tc	Salt Cake	S2-SltSlr (Solid)	2.78E+02	Ci
241-SY-101	99Tc	Total		3.50E+02	Ci
241-SY-101	Ag	Supernatant	NA	3.72E-01	kg
241-SY-101	Ag	Salt Cake	S2-SltSlr (Solid)	1.71E+01	kg
241-SY-101	Ag	Total		1.75E+01	kg
241-SY-101	Al	Supernatant	NA	4.47E+03	kg
241-SY-101	Al	Salt Cake	S2-SltSlr (Solid)	7.71E+04	kg
241-SY-101	Al	Total		8.16E+04	kg
241-SY-101	As	Supernatant	NA	3.44E+00	kg
241-SY-101	As	Salt Cake	S2-SltSlr (Solid)	6.84E+01	kg
241-SY-101	As	Total		7.19E+01	kg
241-SY-101	B	Supernatant	NA	1.29E+01	kg
241-SY-101	B	Salt Cake	S2-SltSlr (Solid)	1.73E+02	kg
241-SY-101	B	Total		1.86E+02	kg
241-SY-101	Ba	Supernatant	NA	1.36E-01	kg
241-SY-101	Ba	Salt Cake	S2-SltSlr (Solid)	3.43E+01	kg
241-SY-101	Ba	Total		3.44E+01	kg
241-SY-101	Be	Supernatant	NA	1.14E-01	kg
241-SY-101	Be	Salt Cake	S2-SltSlr (Solid)	3.43E+00	kg
241-SY-101	Be	Total		3.54E+00	kg
241-SY-101	Bi	Supernatant	NA	6.59E+00	kg

Summary		
Ag	3.72E-01	kg
Al	4.47E+03	kg
As	3.44E+00	kg
B	1.29E+01	kg
Ba	1.36E-01	kg
Be	1.14E-01	kg
Bi	6.59E+00	kg
Ca	1.37E+01	kg
Cd	3.96E-01	kg
Ce	3.32E+00	kg
Cl	1.50E+03	kg
CN	0.00E+00	kg
Co	7.57E-01	kg
Cr	2.87E+02	kg
Cu	8.20E-01	kg
F	3.71E+01	kg
Fe	1.33E+00	kg
Free OH	1.77E+04	kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-59

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-SY-101	Bi	Salt Cake	S2-SltSlr (Solid)	2.72E+01	kg
241-SY-101	Bi	Total		3.38E+01	kg
241-SY-101	Ca	Supernatant	NA	1.37E+01	kg
241-SY-101	Ca	Salt Cake	S2-SltSlr (Solid)	4.16E+02	kg
241-SY-101	Ca	Total		4.30E+02	kg
241-SY-101	Cd	Supernatant	NA	3.96E-01	kg
241-SY-101	Cd	Salt Cake	S2-SltSlr (Solid)	5.39E+01	kg
241-SY-101	Cd	Total		5.43E+01	kg
241-SY-101	Ce	Supernatant	NA	3.32E+00	kg
241-SY-101	Ce	Salt Cake	S2-SltSlr (Solid)	6.84E+01	kg
241-SY-101	Ce	Total		7.18E+01	kg
241-SY-101	Cl	Supernatant	NA	1.50E+03	kg
241-SY-101	Cl	Salt Cake	S2-SltSlr (Solid)	5.69E+03	kg
241-SY-101	Cl	Total		7.19E+03	kg
241-SY-101	Co	Supernatant	NA	7.57E-01	kg
241-SY-101	Co	Salt Cake	S2-SltSlr (Solid)	1.37E+01	kg
241-SY-101	Co	Total		1.44E+01	kg
241-SY-101	Cr	Supernatant	NA	2.87E+02	kg
241-SY-101	Cr	Salt Cake	S2-SltSlr (Solid)	1.71E+04	kg
241-SY-101	Cr	Total		1.74E+04	kg
241-SY-101	Cu	Supernatant	NA	8.20E-01	kg
241-SY-101	Cu	Salt Cake	S2-SltSlr (Solid)	6.84E+00	kg
241-SY-101	Cu	Total		7.66E+00	kg
241-SY-101	F	Supernatant	NA	3.71E+01	kg
241-SY-101	F	Salt Cake	S2-SltSlr (Solid)	5.97E+02	kg
241-SY-101	F	Total		6.34E+02	kg
241-SY-101	Fe	Supernatant	NA	1.33E+00	kg
241-SY-101	Fe	Salt Cake	S2-SltSlr (Solid)	1.21E+03	kg
241-SY-101	Fe	Total		1.22E+03	kg
241-SY-101	Free OH	Supernatant	NA	1.77E+04	kg
241-SY-101	Free OH	Total		1.77E+04	kg
241-SY-101	Hg	Supernatant	NA	7.59E-04	kg
241-SY-101	Hg	Salt Cake	S2-SltSlr (Solid)	5.76E-01	kg
241-SY-101	Hg	Total		5.77E-01	kg
241-SY-101	K	Supernatant	NA	5.30E+02	kg
241-SY-101	K	Salt Cake	S2-SltSlr (Solid)	2.38E+03	kg
241-SY-101	K	Total		2.91E+03	kg
241-SY-101	La	Supernatant	NA	3.92E-01	kg
241-SY-101	La	Salt Cake	S2-SltSlr (Solid)	7.15E-04	kg
241-SY-101	La	Total		3.93E-01	kg
241-SY-101	Li	Supernatant	NA	2.16E-01	kg
241-SY-101	Li	Salt Cake	S2-SltSlr (Solid)	8.47E+00	kg
241-SY-101	Li	Total		8.69E+00	kg
241-SY-101	Mg	Supernatant	NA	3.96E+00	kg
241-SY-101	Mg	Salt Cake	S2-SltSlr (Solid)	6.84E+01	kg
241-SY-101	Mg	Total		7.24E+01	kg
241-SY-101	Mn	Supernatant	NA	3.77E-01	kg
241-SY-101	Mn	Salt Cake	S2-SltSlr (Solid)	2.88E+02	kg
241-SY-101	Mn	Total		2.89E+02	kg
241-SY-101	Mo	Supernatant	NA	1.77E+01	kg
241-SY-101	Mo	Salt Cake	S2-SltSlr (Solid)	6.79E+01	kg
241-SY-101	Mo	Total		8.56E+01	kg
241-SY-101	Na	Supernatant	NA	6.50E+04	kg
241-SY-101	Na	Salt Cake	S2-SltSlr (Solid)	2.09E+05	kg
241-SY-101	Na	Total		2.74E+05	kg
241-SY-101	Nd	Supernatant	NA	1.53E+00	kg
241-SY-101	Nd	Salt Cake	S2-SltSlr (Solid)	7.77E+01	kg
241-SY-101	Nd	Total		7.92E+01	kg
241-SY-101	Ni	Supernatant	NA	1.09E+01	kg
241-SY-101	Ni	Salt Cake	S2-SltSlr (Solid)	2.98E+02	kg
241-SY-101	Ni	Total		3.09E+02	kg
241-SY-101	NO2	Supernatant	NA	1.96E+04	kg
241-SY-101	NO2	Salt Cake	S2-SltSlr (Solid)	7.15E+04	kg
241-SY-101	NO2	Total		9.10E+04	kg
241-SY-101	NO3	Supernatant	NA	4.88E+04	kg
241-SY-101	NO3	Salt Cake	S2-SltSlr (Solid)	1.04E+05	kg
241-SY-101	NO3	Total		1.52E+05	kg
241-SY-101	Oxalate	Supernatant	NA	1.35E+02	kg

Summary		
Hg	7.59E-04	kg
K	5.30E+02	kg
La	3.92E-01	kg
Li	2.16E-01	kg
Mg	3.96E+00	kg
Mn	3.77E-01	kg
Mo	1.77E+01	kg
Na	6.50E+04	kg
Nd	1.53E+00	kg
NH3	0.00E+00	kg
Ni	1.09E+01	kg
NO2	1.96E+04	kg
NO3	4.88E+04	kg
Oxalate	1.35E+02	kg
Pb	4.07E+00	kg
Pd	0.00E+00	kg
PO4	1.65E+03	kg
Pr	0.00E+00	kg
Rb	0.00E+00	kg
Rh	0.00E+00	kg
Ru	0.00E+00	kg
Sb	2.62E+00	kg
Se	5.06E+00	kg
Si	4.31E+00	kg
SO4	3.61E+03	kg
Sr	9.43E-02	kg
Ta	0.00E+00	kg
Te	0.00E+00	kg
Th	1.70E+00	kg
Ti	9.19E-02	kg
TIC as CO3	1.19E+04	kg
Tl	3.65E+00	kg
TOC	1.09E+03	kg
UTOTAL	1.77E+00	kg
V	4.07E-01	kg
W	0.00E+00	kg
Y	0.00E+00	kg
Zn	1.80E-01	kg
Zr	2.40E-01	kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: C-60

BY:. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions *Inorganic and Radionuclide* Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-SY-101	Oxalate	Salt Cake	S2-SltSlr (Solid)	9.61E+04	kg	
241-SY-101	Oxalate	Total		9.62E+04	kg	
241-SY-101	Pb	Supernatant	NA	4.07E+00	kg	
241-SY-101	Pb	Salt Cake	S2-SltSlr (Solid)	2.64E+02	kg	
241-SY-101	Pb	Total		2.68E+02	kg	
241-SY-101	PO4	Supernatant	NA	1.65E+03	kg	
241-SY-101	PO4	Salt Cake	S2-SltSlr (Solid)	1.94E+04	kg	
241-SY-101	PO4	Total		2.10E+04	kg	
241-SY-101	Sb	Supernatant	NA	2.62E+00	kg	
241-SY-101	Sb	Salt Cake	S2-SltSlr (Solid)	9.61E+01	kg	
241-SY-101	Sb	Total		9.87E+01	kg	
241-SY-101	Se	Supernatant	NA	5.06E+00	kg	
241-SY-101	Se	Salt Cake	S2-SltSlr (Solid)	7.26E+01	kg	
241-SY-101	Se	Total		7.77E+01	kg	
241-SY-101	Si	Supernatant	NA	4.31E+00	kg	
241-SY-101	Si	Salt Cake	S2-SltSlr (Solid)	2.62E+02	kg	
241-SY-101	Si	Total		2.67E+02	kg	
241-SY-101	SO4	Supernatant	NA	3.61E+03	kg	
241-SY-101	SO4	Salt Cake	S2-SltSlr (Solid)	3.73E+03	kg	
241-SY-101	SO4	Total		7.34E+03	kg	
241-SY-101	Sr	Supernatant	NA	9.43E-02	kg	
241-SY-101	Sr	Salt Cake	S2-SltSlr (Solid)	7.12E-02	kg	
241-SY-101	Sr	Total		1.65E-01	kg	
241-SY-101	Th	Supernatant	NA	1.70E+00	kg	
241-SY-101	Th	Salt Cake	S2-SltSlr (Solid)	3.29E-01	kg	
241-SY-101	Th	Total		2.03E+00	kg	
241-SY-101	Ti	Supernatant	NA	9.19E-02	kg	
241-SY-101	Ti	Salt Cake	S2-SltSlr (Solid)	7.39E+00	kg	
241-SY-101	Ti	Total		7.48E+00	kg	
241-SY-101	TIC as CO3	Supernatant	NA	1.19E+04	kg	
241-SY-101	TIC as CO3	Salt Cake	S2-SltSlr (Solid)	2.84E+04	kg	
241-SY-101	TIC as CO3	Total		4.03E+04	kg	
241-SY-101	Tl	Supernatant	NA	3.65E+00	kg	
241-SY-101	Tl	Salt Cake	S2-SltSlr (Solid)	1.37E+02	kg	
241-SY-101	Tl	Total		1.40E+02	kg	
241-SY-101	TOC	Supernatant	NA	1.09E+03	kg	
241-SY-101	TOC	Salt Cake	S2-SltSlr (Solid)	2.65E+04	kg	
241-SY-101	TOC	Total		2.76E+04	kg	
241-SY-101	UTOTAL	Supernatant	NA	1.77E+00	kg	
241-SY-101	UTOTAL	Salt Cake	S2-SltSlr (Solid)	2.95E+02	kg	
241-SY-101	UTOTAL	Total		2.97E+02	kg	
241-SY-101	V	Supernatant	NA	4.07E-01	kg	
241-SY-101	V	Salt Cake	S2-SltSlr (Solid)	3.43E+01	kg	
241-SY-101	V	Total		3.47E+01	kg	
241-SY-101	Zn	Supernatant	NA	1.80E-01	kg	
241-SY-101	Zn	Salt Cake	S2-SltSlr (Solid)	3.73E+01	kg	
241-SY-101	Zn	Total		3.75E+01	kg	
241-SY-101	Zr	Supernatant	NA	2.40E-01	kg	
241-SY-101	Zr	Salt Cake	S2-SltSlr (Solid)	3.36E+01	kg	
241-SY-101	Zr	Total		3.38E+01	kg	

Attachment D HLW BBI Data

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-2

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AW-104	106Ru	Salt Cake (Liquids)	A2-SltSlr (Liquid)	6.75E-07	Ci
241-AW-104	106Ru	Salt Cake (Solids)	A2-SltSlr (Solid)	1.43E-02	Ci
241-AW-104	106Ru	Supernatant	NA	1.11E-05	Ci
241-AW-104	106Ru	Sludge (Liquids)	PL2 (Liquid)	2.13E-07	Ci
241-AW-104	106Ru	Sludge (Solids)	PL2 (Solid)	1.18E-02	Ci
241-AW-104	106Ru	Total		2.60E-02	Ci
241-AW-104	113mCd	Salt Cake (Liquids)	A2-SltSlr (Liquid)	2.94E+00	Ci
241-AW-104	113mCd	Salt Cake (Solids)	A2-SltSlr (Solid)	8.55E+00	Ci
241-AW-104	113mCd	Supernatant	NA	6.68E+01	Ci
241-AW-104	113mCd	Sludge (Liquids)	PL2 (Liquid)	9.28E-01	Ci
241-AW-104	113mCd	Sludge (Solids)	PL2 (Solid)	1.21E-03	Ci
241-AW-104	113mCd	Total		7.92E+01	Ci
241-AW-104	125Sb	Salt Cake (Liquids)	A2-SltSlr (Liquid)	4.17E-01	Ci
241-AW-104	125Sb	Salt Cake (Solids)	A2-SltSlr (Solid)	3.39E+00	Ci
241-AW-104	125Sb	Supernatant	NA	1.98E+01	Ci
241-AW-104	125Sb	Sludge (Liquids)	PL2 (Liquid)	1.31E-01	Ci
241-AW-104	125Sb	Sludge (Solids)	PL2 (Solid)	1.17E-02	Ci
241-AW-104	125Sb	Total		2.38E+01	Ci
241-AW-104	126Sn	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.62E-01	Ci
241-AW-104	126Sn	Salt Cake (Solids)	A2-SltSlr (Solid)	6.95E-01	Ci
241-AW-104	126Sn	Supernatant	NA	2.95E+00	Ci
241-AW-104	126Sn	Sludge (Liquids)	PL2 (Liquid)	2.72E-01	Ci
241-AW-104	126Sn	Sludge (Solids)	PL2 (Solid)	3.41E-05	Ci
241-AW-104	126Sn	Total		4.78E+00	Ci
241-AW-104	129I	Salt Cake (Liquids)	A2-SltSlr (Liquid)	3.22E-02	Ci
241-AW-104	129I	Salt Cake (Solids)	A2-SltSlr (Solid)	6.45E-02	Ci
241-AW-104	129I	Supernatant	NA	7.71E-01	Ci
241-AW-104	129I	Sludge (Liquids)	PL2 (Liquid)	1.01E-02	Ci
241-AW-104	129I	Sludge (Solids)	PL2 (Solid)	3.09E-03	Ci
241-AW-104	129I	Total		8.81E-01	Ci
241-AW-104	134Cs	Salt Cake (Liquids)	A2-SltSlr (Liquid)	3.87E-01	Ci
241-AW-104	134Cs	Salt Cake (Solids)	A2-SltSlr (Solid)	1.12E+00	Ci
241-AW-104	134Cs	Supernatant	NA	1.32E+00	Ci
241-AW-104	134Cs	Sludge (Liquids)	PL2 (Liquid)	1.22E-01	Ci
241-AW-104	134Cs	Sludge (Solids)	PL2 (Solid)	4.27E-03	Ci
241-AW-104	134Cs	Total		2.95E+00	Ci
241-AW-104	137Cs	Salt Cake (Liquids)	A2-SltSlr (Liquid)	4.56E+04	Ci
241-AW-104	137Cs	Salt Cake (Solids)	A2-SltSlr (Solid)	1.52E+05	Ci
241-AW-104	137Cs	Supernatant	NA	7.69E+05	Ci
241-AW-104	137Cs	Sludge (Liquids)	PL2 (Liquid)	1.44E+04	Ci
241-AW-104	137Cs	Sludge (Solids)	PL2 (Solid)	1.37E+01	Ci
241-AW-104	137Cs	Total		9.81E+05	Ci
241-AW-104	137mBa	Salt Cake (Liquids)	A2-SltSlr (Liquid)	4.30E+04	Ci
241-AW-104	137mBa	Salt Cake (Solids)	A2-SltSlr (Solid)	1.44E+05	Ci
241-AW-104	137mBa	Supernatant	NA	7.25E+05	Ci
241-AW-104	137mBa	Sludge (Liquids)	PL2 (Liquid)	1.36E+04	Ci
241-AW-104	137mBa	Sludge (Solids)	PL2 (Solid)	1.29E+01	Ci
241-AW-104	137mBa	Total		9.26E+05	Ci
241-AW-104	14C	Salt Cake (Liquids)	A2-SltSlr (Liquid)	7.63E-02	Ci
241-AW-104	14C	Salt Cake (Solids)	A2-SltSlr (Solid)	3.33E+00	Ci
241-AW-104	14C	Supernatant	NA	1.48E+00	Ci
241-AW-104	14C	Sludge (Liquids)	PL2 (Liquid)	2.40E-02	Ci
241-AW-104	14C	Sludge (Solids)	PL2 (Solid)	1.23E-03	Ci
241-AW-104	14C	Total		4.91E+00	Ci
241-AW-104	151Sm	Salt Cake (Liquids)	A2-SltSlr (Liquid)	4.47E+02	Ci
241-AW-104	151Sm	Salt Cake (Solids)	A2-SltSlr (Solid)	4.76E+03	Ci
241-AW-104	151Sm	Supernatant	NA	1.39E+04	Ci
241-AW-104	151Sm	Sludge (Liquids)	PL2 (Liquid)	1.41E+02	Ci
241-AW-104	151Sm	Sludge (Solids)	PL2 (Solid)	3.02E-01	Ci
241-AW-104	151Sm	Total		1.92E+04	Ci
241-AW-104	152Eu	Salt Cake (Liquids)	A2-SltSlr (Liquid)	4.95E-02	Ci
241-AW-104	152Eu	Salt Cake (Solids)	A2-SltSlr (Solid)	5.51E-01	Ci
241-AW-104	152Eu	Supernatant	NA	3.14E+00	Ci
241-AW-104	152Eu	Sludge (Liquids)	PL2 (Liquid)	1.56E-02	Ci
241-AW-104	152Eu	Sludge (Solids)	PL2 (Solid)	3.49E-04	Ci
241-AW-104	152Eu	Total		3.76E+00	Ci
241-AW-104	154Eu	Salt Cake (Liquids)	A2-SltSlr (Liquid)	4.34E+00	Ci
241-AW-104	154Eu	Salt Cake (Solids)	A2-SltSlr (Solid)	3.82E+01	Ci
241-AW-104	154Eu	Supernatant	NA	6.19E+01	Ci

Summary	
106Ru	1.18E-02 Ci
113mCd	9.29E-01 Ci
125Sb	1.43E-01 Ci
126Sn	2.72E-01 Ci
129I	1.32E-02 Ci
134Cs	1.26E-01 Ci
137Cs	1.44E+04 Ci
137mBa	1.36E+04 Ci
14C	2.52E-02 Ci
151Sm	1.41E+02 Ci
152Eu	1.59E-02 Ci
154Eu	1.41E+00 Ci
155Eu	4.39E-01 Ci
226Ra	1.56E-06 Ci
227Ac	1.92E-04 Ci
228Ra	4.43E-04 Ci
229Th	7.72E-07 Ci
231Pa	2.02E-03 Ci
232Th	2.79E-06 Ci
232U	2.16E-03 Ci
233U	6.76E-02 Ci
234U	3.39E+00 Ci
235U	1.30E-01 Ci
236U	3.24E-01 Ci
237Np	2.05E-03 Ci
238Pu	4.95E+01 Ci
238U	2.34E+00 Ci
239Pu	4.90E+02 Ci
240Pu	1.38E+02 Ci
241Am	1.86E+01 Ci
241Pu	3.54E+03 Ci
242Cm	5.28E-04 Ci
242Pu	1.74E-02 Ci
243Am	1.83E-04 Ci
243Cm	3.13E-05 Ci
244Cm	7.43E-04 Ci
3H	2.01E-01 Ci
59Ni	1.15E-02 Ci
60Co	2.20E-01 Ci
63Ni	1.07E+00 Ci
79Se	4.61E-02 Ci
90Sr	5.22E+01 Ci
90Y	5.22E+01 Ci
93mNb	8.99E-01 Ci
93Zr	1.08E+00 Ci
99Tc	1.07E+01 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-3

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AW-104	154Eu	Sludge (Liquids)	PL2 (Liquid)	1.37E+00	Ci	
241-AW-104	154Eu	Sludge (Solids)	PL2 (Solid)	3.85E-02	Ci	
241-AW-104	154Eu	Total		1.06E+02	Ci	
241-AW-104	155Eu	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.32E+00	Ci	
241-AW-104	155Eu	Salt Cake (Solids)	A2-SltSlr (Solid)	1.47E+01	Ci	
241-AW-104	155Eu	Supernatant	NA	4.32E+01	Ci	
241-AW-104	155Eu	Sludge (Liquids)	PL2 (Liquid)	4.15E-01	Ci	
241-AW-104	155Eu	Sludge (Solids)	PL2 (Solid)	2.42E-02	Ci	
241-AW-104	155Eu	Total		5.96E+01	Ci	
241-AW-104	226Ra	Salt Cake (Liquids)	A2-SltSlr (Liquid)	4.94E-06	Ci	
241-AW-104	226Ra	Salt Cake (Solids)	A2-SltSlr (Solid)	1.44E-05	Ci	
241-AW-104	226Ra	Supernatant	NA	1.87E-04	Ci	
241-AW-104	226Ra	Sludge (Liquids)	PL2 (Liquid)	1.56E-06	Ci	
241-AW-104	226Ra	Sludge (Solids)	PL2 (Solid)	6.62E-10	Ci	
241-AW-104	226Ra	Total		2.08E-04	Ci	
241-AW-104	227Ac	Salt Cake (Liquids)	A2-SltSlr (Liquid)	6.09E-04	Ci	
241-AW-104	227Ac	Salt Cake (Solids)	A2-SltSlr (Solid)	1.77E-03	Ci	
241-AW-104	227Ac	Supernatant	NA	3.12E-03	Ci	
241-AW-104	227Ac	Sludge (Liquids)	PL2 (Liquid)	1.92E-04	Ci	
241-AW-104	227Ac	Sludge (Solids)	PL2 (Solid)	3.72E-09	Ci	
241-AW-104	227Ac	Total		5.69E-03	Ci	
241-AW-104	228Ra	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.41E-03	Ci	
241-AW-104	228Ra	Salt Cake (Solids)	A2-SltSlr (Solid)	4.08E-03	Ci	
241-AW-104	228Ra	Supernatant	NA	1.23E-01	Ci	
241-AW-104	228Ra	Sludge (Liquids)	PL2 (Liquid)	4.43E-04	Ci	
241-AW-104	228Ra	Sludge (Solids)	PL2 (Solid)	4.16E-14	Ci	
241-AW-104	228Ra	Total		1.29E-01	Ci	
241-AW-104	229Th	Salt Cake (Liquids)	A2-SltSlr (Liquid)	2.45E-06	Ci	
241-AW-104	229Th	Salt Cake (Solids)	A2-SltSlr (Solid)	7.10E-06	Ci	
241-AW-104	229Th	Supernatant	NA	5.43E-03	Ci	
241-AW-104	229Th	Sludge (Liquids)	PL2 (Liquid)	7.72E-07	Ci	
241-AW-104	229Th	Sludge (Solids)	PL2 (Solid)	4.38E-12	Ci	
241-AW-104	229Th	Total		5.44E-03	Ci	
241-AW-104	231Pa	Salt Cake (Liquids)	A2-SltSlr (Liquid)	6.40E-03	Ci	
241-AW-104	231Pa	Salt Cake (Solids)	A2-SltSlr (Solid)	1.86E-02	Ci	
241-AW-104	231Pa	Supernatant	NA	5.06E-03	Ci	
241-AW-104	231Pa	Sludge (Liquids)	PL2 (Liquid)	2.02E-03	Ci	
241-AW-104	231Pa	Sludge (Solids)	PL2 (Solid)	7.65E-09	Ci	
241-AW-104	231Pa	Total		3.20E-02	Ci	
241-AW-104	232Th	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.85E-06	Ci	
241-AW-104	232Th	Salt Cake (Solids)	A2-SltSlr (Solid)	2.56E-05	Ci	
241-AW-104	232Th	Supernatant	NA	2.26E-02	Ci	
241-AW-104	232Th	Sludge (Liquids)	PL2 (Liquid)	2.79E-06	Ci	
241-AW-104	232Th	Sludge (Solids)	PL2 (Solid)	4.57E-14	Ci	
241-AW-104	232Th	Total		2.26E-02	Ci	
241-AW-104	232U	Salt Cake (Liquids)	A2-SltSlr (Liquid)	2.78E-06	Ci	
241-AW-104	232U	Salt Cake (Solids)	A2-SltSlr (Solid)	2.09E-03	Ci	
241-AW-104	232U	Supernatant	NA	7.62E-03	Ci	
241-AW-104	232U	Sludge (Liquids)	PL2 (Liquid)	1.09E-03	Ci	
241-AW-104	232U	Sludge (Solids)	PL2 (Solid)	1.07E-03	Ci	
241-AW-104	232U	Total		1.19E-02	Ci	
241-AW-104	233U	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.71E-04	Ci	
241-AW-104	233U	Salt Cake (Solids)	A2-SltSlr (Solid)	1.28E-01	Ci	
241-AW-104	233U	Supernatant	NA	3.22E-02	Ci	
241-AW-104	233U	Sludge (Liquids)	PL2 (Liquid)	6.72E-02	Ci	
241-AW-104	233U	Sludge (Solids)	PL2 (Solid)	3.50E-04	Ci	
241-AW-104	233U	Total		2.28E-01	Ci	
241-AW-104	234U	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.21E-04	Ci	
241-AW-104	234U	Salt Cake (Solids)	A2-SltSlr (Solid)	9.09E-02	Ci	
241-AW-104	234U	Supernatant	NA	7.35E-03	Ci	
241-AW-104	234U	Sludge (Liquids)	PL2 (Liquid)	4.75E-02	Ci	
241-AW-104	234U	Sludge (Solids)	PL2 (Solid)	3.34E+00	Ci	
241-AW-104	234U	Total		3.49E+00	Ci	
241-AW-104	235U	Salt Cake (Liquids)	A2-SltSlr (Liquid)	4.77E-06	Ci	
241-AW-104	235U	Salt Cake (Solids)	A2-SltSlr (Solid)	3.59E-03	Ci	
241-AW-104	235U	Supernatant	NA	2.88E-04	Ci	
241-AW-104	235U	Sludge (Liquids)	PL2 (Liquid)	1.88E-03	Ci	
241-AW-104	235U	Sludge (Solids)	PL2 (Solid)	1.28E-01	Ci	
241-AW-104	235U	Total		1.33E-01	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-4

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AW-104	236U	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.17E-06	Ci	
241-AW-104	236U	Salt Cake (Solids)	A2-SltSlr (Solid)	6.15E-03	Ci	
241-AW-104	236U	Supernatant	NA	3.04E-04	Ci	
241-AW-104	236U	Sludge (Liquids)	PL2 (Liquid)	3.22E-03	Ci	
241-AW-104	236U	Sludge (Solids)	PL2 (Solid)	3.21E-01	Ci	
241-AW-104	236U	Total		3.31E-01	Ci	
241-AW-104	237Np	Salt Cake (Liquids)	A2-SltSlr (Liquid)	6.36E-03	Ci	
241-AW-104	237Np	Salt Cake (Solids)	A2-SltSlr (Solid)	1.16E-01	Ci	
241-AW-104	237Np	Supernatant	NA	7.05E-01	Ci	
241-AW-104	237Np	Sludge (Liquids)	PL2 (Liquid)	2.01E-03	Ci	
241-AW-104	237Np	Sludge (Solids)	PL2 (Solid)	4.43E-05	Ci	
241-AW-104	237Np	Total		8.30E-01	Ci	
241-AW-104	238Pu	Salt Cake (Liquids)	A2-SltSlr (Liquid)	4.21E-03	Ci	
241-AW-104	238Pu	Salt Cake (Solids)	A2-SltSlr (Solid)	2.04E+00	Ci	
241-AW-104	238Pu	Supernatant	NA	1.46E-02	Ci	
241-AW-104	238Pu	Sludge (Liquids)	PL2 (Liquid)	7.81E-04	Ci	
241-AW-104	238Pu	Sludge (Solids)	PL2 (Solid)	4.95E+01	Ci	
241-AW-104	238Pu	Total		5.16E+01	Ci	
241-AW-104	238U	Salt Cake (Liquids)	A2-SltSlr (Liquid)	9.44E-05	Ci	
241-AW-104	238U	Salt Cake (Solids)	A2-SltSlr (Solid)	7.12E-02	Ci	
241-AW-104	238U	Supernatant	NA	6.22E-03	Ci	
241-AW-104	238U	Sludge (Liquids)	PL2 (Liquid)	3.72E-02	Ci	
241-AW-104	238U	Sludge (Solids)	PL2 (Solid)	2.30E+00	Ci	
241-AW-104	238U	Total		2.41E+00	Ci	
241-AW-104	239Pu	Salt Cake (Liquids)	A2-SltSlr (Liquid)	5.80E-02	Ci	
241-AW-104	239Pu	Salt Cake (Solids)	A2-SltSlr (Solid)	2.81E+01	Ci	
241-AW-104	239Pu	Supernatant	NA	4.58E-01	Ci	
241-AW-104	239Pu	Sludge (Liquids)	PL2 (Liquid)	1.08E-02	Ci	
241-AW-104	239Pu	Sludge (Solids)	PL2 (Solid)	4.90E+02	Ci	
241-AW-104	239Pu	Total		5.18E+02	Ci	
241-AW-104	240Pu	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.51E-02	Ci	
241-AW-104	240Pu	Salt Cake (Solids)	A2-SltSlr (Solid)	7.32E+00	Ci	
241-AW-104	240Pu	Supernatant	NA	8.17E-02	Ci	
241-AW-104	240Pu	Sludge (Liquids)	PL2 (Liquid)	2.80E-03	Ci	
241-AW-104	240Pu	Sludge (Solids)	PL2 (Solid)	1.38E+02	Ci	
241-AW-104	240Pu	Total		1.46E+02	Ci	
241-AW-104	241Am	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.38E+00	Ci	
241-AW-104	241Am	Salt Cake (Solids)	A2-SltSlr (Solid)	4.29E+01	Ci	
241-AW-104	241Am	Supernatant	NA	5.05E+00	Ci	
241-AW-104	241Am	Sludge (Liquids)	PL2 (Liquid)	2.57E-01	Ci	
241-AW-104	241Am	Sludge (Solids)	PL2 (Solid)	1.83E+01	Ci	
241-AW-104	241Am	Total		6.78E+01	Ci	
241-AW-104	241Pu	Salt Cake (Liquids)	A2-SltSlr (Liquid)	2.65E-01	Ci	
241-AW-104	241Pu	Salt Cake (Solids)	A2-SltSlr (Solid)	1.28E+02	Ci	
241-AW-104	241Pu	Supernatant	NA	7.61E-01	Ci	
241-AW-104	241Pu	Sludge (Liquids)	PL2 (Liquid)	4.92E-02	Ci	
241-AW-104	241Pu	Sludge (Solids)	PL2 (Solid)	3.54E+03	Ci	
241-AW-104	241Pu	Total		3.67E+03	Ci	
241-AW-104	242Cm	Salt Cake (Liquids)	A2-SltSlr (Liquid)	2.71E-03	Ci	
241-AW-104	242Cm	Salt Cake (Solids)	A2-SltSlr (Solid)	1.09E-02	Ci	
241-AW-104	242Cm	Supernatant	NA	3.15E-02	Ci	
241-AW-104	242Cm	Sludge (Liquids)	PL2 (Liquid)	5.03E-04	Ci	
241-AW-104	242Cm	Sludge (Solids)	PL2 (Solid)	2.46E-05	Ci	
241-AW-104	242Cm	Total		4.56E-02	Ci	
241-AW-104	242Pu	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.60E-06	Ci	
241-AW-104	242Pu	Salt Cake (Solids)	A2-SltSlr (Solid)	7.74E-04	Ci	
241-AW-104	242Pu	Supernatant	NA	5.96E-06	Ci	
241-AW-104	242Pu	Sludge (Liquids)	PL2 (Liquid)	2.97E-07	Ci	
241-AW-104	242Pu	Sludge (Solids)	PL2 (Solid)	1.74E-02	Ci	
241-AW-104	242Pu	Total		1.82E-02	Ci	
241-AW-104	243Am	Salt Cake (Liquids)	A2-SltSlr (Liquid)	9.09E-04	Ci	
241-AW-104	243Am	Salt Cake (Solids)	A2-SltSlr (Solid)	2.79E-02	Ci	
241-AW-104	243Am	Supernatant	NA	1.84E-04	Ci	
241-AW-104	243Am	Sludge (Liquids)	PL2 (Liquid)	1.69E-04	Ci	
241-AW-104	243Am	Sludge (Solids)	PL2 (Solid)	1.35E-05	Ci	
241-AW-104	243Am	Total		2.92E-02	Ci	
241-AW-104	243Cm	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.50E-04	Ci	
241-AW-104	243Cm	Salt Cake (Solids)	A2-SltSlr (Solid)	6.00E-04	Ci	
241-AW-104	243Cm	Supernatant	NA	6.38E-03	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-5

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AW-104	243Cm	Sludge (Liquids)	PL2 (Liquid)	2.78E-05	Ci	
241-AW-104	243Cm	Sludge (Solids)	PL2 (Solid)	3.50E-06	Ci	
241-AW-104	243Cm	Total		7.16E-03	Ci	
241-AW-104	244Cm	Salt Cake (Liquids)	A2-SltSlr (Liquid)	3.54E-03	Ci	
241-AW-104	244Cm	Salt Cake (Solids)	A2-SltSlr (Solid)	1.42E-02	Ci	
241-AW-104	244Cm	Supernatant	NA	1.26E-01	Ci	
241-AW-104	244Cm	Sludge (Liquids)	PL2 (Liquid)	6.57E-04	Ci	
241-AW-104	244Cm	Sludge (Solids)	PL2 (Solid)	8.59E-05	Ci	
241-AW-104	244Cm	Total		1.44E-01	Ci	
241-AW-104	3H	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.40E-01	Ci	
241-AW-104	3H	Salt Cake (Solids)	A2-SltSlr (Solid)	3.12E+00	Ci	
241-AW-104	3H	Supernatant	NA	2.42E+00	Ci	
241-AW-104	3H	Sludge (Liquids)	PL2 (Liquid)	4.40E-02	Ci	
241-AW-104	3H	Sludge (Solids)	PL2 (Solid)	1.57E-01	Ci	
241-AW-104	3H	Total		5.89E+00	Ci	
241-AW-104	59Ni	Salt Cake (Liquids)	A2-SltSlr (Liquid)	3.14E-02	Ci	
241-AW-104	59Ni	Salt Cake (Solids)	A2-SltSlr (Solid)	3.03E+00	Ci	
241-AW-104	59Ni	Supernatant	NA	1.03E+00	Ci	
241-AW-104	59Ni	Sludge (Liquids)	PL2 (Liquid)	9.90E-03	Ci	
241-AW-104	59Ni	Sludge (Solids)	PL2 (Solid)	1.55E-03	Ci	
241-AW-104	59Ni	Total		4.10E+00	Ci	
241-AW-104	60Co	Salt Cake (Liquids)	A2-SltSlr (Liquid)	6.77E-01	Ci	
241-AW-104	60Co	Salt Cake (Solids)	A2-SltSlr (Solid)	5.83E+00	Ci	
241-AW-104	60Co	Supernatant	NA	1.31E+01	Ci	
241-AW-104	60Co	Sludge (Liquids)	PL2 (Liquid)	2.13E-01	Ci	
241-AW-104	60Co	Sludge (Solids)	PL2 (Solid)	7.40E-03	Ci	
241-AW-104	60Co	Total		1.98E+01	Ci	
241-AW-104	63Ni	Salt Cake (Liquids)	A2-SltSlr (Liquid)	2.93E+00	Ci	
241-AW-104	63Ni	Salt Cake (Solids)	A2-SltSlr (Solid)	2.83E+02	Ci	
241-AW-104	63Ni	Supernatant	NA	9.83E+01	Ci	
241-AW-104	63Ni	Sludge (Liquids)	PL2 (Liquid)	9.22E-01	Ci	
241-AW-104	63Ni	Sludge (Solids)	PL2 (Solid)	1.47E-01	Ci	
241-AW-104	63Ni	Total		3.86E+02	Ci	
241-AW-104	79Se	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.46E-01	Ci	
241-AW-104	79Se	Salt Cake (Solids)	A2-SltSlr (Solid)	1.68E-01	Ci	
241-AW-104	79Se	Supernatant	NA	2.81E+00	Ci	
241-AW-104	79Se	Sludge (Liquids)	PL2 (Liquid)	4.61E-02	Ci	
241-AW-104	79Se	Sludge (Solids)	PL2 (Solid)	7.66E-06	Ci	
241-AW-104	79Se	Total		3.17E+00	Ci	
241-AW-104	90Sr	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.28E+02	Ci	
241-AW-104	90Sr	Salt Cake (Solids)	A2-SltSlr (Solid)	5.56E+02	Ci	
241-AW-104	90Sr	Supernatant	NA	5.24E+03	Ci	
241-AW-104	90Sr	Sludge (Liquids)	PL2 (Liquid)	4.02E+01	Ci	
241-AW-104	90Sr	Sludge (Solids)	PL2 (Solid)	1.20E+01	Ci	
241-AW-104	90Sr	Total		5.98E+03	Ci	
241-AW-104	90Y	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.28E+02	Ci	
241-AW-104	90Y	Salt Cake (Solids)	A2-SltSlr (Solid)	5.56E+02	Ci	
241-AW-104	90Y	Supernatant	NA	5.24E+03	Ci	
241-AW-104	90Y	Sludge (Liquids)	PL2 (Liquid)	4.02E+01	Ci	
241-AW-104	90Y	Sludge (Solids)	PL2 (Solid)	1.20E+01	Ci	
241-AW-104	90Y	Total		5.98E+03	Ci	
241-AW-104	93mNb	Salt Cake (Liquids)	A2-SltSlr (Liquid)	2.85E+00	Ci	
241-AW-104	93mNb	Salt Cake (Solids)	A2-SltSlr (Solid)	8.28E+00	Ci	
241-AW-104	93mNb	Supernatant	NA	2.11E+01	Ci	
241-AW-104	93mNb	Sludge (Liquids)	PL2 (Liquid)	8.99E-01	Ci	
241-AW-104	93mNb	Sludge (Solids)	PL2 (Solid)	2.80E-04	Ci	
241-AW-104	93mNb	Total		3.31E+01	Ci	
241-AW-104	93Zr	Salt Cake (Liquids)	A2-SltSlr (Liquid)	3.44E+00	Ci	
241-AW-104	93Zr	Salt Cake (Solids)	A2-SltSlr (Solid)	9.99E+00	Ci	
241-AW-104	93Zr	Supernatant	NA	1.88E+01	Ci	
241-AW-104	93Zr	Sludge (Liquids)	PL2 (Liquid)	1.08E+00	Ci	
241-AW-104	93Zr	Sludge (Solids)	PL2 (Solid)	4.62E-04	Ci	
241-AW-104	93Zr	Total		3.33E+01	Ci	
241-AW-104	99Tc	Salt Cake (Liquids)	A2-SltSlr (Liquid)	3.39E+01	Ci	
241-AW-104	99Tc	Salt Cake (Solids)	A2-SltSlr (Solid)	1.39E+02	Ci	
241-AW-104	99Tc	Supernatant	NA	5.89E+02	Ci	
241-AW-104	99Tc	Sludge (Liquids)	PL2 (Liquid)	1.07E+01	Ci	
241-AW-104	99Tc	Sludge (Solids)	PL2 (Solid)	3.14E-03	Ci	
241-AW-104	99Tc	Total		7.73E+02	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-6

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AW-104	Ag	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.17E-01	kg
241-AW-104	Ag	Salt Cake (Solids)	A2-SltSlr (Solid)	5.65E+00	kg
241-AW-104	Ag	Supernatant	NA	5.97E+00	kg
241-AW-104	Ag	Sludge (Liquids)	PL2 (Liquid)	3.79E-01	kg
241-AW-104	Ag	Sludge (Solids)	PL2 (Solid)	2.42E+01	kg
241-AW-104	Ag	Total		3.71E+01	kg
241-AW-104	Al	Salt Cake (Liquids)	A2-SltSlr (Liquid)	5.67E+03	kg
241-AW-104	Al	Salt Cake (Solids)	A2-SltSlr (Solid)	1.46E+04	kg
241-AW-104	Al	Supernatant	NA	8.19E+04	kg
241-AW-104	Al	Sludge (Liquids)	PL2 (Liquid)	8.37E+02	kg
241-AW-104	Al	Sludge (Solids)	PL2 (Solid)	2.57E+03	kg
241-AW-104	Al	Total		1.06E+05	kg
241-AW-104	As	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.17E+00	kg
241-AW-104	As	Salt Cake (Solids)	A2-SltSlr (Solid)	3.90E+01	kg
241-AW-104	As	Supernatant	NA	2.87E+01	kg
241-AW-104	As	Sludge (Liquids)	PL2 (Liquid)	3.73E+00	kg
241-AW-104	As	Sludge (Solids)	PL2 (Solid)	1.13E+01	kg
241-AW-104	As	Total		9.09E+01	kg
241-AW-104	B	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.69E+00	kg
241-AW-104	B	Salt Cake (Solids)	A2-SltSlr (Solid)	2.22E+01	kg
241-AW-104	B	Supernatant	NA	1.41E+02	kg
241-AW-104	B	Sludge (Liquids)	PL2 (Liquid)	2.03E+00	kg
241-AW-104	B	Sludge (Solids)	PL2 (Solid)	6.01E+00	kg
241-AW-104	B	Total		1.80E+02	kg
241-AW-104	Ba	Salt Cake (Liquids)	A2-SltSlr (Liquid)	4.09E+00	kg
241-AW-104	Ba	Salt Cake (Solids)	A2-SltSlr (Solid)	1.95E+01	kg
241-AW-104	Ba	Supernatant	NA	1.13E+00	kg
241-AW-104	Ba	Sludge (Liquids)	PL2 (Liquid)	1.87E+00	kg
241-AW-104	Ba	Sludge (Solids)	PL2 (Solid)	6.40E+00	kg
241-AW-104	Ba	Total		3.30E+01	kg
241-AW-104	Be	Salt Cake (Liquids)	A2-SltSlr (Liquid)	4.08E-01	kg
241-AW-104	Be	Salt Cake (Solids)	A2-SltSlr (Solid)	1.95E+00	kg
241-AW-104	Be	Supernatant	NA	9.60E-01	kg
241-AW-104	Be	Sludge (Liquids)	PL2 (Liquid)	1.86E-01	kg
241-AW-104	Be	Sludge (Solids)	PL2 (Solid)	9.25E-01	kg
241-AW-104	Be	Total		4.43E+00	kg
241-AW-104	Bi	Salt Cake (Liquids)	A2-SltSlr (Liquid)	4.18E+00	kg
241-AW-104	Bi	Salt Cake (Solids)	A2-SltSlr (Solid)	9.99E+00	kg
241-AW-104	Bi	Supernatant	NA	5.50E+01	kg
241-AW-104	Bi	Sludge (Liquids)	PL2 (Liquid)	1.32E+00	kg
241-AW-104	Bi	Sludge (Solids)	PL2 (Solid)	0.00E+00	kg
241-AW-104	Bi	Total		7.05E+01	kg
241-AW-104	Ca	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.17E+00	kg
241-AW-104	Ca	Salt Cake (Solids)	A2-SltSlr (Solid)	3.01E+02	kg
241-AW-104	Ca	Supernatant	NA	1.90E+02	kg
241-AW-104	Ca	Sludge (Liquids)	PL2 (Liquid)	1.30E+01	kg
241-AW-104	Ca	Sludge (Solids)	PL2 (Solid)	9.05E+02	kg
241-AW-104	Ca	Total		1.42E+03	kg
241-AW-104	Ce	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.17E+00	kg
241-AW-104	Ce	Salt Cake (Solids)	A2-SltSlr (Solid)	3.90E+01	kg
241-AW-104	Ce	Supernatant	NA	2.77E+01	kg
241-AW-104	Ce	Sludge (Liquids)	PL2 (Liquid)	3.73E+00	kg
241-AW-104	Ce	Sludge (Solids)	PL2 (Solid)	1.13E+01	kg
241-AW-104	Ce	Total		8.99E+01	kg
241-AW-104	Cl	Salt Cake (Liquids)	A2-SltSlr (Liquid)	7.74E+02	kg
241-AW-104	Cl	Salt Cake (Solids)	A2-SltSlr (Solid)	2.30E+03	kg
241-AW-104	Cl	Supernatant	NA	1.51E+04	kg
241-AW-104	Cl	Sludge (Liquids)	PL2 (Liquid)	1.47E+02	kg
241-AW-104	Cl	Sludge (Solids)	PL2 (Solid)	3.18E+02	kg
241-AW-104	Cl	Total		1.87E+04	kg
241-AW-104	Co	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.63E+00	kg
241-AW-104	Co	Salt Cake (Solids)	A2-SltSlr (Solid)	7.82E+00	kg
241-AW-104	Co	Supernatant	NA	7.58E+00	kg
241-AW-104	Co	Sludge (Liquids)	PL2 (Liquid)	7.44E-01	kg
241-AW-104	Co	Sludge (Solids)	PL2 (Solid)	2.26E+00	kg
241-AW-104	Co	Total		2.00E+01	kg
241-AW-104	Cr	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.51E+01	kg
241-AW-104	Cr	Salt Cake (Solids)	A2-SltSlr (Solid)	2.37E+03	kg
241-AW-104	Cr	Supernatant	NA	9.75E+02	kg

Summary	
Summary	
Ag	2.46E+01 kg
Al	3.41E+03 kg
As	1.50E+01 kg
B	8.04E+00 kg
Ba	8.27E+00 kg
Be	1.11E+00 kg
Bi	1.32E+00 kg
Ca	9.18E+02 kg
Cd	0.00E+00 kg
Ce	1.50E+01 kg
Cl	4.65E+02 kg
CN	0.00E+00 kg
Co	3.00E+00 kg
Cr	1.62E+02 kg
Cu	1.49E+01 kg
F	8.53E+02 kg
Fe	2.31E+03 kg
OH	1.27E+03 kg
Hg	1.03E-02 kg
K	1.79E+03 kg
La	2.00E+01 kg
Li	3.11E+00 kg
Mg	2.00E+02 kg
Mn	7.92E+02 kg
Mo	1.31E+01 kg
Na	3.48E+04 kg
Nd	1.50E+01 kg
NH3	0.00E+00 kg
Ni	6.32E+01 kg
NO2	8.54E+03 kg
NO3	1.46E+04 kg
Oxalate	8.85E+02 kg
Pb	8.20E+01 kg
Pd	0.00E+00 kg
PO4	3.02E+02 kg
Pr	0.00E+00 kg
Rb	0.00E+00 kg
Rh	0.00E+00 kg
Ru	0.00E+00 kg
Sb	9.03E+00 kg
Se	1.53E+01 kg
Si	4.79E+02 kg
SO4	8.42E+02 kg
Sr	4.94E+00 kg
Ta	0.00E+00 kg
Te	0.00E+00 kg
Th	2.53E-02 kg
Ti	1.60E+01 kg
TIC as CO3	1.68E+04 kg
Tl	0.00E+00 kg
TOC	3.00E+03 kg
UTOTAL	7.02E+03 kg
V	7.53E+00 kg
W	0.00E+00 kg
Y	1.50E+00 kg
Zn	2.80E+01 kg
Zr	2.11E+03 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-7

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AW-104	Cr	Sludge (Liquids)	PL2 (Liquid)	4.87E+00	kg	
241-AW-104	Cr	Sludge (Solids)	PL2 (Solid)	1.57E+02	kg	
241-AW-104	Cr	Total		3.52E+03	kg	
241-AW-104	Cu	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.17E-01	kg	
241-AW-104	Cu	Salt Cake (Solids)	A2-SltSlr (Solid)	3.90E+00	kg	
241-AW-104	Cu	Supernatant	NA	1.94E+01	kg	
241-AW-104	Cu	Sludge (Liquids)	PL2 (Liquid)	3.73E-01	kg	
241-AW-104	Cu	Sludge (Solids)	PL2 (Solid)	1.45E+01	kg	
241-AW-104	Cu	Total		3.90E+01	kg	
241-AW-104	F	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.66E+01	kg	
241-AW-104	F	Salt Cake (Solids)	A2-SltSlr (Solid)	3.19E+04	kg	
241-AW-104	F	Supernatant	NA	5.98E+02	kg	
241-AW-104	F	Sludge (Liquids)	PL2 (Liquid)	1.36E+02	kg	
241-AW-104	F	Sludge (Solids)	PL2 (Solid)	7.17E+02	kg	
241-AW-104	F	Total		3.33E+04	kg	
241-AW-104	Fe	Salt Cake (Liquids)	A2-SltSlr (Liquid)	3.31E+00	kg	
241-AW-104	Fe	Salt Cake (Solids)	A2-SltSlr (Solid)	2.72E+02	kg	
241-AW-104	Fe	Supernatant	NA	1.92E+01	kg	
241-AW-104	Fe	Sludge (Liquids)	PL2 (Liquid)	3.14E+01	kg	
241-AW-104	Fe	Sludge (Solids)	PL2 (Solid)	2.28E+03	kg	
241-AW-104	Fe	Total		2.61E+03	kg	
241-AW-104	Free OH	Salt Cake (Liquids)	A2-SltSlr (Liquid)	6.67E+03	kg	
241-AW-104	Free OH	Supernatant	NA	8.15E+04	kg	
241-AW-104	Free OH	Sludge (Liquids)	PL2 (Liquid)	1.27E+03	kg	
241-AW-104	Free OH	Total		8.95E+04	kg	
241-AW-104	Hg	Salt Cake (Liquids)	A2-SltSlr (Liquid)	3.28E-02	kg	
241-AW-104	Hg	Salt Cake (Solids)	A2-SltSlr (Solid)	3.50E-01	kg	
241-AW-104	Hg	Supernatant	NA	0.00E+00	kg	
241-AW-104	Hg	Sludge (Liquids)	PL2 (Liquid)	1.03E-02	kg	
241-AW-104	Hg	Sludge (Solids)	PL2 (Solid)	0.00E+00	kg	
241-AW-104	Hg	Total		3.93E-01	kg	
241-AW-104	K	Salt Cake (Liquids)	A2-SltSlr (Liquid)	2.34E+03	kg	
241-AW-104	K	Salt Cake (Solids)	A2-SltSlr (Solid)	5.93E+03	kg	
241-AW-104	K	Supernatant	NA	1.81E+04	kg	
241-AW-104	K	Sludge (Liquids)	PL2 (Liquid)	6.20E+02	kg	
241-AW-104	K	Sludge (Solids)	PL2 (Solid)	1.17E+03	kg	
241-AW-104	K	Total		2.82E+04	kg	
241-AW-104	La	Salt Cake (Liquids)	A2-SltSlr (Liquid)	9.02E-05	kg	
241-AW-104	La	Salt Cake (Solids)	A2-SltSlr (Solid)	2.06E-04	kg	
241-AW-104	La	Supernatant	NA	3.30E+00	kg	
241-AW-104	La	Sludge (Liquids)	PL2 (Liquid)	2.84E-05	kg	
241-AW-104	La	Sludge (Solids)	PL2 (Solid)	2.00E+01	kg	
241-AW-104	La	Total		2.33E+01	kg	
241-AW-104	Li	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.17E-01	kg	
241-AW-104	Li	Salt Cake (Solids)	A2-SltSlr (Solid)	3.90E+00	kg	
241-AW-104	Li	Supernatant	NA	1.80E+00	kg	
241-AW-104	Li	Sludge (Liquids)	PL2 (Liquid)	3.73E-01	kg	
241-AW-104	Li	Sludge (Solids)	PL2 (Solid)	2.74E+00	kg	
241-AW-104	Li	Total		9.62E+00	kg	
241-AW-104	Mg	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.17E+00	kg	
241-AW-104	Mg	Salt Cake (Solids)	A2-SltSlr (Solid)	3.90E+01	kg	
241-AW-104	Mg	Supernatant	NA	3.30E+01	kg	
241-AW-104	Mg	Sludge (Liquids)	PL2 (Liquid)	3.73E+00	kg	
241-AW-104	Mg	Sludge (Solids)	PL2 (Solid)	1.96E+02	kg	
241-AW-104	Mg	Total		2.60E+02	kg	
241-AW-104	Mn	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.17E-01	kg	
241-AW-104	Mn	Salt Cake (Solids)	A2-SltSlr (Solid)	3.41E+02	kg	
241-AW-104	Mn	Supernatant	NA	7.29E+00	kg	
241-AW-104	Mn	Sludge (Liquids)	PL2 (Liquid)	5.44E+00	kg	
241-AW-104	Mn	Sludge (Solids)	PL2 (Solid)	7.87E+02	kg	
241-AW-104	Mn	Total		1.14E+03	kg	
241-AW-104	Mo	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.18E+01	kg	
241-AW-104	Mo	Salt Cake (Solids)	A2-SltSlr (Solid)	3.33E+01	kg	
241-AW-104	Mo	Supernatant	NA	2.51E+02	kg	
241-AW-104	Mo	Sludge (Liquids)	PL2 (Liquid)	3.12E+00	kg	
241-AW-104	Mo	Sludge (Solids)	PL2 (Solid)	1.00E+01	kg	
241-AW-104	Mo	Total		3.09E+02	kg	
241-AW-104	Na	Salt Cake (Liquids)	A2-SltSlr (Liquid)	3.50E+04	kg	
241-AW-104	Na	Salt Cake (Solids)	A2-SltSlr (Solid)	1.65E+05	kg	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-8

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AW-104	Na	Supernatant	NA	5.47E+05	kg	
241-AW-104	Na	Sludge (Liquids)	PL2 (Liquid)	1.17E+04	kg	
241-AW-104	Na	Sludge (Solids)	PL2 (Solid)	2.31E+04	kg	
241-AW-104	Na	Total		7.82E+05	kg	
241-AW-104	Nd	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.17E+00	kg	
241-AW-104	Nd	Salt Cake (Solids)	A2-SltSlr (Solid)	3.90E+01	kg	
241-AW-104	Nd	Supernatant	NA	1.28E+01	kg	
241-AW-104	Nd	Sludge (Liquids)	PL2 (Liquid)	3.73E+00	kg	
241-AW-104	Nd	Sludge (Solids)	PL2 (Solid)	1.13E+01	kg	
241-AW-104	Nd	Total		7.50E+01	kg	
241-AW-104	Ni	Salt Cake (Liquids)	A2-SltSlr (Liquid)	2.00E+00	kg	
241-AW-104	Ni	Salt Cake (Solids)	A2-SltSlr (Solid)	2.38E+01	kg	
241-AW-104	Ni	Supernatant	NA	1.03E+02	kg	
241-AW-104	Ni	Sludge (Liquids)	PL2 (Liquid)	1.02E+00	kg	
241-AW-104	Ni	Sludge (Solids)	PL2 (Solid)	6.22E+01	kg	
241-AW-104	Ni	Total		1.92E+02	kg	
241-AW-104	NO2	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.32E+04	kg	
241-AW-104	NO2	Salt Cake (Solids)	A2-SltSlr (Solid)	4.17E+04	kg	
241-AW-104	NO2	Supernatant	NA	2.40E+05	kg	
241-AW-104	NO2	Sludge (Liquids)	PL2 (Liquid)	2.72E+03	kg	
241-AW-104	NO2	Sludge (Solids)	PL2 (Solid)	5.82E+03	kg	
241-AW-104	NO2	Total		3.03E+05	kg	
241-AW-104	NO3	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.89E+04	kg	
241-AW-104	NO3	Salt Cake (Solids)	A2-SltSlr (Solid)	5.97E+04	kg	
241-AW-104	NO3	Supernatant	NA	3.62E+05	kg	
241-AW-104	NO3	Sludge (Liquids)	PL2 (Liquid)	4.38E+03	kg	
241-AW-104	NO3	Sludge (Solids)	PL2 (Solid)	1.02E+04	kg	
241-AW-104	NO3	Total		4.56E+05	kg	
241-AW-104	Oxalate	Salt Cake (Liquids)	A2-SltSlr (Liquid)	6.64E+01	kg	
241-AW-104	Oxalate	Salt Cake (Solids)	A2-SltSlr (Solid)	8.19E+03	kg	
241-AW-104	Oxalate	Supernatant	NA	9.21E+01	kg	
241-AW-104	Oxalate	Sludge (Liquids)	PL2 (Liquid)	2.71E+02	kg	
241-AW-104	Oxalate	Sludge (Solids)	PL2 (Solid)	6.14E+02	kg	
241-AW-104	Oxalate	Total		9.23E+03	kg	
241-AW-104	Pb	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.17E+00	kg	
241-AW-104	Pb	Salt Cake (Solids)	A2-SltSlr (Solid)	4.20E+01	kg	
241-AW-104	Pb	Supernatant	NA	8.19E+01	kg	
241-AW-104	Pb	Sludge (Liquids)	PL2 (Liquid)	3.73E-01	kg	
241-AW-104	Pb	Sludge (Solids)	PL2 (Solid)	8.16E+01	kg	
241-AW-104	Pb	Total		2.14E+02	kg	
241-AW-104	PO4	Salt Cake (Liquids)	A2-SltSlr (Liquid)	1.95E+02	kg	
241-AW-104	PO4	Salt Cake (Solids)	A2-SltSlr (Solid)	2.78E+03	kg	
241-AW-104	PO4	Supernatant	NA	9.08E+03	kg	
241-AW-104	PO4	Sludge (Liquids)	PL2 (Liquid)	1.56E+02	kg	
241-AW-104	PO4	Sludge (Solids)	PL2 (Solid)	1.46E+02	kg	
241-AW-104	PO4	Total		1.24E+04	kg	
241-AW-104	Sb	Salt Cake (Liquids)	A2-SltSlr (Liquid)	4.91E+00	kg	
241-AW-104	Sb	Salt Cake (Solids)	A2-SltSlr (Solid)	2.34E+01	kg	
241-AW-104	Sb	Supernatant	NA	2.19E+01	kg	
241-AW-104	Sb	Sludge (Liquids)	PL2 (Liquid)	2.24E+00	kg	
241-AW-104	Sb	Sludge (Solids)	PL2 (Solid)	6.79E+00	kg	
241-AW-104	Sb	Total		5.92E+01	kg	
241-AW-104	Se	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.17E+00	kg	
241-AW-104	Se	Salt Cake (Solids)	A2-SltSlr (Solid)	3.90E+01	kg	
241-AW-104	Se	Supernatant	NA	4.23E+01	kg	
241-AW-104	Se	Sludge (Liquids)	PL2 (Liquid)	4.01E+00	kg	
241-AW-104	Se	Sludge (Solids)	PL2 (Solid)	1.13E+01	kg	
241-AW-104	Se	Total		1.05E+02	kg	
241-AW-104	Si	Salt Cake (Liquids)	A2-SltSlr (Liquid)	2.31E+01	kg	
241-AW-104	Si	Salt Cake (Solids)	A2-SltSlr (Solid)	9.29E+02	kg	
241-AW-104	Si	Supernatant	NA	1.24E+02	kg	
241-AW-104	Si	Sludge (Liquids)	PL2 (Liquid)	7.32E+00	kg	
241-AW-104	Si	Sludge (Solids)	PL2 (Solid)	4.72E+02	kg	
241-AW-104	Si	Total		1.55E+03	kg	
241-AW-104	SO4	Salt Cake (Liquids)	A2-SltSlr (Liquid)	3.52E+02	kg	
241-AW-104	SO4	Salt Cake (Solids)	A2-SltSlr (Solid)	1.80E+04	kg	
241-AW-104	SO4	Supernatant	NA	1.02E+04	kg	
241-AW-104	SO4	Sludge (Liquids)	PL2 (Liquid)	3.01E+02	kg	
241-AW-104	SO4	Sludge (Solids)	PL2 (Solid)	5.41E+02	kg	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-9

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AW-104	SO4	Total		2.94E+04	kg	
241-AW-104	Sr	Salt Cake (Liquids)	A2-SltSlr (Liquid)	3.12E-03	kg	
241-AW-104	Sr	Salt Cake (Solids)	A2-SltSlr (Solid)	1.65E+00	kg	
241-AW-104	Sr	Supernatant	NA	2.90E-01	kg	
241-AW-104	Sr	Sludge (Liquids)	PL2 (Liquid)	1.86E-03	kg	
241-AW-104	Sr	Sludge (Solids)	PL2 (Solid)	4.94E+00	kg	
241-AW-104	Sr	Total		6.88E+00	kg	
241-AW-104	Th	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.04E-02	kg	
241-AW-104	Th	Salt Cake (Solids)	A2-SltSlr (Solid)	2.33E-01	kg	
241-AW-104	Th	Supernatant	NA	2.05E+02	kg	
241-AW-104	Th	Sludge (Liquids)	PL2 (Liquid)	2.53E-02	kg	
241-AW-104	Th	Sludge (Solids)	PL2 (Solid)	4.14E-10	kg	
241-AW-104	Th	Total		2.06E+02	kg	
241-AW-104	Ti	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.17E-01	kg	
241-AW-104	Ti	Salt Cake (Solids)	A2-SltSlr (Solid)	3.90E+00	kg	
241-AW-104	Ti	Supernatant	NA	9.12E-01	kg	
241-AW-104	Ti	Sludge (Liquids)	PL2 (Liquid)	3.73E-01	kg	
241-AW-104	Ti	Sludge (Solids)	PL2 (Solid)	1.56E+01	kg	
241-AW-104	Ti	Total		2.16E+01	kg	
241-AW-104	TIC as CO	Salt Cake (Liquids)	A2-SltSlr (Liquid)	2.09E+03	kg	
241-AW-104	TIC as CO	Salt Cake (Solids)	A2-SltSlr (Solid)	3.48E+04	kg	
241-AW-104	TIC as CO	Supernatant	NA	5.54E+04	kg	
241-AW-104	TIC as CO	Sludge (Liquids)	PL2 (Liquid)	4.59E+03	kg	
241-AW-104	TIC as CO	Sludge (Solids)	PL2 (Solid)	1.22E+04	kg	
241-AW-104	TIC as CO	Total		1.09E+05	kg	
241-AW-104	TOC	Salt Cake (Liquids)	A2-SltSlr (Liquid)	5.14E+02	kg	
241-AW-104	TOC	Salt Cake (Solids)	A2-SltSlr (Solid)	4.51E+03	kg	
241-AW-104	TOC	Supernatant	NA	1.39E+04	kg	
241-AW-104	TOC	Sludge (Liquids)	PL2 (Liquid)	1.63E+02	kg	
241-AW-104	TOC	Sludge (Solids)	PL2 (Solid)	2.84E+03	kg	
241-AW-104	TOC	Total		2.19E+04	kg	
241-AW-104	UTOTAL	Salt Cake (Liquids)	A2-SltSlr (Liquid)	2.83E-01	kg	
241-AW-104	UTOTAL	Salt Cake (Solids)	A2-SltSlr (Solid)	2.14E+02	kg	
241-AW-104	UTOTAL	Supernatant	NA	1.86E+01	kg	
241-AW-104	UTOTAL	Sludge (Liquids)	PL2 (Liquid)	1.12E+02	kg	
241-AW-104	UTOTAL	Sludge (Solids)	PL2 (Solid)	6.91E+03	kg	
241-AW-104	UTOTAL	Total		7.25E+03	kg	
241-AW-104	V	Salt Cake (Liquids)	A2-SltSlr (Liquid)	4.09E+00	kg	
241-AW-104	V	Salt Cake (Solids)	A2-SltSlr (Solid)	1.95E+01	kg	
241-AW-104	V	Supernatant	NA	3.40E+00	kg	
241-AW-104	V	Sludge (Liquids)	PL2 (Liquid)	1.87E+00	kg	
241-AW-104	V	Sludge (Solids)	PL2 (Solid)	5.66E+00	kg	
241-AW-104	V	Total		3.45E+01	kg	
241-AW-104	Y	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.17E-01	kg	
241-AW-104	Y	Salt Cake (Solids)	A2-SltSlr (Solid)	3.90E+00	kg	
241-AW-104	Y	Supernatant	NA	3.50E-01	kg	
241-AW-104	Y	Sludge (Liquids)	PL2 (Liquid)	3.73E-01	kg	
241-AW-104	Y	Sludge (Solids)	PL2 (Solid)	1.13E+00	kg	
241-AW-104	Y	Total		6.57E+00	kg	
241-AW-104	Zn	Salt Cake (Liquids)	A2-SltSlr (Liquid)	8.17E-01	kg	
241-AW-104	Zn	Salt Cake (Solids)	A2-SltSlr (Solid)	3.90E+00	kg	
241-AW-104	Zn	Supernatant	NA	1.50E+00	kg	
241-AW-104	Zn	Sludge (Liquids)	PL2 (Liquid)	3.73E-01	kg	
241-AW-104	Zn	Sludge (Solids)	PL2 (Solid)	2.76E+01	kg	
241-AW-104	Zn	Total		3.42E+01	kg	
241-AW-104	Zr	Salt Cake (Liquids)	A2-SltSlr (Liquid)	4.16E+00	kg	
241-AW-104	Zr	Salt Cake (Solids)	A2-SltSlr (Solid)	3.04E+02	kg	
241-AW-104	Zr	Supernatant	NA	6.48E+00	kg	
241-AW-104	Zr	Sludge (Liquids)	PL2 (Liquid)	5.57E+00	kg	
241-AW-104	Zr	Sludge (Solids)	PL2 (Solid)	2.10E+03	kg	
241-AW-104	Zr	Total		2.42E+03	kg	

241-AY-101	106Ru	Supernatant	NA	4.37E-07	Ci	Summary	
241-AY-101	106Ru	Sludge (Liquids)	NA	1.75E-06	Ci	106Ru	2.98E-02 Ci
241-AY-101	106Ru	Sludge (Solids)	NA	2.98E-02	Ci	113mCd	1.87E+01 Ci
241-AY-101	106Ru	Total		2.98E-02	Ci	125Sb	2.46E+02 Ci
241-AY-101	113mCd	Sludge (Liquids)	NA	9.79E-01	Ci	126Sn	1.38E+00 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-10

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AY-101	113mCd	Sludge (Solids)	NA	1.77E+01	Ci
241-AY-101	113mCd	Supernatant	NA	3.10E+00	Ci
241-AY-101	113mCd	Total		2.18E+01	Ci
241-AY-101	125Sb	Sludge (Liquids)	NA	2.78E-01	Ci
241-AY-101	125Sb	Sludge (Solids)	NA	2.46E+02	Ci
241-AY-101	125Sb	Supernatant	NA	8.81E+00	Ci
241-AY-101	125Sb	Total		2.55E+02	Ci
241-AY-101	126Sn	Sludge (Solids)	NA	1.32E+00	Ci
241-AY-101	126Sn	Supernatant	NA	4.16E-02	Ci
241-AY-101	126Sn	Sludge (Liquids)	NA	6.22E-02	Ci
241-AY-101	126Sn	Total		1.42E+00	Ci
241-AY-101	129I	Sludge (Solids)	NA	8.26E-02	Ci
241-AY-101	129I	Sludge (Liquids)	NA	1.42E-03	Ci
241-AY-101	129I	Supernatant	NA	9.43E-04	Ci
241-AY-101	129I	Total		8.49E-02	Ci
241-AY-101	134Cs	Supernatant	NA	1.26E-02	Ci
241-AY-101	134Cs	Sludge (Liquids)	NA	1.32E-02	Ci
241-AY-101	134Cs	Sludge (Solids)	NA	1.25E+00	Ci
241-AY-101	134Cs	Total		1.28E+00	Ci
241-AY-101	137Cs	Sludge (Liquids)	NA	4.82E+03	Ci
241-AY-101	137Cs	Sludge (Solids)	NA	6.02E+04	Ci
241-AY-101	137Cs	Supernatant	NA	1.51E+04	Ci
241-AY-101	137Cs	Total		8.01E+04	Ci
241-AY-101	137mBa	Sludge (Liquids)	NA	4.55E+03	Ci
241-AY-101	137mBa	Sludge (Solids)	NA	5.68E+04	Ci
241-AY-101	137mBa	Supernatant	NA	1.42E+04	Ci
241-AY-101	137mBa	Total		7.56E+04	Ci
241-AY-101	14C	Sludge (Liquids)	NA	4.77E-02	Ci
241-AY-101	14C	Sludge (Solids)	NA	1.16E+00	Ci
241-AY-101	14C	Supernatant	NA	5.57E-02	Ci
241-AY-101	14C	Total		1.27E+00	Ci
241-AY-101	151Sm	Sludge (Liquids)	NA	1.89E+02	Ci
241-AY-101	151Sm	Sludge (Solids)	NA	2.45E+05	Ci
241-AY-101	151Sm	Supernatant	NA	5.61E+02	Ci
241-AY-101	151Sm	Total		2.46E+05	Ci
241-AY-101	152Eu	Sludge (Liquids)	NA	4.45E-02	Ci
241-AY-101	152Eu	Sludge (Solids)	NA	3.60E+02	Ci
241-AY-101	152Eu	Supernatant	NA	1.93E-01	Ci
241-AY-101	152Eu	Total		3.61E+02	Ci
241-AY-101	154Eu	Sludge (Liquids)	NA	3.89E+00	Ci
241-AY-101	154Eu	Sludge (Solids)	NA	5.62E+03	Ci
241-AY-101	154Eu	Supernatant	NA	3.12E+00	Ci
241-AY-101	154Eu	Total		5.63E+03	Ci
241-AY-101	155Eu	Sludge (Liquids)	NA	1.56E+00	Ci
241-AY-101	155Eu	Sludge (Solids)	NA	2.27E+03	Ci
241-AY-101	155Eu	Supernatant	NA	4.03E+00	Ci
241-AY-101	155Eu	Total		2.27E+03	Ci
241-AY-101	226Ra	Sludge (Liquids)	NA	7.87E-07	Ci
241-AY-101	226Ra	Sludge (Solids)	NA	2.22E-05	Ci
241-AY-101	226Ra	Supernatant	NA	5.78E-06	Ci
241-AY-101	226Ra	Total		2.88E-05	Ci
241-AY-101	227Ac	Sludge (Liquids)	NA	5.21E-06	Ci
241-AY-101	227Ac	Sludge (Solids)	NA	1.88E-03	Ci
241-AY-101	227Ac	Supernatant	NA	7.51E-05	Ci
241-AY-101	227Ac	Total		1.96E-03	Ci
241-AY-101	228Ra	Sludge (Liquids)	NA	2.30E-04	Ci
241-AY-101	228Ra	Sludge (Solids)	NA	7.18E-02	Ci
241-AY-101	228Ra	Supernatant	NA	2.32E-03	Ci
241-AY-101	228Ra	Total		7.44E-02	Ci
241-AY-101	229Th	Sludge (Liquids)	NA	3.71E-07	Ci
241-AY-101	229Th	Sludge (Solids)	NA	8.33E-06	Ci
241-AY-101	229Th	Supernatant	NA	1.18E-04	Ci
241-AY-101	229Th	Total		1.27E-04	Ci
241-AY-101	231Pa	Sludge (Liquids)	NA	5.48E-04	Ci
241-AY-101	231Pa	Sludge (Solids)	NA	1.94E-02	Ci
241-AY-101	231Pa	Supernatant	NA	1.82E-04	Ci
241-AY-101	231Pa	Total		2.02E-02	Ci
241-AY-101	232Th	Sludge (Liquids)	NA	6.18E-04	Ci
241-AY-101	232Th	Sludge (Solids)	NA	5.68E-02	Ci

Summary	
129I	8.40E-02 Ci
134Cs	1.26E+00 Ci
137Cs	6.50E+04 Ci
137mBa	6.14E+04 Ci
14C	1.21E+00 Ci
151Sm	2.45E+05 Ci
152Eu	3.60E+02 Ci
154Eu	5.62E+03 Ci
155Eu	2.27E+03 Ci
226Ra	2.30E-05 Ci
227Ac	1.89E-03 Ci
228Ra	7.20E-02 Ci
229Th	8.70E-06 Ci
231Pa	1.99E-02 Ci
232Th	5.74E-02 Ci
232U	8.04E-04 Ci
233U	4.70E-02 Ci
234U	2.08E-01 Ci
235U	8.86E-03 Ci
236U	8.14E-03 Ci
237Np	2.65E+00 Ci
238Pu	5.92E+01 Ci
238U	1.77E-01 Ci
239Pu	6.93E+02 Ci
240Pu	2.13E+02 Ci
241Am	1.32E+04 Ci
241Pu	2.97E+03 Ci
242Cm	1.96E+01 Ci
242Pu	3.04E-02 Ci
243Am	1.18E+01 Ci
243Cm	1.93E+00 Ci
244Cm	4.52E+01 Ci
3H	2.21E+00 Ci
59Ni	3.01E+01 Ci
60Co	4.51E+02 Ci
63Ni	2.81E+03 Ci
79Se	3.40E-01 Ci
90Sr	1.94E+06 Ci
90Y	1.94E+06 Ci
93mNb	1.13E+02 Ci
93Zr	2.09E+02 Ci
99Tc	1.44E+01 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-11

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AY-101	232Th	Supernatant	NA	1.44E-03	Ci	
241-AY-101	232Th	Total		5.88E-02	Ci	
241-AY-101	232U	Supernatant	NA	4.27E-04	Ci	
241-AY-101	232U	Sludge (Liquids)	NA	6.10E-04	Ci	
241-AY-101	232U	Sludge (Solids)	NA	1.94E-04	Ci	
241-AY-101	232U	Total		1.23E-03	Ci	
241-AY-101	233U	Supernatant	NA	2.68E-02	Ci	
241-AY-101	233U	Sludge (Liquids)	NA	3.71E-02	Ci	
241-AY-101	233U	Sludge (Solids)	NA	9.88E-03	Ci	
241-AY-101	233U	Total		7.38E-02	Ci	
241-AY-101	234U	Sludge (Liquids)	NA	1.78E-02	Ci	
241-AY-101	234U	Sludge (Solids)	NA	1.90E-01	Ci	
241-AY-101	234U	Supernatant	NA	1.17E-02	Ci	
241-AY-101	234U	Total		2.19E-01	Ci	
241-AY-101	235U	Sludge (Liquids)	NA	7.41E-04	Ci	
241-AY-101	235U	Sludge (Solids)	NA	8.12E-03	Ci	
241-AY-101	235U	Supernatant	NA	4.83E-04	Ci	
241-AY-101	235U	Total		9.35E-03	Ci	
241-AY-101	236U	Sludge (Solids)	NA	7.66E-03	Ci	
241-AY-101	236U	Supernatant	NA	3.14E-04	Ci	
241-AY-101	236U	Sludge (Liquids)	NA	4.81E-04	Ci	
241-AY-101	236U	Total		8.45E-03	Ci	
241-AY-101	237Np	Sludge (Liquids)	NA	1.51E-02	Ci	
241-AY-101	237Np	Sludge (Solids)	NA	2.63E+00	Ci	
241-AY-101	237Np	Supernatant	NA	4.85E-02	Ci	
241-AY-101	237Np	Total		2.70E+00	Ci	
241-AY-101	238Pu	Sludge (Liquids)	NA	8.75E-01	Ci	
241-AY-101	238Pu	Sludge (Solids)	NA	5.83E+01	Ci	
241-AY-101	238Pu	Supernatant	NA	2.32E-01	Ci	
241-AY-101	238Pu	Total		5.94E+01	Ci	
241-AY-101	238U	Sludge (Liquids)	NA	1.67E-02	Ci	
241-AY-101	238U	Sludge (Solids)	NA	1.60E-01	Ci	
241-AY-101	238U	Supernatant	NA	1.09E-02	Ci	
241-AY-101	238U	Total		1.87E-01	Ci	
241-AY-101	239Pu	Sludge (Liquids)	NA	2.05E+01	Ci	
241-AY-101	239Pu	Sludge (Solids)	NA	6.72E+02	Ci	
241-AY-101	239Pu	Supernatant	NA	5.57E+00	Ci	
241-AY-101	239Pu	Total		6.98E+02	Ci	
241-AY-101	240Pu	Sludge (Liquids)	NA	4.79E+00	Ci	
241-AY-101	240Pu	Sludge (Solids)	NA	2.08E+02	Ci	
241-AY-101	240Pu	Supernatant	NA	1.30E+00	Ci	
241-AY-101	240Pu	Total		2.14E+02	Ci	
241-AY-101	241Am	Sludge (Liquids)	NA	2.82E+00	Ci	
241-AY-101	241Am	Sludge (Solids)	NA	1.32E+04	Ci	
241-AY-101	241Am	Supernatant	NA	8.57E-01	Ci	
241-AY-101	241Am	Total		1.32E+04	Ci	
241-AY-101	241Pu	Sludge (Liquids)	NA	4.13E+01	Ci	
241-AY-101	241Pu	Sludge (Solids)	NA	2.93E+03	Ci	
241-AY-101	241Pu	Supernatant	NA	9.73E+00	Ci	
241-AY-101	241Pu	Total		2.98E+03	Ci	
241-AY-101	242Cm	Sludge (Liquids)	NA	4.27E-03	Ci	
241-AY-101	242Cm	Sludge (Solids)	NA	1.96E+01	Ci	
241-AY-101	242Cm	Supernatant	NA	1.38E-03	Ci	
241-AY-101	242Cm	Total		1.96E+01	Ci	
241-AY-101	242Pu	Supernatant	NA	9.25E-05	Ci	
241-AY-101	242Pu	Sludge (Liquids)	NA	3.40E-04	Ci	
241-AY-101	242Pu	Sludge (Solids)	NA	3.01E-02	Ci	
241-AY-101	242Pu	Total		3.06E-02	Ci	
241-AY-101	243Am	Sludge (Liquids)	NA	1.63E-03	Ci	
241-AY-101	243Am	Sludge (Solids)	NA	1.18E+01	Ci	
241-AY-101	243Am	Supernatant	NA	5.07E-04	Ci	
241-AY-101	243Am	Total		1.18E+01	Ci	
241-AY-101	243Cm	Sludge (Liquids)	NA	1.65E-04	Ci	
241-AY-101	243Cm	Sludge (Solids)	NA	1.93E+00	Ci	
241-AY-101	243Cm	Supernatant	NA	5.00E-05	Ci	
241-AY-101	243Cm	Total		1.93E+00	Ci	
241-AY-101	244Cm	Sludge (Liquids)	NA	4.09E-03	Ci	
241-AY-101	244Cm	Sludge (Solids)	NA	4.52E+01	Ci	
241-AY-101	244Cm	Supernatant	NA	1.18E-03	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-12

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary	
241-AY-101	244Cm	Total		4.52E+01	Ci		
241-AY-101	3H	Supernatant	NA	1.18E+00	Ci		
241-AY-101	3H	Sludge (Solids)	NA	1.78E+00	Ci		
241-AY-101	3H	Sludge (Liquids)	NA	4.26E-01	Ci		
241-AY-101	3H	Total		3.38E+00	Ci		
241-AY-101	59Ni	Sludge (Liquids)	NA	1.05E-01	Ci		
241-AY-101	59Ni	Sludge (Solids)	NA	3.00E+01	Ci		
241-AY-101	59Ni	Supernatant	NA	9.11E-02	Ci		
241-AY-101	59Ni	Total		3.02E+01	Ci		
241-AY-101	60Co	Sludge (Liquids)	NA	1.32E+00	Ci		
241-AY-101	60Co	Sludge (Solids)	NA	4.50E+02	Ci		
241-AY-101	60Co	Supernatant	NA	2.21E+00	Ci		
241-AY-101	60Co	Total		4.53E+02	Ci		
241-AY-101	63Ni	Sludge (Liquids)	NA	9.97E+00	Ci		
241-AY-101	63Ni	Sludge (Solids)	NA	2.80E+03	Ci		
241-AY-101	63Ni	Supernatant	NA	8.37E+00	Ci		
241-AY-101	63Ni	Total		2.82E+03	Ci		
241-AY-101	79Se	Sludge (Liquids)	NA	2.50E-02	Ci		
241-AY-101	79Se	Sludge (Solids)	NA	3.15E-01	Ci		
241-AY-101	79Se	Supernatant	NA	6.83E-02	Ci		
241-AY-101	79Se	Total		4.08E-01	Ci		
241-AY-101	90Sr	Sludge (Liquids)	NA	4.24E+01	Ci		
241-AY-101	90Sr	Sludge (Solids)	NA	1.94E+06	Ci		
241-AY-101	90Sr	Supernatant	NA	3.02E+02	Ci		
241-AY-101	90Sr	Total		1.94E+06	Ci		
241-AY-101	90Y	Sludge (Solids)	NA	1.94E+06	Ci		
241-AY-101	90Y	Supernatant	NA	3.02E+02	Ci		
241-AY-101	90Y	Sludge (Liquids)	NA	4.24E+01	Ci		
241-AY-101	90Y	Total		1.94E+06	Ci		
241-AY-101	93mNb	Sludge (Liquids)	NA	7.13E-01	Ci		
241-AY-101	93mNb	Sludge (Solids)	NA	1.12E+02	Ci		
241-AY-101	93mNb	Supernatant	NA	7.04E-01	Ci		
241-AY-101	93mNb	Total		1.14E+02	Ci		
241-AY-101	93Zr	Sludge (Liquids)	NA	8.89E-01	Ci		
241-AY-101	93Zr	Sludge (Solids)	NA	2.08E+02	Ci		
241-AY-101	93Zr	Supernatant	NA	8.60E-01	Ci		
241-AY-101	93Zr	Total		2.10E+02	Ci		
241-AY-101	99Tc	Sludge (Liquids)	NA	2.33E+00	Ci		
241-AY-101	99Tc	Sludge (Solids)	NA	1.21E+01	Ci		
241-AY-101	99Tc	Supernatant	NA	6.07E+00	Ci		
241-AY-101	99Tc	Total		2.05E+01	Ci		
241-AY-101	Ag	Sludge (Liquids)	NA	2.15E+00	kg	Summary	
241-AY-101	Ag	Sludge (Solids)	NA	2.01E+02	kg	Ag	2.03E+02 kg
241-AY-101	Ag	Supernatant	NA	1.31E+00	kg	Al	3.49E+04 kg
241-AY-101	Ag	Total		2.04E+02	kg	As	1.36E+01 kg
241-AY-101	Al	Sludge (Liquids)	NA	2.91E+01	kg	B	2.17E+01 kg
241-AY-101	Al	Sludge (Solids)	NA	3.49E+04	kg	Ba	2.81E+02 kg
241-AY-101	Al	Supernatant	NA	1.54E+03	kg	Be	3.33E+00 kg
241-AY-101	Al	Total		3.65E+04	kg	Bi	1.07E+01 kg
241-AY-101	As	Sludge (Liquids)	NA	3.46E-01	kg	Ca	1.27E+03 kg
241-AY-101	As	Sludge (Solids)	NA	1.33E+01	kg	Cd	8.28E+01 kg
241-AY-101	As	Supernatant	NA	1.27E+00	kg	Ce	3.34E+02 kg
241-AY-101	As	Total		1.49E+01	kg	Cl	1.53E+02 kg
241-AY-101	B	Sludge (Liquids)	NA	2.18E+00	kg	CN	0.00E+00 kg
241-AY-101	B	Sludge (Solids)	NA	1.95E+01	kg	Co	1.74E+01 kg
241-AY-101	B	Supernatant	NA	5.31E+00	kg	Cr	1.34E+03 kg
241-AY-101	B	Total		2.70E+01	kg	Cu	1.35E+02 kg
241-AY-101	Ba	Sludge (Liquids)	NA	2.59E-02	kg	F	1.08E+03 kg
241-AY-101	Ba	Sludge (Solids)	NA	2.81E+02	kg	Fe	4.12E+04 kg
241-AY-101	Ba	Supernatant	NA	9.48E-02	kg	OH	4.92E-02 kg
241-AY-101	Ba	Total		2.81E+02	kg	Hg	1.63E+01 kg
241-AY-101	Be	Sludge (Liquids)	NA	2.59E-02	kg	K	2.25E+02 kg
241-AY-101	Be	Sludge (Solids)	NA	3.30E+00	kg	La	1.05E+03 kg
241-AY-101	Be	Supernatant	NA	9.48E-02	kg	Li	2.91E+00 kg
241-AY-101	Be	Total		3.42E+00	kg	Mg	4.39E+02 kg
241-AY-101	Bi	Sludge (Liquids)	NA	1.05E-01	kg	Mn	1.83E+03 kg
241-AY-101	Bi	Sludge (Solids)	NA	1.06E+01	kg	Mo	1.12E+01 kg
241-AY-101	Bi	Supernatant	NA	4.39E+00	kg	Na	6.62E+04 kg
241-AY-101	Bi	Total		1.51E+01	kg	Nd	7.73E+02 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.. D-13

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AY-101	Ca	Sludge (Liquids)	NA	3.81E+00	kg
241-AY-101	Ca	Sludge (Solids)	NA	1.27E+03	kg
241-AY-101	Ca	Supernatant	NA	5.25E+00	kg
241-AY-101	Ca	Total		1.27E+03	kg
241-AY-101	Cd	Sludge (Liquids)	NA	1.26E-01	kg
241-AY-101	Cd	Sludge (Solids)	NA	8.27E+01	kg
241-AY-101	Cd	Supernatant	NA	6.54E-01	kg
241-AY-101	Cd	Total		8.35E+01	kg
241-AY-101	Ce	Supernatant	NA	4.39E+00	kg
241-AY-101	Ce	Sludge (Liquids)	NA	3.76E+00	kg
241-AY-101	Ce	Sludge (Solids)	NA	3.30E+02	kg
241-AY-101	Ce	Total		3.39E+02	kg
241-AY-101	Cl	Sludge (Liquids)	NA	3.48E+01	kg
241-AY-101	Cl	Sludge (Solids)	NA	1.18E+02	kg
241-AY-101	Cl	Supernatant	NA	1.19E+02	kg
241-AY-101	Cl	Total		2.72E+02	kg
241-AY-101	Co	Sludge (Liquids)	NA	4.82E-02	kg
241-AY-101	Co	Sludge (Solids)	NA	1.74E+01	kg
241-AY-101	Co	Supernatant	NA	1.76E-01	kg
241-AY-101	Co	Total		1.76E+01	kg
241-AY-101	Cr	Sludge (Liquids)	NA	2.15E+01	kg
241-AY-101	Cr	Sludge (Solids)	NA	1.32E+03	kg
241-AY-101	Cr	Supernatant	NA	5.42E+01	kg
241-AY-101	Cr	Total		1.39E+03	kg
241-AY-101	Cu	Sludge (Liquids)	NA	1.03E+00	kg
241-AY-101	Cu	Sludge (Solids)	NA	1.34E+02	kg
241-AY-101	Cu	Supernatant	NA	5.25E-01	kg
241-AY-101	Cu	Total		1.35E+02	kg
241-AY-101	F	Sludge (Liquids)	NA	1.84E+01	kg
241-AY-101	F	Sludge (Solids)	NA	1.06E+03	kg
241-AY-101	F	Supernatant	NA	1.38E+02	kg
241-AY-101	F	Total		1.22E+03	kg
241-AY-101	Fe	Sludge (Liquids)	NA	2.29E+01	kg
241-AY-101	Fe	Sludge (Solids)	NA	4.12E+04	kg
241-AY-101	Fe	Supernatant	NA	2.20E+00	kg
241-AY-101	Fe	Total		4.12E+04	kg
241-AY-101	Free OH	Sludge (Liquids)	NA	4.92E-02	kg
241-AY-101	Free OH	Supernatant	NA	1.12E+04	kg
241-AY-101	Free OH	Total		1.12E+04	kg
241-AY-101	Hg	Sludge (Liquids)	NA	8.46E-01	kg
241-AY-101	Hg	Sludge (Solids)	NA	1.55E+01	kg
241-AY-101	Hg	Supernatant	NA	0.00E+00	kg
241-AY-101	Hg	Total		1.64E+01	kg
241-AY-101	K	Sludge (Solids)	NA	1.93E+02	kg
241-AY-101	K	Supernatant	NA	1.16E+02	kg
241-AY-101	K	Sludge (Liquids)	NA	3.17E+01	kg
241-AY-101	K	Total		3.40E+02	kg
241-AY-101	La	Sludge (Liquids)	NA	1.52E-02	kg
241-AY-101	La	Sludge (Solids)	NA	1.05E+03	kg
241-AY-101	La	Supernatant	NA	5.57E-02	kg
241-AY-101	La	Total		1.05E+03	kg
241-AY-101	Li	Sludge (Liquids)	NA	2.20E-01	kg
241-AY-101	Li	Sludge (Solids)	NA	2.69E+00	kg
241-AY-101	Li	Supernatant	NA	4.87E-01	kg
241-AY-101	Li	Total		3.40E+00	kg
241-AY-101	Mg	Sludge (Liquids)	NA	1.22E+00	kg
241-AY-101	Mg	Sludge (Solids)	NA	4.38E+02	kg
241-AY-101	Mg	Supernatant	NA	4.39E+00	kg
241-AY-101	Mg	Total		4.44E+02	kg
241-AY-101	Mn	Sludge (Liquids)	NA	1.20E+00	kg
241-AY-101	Mn	Sludge (Solids)	NA	1.83E+03	kg
241-AY-101	Mn	Supernatant	NA	4.39E-01	kg
241-AY-101	Mn	Total		1.83E+03	kg
241-AY-101	Mo	Sludge (Liquids)	NA	1.32E+00	kg
241-AY-101	Mo	Sludge (Solids)	NA	9.90E+00	kg
241-AY-101	Mo	Supernatant	NA	2.46E+00	kg
241-AY-101	Mo	Total		1.37E+01	kg
241-AY-101	Na	Sludge (Liquids)	NA	4.29E+03	kg
241-AY-101	Na	Sludge (Solids)	NA	6.19E+04	kg

Summary		
NH3	0.00E+00	kg
Ni	1.69E+03	kg
NO2	1.60E+04	kg
NO3	2.08E+03	kg
Oxalate	2.68E+04	kg
Pb	9.33E+02	kg
Pd	0.00E+00	kg
PO4	2.53E+03	kg
Pr	0.00E+00	kg
Rb	7.85E-01	kg
Rh	1.06E+01	kg
Ru	0.00E+00	kg
Ta	0.00E+00	kg
Te	0.00E+00	kg
Sb	2.01E+00	kg
Se	2.80E+00	kg
Si	4.50E+02	kg
SO4	3.48E+03	kg
Sr	6.61E+01	kg
Th	5.22E+02	kg
Ti	3.97E+01	kg
TIC as CO3	1.10E+05	kg
Tl	8.02E-01	kg
TOC	7.42E+03	kg
UTOTAL	5.29E+02	kg
V	1.19E+01	kg
W	0.00E+00	kg
Y	9.06E+01	kg
Zn	5.39E+01	kg
Zr	5.88E+02	kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-14

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AY-101	Na	Supernatant	NA	3.77E+04	kg	
241-AY-101	Na	Total		1.04E+05	kg	
241-AY-101	Nd	Sludge (Liquids)	NA	1.22E+00	kg	
241-AY-101	Nd	Sludge (Solids)	NA	7.72E+02	kg	
241-AY-101	Nd	Supernatant	NA	4.39E+00	kg	
241-AY-101	Nd	Total		7.77E+02	kg	
241-AY-101	Ni	Sludge (Liquids)	NA	4.44E+00	kg	
241-AY-101	Ni	Sludge (Solids)	NA	1.69E+03	kg	
241-AY-101	Ni	Supernatant	NA	2.76E+00	kg	
241-AY-101	Ni	Total		1.70E+03	kg	
241-AY-101	NO2	Sludge (Liquids)	NA	3.59E+03	kg	
241-AY-101	NO2	Sludge (Solids)	NA	1.24E+04	kg	
241-AY-101	NO2	Supernatant	NA	1.09E+04	kg	
241-AY-101	NO2	Total		2.69E+04	kg	
241-AY-101	NO3	Sludge (Liquids)	NA	3.71E+02	kg	
241-AY-101	NO3	Sludge (Solids)	NA	1.71E+03	kg	
241-AY-101	NO3	Supernatant	NA	1.51E+03	kg	
241-AY-101	NO3	Total		3.59E+03	kg	
241-AY-101	Oxalate	Sludge (Liquids)	NA	1.57E+02	kg	
241-AY-101	Oxalate	Sludge (Solids)	NA	2.66E+04	kg	
241-AY-101	Oxalate	Supernatant	NA	4.46E+02	kg	
241-AY-101	Oxalate	Total		2.72E+04	kg	
241-AY-101	Pb	Sludge (Liquids)	NA	1.22E+00	kg	
241-AY-101	Pb	Sludge (Solids)	NA	9.32E+02	kg	
241-AY-101	Pb	Supernatant	NA	4.39E+00	kg	
241-AY-101	Pb	Total		9.37E+02	kg	
241-AY-101	PO4	Sludge (Liquids)	NA	4.70E+01	kg	
241-AY-101	PO4	Sludge (Solids)	NA	2.48E+03	kg	
241-AY-101	PO4	Supernatant	NA	7.91E+02	kg	
241-AY-101	PO4	Total		3.32E+03	kg	
241-AY-101	Rb	Sludge (Liquids)	NA	5.14E-02	kg	
241-AY-101	Rb	Sludge (Solids)	NA	7.34E-01	kg	
241-AY-101	Rb	Supernatant	NA	1.88E-01	kg	
241-AY-101	Rb	Total		9.74E-01	kg	
241-AY-101	Rh	Sludge (Liquids)	NA	8.42E-02	kg	
241-AY-101	Rh	Sludge (Solids)	NA	1.05E+01	kg	
241-AY-101	Rh	Supernatant	NA	3.08E-01	kg	
241-AY-101	Rh	Total		1.09E+01	kg	
241-AY-101	Sb	Sludge (Liquids)	NA	8.64E-03	kg	
241-AY-101	Sb	Sludge (Solids)	NA	2.00E+00	kg	
241-AY-101	Sb	Supernatant	NA	2.16E-04	kg	
241-AY-101	Sb	Total		2.01E+00	kg	
241-AY-101	Se	Sludge (Liquids)	NA	2.58E-04	kg	
241-AY-101	Se	Sludge (Solids)	NA	2.80E+00	kg	
241-AY-101	Se	Supernatant	NA	3.18E+01	kg	
241-AY-101	Se	Total		3.46E+01	kg	
241-AY-101	Si	Sludge (Liquids)	NA	2.31E+00	kg	
241-AY-101	Si	Sludge (Solids)	NA	4.48E+02	kg	
241-AY-101	Si	Supernatant	NA	2.04E+01	kg	
241-AY-101	Si	Total		4.70E+02	kg	
241-AY-101	SO4	Sludge (Liquids)	NA	7.87E+02	kg	
241-AY-101	SO4	Sludge (Solids)	NA	2.69E+03	kg	
241-AY-101	SO4	Supernatant	NA	1.92E+03	kg	
241-AY-101	SO4	Total		5.40E+03	kg	
241-AY-101	Sr	Sludge (Liquids)	NA	6.35E-03	kg	
241-AY-101	Sr	Sludge (Solids)	NA	6.61E+01	kg	
241-AY-101	Sr	Supernatant	NA	4.39E-01	kg	
241-AY-101	Sr	Total		6.65E+01	kg	
241-AY-101	Th	Sludge (Liquids)	NA	5.61E+00	kg	
241-AY-101	Th	Sludge (Solids)	NA	5.16E+02	kg	
241-AY-101	Th	Supernatant	NA	1.31E+01	kg	
241-AY-101	Th	Total		5.35E+02	kg	
241-AY-101	Ti	Sludge (Liquids)	NA	1.22E-01	kg	
241-AY-101	Ti	Sludge (Solids)	NA	3.96E+01	kg	
241-AY-101	Ti	Supernatant	NA	4.39E-01	kg	
241-AY-101	Ti	Total		4.01E+01	kg	
241-AY-101	TIC as CO	Sludge (Liquids)	NA	5.89E+03	kg	
241-AY-101	TIC as CO	Sludge (Solids)	NA	1.04E+05	kg	
241-AY-101	TIC as CO	Supernatant	NA	1.68E+04	kg	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-15

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AY-101	TIC as CO	Total		1.27E+05	kg	
241-AY-101	Tl	Sludge (Solids)	NA	7.80E-01	kg	
241-AY-101	Tl	Supernatant	NA	7.92E-02	kg	
241-AY-101	Tl	Sludge (Liquids)	NA	2.16E-02	kg	
241-AY-101	Tl	Total		8.81E-01	kg	
241-AY-101	TOC	Sludge (Liquids)	NA	1.62E+02	kg	
241-AY-101	TOC	Sludge (Solids)	NA	7.26E+03	kg	
241-AY-101	TOC	Supernatant	NA	4.39E+02	kg	
241-AY-101	TOC	Total		7.86E+03	kg	
241-AY-101	UTOTAL	Sludge (Liquids)	NA	5.01E+01	kg	
241-AY-101	UTOTAL	Sludge (Solids)	NA	4.79E+02	kg	
241-AY-101	UTOTAL	Supernatant	NA	3.27E+01	kg	
241-AY-101	UTOTAL	Total		5.62E+02	kg	
241-AY-101	V	Sludge (Liquids)	NA	1.30E-01	kg	
241-AY-101	V	Sludge (Solids)	NA	1.18E+01	kg	
241-AY-101	V	Supernatant	NA	4.75E-01	kg	
241-AY-101	V	Total		1.24E+01	kg	
241-AY-101	Y	Sludge (Liquids)	NA	2.20E-01	kg	
241-AY-101	Y	Sludge (Solids)	NA	9.04E+01	kg	
241-AY-101	Y	Supernatant	NA	1.31E+00	kg	
241-AY-101	Y	Total		9.19E+01	kg	
241-AY-101	Zn	Sludge (Liquids)	NA	1.70E-01	kg	
241-AY-101	Zn	Sludge (Solids)	NA	5.37E+01	kg	
241-AY-101	Zn	Supernatant	NA	4.39E-01	kg	
241-AY-101	Zn	Total		5.43E+01	kg	
241-AY-101	Zr	Sludge (Liquids)	NA	2.67E+01	kg	
241-AY-101	Zr	Sludge (Solids)	NA	5.61E+02	kg	
241-AY-101	Zr	Supernatant	NA	1.31E+00	kg	
241-AY-101	Zr	Total		5.89E+02	kg	

241-AY-102	106Ru	Sludge (Liquids)	BL (Liquid)	4.58E-07	Ci	Summary	
241-AY-102	106Ru	Sludge (Solids)	BL (Solid)	2.02E-04	Ci	106Ru	5.02E-04 Ci
241-AY-102	106Ru	Sludge (Solids)	NA	3.00E-04	Ci	113mCd	2.97E+00 Ci
241-AY-102	106Ru	Supernatant	NA	1.16E-05	Ci	125Sb	2.70E+01 Ci
241-AY-102	106Ru	Total		5.14E-04	Ci	126Sn	1.34E+01 Ci
241-AY-102	113mCd	Sludge (Liquids)	BL (Liquid)	1.68E-01	Ci	129I	5.84E-02 Ci
241-AY-102	113mCd	Sludge (Solids)	BL (Solid)	1.09E-01	Ci	134Cs	1.67E-02 Ci
241-AY-102	113mCd	Sludge (Solids)	NA	2.69E+00	Ci	137Cs	2.50E+05 Ci
241-AY-102	113mCd	Supernatant	NA	2.34E+01	Ci	137mBa	2.36E+05 Ci
241-AY-102	113mCd	Total		2.63E+01	Ci	14C	2.15E-01 Ci
241-AY-102	125Sb	Sludge (Liquids)	BL (Liquid)	7.45E-03	Ci	151Sm	7.37E+04 Ci
241-AY-102	125Sb	Sludge (Solids)	BL (Solid)	4.50E+00	Ci	152Eu	6.34E+01 Ci
241-AY-102	125Sb	Sludge (Solids)	NA	2.25E+01	Ci	154Eu	6.49E+03 Ci
241-AY-102	125Sb	Supernatant	NA	4.36E+00	Ci	155Eu	2.60E+03 Ci
241-AY-102	125Sb	Total		3.14E+01	Ci	226Ra	2.76E-06 Ci
241-AY-102	126Sn	Sludge (Liquids)	BL (Liquid)	6.56E-02	Ci	227Ac	1.78E-05 Ci
241-AY-102	126Sn	Sludge (Solids)	BL (Solid)	2.21E+00	Ci	228Ra	2.25E-02 Ci
241-AY-102	126Sn	Supernatant	NA	1.55E+00	Ci	229Th	7.30E-07 Ci
241-AY-102	126Sn	Sludge (Solids)	NA	1.11E+01	Ci	231Pa	2.98E-05 Ci
241-AY-102	126Sn	Total		1.49E+01	Ci	232Th	6.99E-02 Ci
241-AY-102	129I	Sludge (Liquids)	BL (Liquid)	4.29E-05	Ci	232U	8.23E-04 Ci
241-AY-102	129I	Sludge (Solids)	BL (Solid)	2.80E-05	Ci	233U	4.95E-02 Ci
241-AY-102	129I	Sludge (Solids)	NA	5.83E-02	Ci	234U	5.90E-01 Ci
241-AY-102	129I	Supernatant	NA	4.75E-02	Ci	235U	2.52E-02 Ci
241-AY-102	129I	Total		1.06E-01	Ci	236U	1.50E-02 Ci
241-AY-102	134Cs	Sludge (Liquids)	BL (Liquid)	0.00E+00	Ci	237Np	3.73E+00 Ci
241-AY-102	134Cs	Sludge (Solids)	BL (Solid)	0.00E+00	Ci	238Pu	6.10E+01 Ci
241-AY-102	134Cs	Sludge (Solids)	NA	1.67E-02	Ci	238U	5.78E-01 Ci
241-AY-102	134Cs	Supernatant	NA	8.03E+00	Ci	239Pu	1.59E+03 Ci
241-AY-102	134Cs	Total		8.04E+00	Ci	240Pu	3.67E+02 Ci
241-AY-102	137Cs	Sludge (Liquids)	BL (Liquid)	3.70E+03	Ci	241Am	4.98E+03 Ci
241-AY-102	137Cs	Sludge (Solids)	BL (Solid)	4.09E+04	Ci	241Pu	2.60E+03 Ci
241-AY-102	137Cs	Supernatant	NA	5.73E+04	Ci	242Cm	5.60E+00 Ci
241-AY-102	137Cs	Sludge (Solids)	NA	2.05E+05	Ci	242Pu	2.46E-02 Ci
241-AY-102	137Cs	Total		3.07E+05	Ci	243Am	2.72E+00 Ci
241-AY-102	137mBa	Sludge (Liquids)	BL (Liquid)	3.49E+03	Ci	243Cm	2.12E+00 Ci
241-AY-102	137mBa	Sludge (Solids)	BL (Solid)	3.86E+04	Ci	244Cm	5.01E+01 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.. 24590-WTP-M4C-FRP-00001
SHEET REV. 0D
SHEET NO.: D-16

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AY-102	137mBa	Sludge (Solids)	NA	1.94E+05	Ci
241-AY-102	137mBa	Supernatant	NA	5.41E+04	Ci
241-AY-102	137mBa	Total		2.90E+05	Ci
241-AY-102	14C	Sludge (Liquids)	BL (Liquid)	3.15E-02	Ci
241-AY-102	14C	Sludge (Solids)	BL (Solid)	3.05E-02	Ci
241-AY-102	14C	Sludge (Solids)	NA	1.53E-01	Ci
241-AY-102	14C	Supernatant	NA	4.87E-01	Ci
241-AY-102	14C	Total		7.02E-01	Ci
241-AY-102	151Sm	Sludge (Liquids)	BL (Liquid)	3.08E+02	Ci
241-AY-102	151Sm	Sludge (Solids)	BL (Solid)	1.22E+04	Ci
241-AY-102	151Sm	Sludge (Solids)	NA	6.12E+04	Ci
241-AY-102	151Sm	Supernatant	NA	8.28E+03	Ci
241-AY-102	151Sm	Total		8.20E+04	Ci
241-AY-102	152Eu	Sludge (Liquids)	BL (Liquid)	8.47E-02	Ci
241-AY-102	152Eu	Sludge (Solids)	BL (Solid)	1.05E+01	Ci
241-AY-102	152Eu	Sludge (Solids)	NA	5.28E+01	Ci
241-AY-102	152Eu	Supernatant	NA	1.36E+00	Ci
241-AY-102	152Eu	Total		6.48E+01	Ci
241-AY-102	154Eu	Sludge (Liquids)	BL (Liquid)	2.71E-02	Ci
241-AY-102	154Eu	Sludge (Solids)	BL (Solid)	1.08E+03	Ci
241-AY-102	154Eu	Sludge (Solids)	NA	5.41E+03	Ci
241-AY-102	154Eu	Supernatant	NA	2.50E+01	Ci
241-AY-102	154Eu	Total		6.51E+03	Ci
241-AY-102	155Eu	Sludge (Liquids)	BL (Liquid)	1.72E-02	Ci
241-AY-102	155Eu	Sludge (Solids)	BL (Solid)	4.32E+02	Ci
241-AY-102	155Eu	Sludge (Solids)	NA	2.17E+03	Ci
241-AY-102	155Eu	Supernatant	NA	7.26E+00	Ci
241-AY-102	155Eu	Total		2.61E+03	Ci
241-AY-102	226Ra	Sludge (Liquids)	BL (Liquid)	1.28E-07	Ci
241-AY-102	226Ra	Sludge (Solids)	BL (Solid)	8.35E-08	Ci
241-AY-102	226Ra	Sludge (Solids)	NA	2.55E-06	Ci
241-AY-102	226Ra	Supernatant	NA	2.23E-01	Ci
241-AY-102	226Ra	Total		2.23E-01	Ci
241-AY-102	227Ac	Sludge (Liquids)	BL (Liquid)	6.52E-07	Ci
241-AY-102	227Ac	Sludge (Solids)	BL (Solid)	4.26E-07	Ci
241-AY-102	227Ac	Sludge (Solids)	NA	1.67E-05	Ci
241-AY-102	227Ac	Supernatant	NA	1.17E-03	Ci
241-AY-102	227Ac	Total		1.18E-03	Ci
241-AY-102	228Ra	Sludge (Liquids)	BL (Liquid)	1.82E-07	Ci
241-AY-102	228Ra	Sludge (Solids)	BL (Solid)	3.63E-03	Ci
241-AY-102	228Ra	Sludge (Solids)	NA	1.89E-02	Ci
241-AY-102	228Ra	Supernatant	NA	1.37E-09	Ci
241-AY-102	228Ra	Total		2.25E-02	Ci
241-AY-102	229Th	Sludge (Liquids)	BL (Liquid)	6.64E-10	Ci
241-AY-102	229Th	Sludge (Solids)	BL (Solid)	4.33E-10	Ci
241-AY-102	229Th	Sludge (Solids)	NA	7.29E-07	Ci
241-AY-102	229Th	Supernatant	NA	1.76E-07	Ci
241-AY-102	229Th	Total		9.07E-07	Ci
241-AY-102	231Pa	Sludge (Liquids)	BL (Liquid)	9.96E-07	Ci
241-AY-102	231Pa	Sludge (Solids)	BL (Solid)	6.52E-07	Ci
241-AY-102	231Pa	Sludge (Solids)	NA	2.82E-05	Ci
241-AY-102	231Pa	Supernatant	NA	2.18E-03	Ci
241-AY-102	231Pa	Total		2.21E-03	Ci
241-AY-102	232Th	Sludge (Liquids)	BL (Liquid)	8.78E-07	Ci
241-AY-102	232Th	Sludge (Solids)	BL (Solid)	1.16E-02	Ci
241-AY-102	232Th	Sludge (Solids)	NA	5.83E-02	Ci
241-AY-102	232Th	Supernatant	NA	1.46E-09	Ci
241-AY-102	232Th	Total		6.99E-02	Ci
241-AY-102	232U	Sludge (Liquids)	BL (Liquid)	1.01E-05	Ci
241-AY-102	232U	Sludge (Solids)	BL (Solid)	1.09E-05	Ci
241-AY-102	232U	Sludge (Solids)	NA	8.02E-04	Ci
241-AY-102	232U	Supernatant	NA	2.01E-03	Ci
241-AY-102	232U	Total		2.83E-03	Ci
241-AY-102	233U	Sludge (Liquids)	BL (Liquid)	2.13E-05	Ci
241-AY-102	233U	Sludge (Solids)	BL (Solid)	2.30E-05	Ci
241-AY-102	233U	Sludge (Solids)	NA	4.95E-02	Ci
241-AY-102	233U	Supernatant	NA	8.45E-03	Ci
241-AY-102	233U	Total		5.80E-02	Ci
241-AY-102	234U	Sludge (Liquids)	BL (Liquid)	8.21E-02	Ci

Summary	
3H	3.47E+00 Ci
59Ni	2.43E+01 Ci
60Co	7.22E+01 Ci
63Ni	2.20E+03 Ci
79Se	5.41E-02 Ci
90Sr	4.63E+06 Ci
90Y	4.63E+06 Ci
93mNb	2.43E+00 Ci
93Zr	2.93E+00 Ci
99Tc	2.45E+01 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-17

BY: E. Bernos
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AY-102	234U	Sludge (Solids)	BL (Solid)	8.88E-02	Ci	
241-AY-102	234U	Supernatant	NA	9.16E-02	Ci	
241-AY-102	234U	Sludge (Solids)	NA	4.19E-01	Ci	
241-AY-102	234U	Total		6.81E-01	Ci	
241-AY-102	235U	Sludge (Liquids)	BL (Liquid)	3.49E-03	Ci	
241-AY-102	235U	Sludge (Solids)	BL (Solid)	3.77E-03	Ci	
241-AY-102	235U	Sludge (Solids)	NA	1.79E-02	Ci	
241-AY-102	235U	Supernatant	NA	3.57E-03	Ci	
241-AY-102	235U	Total		2.87E-02	Ci	
241-AY-102	236U	Sludge (Liquids)	BL (Liquid)	2.48E-03	Ci	
241-AY-102	236U	Sludge (Solids)	BL (Solid)	2.68E-03	Ci	
241-AY-102	236U	Sludge (Solids)	NA	9.80E-03	Ci	
241-AY-102	236U	Supernatant	NA	6.34E-03	Ci	
241-AY-102	236U	Total		2.13E-02	Ci	
241-AY-102	237Np	Sludge (Liquids)	BL (Liquid)	6.22E-02	Ci	
241-AY-102	237Np	Sludge (Solids)	BL (Solid)	6.11E-01	Ci	
241-AY-102	237Np	Sludge (Solids)	NA	3.06E+00	Ci	
241-AY-102	237Np	Supernatant	NA	9.63E-01	Ci	
241-AY-102	237Np	Total		4.70E+00	Ci	
241-AY-102	238Pu	Sludge (Liquids)	BL (Liquid)	1.54E-02	Ci	
241-AY-102	238Pu	Sludge (Solids)	BL (Solid)	1.42E+01	Ci	
241-AY-102	238Pu	Sludge (Solids)	NA	4.68E+01	Ci	
241-AY-102	238Pu	Supernatant	NA	7.24E-01	Ci	
241-AY-102	238Pu	Total		6.18E+01	Ci	
241-AY-102	238U	Sludge (Liquids)	BL (Liquid)	7.69E-02	Ci	
241-AY-102	238U	Sludge (Solids)	BL (Solid)	8.34E-02	Ci	
241-AY-102	238U	Sludge (Solids)	NA	4.18E-01	Ci	
241-AY-102	238U	Supernatant	NA	7.21E-02	Ci	
241-AY-102	238U	Total		6.51E-01	Ci	
241-AY-102	239Pu	Sludge (Liquids)	BL (Liquid)	2.82E-01	Ci	
241-AY-102	239Pu	Sludge (Solids)	BL (Solid)	2.59E+02	Ci	
241-AY-102	239Pu	Sludge (Solids)	NA	1.33E+03	Ci	
241-AY-102	239Pu	Supernatant	NA	4.51E+00	Ci	
241-AY-102	239Pu	Total		1.59E+03	Ci	
241-AY-102	240Pu	Sludge (Liquids)	BL (Liquid)	7.20E-02	Ci	
241-AY-102	240Pu	Sludge (Solids)	BL (Solid)	6.61E+01	Ci	
241-AY-102	240Pu	Sludge (Solids)	NA	3.01E+02	Ci	
241-AY-102	240Pu	Supernatant	NA	9.78E-01	Ci	
241-AY-102	240Pu	Total		3.68E+02	Ci	
241-AY-102	241Am	Sludge (Liquids)	BL (Liquid)	3.81E-02	Ci	
241-AY-102	241Am	Sludge (Solids)	BL (Solid)	8.29E+02	Ci	
241-AY-102	241Am	Sludge (Solids)	NA	4.15E+03	Ci	
241-AY-102	241Am	Supernatant	NA	6.02E-01	Ci	
241-AY-102	241Am	Total		4.97E+03	Ci	
241-AY-102	241Pu	Sludge (Liquids)	BL (Liquid)	6.98E-01	Ci	
241-AY-102	241Pu	Sludge (Solids)	BL (Solid)	6.45E+02	Ci	
241-AY-102	241Pu	Sludge (Solids)	NA	1.95E+03	Ci	
241-AY-102	241Pu	Supernatant	NA	1.11E+01	Ci	
241-AY-102	241Pu	Total		2.60E+03	Ci	
241-AY-102	242Cm	Sludge (Liquids)	BL (Liquid)	3.67E-06	Ci	
241-AY-102	242Cm	Sludge (Solids)	BL (Solid)	9.32E-01	Ci	
241-AY-102	242Cm	Sludge (Solids)	NA	4.67E+00	Ci	
241-AY-102	242Cm	Supernatant	NA	9.25E-04	Ci	
241-AY-102	242Cm	Total		5.61E+00	Ci	
241-AY-102	242Pu	Sludge (Liquids)	BL (Liquid)	6.92E-06	Ci	
241-AY-102	242Pu	Sludge (Solids)	BL (Solid)	6.39E-03	Ci	
241-AY-102	242Pu	Sludge (Solids)	NA	1.82E-02	Ci	
241-AY-102	242Pu	Supernatant	NA	1.17E-04	Ci	
241-AY-102	242Pu	Total		2.47E-02	Ci	
241-AY-102	243Am	Sludge (Liquids)	BL (Liquid)	2.46E-05	Ci	
241-AY-102	243Am	Sludge (Solids)	BL (Solid)	6.54E-01	Ci	
241-AY-102	243Am	Supernatant	NA	4.00E-05	Ci	
241-AY-102	243Am	Sludge (Solids)	NA	2.07E+00	Ci	
241-AY-102	243Am	Total		2.72E+00	Ci	
241-AY-102	243Cm	Sludge (Liquids)	BL (Liquid)	3.23E-07	Ci	
241-AY-102	243Cm	Sludge (Solids)	BL (Solid)	3.53E-01	Ci	
241-AY-102	243Cm	Sludge (Solids)	NA	1.77E+00	Ci	
241-AY-102	243Cm	Supernatant	NA	8.05E-05	Ci	
241-AY-102	243Cm	Total		2.12E+00	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-18

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AY-102	244Cm	Sludge (Liquids)	BL (Liquid)	7.54E-06	Ci
241-AY-102	244Cm	Sludge (Solids)	BL (Solid)	8.34E+00	Ci
241-AY-102	244Cm	Sludge (Solids)	NA	4.18E+01	Ci
241-AY-102	244Cm	Supernatant	NA	1.22E-03	Ci
241-AY-102	244Cm	Total		5.02E+01	Ci
241-AY-102	3H	Sludge (Liquids)	BL (Liquid)	7.62E-01	Ci
241-AY-102	3H	Sludge (Solids)	BL (Solid)	4.51E-01	Ci
241-AY-102	3H	Sludge (Solids)	NA	2.26E+00	Ci
241-AY-102	3H	Supernatant	NA	1.18E+01	Ci
241-AY-102	3H	Total		1.53E+01	Ci
241-AY-102	59Ni	Sludge (Liquids)	BL (Liquid)	4.51E-02	Ci
241-AY-102	59Ni	Sludge (Solids)	BL (Solid)	4.03E+00	Ci
241-AY-102	59Ni	Sludge (Solids)	NA	2.02E+01	Ci
241-AY-102	59Ni	Supernatant	NA	6.17E-01	Ci
241-AY-102	59Ni	Total		2.49E+01	Ci
241-AY-102	60Co	Sludge (Liquids)	BL (Liquid)	4.99E-01	Ci
241-AY-102	60Co	Sludge (Solids)	BL (Solid)	1.19E+01	Ci
241-AY-102	60Co	Supernatant	NA	7.73E+00	Ci
241-AY-102	60Co	Sludge (Solids)	NA	5.98E+01	Ci
241-AY-102	60Co	Total		8.00E+01	Ci
241-AY-102	63Ni	Sludge (Liquids)	BL (Liquid)	4.19E+00	Ci
241-AY-102	63Ni	Sludge (Solids)	BL (Solid)	3.65E+02	Ci
241-AY-102	63Ni	Supernatant	NA	5.66E+01	Ci
241-AY-102	63Ni	Sludge (Solids)	NA	1.83E+03	Ci
241-AY-102	63Ni	Total		2.26E+03	Ci
241-AY-102	79Se	Sludge (Liquids)	BL (Liquid)	7.02E-03	Ci
241-AY-102	79Se	Sludge (Solids)	BL (Solid)	1.48E-03	Ci
241-AY-102	79Se	Sludge (Solids)	NA	4.56E-02	Ci
241-AY-102	79Se	Supernatant	NA	1.09E-01	Ci
241-AY-102	79Se	Total		1.63E-01	Ci
241-AY-102	90Sr	Sludge (Liquids)	BL (Liquid)	2.05E+02	Ci
241-AY-102	90Sr	Sludge (Solids)	BL (Solid)	7.71E+05	Ci
241-AY-102	90Sr	Sludge (Solids)	NA	3.86E+06	Ci
241-AY-102	90Sr	Supernatant	NA	3.24E+03	Ci
241-AY-102	90Sr	Total		4.64E+06	Ci
241-AY-102	90Y	Sludge (Liquids)	BL (Liquid)	2.05E+02	Ci
241-AY-102	90Y	Sludge (Solids)	BL (Solid)	7.71E+05	Ci
241-AY-102	90Y	Sludge (Solids)	NA	3.86E+06	Ci
241-AY-102	90Y	Supernatant	NA	3.24E+03	Ci
241-AY-102	90Y	Total		4.64E+06	Ci
241-AY-102	93mNb	Sludge (Liquids)	BL (Liquid)	1.06E-01	Ci
241-AY-102	93mNb	Sludge (Solids)	BL (Solid)	6.93E-02	Ci
241-AY-102	93mNb	Sludge (Solids)	NA	2.25E+00	Ci
241-AY-102	93mNb	Supernatant	NA	9.74E+00	Ci
241-AY-102	93mNb	Total		1.22E+01	Ci
241-AY-102	93Zr	Sludge (Liquids)	BL (Liquid)	1.35E-01	Ci
241-AY-102	93Zr	Sludge (Solids)	BL (Solid)	8.82E-02	Ci
241-AY-102	93Zr	Sludge (Solids)	NA	2.71E+00	Ci
241-AY-102	93Zr	Supernatant	NA	1.11E+01	Ci
241-AY-102	93Zr	Total		1.40E+01	Ci
241-AY-102	99Tc	Sludge (Liquids)	BL (Liquid)	1.54E+00	Ci
241-AY-102	99Tc	Sludge (Solids)	BL (Solid)	3.81E+00	Ci
241-AY-102	99Tc	Sludge (Solids)	NA	1.91E+01	Ci
241-AY-102	99Tc	Supernatant	NA	2.39E+01	Ci
241-AY-102	99Tc	Total		4.84E+01	Ci
241-AY-102	Ag	Sludge (Liquids)	BL (Liquid)	6.81E-02	kg
241-AY-102	Ag	Sludge (Solids)	BL (Solid)	7.76E+01	kg
241-AY-102	Ag	Sludge (Solids)	NA	3.89E+02	kg
241-AY-102	Ag	Supernatant	NA	6.06E-01	kg
241-AY-102	Ag	Total		4.67E+02	kg
241-AY-102	Al	Sludge (Liquids)	BL (Liquid)	2.82E+01	kg
241-AY-102	Al	Sludge (Solids)	BL (Solid)	8.58E+03	kg
241-AY-102	Al	Sludge (Solids)	NA	4.30E+04	kg
241-AY-102	Al	Supernatant	NA	3.30E+03	kg
241-AY-102	Al	Total		5.49E+04	kg
241-AY-102	As	Sludge (Liquids)	BL (Liquid)	1.20E-01	kg
241-AY-102	As	Sludge (Solids)	BL (Solid)	2.32E+00	kg
241-AY-102	As	Sludge (Solids)	NA	1.16E+01	kg
241-AY-102	As	Supernatant	NA	5.61E+00	kg

Summary	
Ag	4.67E+02 kg
Al	5.16E+04 kg
As	1.40E+01 kg
B	1.81E+01 kg
Ba	5.00E+02 kg
Be	7.10E-01 kg
Bi	1.73E+01 kg
Ca	3.47E+03 kg
Cd	9.01E+01 kg
Ce	7.59E+02 kg
Cl	5.67E+01 kg
CN	1.03E+01 kg
Co	2.69E+01 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-19

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AY-102	As	Total		1.97E+01	kg
241-AY-102	B	Sludge (Liquids)	BL (Liquid)	1.56E+00	kg
241-AY-102	B	Sludge (Solids)	BL (Solid)	2.76E+00	kg
241-AY-102	B	Sludge (Solids)	NA	1.38E+01	kg
241-AY-102	B	Supernatant	NA	1.35E+01	kg
241-AY-102	B	Total		3.17E+01	kg
241-AY-102	Ba	Sludge (Liquids)	BL (Liquid)	1.72E-02	kg
241-AY-102	Ba	Sludge (Solids)	BL (Solid)	8.31E+01	kg
241-AY-102	Ba	Sludge (Solids)	NA	4.17E+02	kg
241-AY-102	Ba	Supernatant	NA	2.50E-01	kg
241-AY-102	Ba	Total		5.00E+02	kg
241-AY-102	Be	Sludge (Liquids)	BL (Liquid)	1.19E-02	kg
241-AY-102	Be	Sludge (Solids)	BL (Solid)	1.16E-01	kg
241-AY-102	Be	Sludge (Solids)	NA	5.82E-01	kg
241-AY-102	Be	Supernatant	NA	1.86E-01	kg
241-AY-102	Be	Total		8.96E-01	kg
241-AY-102	Bi	Sludge (Liquids)	BL (Liquid)	0.00E+00	kg
241-AY-102	Bi	Sludge (Solids)	BL (Solid)	2.86E+00	kg
241-AY-102	Bi	Sludge (Solids)	NA	1.44E+01	kg
241-AY-102	Bi	Supernatant	NA	5.04E-02	kg
241-AY-102	Bi	Total		1.73E+01	kg
241-AY-102	Ca	Sludge (Liquids)	BL (Liquid)	4.13E-01	kg
241-AY-102	Ca	Sludge (Solids)	BL (Solid)	5.77E+02	kg
241-AY-102	Ca	Sludge (Solids)	NA	2.89E+03	kg
241-AY-102	Ca	Supernatant	NA	9.04E+00	kg
241-AY-102	Ca	Total		3.48E+03	kg
241-AY-102	Cd	Sludge (Liquids)	BL (Liquid)	1.16E-01	kg
241-AY-102	Cd	Sludge (Solids)	BL (Solid)	1.50E+01	kg
241-AY-102	Cd	Sludge (Solids)	NA	7.50E+01	kg
241-AY-102	Cd	Supernatant	NA	6.10E-01	kg
241-AY-102	Cd	Total		9.06E+01	kg
241-AY-102	Ce	Sludge (Liquids)	BL (Liquid)	1.05E-02	kg
241-AY-102	Ce	Sludge (Solids)	BL (Solid)	1.26E+02	kg
241-AY-102	Ce	Sludge (Solids)	NA	6.33E+02	kg
241-AY-102	Ce	Supernatant	NA	1.90E-01	kg
241-AY-102	Ce	Total		7.59E+02	kg
241-AY-102	Cl	Sludge (Liquids)	BL (Liquid)	1.55E+01	kg
241-AY-102	Cl	Sludge (Solids)	BL (Solid)	6.85E+00	kg
241-AY-102	Cl	Sludge (Solids)	NA	3.43E+01	kg
241-AY-102	Cl	Supernatant	NA	2.89E+02	kg
241-AY-102	Cl	Total		3.46E+02	kg
241-AY-102	CN	Sludge (Liquids)	BL (Liquid)	2.46E+00	kg
241-AY-102	CN	Sludge (Solids)	BL (Solid)	1.30E+00	kg
241-AY-102	CN	Sludge (Solids)	NA	6.53E+00	kg
241-AY-102	CN	Supernatant	NA	3.81E+01	kg
241-AY-102	CN	Total		4.84E+01	kg
241-AY-102	Co	Sludge (Liquids)	BL (Liquid)	8.61E-02	kg
241-AY-102	Co	Sludge (Solids)	BL (Solid)	4.46E+00	kg
241-AY-102	Co	Sludge (Solids)	NA	2.24E+01	kg
241-AY-102	Co	Supernatant	NA	2.37E+00	kg
241-AY-102	Co	Total		2.93E+01	kg
241-AY-102	Cr	Sludge (Liquids)	BL (Liquid)	2.02E-01	kg
241-AY-102	Cr	Sludge (Solids)	BL (Solid)	2.56E+02	kg
241-AY-102	Cr	Sludge (Solids)	NA	1.29E+03	kg
241-AY-102	Cr	Supernatant	NA	1.50E+01	kg
241-AY-102	Cr	Total		1.56E+03	kg
241-AY-102	Cu	Sludge (Liquids)	BL (Liquid)	2.26E-01	kg
241-AY-102	Cu	Sludge (Solids)	BL (Solid)	3.65E+01	kg
241-AY-102	Cu	Sludge (Solids)	NA	1.83E+02	kg
241-AY-102	Cu	Supernatant	NA	1.94E+00	kg
241-AY-102	Cu	Total		2.22E+02	kg
241-AY-102	F	Sludge (Liquids)	BL (Liquid)	8.67E+00	kg
241-AY-102	F	Sludge (Solids)	BL (Solid)	6.15E+00	kg
241-AY-102	F	Supernatant	NA	1.30E+02	kg
241-AY-102	F	Sludge (Solids)	NA	3.08E+01	kg
241-AY-102	F	Total		1.76E+02	kg
241-AY-102	Fe	Sludge (Liquids)	BL (Liquid)	1.21E+00	kg
241-AY-102	Fe	Sludge (Solids)	BL (Solid)	1.49E+04	kg
241-AY-102	Fe	Sludge (Solids)	NA	7.49E+04	kg

Summary	
Cr	1.55E+03 kg
Cu	2.20E+02 kg
F	4.56E+01 kg
Fe	8.98E+04 kg
OH	4.43E+01 kg
Hg	1.56E+02 kg
K	5.24E+02 kg
La	6.15E+02 kg
Li	3.64E+01 kg
Mg	7.98E+02 kg
Mn	1.27E+04 kg
Mo	9.71E+00 kg
Na	7.17E+04 kg
Nd	9.88E+02 kg
NH3	0.00E+00 kg
Ni	2.34E+03 kg
NO2	3.14E+03 kg
NO3	2.08E+02 kg
Oxalate	1.38E+03 kg
Pb	4.24E+03 kg
Pd	8.69E+00 kg
PO4	8.64E+03 kg
Pr	2.80E+02 kg
Rb	2.11E+00 kg
Rh	2.02E+01 kg
Ru	4.12E+02 kg
Sb	2.51E+00 kg
Se	5.87E-01 kg
Si	8.56E+03 kg
SO4	1.78E+03 kg
Sr	1.62E+02 kg
Ta	1.96E+00 kg
Te	8.84E+01 kg
Th	6.37E+02 kg
Ti	1.33E+02 kg
TIC as CO3	6.82E+04 kg
Tl	2.81E+00 kg
TOC	4.11E+03 kg
UTOTAL	1.73E+03 kg
V	8.80E+00 kg
W	0.00E+00 kg
Y	1.05E+02 kg
Zn	1.49E+02 kg
Zr	1.97E+02 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-20

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AY-102	Fe	Supernatant	NA	3.51E+00	kg	
241-AY-102	Fe	Total		8.98E+04	kg	
241-AY-102	Free OH	Sludge (Liquids)	BL (Liquid)	4.43E+01	kg	
241-AY-102	Free OH	Supernatant	NA	2.22E+04	kg	
241-AY-102	Free OH	Total		2.22E+04	kg	
241-AY-102	Hg	Sludge (Liquids)	BL (Liquid)	4.21E-02	kg	
241-AY-102	Hg	Sludge (Solids)	BL (Solid)	2.60E+01	kg	
241-AY-102	Hg	Sludge (Solids)	NA	1.30E+02	kg	
241-AY-102	Hg	Supernatant	NA	6.83E-01	kg	
241-AY-102	Hg	Total		1.57E+02	kg	
241-AY-102	K	Sludge (Liquids)	BL (Liquid)	5.28E+01	kg	
241-AY-102	K	Sludge (Solids)	BL (Solid)	7.84E+01	kg	
241-AY-102	K	Sludge (Solids)	NA	3.93E+02	kg	
241-AY-102	K	Supernatant	NA	7.60E+02	kg	
241-AY-102	K	Total		1.28E+03	kg	
241-AY-102	La	Sludge (Liquids)	BL (Liquid)	4.28E-02	kg	
241-AY-102	La	Sludge (Solids)	BL (Solid)	1.02E+02	kg	
241-AY-102	La	Supernatant	NA	4.45E-03	kg	
241-AY-102	La	Sludge (Solids)	NA	5.13E+02	kg	
241-AY-102	La	Total		6.15E+02	kg	
241-AY-102	Li	Sludge (Liquids)	BL (Liquid)	2.23E+00	kg	
241-AY-102	Li	Sludge (Solids)	BL (Solid)	5.68E+00	kg	
241-AY-102	Li	Sludge (Solids)	NA	2.85E+01	kg	
241-AY-102	Li	Supernatant	NA	2.09E-01	kg	
241-AY-102	Li	Total		3.66E+01	kg	
241-AY-102	Mg	Sludge (Liquids)	BL (Liquid)	1.20E-01	kg	
241-AY-102	Mg	Sludge (Solids)	BL (Solid)	1.33E+02	kg	
241-AY-102	Mg	Sludge (Solids)	NA	6.65E+02	kg	
241-AY-102	Mg	Supernatant	NA	1.11E+01	kg	
241-AY-102	Mg	Total		8.09E+02	kg	
241-AY-102	Mn	Sludge (Liquids)	BL (Liquid)	2.94E-01	kg	
241-AY-102	Mn	Sludge (Solids)	BL (Solid)	2.11E+03	kg	
241-AY-102	Mn	Sludge (Solids)	NA	1.06E+04	kg	
241-AY-102	Mn	Supernatant	NA	5.36E-01	kg	
241-AY-102	Mn	Total		1.27E+04	kg	
241-AY-102	Mo	Sludge (Liquids)	BL (Liquid)	5.87E-01	kg	
241-AY-102	Mo	Sludge (Solids)	BL (Solid)	1.52E+00	kg	
241-AY-102	Mo	Sludge (Solids)	NA	7.60E+00	kg	
241-AY-102	Mo	Supernatant	NA	9.59E+00	kg	
241-AY-102	Mo	Total		1.93E+01	kg	
241-AY-102	Na	Sludge (Liquids)	BL (Liquid)	8.26E+03	kg	
241-AY-102	Na	Sludge (Solids)	BL (Solid)	1.05E+04	kg	
241-AY-102	Na	Sludge (Solids)	NA	5.29E+04	kg	
241-AY-102	Na	Supernatant	NA	1.63E+05	kg	
241-AY-102	Na	Total		2.35E+05	kg	
241-AY-102	Nd	Sludge (Liquids)	BL (Liquid)	1.60E-01	kg	
241-AY-102	Nd	Sludge (Solids)	BL (Solid)	1.64E+02	kg	
241-AY-102	Nd	Sludge (Solids)	NA	8.24E+02	kg	
241-AY-102	Nd	Supernatant	NA	2.50E+00	kg	
241-AY-102	Nd	Total		9.91E+02	kg	
241-AY-102	Ni	Sludge (Liquids)	BL (Liquid)	1.35E-01	kg	
241-AY-102	Ni	Sludge (Solids)	BL (Solid)	3.89E+02	kg	
241-AY-102	Ni	Sludge (Solids)	NA	1.95E+03	kg	
241-AY-102	Ni	Supernatant	NA	2.56E+00	kg	
241-AY-102	Ni	Total		2.34E+03	kg	
241-AY-102	NO2	Sludge (Liquids)	BL (Liquid)	8.85E+02	kg	
241-AY-102	NO2	Sludge (Solids)	BL (Solid)	3.75E+02	kg	
241-AY-102	NO2	Sludge (Solids)	NA	1.88E+03	kg	
241-AY-102	NO2	Supernatant	NA	8.58E+04	kg	
241-AY-102	NO2	Total		8.89E+04	kg	
241-AY-102	NO3	Sludge (Liquids)	BL (Liquid)	4.36E+01	kg	
241-AY-102	NO3	Sludge (Solids)	BL (Solid)	2.73E+01	kg	
241-AY-102	NO3	Sludge (Solids)	NA	1.37E+02	kg	
241-AY-102	NO3	Supernatant	NA	1.12E+03	kg	
241-AY-102	NO3	Total		1.33E+03	kg	
241-AY-102	Oxalate	Sludge (Liquids)	BL (Liquid)	3.45E+02	kg	
241-AY-102	Oxalate	Sludge (Solids)	BL (Solid)	1.72E+02	kg	
241-AY-102	Oxalate	Sludge (Solids)	NA	8.61E+02	kg	
241-AY-102	Oxalate	Supernatant	NA	4.67E+03	kg	

CALCULATION SHEET

BY E. Berrios
DATE: 12/05/05

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-21

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AY-102	Oxalate	Total		6.05E+03	kg	
241-AY-102	Pb	Sludge (Liquids)	BL (Liquid)	0.00E+00	kg	
241-AY-102	Pb	Sludge (Solids)	BL (Solid)	7.05E+02	kg	
241-AY-102	Pb	Sludge (Solids)	NA	3.53E+03	kg	
241-AY-102	Pb	Supernatant	NA	3.11E-02	kg	
241-AY-102	Pb	Total		4.24E+03	kg	
241-AY-102	Pd	Sludge (Liquids)	BL (Liquid)	1.02E-01	kg	
241-AY-102	Pd	Sludge (Solids)	BL (Solid)	1.43E+00	kg	
241-AY-102	Pd	Sludge (Solids)	NA	7.16E+00	kg	
241-AY-102	Pd	Supernatant	NA	1.58E+00	kg	
241-AY-102	Pd	Total		1.03E+01	kg	
241-AY-102	PO4	Sludge (Liquids)	BL (Liquid)	6.84E+02	kg	
241-AY-102	PO4	Sludge (Solids)	BL (Solid)	1.32E+03	kg	
241-AY-102	PO4	Sludge (Solids)	NA	6.64E+03	kg	
241-AY-102	PO4	Supernatant	NA	6.99E+03	kg	
241-AY-102	PO4	Total		1.56E+04	kg	
241-AY-102	Pr	Sludge (Liquids)	BL (Liquid)	1.01E-02	kg	
241-AY-102	Pr	Sludge (Solids)	BL (Solid)	4.65E+01	kg	
241-AY-102	Pr	Sludge (Solids)	NA	2.33E+02	kg	
241-AY-102	Pr	Supernatant	NA	1.56E-01	kg	
241-AY-102	Pr	Total		2.80E+02	kg	
241-AY-102	Rb	Sludge (Liquids)	BL (Liquid)	9.98E-02	kg	
241-AY-102	Rb	Sludge (Solids)	BL (Solid)	3.34E-01	kg	
241-AY-102	Rb	Sludge (Solids)	NA	1.68E+00	kg	
241-AY-102	Rb	Supernatant	NA	1.85E-02	kg	
241-AY-102	Rb	Total		2.13E+00	kg	
241-AY-102	Rh	Sludge (Liquids)	BL (Liquid)	4.42E-01	kg	
241-AY-102	Rh	Sludge (Solids)	BL (Solid)	3.29E+00	kg	
241-AY-102	Rh	Sludge (Solids)	NA	1.65E+01	kg	
241-AY-102	Rh	Supernatant	NA	6.84E+00	kg	
241-AY-102	Rh	Total		2.71E+01	kg	
241-AY-102	Ru	Sludge (Liquids)	BL (Liquid)	6.28E+00	kg	
241-AY-102	Ru	Sludge (Solids)	BL (Solid)	6.75E+01	kg	
241-AY-102	Ru	Sludge (Solids)	NA	3.38E+02	kg	
241-AY-102	Ru	Supernatant	NA	9.71E+01	kg	
241-AY-102	Ru	Total		5.09E+02	kg	
241-AY-102	Sb	Sludge (Liquids)	BL (Liquid)	3.02E-01	kg	
241-AY-102	Sb	Sludge (Solids)	BL (Solid)	3.67E-01	kg	
241-AY-102	Sb	Sludge (Solids)	NA	1.84E+00	kg	
241-AY-102	Sb	Supernatant	NA	3.31E-01	kg	
241-AY-102	Sb	Total		2.84E+00	kg	
241-AY-102	Se	Sludge (Liquids)	BL (Liquid)	1.20E-01	kg	
241-AY-102	Se	Sludge (Solids)	BL (Solid)	7.77E-02	kg	
241-AY-102	Se	Sludge (Solids)	NA	3.89E-01	kg	
241-AY-102	Se	Supernatant	NA	8.26E+00	kg	
241-AY-102	Se	Total		8.84E+00	kg	
241-AY-102	Si	Sludge (Liquids)	BL (Liquid)	9.73E-01	kg	
241-AY-102	Si	Sludge (Solids)	BL (Solid)	1.42E+03	kg	
241-AY-102	Si	Sludge (Solids)	NA	7.14E+03	kg	
241-AY-102	Si	Supernatant	NA	1.89E+02	kg	
241-AY-102	Si	Total		8.76E+03	kg	
241-AY-102	SO4	Sludge (Liquids)	BL (Liquid)	1.82E+02	kg	
241-AY-102	SO4	Sludge (Solids)	BL (Solid)	2.66E+02	kg	
241-AY-102	SO4	Sludge (Solids)	NA	1.33E+03	kg	
241-AY-102	SO4	Supernatant	NA	3.96E+03	kg	
241-AY-102	SO4	Total		5.74E+03	kg	
241-AY-102	Sr	Sludge (Liquids)	BL (Liquid)	3.17E-03	kg	
241-AY-102	Sr	Sludge (Solids)	BL (Solid)	2.69E+01	kg	
241-AY-102	Sr	Sludge (Solids)	NA	1.35E+02	kg	
241-AY-102	Sr	Supernatant	NA	1.40E-01	kg	
241-AY-102	Sr	Total		1.62E+02	kg	
241-AY-102	Ta	Sludge (Liquids)	BL (Liquid)	2.01E-02	kg	
241-AY-102	Ta	Sludge (Solids)	BL (Solid)	3.24E-01	kg	
241-AY-102	Ta	Sludge (Solids)	NA	1.62E+00	kg	
241-AY-102	Ta	Supernatant	NA	3.11E-01	kg	
241-AY-102	Ta	Total		2.28E+00	kg	
241-AY-102	Te	Sludge (Liquids)	BL (Liquid)	1.71E-01	kg	
241-AY-102	Te	Sludge (Solids)	BL (Solid)	1.47E+01	kg	
241-AY-102	Te	Supernatant	NA	2.64E+00	kg	

CALCULATION SHEET

BY: E. Berrios
DATE: 12/05/05

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-22

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AY-102	Te	Sludge (Solids)	NA	7.35E+01	kg	
241-AY-102	Te	Total		9.10E+01	kg	
241-AY-102	Th	Sludge (Liquids)	BL (Liquid)	8.00E-03	kg	
241-AY-102	Th	Sludge (Solids)	BL (Solid)	1.06E+02	kg	
241-AY-102	Th	Sludge (Solids)	NA	5.31E+02	kg	
241-AY-102	Th	Supernatant	NA	1.33E-05	kg	
241-AY-102	Th	Total		6.37E+02	kg	
241-AY-102	Ti	Sludge (Liquids)	BL (Liquid)	9.58E-03	kg	
241-AY-102	Ti	Sludge (Solids)	BL (Solid)	2.21E+01	kg	
241-AY-102	Ti	Sludge (Solids)	NA	1.11E+02	kg	
241-AY-102	Ti	Supernatant	NA	1.50E-01	kg	
241-AY-102	Ti	Total		1.33E+02	kg	
241-AY-102	TIC as CO	Sludge (Liquids)	BL (Liquid)	9.30E+03	kg	
241-AY-102	TIC as CO	Sludge (Solids)	BL (Solid)	9.80E+03	kg	
241-AY-102	TIC as CO	Sludge (Solids)	NA	4.91E+04	kg	
241-AY-102	TIC as CO	Supernatant	NA	1.22E+05	kg	
241-AY-102	TIC as CO	Total		1.91E+05	kg	
241-AY-102	Tl	Sludge (Liquids)	BL (Liquid)	5.02E-02	kg	
241-AY-102	Tl	Sludge (Solids)	BL (Solid)	4.58E-01	kg	
241-AY-102	Tl	Sludge (Solids)	NA	2.30E+00	kg	
241-AY-102	Tl	Supernatant	NA	8.05E-01	kg	
241-AY-102	Tl	Total		3.61E+00	kg	
241-AY-102	TOC	Sludge (Liquids)	BL (Liquid)	1.96E+02	kg	
241-AY-102	TOC	Sludge (Solids)	BL (Solid)	6.50E+02	kg	
241-AY-102	TOC	Sludge (Solids)	NA	3.26E+03	kg	
241-AY-102	TOC	Supernatant	NA	2.34E+03	kg	
241-AY-102	TOC	Total		6.45E+03	kg	
241-AY-102	UTOTAL	Sludge (Liquids)	BL (Liquid)	2.31E+02	kg	
241-AY-102	UTOTAL	Sludge (Solids)	BL (Solid)	2.50E+02	kg	
241-AY-102	UTOTAL	Sludge (Solids)	NA	1.25E+03	kg	
241-AY-102	UTOTAL	Supernatant	NA	2.16E+02	kg	
241-AY-102	UTOTAL	Total		1.95E+03	kg	
241-AY-102	V	Sludge (Liquids)	BL (Liquid)	4.25E-02	kg	
241-AY-102	V	Sludge (Solids)	BL (Solid)	1.46E+00	kg	
241-AY-102	V	Sludge (Solids)	NA	7.30E+00	kg	
241-AY-102	V	Supernatant	NA	1.05E+00	kg	
241-AY-102	V	Total		9.84E+00	kg	
241-AY-102	Y	Sludge (Liquids)	BL (Liquid)	7.65E-03	kg	
241-AY-102	Y	Sludge (Solids)	BL (Solid)	1.74E+01	kg	
241-AY-102	Y	Sludge (Solids)	NA	8.74E+01	kg	
241-AY-102	Y	Supernatant	NA	1.20E-01	kg	
241-AY-102	Y	Total		1.05E+02	kg	
241-AY-102	Zn	Sludge (Liquids)	BL (Liquid)	1.87E-02	kg	
241-AY-102	Zn	Sludge (Solids)	BL (Solid)	2.47E+01	kg	
241-AY-102	Zn	Sludge (Solids)	NA	1.24E+02	kg	
241-AY-102	Zn	Supernatant	NA	3.54E-01	kg	
241-AY-102	Zn	Total		1.49E+02	kg	
241-AY-102	Zr	Sludge (Liquids)	BL (Liquid)	0.00E+00	kg	
241-AY-102	Zr	Sludge (Solids)	BL (Solid)	3.26E+01	kg	
241-AY-102	Zr	Sludge (Solids)	NA	1.64E+02	kg	
241-AY-102	Zr	Supernatant	NA	2.00E+00	kg	
241-AY-102	Zr	Total		1.98E+02	kg	

241-AZ-101	106Ru	Sludge	NA	1.07E-03	Ci	Summary	
241-AZ-101	106Ru	Supernatant	P3AZ1 (Liquid)	2.87E+01	Ci	106Ru	5.12E+01 Ci
241-AZ-101	106Ru	Sludge	P3AZ1 (Solid)	5.12E+01	Ci	113mCd	3.88E+02 Ci
241-AZ-101	106Ru	Total		7.99E+01	Ci	125Sb	2.94E+03 Ci
241-AZ-101	113mCd	Sludge	NA	6.40E-01	Ci	126Sn	5.39E-01 Ci
241-AZ-101	113mCd	Supernatant	P3AZ1 (Liquid)	1.33E+02	Ci	129I	3.61E-01 Ci
241-AZ-101	113mCd	Sludge	P3AZ1 (Solid)	3.87E+02	Ci	134Cs	4.88E+01 Ci
241-AZ-101	113mCd	Total		5.21E+02	Ci	137Cs	2.43E+05 Ci
241-AZ-101	125Sb	Sludge	NA	4.47E+02	Ci	137mBa	2.29E+05 Ci
241-AZ-101	125Sb	Supernatant	P3AZ1 (Liquid)	1.88E+03	Ci	14C	3.46E-01 Ci
241-AZ-101	125Sb	Sludge	P3AZ1 (Solid)	2.49E+03	Ci	151Sm	1.18E+05 Ci
241-AZ-101	125Sb	Total		4.82E+03	Ci	152Eu	1.42E+02 Ci
241-AZ-101	126Sn	Sludge	NA	5.20E-02	Ci	154Eu	1.06E+04 Ci
241-AZ-101	126Sn	Supernatant	P3AZ1 (Liquid)	7.85E+00	Ci	155Eu	1.13E+04 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-23

BY: E Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary	
241-AZ-101	126Sn	Sludge	P3AZ1 (Solid)	4.87E-01	Ci	226Ra	7.73E-05 Ci
241-AZ-101	126Sn	Total		8.39E+00	Ci	227Ac	3.10E-04 Ci
241-AZ-101	129I	Sludge	NA	5.49E-02	Ci	228Ra	2.75E-03 Ci
241-AZ-101	129I	Supernatant	P3AZ1 (Liquid)	3.24E-02	Ci	229Th	5.95E-07 Ci
241-AZ-101	129I	Sludge	P3AZ1 (Solid)	3.06E-01	Ci	231Pa	1.50E-03 Ci
241-AZ-101	129I	Total		3.93E-01	Ci	232Th	8.16E-03 Ci
241-AZ-101	134Cs	Sludge	NA	8.40E-02	Ci	232U	2.68E-03 Ci
241-AZ-101	134Cs	Supernatant	P3AZ1 (Liquid)	1.44E+03	Ci	233U	1.50E-01 Ci
241-AZ-101	134Cs	Sludge	P3AZ1 (Solid)	4.87E+01	Ci	234U	7.78E-01 Ci
241-AZ-101	134Cs	Total		1.49E+03	Ci	235U	2.94E-02 Ci
241-AZ-101	137Cs	Sludge	NA	3.70E+04	Ci	236U	7.11E-02 Ci
241-AZ-101	137Cs	Supernatant	P3AZ1 (Liquid)	5.06E+06	Ci	237Np	1.35E+01 Ci
241-AZ-101	137Cs	Sludge	P3AZ1 (Solid)	2.06E+05	Ci	238Pu	1.15E+02 Ci
241-AZ-101	137Cs	Total		5.30E+06	Ci	238U	5.48E-01 Ci
241-AZ-101	137mBa	Sludge	NA	3.49E+04	Ci	239Pu	1.17E+03 Ci
241-AZ-101	137mBa	Supernatant	P3AZ1 (Liquid)	4.78E+06	Ci	240Pu	3.31E+02 Ci
241-AZ-101	137mBa	Sludge	P3AZ1 (Solid)	1.94E+05	Ci	241Am	2.56E+04 Ci
241-AZ-101	137mBa	Total		5.01E+06	Ci	241Pu	8.16E+03 Ci
241-AZ-101	14C	Sludge	NA	5.26E-02	Ci	242Cm	1.12E+01 Ci
241-AZ-101	14C	Supernatant	P3AZ1 (Liquid)	6.25E+00	Ci	242Pu	4.16E-02 Ci
241-AZ-101	14C	Sludge	P3AZ1 (Solid)	2.93E-01	Ci	243Am	9.41E+00 Ci
241-AZ-101	14C	Total		6.59E+00	Ci	243Cm	1.04E+00 Ci
241-AZ-101	151Sm	Sludge	NA	3.56E+02	Ci	244Cm	2.41E+01 Ci
241-AZ-101	151Sm	Supernatant	P3AZ1 (Liquid)	1.26E+04	Ci	3H	2.18E+00 Ci
241-AZ-101	151Sm	Sludge	P3AZ1 (Solid)	1.18E+05	Ci	59Ni	1.43E+01 Ci
241-AZ-101	151Sm	Total		1.31E+05	Ci	60Co	7.40E+02 Ci
241-AZ-101	152Eu	Sludge	NA	4.12E-02	Ci	63Ni	1.36E+03 Ci
241-AZ-101	152Eu	Supernatant	P3AZ1 (Liquid)	1.52E+01	Ci	79Se	5.32E-01 Ci
241-AZ-101	152Eu	Sludge	P3AZ1 (Solid)	1.42E+02	Ci	90Sr	5.52E+06 Ci
241-AZ-101	152Eu	Total		1.57E+02	Ci	90Y	5.52E+06 Ci
241-AZ-101	154Eu	Sludge	NA	1.62E+03	Ci	93mNb	4.67E+00 Ci
241-AZ-101	154Eu	Supernatant	P3AZ1 (Liquid)	1.55E+02	Ci	93Zr	7.34E+00 Ci
241-AZ-101	154Eu	Sludge	P3AZ1 (Solid)	9.00E+03	Ci	99Tc	5.03E+01 Ci
241-AZ-101	154Eu	Total		1.08E+04	Ci		
241-AZ-101	155Eu	Sludge	NA	1.72E+03	Ci		
241-AZ-101	155Eu	Supernatant	P3AZ1 (Liquid)	9.11E+02	Ci		
241-AZ-101	155Eu	Sludge	P3AZ1 (Solid)	9.56E+03	Ci		
241-AZ-101	155Eu	Total		1.22E+04	Ci		
241-AZ-101	226Ra	Sludge	NA	1.08E-06	Ci		
241-AZ-101	226Ra	Supernatant	P3AZ1 (Liquid)	2.22E-04	Ci		
241-AZ-101	226Ra	Sludge	P3AZ1 (Solid)	7.62E-05	Ci		
241-AZ-101	226Ra	Total		3.00E-04	Ci		
241-AZ-101	227Ac	Sludge	NA	1.32E-04	Ci		
241-AZ-101	227Ac	Supernatant	P3AZ1 (Liquid)	1.46E-03	Ci		
241-AZ-101	227Ac	Sludge	P3AZ1 (Solid)	1.78E-04	Ci		
241-AZ-101	227Ac	Total		1.77E-03	Ci		
241-AZ-101	228Ra	Sludge	NA	7.35E-04	Ci		
241-AZ-101	228Ra	Supernatant	P3AZ1 (Liquid)	1.45E-08	Ci		
241-AZ-101	228Ra	Sludge	P3AZ1 (Solid)	2.01E-03	Ci		
241-AZ-101	228Ra	Total		2.74E-03	Ci		
241-AZ-101	229Th	Sludge	NA	5.31E-07	Ci		
241-AZ-101	229Th	Supernatant	P3AZ1 (Liquid)	1.90E-06	Ci		
241-AZ-101	229Th	Sludge	P3AZ1 (Solid)	6.41E-08	Ci		
241-AZ-101	229Th	Total		2.49E-06	Ci		
241-AZ-101	231Pa	Sludge	NA	1.39E-03	Ci		
241-AZ-101	231Pa	Supernatant	P3AZ1 (Liquid)	3.18E-03	Ci		
241-AZ-101	231Pa	Sludge	P3AZ1 (Solid)	1.07E-04	Ci		
241-AZ-101	231Pa	Total		4.67E-03	Ci		
241-AZ-101	232Th	Sludge	NA	1.24E-03	Ci		
241-AZ-101	232Th	Supernatant	P3AZ1 (Liquid)	1.86E-08	Ci		
241-AZ-101	232Th	Sludge	P3AZ1 (Solid)	6.92E-03	Ci		
241-AZ-101	232Th	Total		8.17E-03	Ci		
241-AZ-101	232U	Sludge	NA	2.45E-03	Ci		
241-AZ-101	232U	Supernatant	P3AZ1 (Liquid)	1.49E-06	Ci		
241-AZ-101	232U	Sludge	P3AZ1 (Solid)	2.27E-04	Ci		
241-AZ-101	232U	Total		2.68E-03	Ci		
241-AZ-101	233U	Sludge	NA	1.50E-01	Ci		
241-AZ-101	233U	Supernatant	P3AZ1 (Liquid)	4.92E-07	Ci		
241-AZ-101	233U	Sludge	P3AZ1 (Solid)	7.48E-05	Ci		

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.. D-24

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-101	233U	Total		1.50E-01	Ci	
241-AZ-101	234U	Sludge	NA	1.06E-01	Ci	
241-AZ-101	234U	Supernatant	P3AZ1 (Liquid)	4.42E-03	Ci	
241-AZ-101	234U	Sludge	P3AZ1 (Solid)	6.72E-01	Ci	
241-AZ-101	234U	Total		7.82E-01	Ci	
241-AZ-101	235U	Sludge	NA	4.20E-03	Ci	
241-AZ-101	235U	Supernatant	P3AZ1 (Liquid)	1.65E-04	Ci	
241-AZ-101	235U	Sludge	P3AZ1 (Solid)	2.52E-02	Ci	
241-AZ-101	235U	Total		2.96E-02	Ci	
241-AZ-101	236U	Sludge	NA	7.20E-03	Ci	
241-AZ-101	236U	Supernatant	P3AZ1 (Liquid)	4.22E-04	Ci	
241-AZ-101	236U	Sludge	P3AZ1 (Solid)	6.39E-02	Ci	
241-AZ-101	236U	Total		7.16E-02	Ci	
241-AZ-101	237Np	Sludge	NA	2.05E+00	Ci	
241-AZ-101	237Np	Supernatant	P3AZ1 (Liquid)	1.22E-01	Ci	
241-AZ-101	237Np	Sludge	P3AZ1 (Solid)	1.14E+01	Ci	
241-AZ-101	237Np	Total		1.36E+01	Ci	
241-AZ-101	238Pu	Sludge	NA	1.32E+01	Ci	
241-AZ-101	238Pu	Supernatant	P3AZ1 (Liquid)	4.70E-01	Ci	
241-AZ-101	238Pu	Sludge	P3AZ1 (Solid)	1.02E+02	Ci	
241-AZ-101	238Pu	Total		1.15E+02	Ci	
241-AZ-101	238U	Sludge	NA	8.33E-02	Ci	
241-AZ-101	238U	Supernatant	P3AZ1 (Liquid)	3.04E-03	Ci	
241-AZ-101	238U	Sludge	P3AZ1 (Solid)	4.65E-01	Ci	
241-AZ-101	238U	Total		5.52E-01	Ci	
241-AZ-101	239Pu	Sludge	NA	1.81E+02	Ci	
241-AZ-101	239Pu	Supernatant	P3AZ1 (Liquid)	4.55E+00	Ci	
241-AZ-101	239Pu	Sludge	P3AZ1 (Solid)	9.89E+02	Ci	
241-AZ-101	239Pu	Total		1.18E+03	Ci	
241-AZ-101	240Pu	Sludge	NA	4.72E+01	Ci	
241-AZ-101	240Pu	Supernatant	P3AZ1 (Liquid)	1.30E+00	Ci	
241-AZ-101	240Pu	Sludge	P3AZ1 (Solid)	2.84E+02	Ci	
241-AZ-101	240Pu	Total		3.32E+02	Ci	
241-AZ-101	241Am	Sludge	NA	3.89E+03	Ci	
241-AZ-101	241Am	Supernatant	P3AZ1 (Liquid)	4.67E-01	Ci	
241-AZ-101	241Am	Sludge	P3AZ1 (Solid)	2.17E+04	Ci	
241-AZ-101	241Am	Total		2.56E+04	Ci	
241-AZ-101	241Pu	Sludge	NA	8.29E+02	Ci	
241-AZ-101	241Pu	Supernatant	P3AZ1 (Liquid)	3.37E+01	Ci	
241-AZ-101	241Pu	Sludge	P3AZ1 (Solid)	7.33E+03	Ci	
241-AZ-101	241Pu	Total		8.19E+03	Ci	
241-AZ-101	242Cm	Sludge	NA	1.71E+00	Ci	
241-AZ-101	242Cm	Supernatant	P3AZ1 (Liquid)	2.37E-04	Ci	
241-AZ-101	242Cm	Sludge	P3AZ1 (Solid)	9.52E+00	Ci	
241-AZ-101	242Cm	Total		1.12E+01	Ci	
241-AZ-101	242Pu	Sludge	NA	5.00E-03	Ci	
241-AZ-101	242Pu	Supernatant	P3AZ1 (Liquid)	1.69E-04	Ci	
241-AZ-101	242Pu	Sludge	P3AZ1 (Solid)	3.66E-02	Ci	
241-AZ-101	242Pu	Total		4.18E-02	Ci	
241-AZ-101	243Am	Sludge	NA	2.58E+00	Ci	
241-AZ-101	243Am	Supernatant	P3AZ1 (Liquid)	1.06E-04	Ci	
241-AZ-101	243Am	Sludge	P3AZ1 (Solid)	6.83E+00	Ci	
241-AZ-101	243Am	Total		9.41E+00	Ci	
241-AZ-101	243Cm	Sludge	NA	1.58E-01	Ci	
241-AZ-101	243Cm	Supernatant	P3AZ1 (Liquid)	4.24E-03	Ci	
241-AZ-101	243Cm	Sludge	P3AZ1 (Solid)	8.79E-01	Ci	
241-AZ-101	243Cm	Total		1.04E+00	Ci	
241-AZ-101	244Cm	Sludge	NA	3.67E+00	Ci	
241-AZ-101	244Cm	Supernatant	P3AZ1 (Liquid)	9.86E-02	Ci	
241-AZ-101	244Cm	Sludge	P3AZ1 (Solid)	2.04E+01	Ci	
241-AZ-101	244Cm	Total		2.42E+01	Ci	
241-AZ-101	3H	Sludge	NA	3.32E-01	Ci	
241-AZ-101	3H	Supernatant	P3AZ1 (Liquid)	5.17E+01	Ci	
241-AZ-101	3H	Sludge	P3AZ1 (Solid)	1.85E+00	Ci	
241-AZ-101	3H	Total		5.39E+01	Ci	
241-AZ-101	59Ni	Sludge	NA	2.27E-01	Ci	
241-AZ-101	59Ni	Supernatant	P3AZ1 (Liquid)	6.93E+00	Ci	
241-AZ-101	59Ni	Sludge	P3AZ1 (Solid)	1.41E+01	Ci	
241-AZ-101	59Ni	Total		2.13E+01	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO : 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-25

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AZ-101	60Co	Sludge	NA	1.13E+02	Ci
241-AZ-101	60Co	Supernatant	P3AZ1 (Liquid)	3.97E+01	Ci
241-AZ-101	60Co	Sludge	P3AZ1 (Solid)	6.27E+02	Ci
241-AZ-101	60Co	Total		7.80E+02	Ci
241-AZ-101	63Ni	Sludge	NA	2.12E+01	Ci
241-AZ-101	63Ni	Supernatant	P3AZ1 (Liquid)	6.54E+02	Ci
241-AZ-101	63Ni	Sludge	P3AZ1 (Solid)	1.34E+03	Ci
241-AZ-101	63Ni	Total		2.01E+03	Ci
241-AZ-101	79Se	Sludge	NA	8.10E-02	Ci
241-AZ-101	79Se	Supernatant	P3AZ1 (Liquid)	3.14E+00	Ci
241-AZ-101	79Se	Sludge	P3AZ1 (Solid)	4.51E-01	Ci
241-AZ-101	79Se	Total		3.68E+00	Ci
241-AZ-101	90Sr	Sludge	NA	8.40E+05	Ci
241-AZ-101	90Sr	Supernatant	P3AZ1 (Liquid)	2.81E+03	Ci
241-AZ-101	90Sr	Sludge	P3AZ1 (Solid)	4.68E+06	Ci
241-AZ-101	90Sr	Total		5.52E+06	Ci
241-AZ-101	90Y	Sludge	NA	8.40E+05	Ci
241-AZ-101	90Y	Supernatant	P3AZ1 (Liquid)	2.81E+03	Ci
241-AZ-101	90Y	Sludge	P3AZ1 (Solid)	4.68E+06	Ci
241-AZ-101	90Y	Total		5.52E+06	Ci
241-AZ-101	93mNb	Sludge	NA	6.20E-01	Ci
241-AZ-101	93mNb	Supernatant	P3AZ1 (Liquid)	1.20E+02	Ci
241-AZ-101	93mNb	Sludge	P3AZ1 (Solid)	4.05E+00	Ci
241-AZ-101	93mNb	Total		1.25E+02	Ci
241-AZ-101	93Zr	Sludge	NA	7.48E-01	Ci
241-AZ-101	93Zr	Supernatant	P3AZ1 (Liquid)	1.95E+02	Ci
241-AZ-101	93Zr	Sludge	P3AZ1 (Solid)	6.59E+00	Ci
241-AZ-101	93Zr	Total		2.02E+02	Ci
241-AZ-101	99Tc	Sludge	NA	7.65E+00	Ci
241-AZ-101	99Tc	Supernatant	P3AZ1 (Liquid)	1.06E+03	Ci
241-AZ-101	99Tc	Sludge	P3AZ1 (Solid)	4.26E+01	Ci
241-AZ-101	99Tc	Total		1.11E+03	Ci
241-AZ-101	Ag	Sludge	NA	2.43E+00	kg
241-AZ-101	Ag	Supernatant	P3AZ1 (Liquid)	2.05E+00	kg
241-AZ-101	Ag	Sludge	P3AZ1 (Solid)	1.35E+01	kg
241-AZ-101	Ag	Total		1.80E+01	kg
241-AZ-101	Al	Sludge	NA	5.99E+03	kg
241-AZ-101	Al	Supernatant	P3AZ1 (Liquid)	1.96E+04	kg
241-AZ-101	Al	Sludge	P3AZ1 (Solid)	3.34E+04	kg
241-AZ-101	Al	Total		5.90E+04	kg
241-AZ-101	As	Sludge	NA	2.06E+00	kg
241-AZ-101	As	Supernatant	P3AZ1 (Liquid)	3.21E+01	kg
241-AZ-101	As	Sludge	P3AZ1 (Solid)	1.15E+01	kg
241-AZ-101	As	Total		4.56E+01	kg
241-AZ-101	B	Sludge	NA	1.30E+00	kg
241-AZ-101	B	Supernatant	P3AZ1 (Liquid)	6.07E+01	kg
241-AZ-101	B	Sludge	P3AZ1 (Solid)	7.26E+00	kg
241-AZ-101	B	Total		6.93E+01	kg
241-AZ-101	Ba	Sludge	NA	2.15E+01	kg
241-AZ-101	Ba	Supernatant	P3AZ1 (Liquid)	2.52E-01	kg
241-AZ-101	Ba	Sludge	P3AZ1 (Solid)	1.19E+02	kg
241-AZ-101	Ba	Total		1.41E+02	kg
241-AZ-101	Be	Sludge	NA	3.96E-01	kg
241-AZ-101	Be	Supernatant	P3AZ1 (Liquid)	9.53E-01	kg
241-AZ-101	Be	Sludge	P3AZ1 (Solid)	2.21E+00	kg
241-AZ-101	Be	Total		3.55E+00	kg
241-AZ-101	Bi	Sludge	NA	7.48E-01	kg
241-AZ-101	Bi	Supernatant	P3AZ1 (Liquid)	0.00E+00	kg
241-AZ-101	Bi	Sludge	P3AZ1 (Solid)	0.00E+00	kg
241-AZ-101	Bi	Total		7.48E-01	kg
241-AZ-101	Ca	Sludge	NA	1.05E+02	kg
241-AZ-101	Ca	Supernatant	P3AZ1 (Liquid)	2.38E+01	kg
241-AZ-101	Ca	Sludge	P3AZ1 (Solid)	5.87E+02	kg
241-AZ-101	Ca	Total		7.16E+02	kg
241-AZ-101	Cd	Sludge	NA	2.05E+02	kg
241-AZ-101	Cd	Supernatant	P3AZ1 (Liquid)	2.60E+00	kg
241-AZ-101	Cd	Sludge	P3AZ1 (Solid)	1.14E+03	kg
241-AZ-101	Cd	Total		1.35E+03	kg
241-AZ-101	Ce	Sludge	NA	3.52E+01	kg

Summary	
Ag	1.59E+01 kg
Al	3.94E+04 kg
As	1.36E+01 kg
B	8.56E+00 kg
Ba	1.41E+02 kg
Be	2.61E+00 kg
Bi	7.48E-01 kg
Ca	6.92E+02 kg
Cd	1.35E+03 kg
Ce	2.31E+02 kg
Cl	3.83E+01 kg
CN	1.42E+00 kg
Co	9.05E+00 kg
Cr	2.47E+02 kg
Cu	6.86E+01 kg
F	1.23E+03 kg
Fe	1.92E+04 kg
OH	2.69E+02 kg
Hg	9.04E-01 kg
K	5.00E+02 kg
La	5.16E+02 kg
Li	2.03E+01 kg
Mg	1.27E+02 kg
Mn	4.27E+02 kg
Mo	2.04E+01 kg
Na	2.29E+04 kg
Nd	6.04E+02 kg
NH3	0.00E+00 kg
Ni	7.99E+02 kg
NO2	9.34E+03 kg
NO3	7.84E+03 kg
Oxalate	9.32E+02 kg
Pb	1.42E+02 kg
Pd	6.92E+02 kg
PO4	1.62E+03 kg
Pr	1.43E+02 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-26

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AZ-101	Ce	Supernatant	P3AZ1 (Liquid)	1.91E-01	kg
241-AZ-101	Ce	Sludge	P3AZ1 (Solid)	1.96E+02	kg
241-AZ-101	Ce	Total		2.31E+02	kg
241-AZ-101	Cl	Sludge	NA	5.83E+00	kg
241-AZ-101	Cl	Supernatant	P3AZ1 (Liquid)	7.89E+02	kg
241-AZ-101	Cl	Sludge	P3AZ1 (Solid)	3.25E+01	kg
241-AZ-101	Cl	Total		8.28E+02	kg
241-AZ-101	CN	Sludge	NA	2.16E-01	kg
241-AZ-101	CN	Supernatant	P3AZ1 (Liquid)	6.62E+00	kg
241-AZ-101	CN	Sludge	P3AZ1 (Solid)	1.20E+00	kg
241-AZ-101	CN	Total		8.04E+00	kg
241-AZ-101	Co	Sludge	NA	1.38E+00	kg
241-AZ-101	Co	Supernatant	P3AZ1 (Liquid)	1.91E-01	kg
241-AZ-101	Co	Sludge	P3AZ1 (Solid)	7.67E+00	kg
241-AZ-101	Co	Total		9.24E+00	kg
241-AZ-101	Cr	Sludge	NA	3.76E+01	kg
241-AZ-101	Cr	Supernatant	P3AZ1 (Liquid)	2.22E+03	kg
241-AZ-101	Cr	Sludge	P3AZ1 (Solid)	2.09E+02	kg
241-AZ-101	Cr	Total		2.47E+03	kg
241-AZ-101	Cu	Sludge	NA	1.04E+01	kg
241-AZ-101	Cu	Supernatant	P3AZ1 (Liquid)	2.05E+00	kg
241-AZ-101	Cu	Sludge	P3AZ1 (Solid)	5.82E+01	kg
241-AZ-101	Cu	Total		7.07E+01	kg
241-AZ-101	F	Sludge	NA	1.88E+02	kg
241-AZ-101	F	Supernatant	P3AZ1 (Liquid)	6.51E+03	kg
241-AZ-101	F	Sludge	P3AZ1 (Solid)	1.04E+03	kg
241-AZ-101	F	Total		7.74E+03	kg
241-AZ-101	Fe	Sludge	NA	2.93E+03	kg
241-AZ-101	Fe	Supernatant	P3AZ1 (Liquid)	4.87E+00	kg
241-AZ-101	Fe	Sludge	P3AZ1 (Solid)	1.63E+04	kg
241-AZ-101	Fe	Total		1.93E+04	kg
241-AZ-101	Free OH	Sludge	NA	4.10E+01	kg
241-AZ-101	Free OH	Supernatant	P3AZ1 (Liquid)	3.69E+04	kg
241-AZ-101	Free OH	Sludge	P3AZ1 (Solid)	2.28E+02	kg
241-AZ-101	Free OH	Total		3.71E+04	kg
241-AZ-101	Hg	Sludge	NA	1.38E-01	kg
241-AZ-101	Hg	Supernatant	P3AZ1 (Liquid)	1.80E-01	kg
241-AZ-101	Hg	Sludge	P3AZ1 (Solid)	7.66E-01	kg
241-AZ-101	Hg	Total		1.08E+00	kg
241-AZ-101	K	Sludge	NA	7.62E+01	kg
241-AZ-101	K	Supernatant	P3AZ1 (Liquid)	1.45E+04	kg
241-AZ-101	K	Sludge	P3AZ1 (Solid)	4.24E+02	kg
241-AZ-101	K	Total		1.50E+04	kg
241-AZ-101	La	Sludge	NA	7.86E+01	kg
241-AZ-101	La	Supernatant	P3AZ1 (Liquid)	0.00E+00	kg
241-AZ-101	La	Sludge	P3AZ1 (Solid)	4.37E+02	kg
241-AZ-101	La	Total		5.16E+02	kg
241-AZ-101	Li	Sludge	NA	3.09E+00	kg
241-AZ-101	Li	Supernatant	P3AZ1 (Liquid)	2.92E+00	kg
241-AZ-101	Li	Sludge	P3AZ1 (Solid)	1.72E+01	kg
241-AZ-101	Li	Total		2.32E+01	kg
241-AZ-101	Mg	Sludge	NA	1.93E+01	kg
241-AZ-101	Mg	Supernatant	P3AZ1 (Liquid)	8.43E+00	kg
241-AZ-101	Mg	Sludge	P3AZ1 (Solid)	1.08E+02	kg
241-AZ-101	Mg	Total		1.35E+02	kg
241-AZ-101	Mn	Sludge	NA	6.50E+01	kg
241-AZ-101	Mn	Supernatant	P3AZ1 (Liquid)	0.00E+00	kg
241-AZ-101	Mn	Sludge	P3AZ1 (Solid)	3.62E+02	kg
241-AZ-101	Mn	Total		4.27E+02	kg
241-AZ-101	Mo	Sludge	NA	3.12E+00	kg
241-AZ-101	Mo	Supernatant	P3AZ1 (Liquid)	2.88E+02	kg
241-AZ-101	Mo	Sludge	P3AZ1 (Solid)	1.73E+01	kg
241-AZ-101	Mo	Total		3.08E+02	kg
241-AZ-101	Na	Sludge	NA	3.48E+03	kg
241-AZ-101	Na	Supernatant	P3AZ1 (Liquid)	3.60E+05	kg
241-AZ-101	Na	Sludge	P3AZ1 (Solid)	1.94E+04	kg
241-AZ-101	Na	Total		3.83E+05	kg
241-AZ-101	Nd	Sludge	NA	9.19E+01	kg
241-AZ-101	Nd	Supernatant	P3AZ1 (Liquid)	8.43E+00	kg

Summary	
Rb	7.57E+01 kg
Rh	2.63E+01 kg
Ru	2.08E+02 kg
Sb	9.80E-01 kg
Se	4.41E-01 kg
Si	1.10E+03 kg
SO4	7.30E+03 kg
Sr	1.03E+02 kg
Ta	1.05E+00 kg
Te	5.74E+01 kg
Th	7.42E+01 kg
Ti	1.85E+01 kg
TIC as CO3	1.32E+04 kg
Tl	4.53E-02 kg
TOC	2.60E+02 kg
UTOTAL	1.64E+03 kg
V	6.78E+00 kg
W	1.10E+01 kg
Y	3.26E+01 kg
Zn	2.28E+01 kg
Zr	5.63E+03 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-27

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-101	Nd	Sludge	P3AZ1 (Solid)	5.12E+02	kg	
241-AZ-101	Nd	Total		6.12E+02	kg	
241-AZ-101	Ni	Sludge	NA	1.22E+02	kg	
241-AZ-101	Ni	Supernatant	P3AZ1 (Liquid)	3.24E+00	kg	
241-AZ-101	Ni	Sludge	P3AZ1 (Solid)	6.77E+02	kg	
241-AZ-101	Ni	Total		8.02E+02	kg	
241-AZ-101	NO2	Sludge	NA	1 42E+03	kg	
241-AZ-101	NO2	Supernatant	P3AZ1 (Liquid)	1.99E+05	kg	
241-AZ-101	NO2	Sludge	P3AZ1 (Solid)	7.92E+03	kg	
241-AZ-101	NO2	Total		2.08E+05	kg	
241-AZ-101	NO3	Sludge	NA	1.19E+03	kg	
241-AZ-101	NO3	Supernatant	P3AZ1 (Liquid)	1.71E+05	kg	
241-AZ-101	NO3	Sludge	P3AZ1 (Solid)	6.65E+03	kg	
241-AZ-101	NO3	Total		1.78E+05	kg	
241-AZ-101	Oxalate	Sludge	NA	1.42E+02	kg	
241-AZ-101	Oxalate	Supernatant	P3AZ1 (Liquid)	3.27E+03	kg	
241-AZ-101	Oxalate	Sludge	P3AZ1 (Solid)	7.90E+02	kg	
241-AZ-101	Oxalate	Total		4.20E+03	kg	
241-AZ-101	Pb	Sludge	NA	2.15E+01	kg	
241-AZ-101	Pb	Supernatant	P3AZ1 (Liquid)	1.08E+01	kg	
241-AZ-101	Pb	Sludge	P3AZ1 (Solid)	1.20E+02	kg	
241-AZ-101	Pb	Total		1.52E+02	kg	
241-AZ-101	Pd	Sludge	NA	1.05E+02	kg	
241-AZ-101	Pd	Supernatant	P3AZ1 (Liquid)	6.49E+01	kg	
241-AZ-101	Pd	Sludge	P3AZ1 (Solid)	5.87E+02	kg	
241-AZ-101	Pd	Total		7.57E+02	kg	
241-AZ-101	PO4	Sludge	NA	2.46E+02	kg	
241-AZ-101	PO4	Supernatant	P3AZ1 (Liquid)	5.01E+03	kg	
241-AZ-101	PO4	Sludge	P3AZ1 (Solid)	1.37E+03	kg	
241-AZ-101	PO4	Total		6.63E+03	kg	
241-AZ-101	Pr	Sludge	NA	2.17E+01	kg	
241-AZ-101	Pr	Supernatant	P3AZ1 (Liquid)	1.91E-01	kg	
241-AZ-101	Pr	Sludge	P3AZ1 (Solid)	1.21E+02	kg	
241-AZ-101	Pr	Total		1.43E+02	kg	
241-AZ-101	Rb	Sludge	NA	1.15E+01	kg	
241-AZ-101	Rb	Supernatant	P3AZ1 (Liquid)	2.98E+01	kg	
241-AZ-101	Rb	Sludge	P3AZ1 (Solid)	6.42E+01	kg	
241-AZ-101	Rb	Total		1.06E+02	kg	
241-AZ-101	Rh	Sludge	NA	4.01E+00	kg	
241-AZ-101	Rh	Supernatant	P3AZ1 (Liquid)	6.79E+00	kg	
241-AZ-101	Rh	Sludge	P3AZ1 (Solid)	2.23E+01	kg	
241-AZ-101	Rh	Total		3.32E+01	kg	
241-AZ-101	Ru	Sludge	NA	3.16E+01	kg	
241-AZ-101	Ru	Supernatant	P3AZ1 (Liquid)	1.52E+00	kg	
241-AZ-101	Ru	Sludge	P3AZ1 (Solid)	1.76E+02	kg	
241-AZ-101	Ru	Total		2.09E+02	kg	
241-AZ-101	Sb	Sludge	NA	1.49E-01	kg	
241-AZ-101	Sb	Supernatant	P3AZ1 (Liquid)	1.91E-01	kg	
241-AZ-101	Sb	Sludge	P3AZ1 (Solid)	8.31E-01	kg	
241-AZ-101	Sb	Total		1.17E+00	kg	
241-AZ-101	Se	Sludge	NA	6.72E-02	kg	
241-AZ-101	Se	Supernatant	P3AZ1 (Liquid)	2.10E+01	kg	
241-AZ-101	Se	Sludge	P3AZ1 (Solid)	3.74E-01	kg	
241-AZ-101	Se	Total		2.14E+01	kg	
241-AZ-101	Si	Sludge	NA	1.67E+02	kg	
241-AZ-101	Si	Supernatant	P3AZ1 (Liquid)	2.22E+02	kg	
241-AZ-101	Si	Sludge	P3AZ1 (Solid)	9.29E+02	kg	
241-AZ-101	Si	Total		1.32E+03	kg	
241-AZ-101	SO4	Sludge	NA	1.11E+03	kg	
241-AZ-101	SO4	Supernatant	P3AZ1 (Liquid)	5.24E+04	kg	
241-AZ-101	SO4	Sludge	P3AZ1 (Solid)	6.19E+03	kg	
241-AZ-101	SO4	Total		5.97E+04	kg	
241-AZ-101	Sr	Sludge	NA	1.56E+01	kg	
241-AZ-101	Sr	Supernatant	P3AZ1 (Liquid)	1.29E-01	kg	
241-AZ-101	Sr	Sludge	P3AZ1 (Solid)	8.70E+01	kg	
241-AZ-101	Sr	Total		1.03E+02	kg	
241-AZ-101	Ta	Sludge	NA	1.60E-01	kg	
241-AZ-101	Ta	Supernatant	P3AZ1 (Liquid)	1.91E-01	kg	
241-AZ-101	Ta	Sludge	P3AZ1 (Solid)	8.92E-01	kg	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-28

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-101	Ta	Total		1.24E+00	kg	
241-AZ-101	Te	Sludge	NA	8.74E+00	kg	
241-AZ-101	Te	Supernatant	P3AZ1 (Liquid)	1.91E-01	kg	
241-AZ-101	Te	Sludge	P3AZ1 (Solid)	4.87E+01	kg	
241-AZ-101	Te	Total		5.76E+01	kg	
241-AZ-101	Th	Sludge	NA	1.13E+01	kg	
241-AZ-101	Th	Supernatant	P3AZ1 (Liquid)	1.69E-04	kg	
241-AZ-101	Th	Sludge	P3AZ1 (Solid)	6.29E+01	kg	
241-AZ-101	Th	Total		7.42E+01	kg	
241-AZ-101	Ti	Sludge	NA	2.82E+00	kg	
241-AZ-101	Ti	Supernatant	P3AZ1 (Liquid)	2.05E+00	kg	
241-AZ-101	Ti	Sludge	P3AZ1 (Solid)	1.57E+01	kg	
241-AZ-101	Ti	Total		2.06E+01	kg	
241-AZ-101	TIC as CO	Sludge	NA	2.02E+03	kg	
241-AZ-101	TIC as CO	Supernatant	P3AZ1 (Liquid)	1.60E+05	kg	
241-AZ-101	TIC as CO	Sludge	P3AZ1 (Solid)	1.12E+04	kg	
241-AZ-101	TIC as CO	Total		1.73E+05	kg	
241-AZ-101	Tl	Sludge	NA	6.89E-03	kg	
241-AZ-101	Tl	Supernatant	P3AZ1 (Liquid)	1.91E-01	kg	
241-AZ-101	Tl	Sludge	P3AZ1 (Solid)	3.84E-02	kg	
241-AZ-101	Tl	Total		2.36E-01	kg	
241-AZ-101	TOC	Sludge	NA	3.95E+01	kg	
241-AZ-101	TOC	Supernatant	P3AZ1 (Liquid)	1.65E+03	kg	
241-AZ-101	TOC	Sludge	P3AZ1 (Solid)	2.20E+02	kg	
241-AZ-101	TOC	Total		1.91E+03	kg	
241-AZ-101	UTOTAL	Sludge	NA	2.50E+02	kg	
241-AZ-101	UTOTAL	Supernatant	P3AZ1 (Liquid)	9.14E+00	kg	
241-AZ-101	UTOTAL	Sludge	P3AZ1 (Solid)	1.39E+03	kg	
241-AZ-101	UTOTAL	Total		1.65E+03	kg	
241-AZ-101	V	Sludge	NA	1.03E+00	kg	
241-AZ-101	V	Supernatant	P3AZ1 (Liquid)	4.87E+00	kg	
241-AZ-101	V	Sludge	P3AZ1 (Solid)	5.75E+00	kg	
241-AZ-101	V	Total		1.16E+01	kg	
241-AZ-101	W	Sludge	NA	1.67E+00	kg	
241-AZ-101	W	Supernatant	P3AZ1 (Liquid)	1.88E+02	kg	
241-AZ-101	W	Sludge	P3AZ1 (Solid)	9.30E+00	kg	
241-AZ-101	W	Total		1.99E+02	kg	
241-AZ-101	Y	Sludge	NA	4.97E+00	kg	
241-AZ-101	Y	Supernatant	P3AZ1 (Liquid)	4.22E+00	kg	
241-AZ-101	Y	Sludge	P3AZ1 (Solid)	2.76E+01	kg	
241-AZ-101	Y	Total		3.68E+01	kg	
241-AZ-101	Zn	Sludge	NA	3.47E+00	kg	
241-AZ-101	Zn	Supernatant	P3AZ1 (Liquid)	4.22E+00	kg	
241-AZ-101	Zn	Sludge	P3AZ1 (Solid)	1.93E+01	kg	
241-AZ-101	Zn	Total		2.70E+01	kg	
241-AZ-101	Zr	Sludge	NA	8.56E+02	kg	
241-AZ-101	Zr	Supernatant	P3AZ1 (Liquid)	0.00E+00	kg	
241-AZ-101	Zr	Sludge	P3AZ1 (Solid)	4.77E+03	kg	
241-AZ-101	Zr	Total		5.62E+03	kg	

241-AZ-102	106Ru	Sludge	NA sludge	6.81E-08	Ci	Summary	
241-AZ-102	106Ru	Supernatant	P3AZ2 (Liquid)	8.60E+01	Ci	106Ru	5.90E+00 Ci
241-AZ-102	106Ru	Sludge	P3AZ2 (Solid)	5.93E+00	Ci	113mCd	1.75E+02 Ci
241-AZ-102	106Ru	Sludge	PL2 (Solid)	1.37E-03	Ci	125Sb	2.39E+03 Ci
241-AZ-102	106Ru	Sludge	SRR (Solid)	4.72E-04	Ci	126Sn	5.80E-01 Ci
241-AZ-102	106Ru	Total		9.19E+01	Ci	129I	4.50E-03 Ci
241-AZ-102	113mCd	Sludge	NA sludge	3.39E-01	Ci	134Cs	1.23E+02 Ci
241-AZ-102	113mCd	Supernatant	P3AZ2 (Liquid)	1.24E+02	Ci	137Cs	3.70E+05 Ci
241-AZ-102	113mCd	Sludge	P3AZ2 (Solid)	1.74E+02	Ci	137mBa	3.50E+05 Ci
241-AZ-102	113mCd	Sludge	PL2 (Solid)	1.40E-04	Ci	14C	4.00E-01 Ci
241-AZ-102	113mCd	Sludge	SRR (Solid)	8.08E-01	Ci	151Sm	2.05E+05 Ci
241-AZ-102	113mCd	Total		2.99E+02	Ci	152Eu	9.77E+01 Ci
241-AZ-102	125Sb	Sludge	NA sludge	4.82E+01	Ci	154Eu	8.57E+03 Ci
241-AZ-102	125Sb	Supernatant	P3AZ2 (Liquid)	1.75E+03	Ci	155Eu	1.25E+04 Ci
241-AZ-102	125Sb	Sludge	P3AZ2 (Solid)	1.66E+03	Ci	226Ra	1.10E-05 Ci
241-AZ-102	125Sb	Sludge	PL2 (Solid)	9.04E+01	Ci	227Ac	9.20E-05 Ci
241-AZ-102	125Sb	Sludge	SRR (Solid)	5.90E+02	Ci	228Ra	6.62E-03 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO : D-29

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AZ-102	125Sb	Total		4.14E+03	Ci
241-AZ-102	126Sn	Sludge	NA sludge	1.13E-02	Ci
241-AZ-102	126Sn	Supernatant	P3AZ2 (Liquid)	2.11E+00	Ci
241-AZ-102	126Sn	Sludge	P3AZ2 (Solid)	5.20E-01	Ci
241-AZ-102	126Sn	Sludge	PL2 (Solid)	3.96E-06	Ci
241-AZ-102	126Sn	Sludge	SRR (Solid)	4.90E-02	Ci
241-AZ-102	126Sn	Total		2.69E+00	Ci
241-AZ-102	129I	Sludge	NA sludge	9.11E-04	Ci
241-AZ-102	129I	Supernatant	P3AZ2 (Liquid)	4.46E-02	Ci
241-AZ-102	129I	Sludge	P3AZ2 (Solid)	3.07E-03	Ci
241-AZ-102	129I	Sludge	PL2 (Solid)	3.59E-04	Ci
241-AZ-102	129I	Sludge	SRR (Solid)	2.17E-04	Ci
241-AZ-102	129I	Total		4.91E-02	Ci
241-AZ-102	134Cs	Sludge	NA sludge	2.49E+00	Ci
241-AZ-102	134Cs	Supernatant	P3AZ2 (Liquid)	8.71E+02	Ci
241-AZ-102	134Cs	Sludge	P3AZ2 (Solid)	8.54E+01	Ci
241-AZ-102	134Cs	Sludge	PL2 (Solid)	4.66E+00	Ci
241-AZ-102	134Cs	Sludge	SRR (Solid)	3.04E+01	Ci
241-AZ-102	134Cs	Total		9.94E+02	Ci
241-AZ-102	137Cs	Sludge	NA sludge	7.47E+03	Ci
241-AZ-102	137Cs	Supernatant	P3AZ2 (Liquid)	3.13E+06	Ci
241-AZ-102	137Cs	Sludge	P3AZ2 (Solid)	2.57E+05	Ci
241-AZ-102	137Cs	Sludge	PL2 (Solid)	1.40E+04	Ci
241-AZ-102	137Cs	Sludge	SRR (Solid)	9.15E+04	Ci
241-AZ-102	137Cs	Total		3.50E+06	Ci
241-AZ-102	137mBa	Sludge	NA sludge	7.05E+03	Ci
241-AZ-102	137mBa	Supernatant	P3AZ2 (Liquid)	2.95E+06	Ci
241-AZ-102	137mBa	Sludge	P3AZ2 (Solid)	2.42E+05	Ci
241-AZ-102	137mBa	Sludge	PL2 (Solid)	1.32E+04	Ci
241-AZ-102	137mBa	Sludge	SRR (Solid)	8.64E+04	Ci
241-AZ-102	137mBa	Total		3.30E+06	Ci
241-AZ-102	14C	Sludge	NA sludge	7.97E-03	Ci
241-AZ-102	14C	Supernatant	P3AZ2 (Liquid)	3.17E+00	Ci
241-AZ-102	14C	Sludge	P3AZ2 (Solid)	2.74E-01	Ci
241-AZ-102	14C	Sludge	PL2 (Solid)	1.49E-02	Ci
241-AZ-102	14C	Sludge	SRR (Solid)	9.77E-02	Ci
241-AZ-102	14C	Total		3.57E+00	Ci
241-AZ-102	151Sm	Sludge	NA sludge	5.54E+01	Ci
241-AZ-102	151Sm	Supernatant	P3AZ2 (Liquid)	1.24E+04	Ci
241-AZ-102	151Sm	Sludge	P3AZ2 (Solid)	6.16E+04	Ci
241-AZ-102	151Sm	Sludge	PL2 (Solid)	3.51E-02	Ci
241-AZ-102	151Sm	Sludge	SRR (Solid)	1.43E+05	Ci
241-AZ-102	151Sm	Total		2.17E+05	Ci
241-AZ-102	152Eu	Sludge	NA sludge	9.99E-03	Ci
241-AZ-102	152Eu	Supernatant	P3AZ2 (Liquid)	1.33E+01	Ci
241-AZ-102	152Eu	Sludge	P3AZ2 (Solid)	6.64E+01	Ci
241-AZ-102	152Eu	Sludge	PL2 (Solid)	4.05E-05	Ci
241-AZ-102	152Eu	Sludge	SRR (Solid)	3.09E+01	Ci
241-AZ-102	152Eu	Total		1.11E+02	Ci
241-AZ-102	154Eu	Sludge	NA sludge	1.73E+02	Ci
241-AZ-102	154Eu	Supernatant	P3AZ2 (Liquid)	1.57E+02	Ci
241-AZ-102	154Eu	Sludge	P3AZ2 (Solid)	5.95E+03	Ci
241-AZ-102	154Eu	Sludge	PL2 (Solid)	3.25E+02	Ci
241-AZ-102	154Eu	Sludge	SRR (Solid)	2.12E+03	Ci
241-AZ-102	154Eu	Total		8.73E+03	Ci
241-AZ-102	155Eu	Sludge	NA sludge	2.51E+02	Ci
241-AZ-102	155Eu	Supernatant	P3AZ2 (Liquid)	2.45E+02	Ci
241-AZ-102	155Eu	Sludge	P3AZ2 (Solid)	8.64E+03	Ci
241-AZ-102	155Eu	Sludge	PL2 (Solid)	4.71E+02	Ci
241-AZ-102	155Eu	Sludge	SRR (Solid)	3.08E+03	Ci
241-AZ-102	155Eu	Total		1.27E+04	Ci
241-AZ-102	226Ra	Sludge	NA sludge	3.06E-07	Ci
241-AZ-102	226Ra	Supernatant	P3AZ2 (Liquid)	1.41E-04	Ci
241-AZ-102	226Ra	Sludge	P3AZ2 (Solid)	9.70E-06	Ci
241-AZ-102	226Ra	Sludge	PL2 (Solid)	7.69E-11	Ci
241-AZ-102	226Ra	Sludge	SRR (Solid)	6.20E-07	Ci
241-AZ-102	226Ra	Total		1.52E-04	Ci
241-AZ-102	227Ac	Sludge	NA sludge	3.27E-05	Ci
241-AZ-102	227Ac	Supernatant	P3AZ2 (Liquid)	8.24E-04	Ci

Summary	
229Th	1.92E-07 Ci
231Pa	4.60E-04 Ci
232Th	2.06E-02 Ci
232U	5.67E-03 Ci
233U	3.03E-01 Ci
234U	3.16E+00 Ci
235U	1.27E-01 Ci
236U	2.64E-01 Ci
237Np	1.89E+01 Ci
238Pu	1.95E+02 Ci
238U	2.35E+00 Ci
239Pu	1.31E+03 Ci
240Pu	3.44E+02 Ci
241Am	2.84E+04 Ci
241Pu	7.17E+03 Ci
242Cm	2.48E+01 Ci
242Pu	3.71E-02 Ci
243Am	9.39E+00 Ci
243Cm	2.86E+00 Ci
244Cm	6.50E+01 Ci
3H	1.73E+01 Ci
59Ni	9.86E+00 Ci
60Co	7.44E+02 Ci
63Ni	9.35E+02 Ci
79Se	1.30E-01 Ci
90Sr	3.91E+06 Ci
90Y	3.91E+06 Ci
93mNb	4.90E+00 Ci
93Zr	8.00E+00 Ci
99Tc	8.70E+01 Ci

CALCULATION SHEET

BY: E. Berrios
DATE: 12/05/05

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.. 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-30

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-102	227Ac	Sludge	P3AZ2 (Solid)	5.67E-05	Ci	
241-AZ-102	227Ac	Sludge	PL2 (Solid)	4.32E-10	Ci	
241-AZ-102	227Ac	Sludge	SRR (Solid)	3.13E-06	Ci	
241-AZ-102	227Ac	Total		9.16E-04	Ci	
241-AZ-102	228Ra	Sludge	NA sludge	1.92E-04	Ci	
241-AZ-102	228Ra	Supernatant	P3AZ2 (Liquid)	9.85E-09	Ci	
241-AZ-102	228Ra	Sludge	P3AZ2 (Solid)	4.24E-03	Ci	
241-AZ-102	228Ra	Sludge	PL2 (Solid)	3.42E-04	Ci	
241-AZ-102	228Ra	Sludge	SRR (Solid)	1.85E-03	Ci	
241-AZ-102	228Ra	Total		6.62E-03	Ci	
241-AZ-102	229Th	Sludge	NA sludge	1.22E-07	Ci	
241-AZ-102	229Th	Supernatant	P3AZ2 (Liquid)	9.38E-07	Ci	
241-AZ-102	229Th	Sludge	P3AZ2 (Solid)	6.45E-08	Ci	
241-AZ-102	229Th	Sludge	PL2 (Solid)	5.09E-13	Ci	
241-AZ-102	229Th	Sludge	SRR (Solid)	3.69E-09	Ci	
241-AZ-102	229Th	Total		1.13E-06	Ci	
241-AZ-102	231Pa	Sludge	NA sludge	3.34E-04	Ci	
241-AZ-102	231Pa	Supernatant	P3AZ2 (Liquid)	1.78E-03	Ci	
241-AZ-102	231Pa	Sludge	P3AZ2 (Solid)	1.23E-04	Ci	
241-AZ-102	231Pa	Sludge	PL2 (Solid)	8.89E-10	Ci	
241-AZ-102	231Pa	Sludge	SRR (Solid)	4.76E-06	Ci	
241-AZ-102	231Pa	Total		2.24E-03	Ci	
241-AZ-102	232Th	Sludge	NA sludge	4.15E-04	Ci	
241-AZ-102	232Th	Supernatant	P3AZ2 (Liquid)	1.10E-08	Ci	
241-AZ-102	232Th	Sludge	P3AZ2 (Solid)	1.43E-02	Ci	
241-AZ-102	232Th	Sludge	PL2 (Solid)	7.79E-04	Ci	
241-AZ-102	232Th	Sludge	SRR (Solid)	5.09E-03	Ci	
241-AZ-102	232Th	Total		2.06E-02	Ci	
241-AZ-102	232U	Sludge	NA sludge	4.88E-03	Ci	
241-AZ-102	232U	Supernatant	P3AZ2 (Liquid)	3.64E-05	Ci	
241-AZ-102	232U	Sludge	P3AZ2 (Solid)	6.94E-04	Ci	
241-AZ-102	232U	Sludge	PL2 (Solid)	4.14E-05	Ci	
241-AZ-102	232U	Sludge	SRR (Solid)	5.49E-05	Ci	
241-AZ-102	232U	Total		5.71E-03	Ci	
241-AZ-102	233U	Sludge	NA sludge	3.03E-01	Ci	
241-AZ-102	233U	Supernatant	P3AZ2 (Liquid)	1.16E-05	Ci	
241-AZ-102	233U	Sludge	P3AZ2 (Solid)	2.20E-04	Ci	
241-AZ-102	233U	Sludge	PL2 (Solid)	1.35E-05	Ci	
241-AZ-102	233U	Sludge	SRR (Solid)	1.72E-04	Ci	
241-AZ-102	233U	Total		3.03E-01	Ci	
241-AZ-102	234U	Sludge	NA sludge	5.29E-02	Ci	
241-AZ-102	234U	Supernatant	P3AZ2 (Liquid)	1.25E-01	Ci	
241-AZ-102	234U	Sludge	P3AZ2 (Solid)	2.38E+00	Ci	
241-AZ-102	234U	Sludge	PL2 (Solid)	1.29E-01	Ci	
241-AZ-102	234U	Sludge	SRR (Solid)	5.99E-01	Ci	
241-AZ-102	234U	Total		3.28E+00	Ci	
241-AZ-102	235U	Sludge	NA sludge	2.15E-03	Ci	
241-AZ-102	235U	Supernatant	P3AZ2 (Liquid)	4.97E-03	Ci	
241-AZ-102	235U	Sludge	P3AZ2 (Solid)	9.46E-02	Ci	
241-AZ-102	235U	Sludge	PL2 (Solid)	4.94E-03	Ci	
241-AZ-102	235U	Sludge	SRR (Solid)	2.53E-02	Ci	
241-AZ-102	235U	Total		1.32E-01	Ci	
241-AZ-102	236U	Sludge	NA sludge	1.39E-03	Ci	
241-AZ-102	236U	Supernatant	P3AZ2 (Liquid)	1.23E-02	Ci	
241-AZ-102	236U	Sludge	P3AZ2 (Solid)	2.35E-01	Ci	
241-AZ-102	236U	Sludge	PL2 (Solid)	1.24E-02	Ci	
241-AZ-102	236U	Sludge	SRR (Solid)	1.58E-02	Ci	
241-AZ-102	236U	Total		2.76E-01	Ci	
241-AZ-102	237Np	Sludge	NA sludge	3.83E-01	Ci	
241-AZ-102	237Np	Supernatant	P3AZ2 (Liquid)	3.57E-01	Ci	
241-AZ-102	237Np	Sludge	P3AZ2 (Solid)	1.32E+01	Ci	
241-AZ-102	237Np	Sludge	PL2 (Solid)	7.19E-01	Ci	
241-AZ-102	237Np	Sludge	SRR (Solid)	4.70E+00	Ci	
241-AZ-102	237Np	Total		1.93E+01	Ci	
241-AZ-102	238Pu	Sludge	NA sludge	3.93E+00	Ci	
241-AZ-102	238Pu	Supernatant	P3AZ2 (Liquid)	2.34E+00	Ci	
241-AZ-102	238Pu	Sludge	P3AZ2 (Solid)	1.35E+02	Ci	
241-AZ-102	238Pu	Sludge	PL2 (Solid)	7.36E+00	Ci	
241-AZ-102	238Pu	Sludge	SRR (Solid)	4.81E+01	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-31

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-102	238Pu	Total		1.97E+02	Ci	
241-AZ-102	238U	Sludge	NA sludge	4.75E-02	Ci	
241-AZ-102	238U	Supernatant	P3AZ2 (Liquid)	8.59E-02	Ci	
241-AZ-102	238U	Sludge	P3AZ2 (Solid)	1.63E+00	Ci	
241-AZ-102	238U	Sludge	PL2 (Solid)	8.89E-02	Ci	
241-AZ-102	238U	Sludge	SRR (Solid)	5.82E-01	Ci	
241-AZ-102	238U	Total		2.44E+00	Ci	
241-AZ-102	239Pu	Sludge	NA sludge	2.71E+01	Ci	
241-AZ-102	239Pu	Supernatant	P3AZ2 (Liquid)	2.42E+01	Ci	
241-AZ-102	239Pu	Sludge	P3AZ2 (Solid)	9.01E+02	Ci	
241-AZ-102	239Pu	Sludge	PL2 (Solid)	4.88E+01	Ci	
241-AZ-102	239Pu	Sludge	SRR (Solid)	3.32E+02	Ci	
241-AZ-102	239Pu	Total		1.33E+03	Ci	
241-AZ-102	240Pu	Sludge	NA sludge	6.29E+00	Ci	
241-AZ-102	240Pu	Supernatant	P3AZ2 (Liquid)	6.61E+00	Ci	
241-AZ-102	240Pu	Sludge	P3AZ2 (Solid)	2.47E+02	Ci	
241-AZ-102	240Pu	Sludge	PL2 (Solid)	1.38E+01	Ci	
241-AZ-102	240Pu	Sludge	SRR (Solid)	7.70E+01	Ci	
241-AZ-102	240Pu	Total		3.51E+02	Ci	
241-AZ-102	241Am	Sludge	NA sludge	5.72E+02	Ci	
241-AZ-102	241Am	Supernatant	P3AZ2 (Liquid)	2.07E+00	Ci	
241-AZ-102	241Am	Sludge	P3AZ2 (Solid)	1.97E+04	Ci	
241-AZ-102	241Am	Sludge	PL2 (Solid)	1.07E+03	Ci	
241-AZ-102	241Am	Sludge	SRR (Solid)	7.01E+03	Ci	
241-AZ-102	241Am	Total		2.84E+04	Ci	
241-AZ-102	241Pu	Sludge	NA sludge	4.89E+01	Ci	
241-AZ-102	241Pu	Supernatant	P3AZ2 (Liquid)	1.67E+02	Ci	
241-AZ-102	241Pu	Sludge	P3AZ2 (Solid)	6.21E+03	Ci	
241-AZ-102	241Pu	Sludge	PL2 (Solid)	3.53E+02	Ci	
241-AZ-102	241Pu	Sludge	SRR (Solid)	5.64E+02	Ci	
241-AZ-102	241Pu	Total		7.34E+03	Ci	
241-AZ-102	242Cm	Sludge	NA sludge	5.01E-01	Ci	
241-AZ-102	242Cm	Supernatant	P3AZ2 (Liquid)	6.57E-04	Ci	
241-AZ-102	242Cm	Sludge	P3AZ2 (Solid)	1.72E+01	Ci	
241-AZ-102	242Cm	Sludge	PL2 (Solid)	9.40E-01	Ci	
241-AZ-102	242Cm	Sludge	SRR (Solid)	6.14E+00	Ci	
241-AZ-102	242Cm	Total		2.48E+01	Ci	
241-AZ-102	242Pu	Sludge	NA sludge	4.70E-04	Ci	
241-AZ-102	242Pu	Supernatant	P3AZ2 (Liquid)	7.97E-04	Ci	
241-AZ-102	242Pu	Sludge	P3AZ2 (Solid)	2.95E-02	Ci	
241-AZ-102	242Pu	Sludge	PL2 (Solid)	1.74E-03	Ci	
241-AZ-102	242Pu	Sludge	SRR (Solid)	5.36E-03	Ci	
241-AZ-102	242Pu	Total		3.79E-02	Ci	
241-AZ-102	243Am	Sludge	NA sludge	3.55E-01	Ci	
241-AZ-102	243Am	Supernatant	P3AZ2 (Liquid)	1.85E-04	Ci	
241-AZ-102	243Am	Sludge	P3AZ2 (Solid)	4.41E+00	Ci	
241-AZ-102	243Am	Sludge	PL2 (Solid)	3.00E-01	Ci	
241-AZ-102	243Am	Sludge	SRR (Solid)	4.32E+00	Ci	
241-AZ-102	243Am	Total		9.39E+00	Ci	
241-AZ-102	243Cm	Sludge	NA sludge	5.78E-02	Ci	
241-AZ-102	243Cm	Supernatant	P3AZ2 (Liquid)	8.91E-05	Ci	
241-AZ-102	243Cm	Sludge	P3AZ2 (Solid)	1.99E+00	Ci	
241-AZ-102	243Cm	Sludge	PL2 (Solid)	1.08E-01	Ci	
241-AZ-102	243Cm	Sludge	SRR (Solid)	7.09E-01	Ci	
241-AZ-102	243Cm	Total		2.86E+00	Ci	
241-AZ-102	244Cm	Sludge	NA sludge	1.31E+00	Ci	
241-AZ-102	244Cm	Supernatant	P3AZ2 (Liquid)	2.11E-03	Ci	
241-AZ-102	244Cm	Sludge	P3AZ2 (Solid)	4.51E+01	Ci	
241-AZ-102	244Cm	Sludge	PL2 (Solid)	2.46E+00	Ci	
241-AZ-102	244Cm	Sludge	SRR (Solid)	1.61E+01	Ci	
241-AZ-102	244Cm	Total		6.50E+01	Ci	
241-AZ-102	3H	Sludge	NA sludge	3.52E-01	Ci	
241-AZ-102	3H	Supernatant	P3AZ2 (Liquid)	9.77E+01	Ci	
241-AZ-102	3H	Sludge	P3AZ2 (Solid)	1.21E+01	Ci	
241-AZ-102	3H	Sludge	PL2 (Solid)	6.59E-01	Ci	
241-AZ-102	3H	Sludge	SRR (Solid)	4.31E+00	Ci	
241-AZ-102	3H	Total		1.15E+02	Ci	
241-AZ-102	59Ni	Sludge	NA sludge	6.26E-02	Ci	
241-AZ-102	59Ni	Supernatant	P3AZ2 (Liquid)	2.14E+00	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-32

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AZ-102	59Ni	Sludge	P3AZ2 (Solid)	9.26E+00	Ci
241-AZ-102	59Ni	Sludge	PL2 (Solid)	1.80E-04	Ci
241-AZ-102	59Ni	Sludge	SRR (Solid)	4.90E-01	Ci
241-AZ-102	59Ni	Total		1.20E+01	Ci
241-AZ-102	60Co	Sludge	NA sludge	1.50E+01	Ci
241-AZ-102	60Co	Supernatant	P3AZ2 (Liquid)	3.94E+01	Ci
241-AZ-102	60Co	Sludge	P3AZ2 (Solid)	5.16E+02	Ci
241-AZ-102	60Co	Sludge	PL2 (Solid)	2.82E+01	Ci
241-AZ-102	60Co	Sludge	SRR (Solid)	1.84E+02	Ci
241-AZ-102	60Co	Total		7.83E+02	Ci
241-AZ-102	63Ni	Sludge	NA sludge	5.85E+00	Ci
241-AZ-102	63Ni	Supernatant	P3AZ2 (Liquid)	2.05E+02	Ci
241-AZ-102	63Ni	Sludge	P3AZ2 (Solid)	8.85E+02	Ci
241-AZ-102	63Ni	Sludge	PL2 (Solid)	1.71E-02	Ci
241-AZ-102	63Ni	Sludge	SRR (Solid)	4.52E+01	Ci
241-AZ-102	63Ni	Total		1.14E+03	Ci
241-AZ-102	79Se	Sludge	NA sludge	2.72E-03	Ci
241-AZ-102	79Se	Supernatant	P3AZ2 (Liquid)	1.43E+00	Ci
241-AZ-102	79Se	Sludge	P3AZ2 (Solid)	1.19E-01	Ci
241-AZ-102	79Se	Sludge	PL2 (Solid)	8.89E-07	Ci
241-AZ-102	79Se	Sludge	SRR (Solid)	1.15E-02	Ci
241-AZ-102	79Se	Total		1.56E+00	Ci
241-AZ-102	90Sr	Sludge	NA sludge	7.90E+04	Ci
241-AZ-102	90Sr	Supernatant	P3AZ2 (Liquid)	6.51E+03	Ci
241-AZ-102	90Sr	Sludge	P3AZ2 (Solid)	2.71E+06	Ci
241-AZ-102	90Sr	Sludge	PL2 (Solid)	1.48E+05	Ci
241-AZ-102	90Sr	Sludge	SRR (Solid)	9.67E+05	Ci
241-AZ-102	90Sr	Total		3.92E+06	Ci
241-AZ-102	90Y	Sludge	NA sludge	7.90E+04	Ci
241-AZ-102	90Y	Supernatant	P3AZ2 (Liquid)	6.51E+03	Ci
241-AZ-102	90Y	Sludge	P3AZ2 (Solid)	2.71E+06	Ci
241-AZ-102	90Y	Sludge	PL2 (Solid)	1.48E+05	Ci
241-AZ-102	90Y	Sludge	SRR (Solid)	9.67E+05	Ci
241-AZ-102	90Y	Total		3.92E+06	Ci
241-AZ-102	93mNb	Sludge	NA sludge	1.34E-01	Ci
241-AZ-102	93mNb	Supernatant	P3AZ2 (Liquid)	6.13E+01	Ci
241-AZ-102	93mNb	Sludge	P3AZ2 (Solid)	4.24E+00	Ci
241-AZ-102	93mNb	Sludge	PL2 (Solid)	3.25E-05	Ci
241-AZ-102	93mNb	Sludge	SRR (Solid)	5.41E-01	Ci
241-AZ-102	93mNb	Total		6.62E+01	Ci
241-AZ-102	93Zr	Sludge	NA sludge	1.62E-01	Ci
241-AZ-102	93Zr	Supernatant	P3AZ2 (Liquid)	1.05E+02	Ci
241-AZ-102	93Zr	Sludge	P3AZ2 (Solid)	7.21E+00	Ci
241-AZ-102	93Zr	Sludge	PL2 (Solid)	5.37E-05	Ci
241-AZ-102	93Zr	Sludge	SRR (Solid)	6.83E-01	Ci
241-AZ-102	93Zr	Total		1.13E+02	Ci
241-AZ-102	99Tc	Sludge	NA sludge	1.75E+00	Ci
241-AZ-102	99Tc	Supernatant	P3AZ2 (Liquid)	6.98E+02	Ci
241-AZ-102	99Tc	Sludge	P3AZ2 (Solid)	6.02E+01	Ci
241-AZ-102	99Tc	Sludge	PL2 (Solid)	3.28E+00	Ci
241-AZ-102	99Tc	Sludge	SRR (Solid)	2.15E+01	Ci
241-AZ-102	99Tc	Total		7.85E+02	Ci
241-AZ-102	Ag	Sludge	NA sludge	2.63E+00	kg
241-AZ-102	Ag	Supernatant	P3AZ2 (Liquid)	1.61E+00	kg
241-AZ-102	Ag	Sludge	P3AZ2 (Solid)	9.05E+01	kg
241-AZ-102	Ag	Sludge	PL2 (Solid)	4.94E+00	kg
241-AZ-102	Ag	Sludge	SRR (Solid)	3.22E+01	kg
241-AZ-102	Ag	Total		1.32E+02	kg
241-AZ-102	Al	Sludge	NA sludge	6.11E+02	kg
241-AZ-102	Al	Supernatant	P3AZ2 (Liquid)	1.13E+03	kg
241-AZ-102	Al	Sludge	P3AZ2 (Solid)	2.10E+04	kg
241-AZ-102	Al	Sludge	PL2 (Solid)	1.15E+03	kg
241-AZ-102	Al	Sludge	SRR (Solid)	7.49E+03	kg
241-AZ-102	Al	Total		3.14E+04	kg
241-AZ-102	As	Sludge	NA sludge	4.67E-01	kg
241-AZ-102	As	Supernatant	P3AZ2 (Liquid)	1.28E+01	kg
241-AZ-102	As	Sludge	P3AZ2 (Solid)	1.61E+01	kg
241-AZ-102	As	Sludge	PL2 (Solid)	8.77E-01	kg
241-AZ-102	As	Sludge	SRR (Solid)	5.73E+00	kg

Summary	
Ag	1.30E+02 kg
Al	3.03E+04 kg
As	2.32E+01 kg
B	3.01E+01 kg
Ba	2.00E+02 kg
Be	3.20E+00 kg
Bi	9.05E+01 kg
Ca	1.31E+03 kg
Cd	4.72E+03 kg
Ce	3.17E+02 kg
Cl	7.70E+01 kg
CN	3.00E+00 kg
Co	1.11E+01 kg
Cr	5.50E+02 kg
Cu	5.25E+01 kg
F	4.60E+02 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-33

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-AZ-102	As	Total		3.60E+01	kg
241-AZ-102	B	Sludge	NA sludge	6.07E-01	kg
241-AZ-102	B	Supernatant	P3AZ2 (Liquid)	2.57E+01	kg
241-AZ-102	B	Sludge	P3AZ2 (Solid)	2.09E+01	kg
241-AZ-102	B	Sludge	PL2 (Solid)	1.14E+00	kg
241-AZ-102	B	Sludge	SRR (Solid)	7.43E+00	kg
241-AZ-102	B	Total		5.58E+01	kg
241-AZ-102	Ba	Sludge	NA sludge	4.03E+00	kg
241-AZ-102	Ba	Supernatant	P3AZ2 (Liquid)	1.57E-01	kg
241-AZ-102	Ba	Sludge	P3AZ2 (Solid)	1.39E+02	kg
241-AZ-102	Ba	Sludge	PL2 (Solid)	7.56E+00	kg
241-AZ-102	Ba	Sludge	SRR (Solid)	4.94E+01	kg
241-AZ-102	Ba	Total		2.00E+02	kg
241-AZ-102	Be	Sludge	NA sludge	6.46E-02	kg
241-AZ-102	Be	Supernatant	P3AZ2 (Liquid)	7.42E-02	kg
241-AZ-102	Be	Sludge	P3AZ2 (Solid)	2.22E+00	kg
241-AZ-102	Be	Sludge	PL2 (Solid)	1.21E-01	kg
241-AZ-102	Be	Sludge	SRR (Solid)	7.92E-01	kg
241-AZ-102	Be	Total		3.27E+00	kg
241-AZ-102	Bi	Sludge	NA sludge	1.83E+00	kg
241-AZ-102	Bi	Supernatant	P3AZ2 (Liquid)	0.00E+00	kg
241-AZ-102	Bi	Sludge	P3AZ2 (Solid)	6.28E+01	kg
241-AZ-102	Bi	Sludge	PL2 (Solid)	3.43E+00	kg
241-AZ-102	Bi	Sludge	SRR (Solid)	2.24E+01	kg
241-AZ-102	Bi	Total		9.05E+01	kg
241-AZ-102	Ca	Sludge	NA sludge	2.65E+01	kg
241-AZ-102	Ca	Supernatant	P3AZ2 (Liquid)	5.73E+00	kg
241-AZ-102	Ca	Sludge	P3AZ2 (Solid)	9.09E+02	kg
241-AZ-102	Ca	Sludge	PL2 (Solid)	4.96E+01	kg
241-AZ-102	Ca	Sludge	SRR (Solid)	3.24E+02	kg
241-AZ-102	Ca	Total		1.32E+03	kg
241-AZ-102	Cd	Sludge	NA sludge	9.53E+01	kg
241-AZ-102	Cd	Supernatant	P3AZ2 (Liquid)	1.67E+00	kg
241-AZ-102	Cd	Sludge	P3AZ2 (Solid)	3.28E+03	kg
241-AZ-102	Cd	Sludge	PL2 (Solid)	1.79E+02	kg
241-AZ-102	Cd	Sludge	SRR (Solid)	1.17E+03	kg
241-AZ-102	Cd	Total		4.72E+03	kg
241-AZ-102	Ce	Sludge	NA sludge	6.40E+00	kg
241-AZ-102	Ce	Supernatant	P3AZ2 (Liquid)	7.61E-02	kg
241-AZ-102	Ce	Sludge	P3AZ2 (Solid)	2.20E+02	kg
241-AZ-102	Ce	Sludge	PL2 (Solid)	1.20E+01	kg
241-AZ-102	Ce	Sludge	SRR (Solid)	7.84E+01	kg
241-AZ-102	Ce	Total		3.17E+02	kg
241-AZ-102	Cl	Sludge	NA sludge	1.55E+00	kg
241-AZ-102	Cl	Supernatant	P3AZ2 (Liquid)	2.36E+02	kg
241-AZ-102	Cl	Sludge	P3AZ2 (Solid)	5.32E+01	kg
241-AZ-102	Cl	Sludge	PL2 (Solid)	2.90E+00	kg
241-AZ-102	Cl	Sludge	SRR (Solid)	1.90E+01	kg
241-AZ-102	Cl	Total		3.13E+02	kg
241-AZ-102	CN	Sludge	NA sludge	5.97E-02	kg
241-AZ-102	CN	Supernatant	P3AZ2 (Liquid)	2.44E+01	kg
241-AZ-102	CN	Sludge	P3AZ2 (Solid)	2.05E+00	kg
241-AZ-102	CN	Sludge	PL2 (Solid)	1.12E-01	kg
241-AZ-102	CN	Sludge	SRR (Solid)	7.32E-01	kg
241-AZ-102	CN	Total		2.74E+01	kg
241-AZ-102	Co	Sludge	NA sludge	2.24E-01	kg
241-AZ-102	Co	Supernatant	P3AZ2 (Liquid)	7.42E-02	kg
241-AZ-102	Co	Sludge	P3AZ2 (Solid)	7.69E+00	kg
241-AZ-102	Co	Sludge	PL2 (Solid)	4.20E-01	kg
241-AZ-102	Co	Sludge	SRR (Solid)	2.74E+00	kg
241-AZ-102	Co	Total		1.12E+01	kg
241-AZ-102	Cr	Sludge	NA sludge	1.10E+01	kg
241-AZ-102	Cr	Supernatant	P3AZ2 (Liquid)	2.53E+03	kg
241-AZ-102	Cr	Sludge	P3AZ2 (Solid)	3.79E+02	kg
241-AZ-102	Cr	Sludge	PL2 (Solid)	2.07E+01	kg
241-AZ-102	Cr	Sludge	SRR (Solid)	1.35E+02	kg
241-AZ-102	Cr	Total		3.08E+03	kg
241-AZ-102	Cu	Sludge	NA sludge	1.06E+00	kg
241-AZ-102	Cu	Supernatant	P3AZ2 (Liquid)	1.30E+00	kg

Summary	
Fe	3.61E+04 kg
OH	4.00E+01 kg
Hg	4.98E+00 kg
K	1.50E+03 kg
La	1.20E+03 kg
Li	2.67E+01 kg
Mg	2.10E+02 kg
Mn	9.46E+02 kg
Mo	2.00E+01 kg
Na	2.70E+04 kg
Nd	9.06E+02 kg
NH3	0.00E+00 kg
Ni	2.44E+03 kg
NO2	1.60E+04 kg
NO3	4.30E+03 kg
Oxalate	1.04E+03 kg
Pb	7.82E+02 kg
Pd	0.00E+00 kg
PO4	1.14E+03 kg
Pr	0.00E+00 kg
Rb	0.00E+00 kg
Rh	0.00E+00 kg
Ru	0.00E+00 kg
Sb	9.70E+00 kg
Se	2.35E+01 kg
Si	1.82E+03 kg
SO4	6.50E+03 kg
Sr	6.15E+01 kg
Ta	0.00E+00 kg
Te	0.00E+00 kg
Th	1.87E+02 kg
Ti	2.47E+01 kg
TIC as CO3	8.00E+03 kg
Tl	0.00E+00 kg
TOC	2.90E+02 kg
UTOTAL	7.06E+03 kg
V	2.33E+00 kg
W	0.00E+00 kg
Y	3.03E+01 kg
Zn	9.89E+01 kg
Zr	4.56E+03 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-34

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-102	Cu	Sludge	P3AZ2 (Solid)	3.64E+01	kg	
241-AZ-102	Cu	Sludge	PL2 (Solid)	1.99E+00	kg	
241-AZ-102	Cu	Sludge	SRR (Solid)	1.30E+01	kg	
241-AZ-102	Cu	Total		5.38E+01	kg	
241-AZ-102	F	Sludge	NA sludge	9.38E+00	kg	
241-AZ-102	F	Supernatant	P3AZ2 (Liquid)	3.42E+03	kg	
241-AZ-102	F	Sludge	P3AZ2 (Solid)	3.22E+02	kg	
241-AZ-102	F	Sludge	PL2 (Solid)	1.76E+01	kg	
241-AZ-102	F	Sludge	SRR (Solid)	1.15E+02	kg	
241-AZ-102	F	Total		3.88E+03	kg	
241-AZ-102	Fe	Sludge	NA sludge	7.29E+02	kg	
241-AZ-102	Fe	Supernatant	P3AZ2 (Liquid)	2.23E+00	kg	
241-AZ-102	Fe	Sludge	P3AZ2 (Solid)	2.51E+04	kg	
241-AZ-102	Fe	Sludge	PL2 (Solid)	1.37E+03	kg	
241-AZ-102	Fe	Sludge	SRR (Solid)	8.93E+03	kg	
241-AZ-102	Fe	Total		3.61E+04	kg	
241-AZ-102	Free OH	Sludge	NA sludge	8.03E-01	kg	
241-AZ-102	Free OH	Supernatant	P3AZ2 (Liquid)	8.13E+03	kg	
241-AZ-102	Free OH	Sludge	P3AZ2 (Solid)	2.76E+01	kg	
241-AZ-102	Free OH	Sludge	PL2 (Solid)	1.51E+00	kg	
241-AZ-102	Free OH	Sludge	SRR (Solid)	9.83E+00	kg	
241-AZ-102	Free OH	Total		8.17E+03	kg	
241-AZ-102	Hg	Sludge	NA sludge	1.01E-01	kg	
241-AZ-102	Hg	Supernatant	P3AZ2 (Liquid)	2.03E-01	kg	
241-AZ-102	Hg	Sludge	P3AZ2 (Solid)	3.46E+00	kg	
241-AZ-102	Hg	Sludge	PL2 (Solid)	1.89E-01	kg	
241-AZ-102	Hg	Sludge	SRR (Solid)	1.23E+00	kg	
241-AZ-102	Hg	Total		5.18E+00	kg	
241-AZ-102	K	Sludge	NA sludge	3.03E+01	kg	
241-AZ-102	K	Supernatant	P3AZ2 (Liquid)	1.05E+04	kg	
241-AZ-102	K	Sludge	P3AZ2 (Solid)	1.04E+03	kg	
241-AZ-102	K	Sludge	PL2 (Solid)	5.69E+01	kg	
241-AZ-102	K	Sludge	SRR (Solid)	3.72E+02	kg	
241-AZ-102	K	Total		1.20E+04	kg	
241-AZ-102	La	Sludge	NA sludge	2.42E+01	kg	
241-AZ-102	La	Supernatant	P3AZ2 (Liquid)	0.00E+00	kg	
241-AZ-102	La	Sludge	P3AZ2 (Solid)	8.32E+02	kg	
241-AZ-102	La	Sludge	PL2 (Solid)	4.54E+01	kg	
241-AZ-102	La	Sludge	SRR (Solid)	2.97E+02	kg	
241-AZ-102	La	Total		1.20E+03	kg	
241-AZ-102	Li	Sludge	NA sludge	5.39E-01	kg	
241-AZ-102	Li	Supernatant	P3AZ2 (Liquid)	4.93E-01	kg	
241-AZ-102	Li	Sludge	P3AZ2 (Solid)	1.85E+01	kg	
241-AZ-102	Li	Sludge	PL2 (Solid)	1.01E+00	kg	
241-AZ-102	Li	Sludge	SRR (Solid)	6.60E+00	kg	
241-AZ-102	Li	Total		2.72E+01	kg	
241-AZ-102	Mg	Sludge	NA sludge	4.25E+00	kg	
241-AZ-102	Mg	Supernatant	P3AZ2 (Liquid)	1.71E+01	kg	
241-AZ-102	Mg	Sludge	P3AZ2 (Solid)	1.46E+02	kg	
241-AZ-102	Mg	Sludge	PL2 (Solid)	7.97E+00	kg	
241-AZ-102	Mg	Sludge	SRR (Solid)	5.21E+01	kg	
241-AZ-102	Mg	Total		2.27E+02	kg	
241-AZ-102	Mn	Sludge	NA sludge	1.91E+01	kg	
241-AZ-102	Mn	Supernatant	P3AZ2 (Liquid)	0.00E+00	kg	
241-AZ-102	Mn	Sludge	P3AZ2 (Solid)	6.57E+02	kg	
241-AZ-102	Mn	Sludge	PL2 (Solid)	3.58E+01	kg	
241-AZ-102	Mn	Sludge	SRR (Solid)	2.34E+02	kg	
241-AZ-102	Mn	Total		9.46E+02	kg	
241-AZ-102	Mo	Sludge	NA sludge	3.93E-01	kg	
241-AZ-102	Mo	Supernatant	P3AZ2 (Liquid)	1.78E+02	kg	
241-AZ-102	Mo	Sludge	P3AZ2 (Solid)	1.35E+01	kg	
241-AZ-102	Mo	Sludge	PL2 (Solid)	7.37E-01	kg	
241-AZ-102	Mo	Sludge	SRR (Solid)	4.81E+00	kg	
241-AZ-102	Mo	Total		1.98E+02	kg	
241-AZ-102	Na	Sludge	NA sludge	5.39E+02	kg	
241-AZ-102	Na	Supernatant	P3AZ2 (Liquid)	2.04E+05	kg	
241-AZ-102	Na	Sludge	P3AZ2 (Solid)	1.85E+04	kg	
241-AZ-102	Na	Sludge	PL2 (Solid)	1.01E+03	kg	
241-AZ-102	Na	Sludge	SRR (Solid)	6.60E+03	kg	

CALCULATION SHEET

BY: E. Berrios
DATE: 12/05/05

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-35

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-102	Na	Total		2.31E+05	kg	
241-AZ-102	Nd	Sludge	NA sludge	1.83E+01	kg	
241-AZ-102	Nd	Supernatant	P3AZ2 (Liquid)	6.62E+00	kg	
241-AZ-102	Nd	Sludge	P3AZ2 (Solid)	6.29E+02	kg	
241-AZ-102	Nd	Sludge	PL2 (Solid)	3.43E+01	kg	
241-AZ-102	Nd	Sludge	SRR (Solid)	2.24E+02	kg	
241-AZ-102	Nd	Total		9.13E+02	kg	
241-AZ-102	Ni	Sludge	NA sludge	4.92E+01	kg	
241-AZ-102	Ni	Supernatant	P3AZ2 (Liquid)	3.81E+00	kg	
241-AZ-102	Ni	Sludge	P3AZ2 (Solid)	1.69E+03	kg	
241-AZ-102	Ni	Sludge	PL2 (Solid)	9.22E+01	kg	
241-AZ-102	Ni	Sludge	SRR (Solid)	6.02E+02	kg	
241-AZ-102	Ni	Total		2.44E+03	kg	
241-AZ-102	NO2	Sludge	NA sludge	3.34E+02	kg	
241-AZ-102	NO2	Supernatant	P3AZ2 (Liquid)	1.35E+05	kg	
241-AZ-102	NO2	Sludge	P3AZ2 (Solid)	1.15E+04	kg	
241-AZ-102	NO2	Sludge	PL2 (Solid)	6.26E+02	kg	
241-AZ-102	NO2	Sludge	SRR (Solid)	4.09E+03	kg	
241-AZ-102	NO2	Total		1.51E+05	kg	
241-AZ-102	NO3	Sludge	NA sludge	8.61E+01	kg	
241-AZ-102	NO3	Supernatant	P3AZ2 (Liquid)	2.73E+04	kg	
241-AZ-102	NO3	Sludge	P3AZ2 (Solid)	2.96E+03	kg	
241-AZ-102	NO3	Sludge	PL2 (Solid)	1.61E+02	kg	
241-AZ-102	NO3	Sludge	SRR (Solid)	1.05E+03	kg	
241-AZ-102	NO3	Total		3.16E+04	kg	
241-AZ-102	Oxalate	Sludge	NA sludge	2.10E+01	kg	
241-AZ-102	Oxalate	Supernatant	P3AZ2 (Liquid)	7.37E+03	kg	
241-AZ-102	Oxalate	Sludge	P3AZ2 (Solid)	7.20E+02	kg	
241-AZ-102	Oxalate	Sludge	PL2 (Solid)	3.93E+01	kg	
241-AZ-102	Oxalate	Sludge	SRR (Solid)	2.57E+02	kg	
241-AZ-102	Oxalate	Total		8.41E+03	kg	
241-AZ-102	Pb	Sludge	NA sludge	1.58E+01	kg	
241-AZ-102	Pb	Supernatant	P3AZ2 (Liquid)	0.00E+00	kg	
241-AZ-102	Pb	Sludge	P3AZ2 (Solid)	5.43E+02	kg	
241-AZ-102	Pb	Sludge	PL2 (Solid)	2.96E+01	kg	
241-AZ-102	Pb	Sludge	SRR (Solid)	1.94E+02	kg	
241-AZ-102	Pb	Total		7.82E+02	kg	
241-AZ-102	PO4	Sludge	NA sludge	2.31E+01	kg	
241-AZ-102	PO4	Supernatant	P3AZ2 (Liquid)	1.49E+03	kg	
241-AZ-102	PO4	Sludge	P3AZ2 (Solid)	7.94E+02	kg	
241-AZ-102	PO4	Sludge	PL2 (Solid)	4.33E+01	kg	
241-AZ-102	PO4	Sludge	SRR (Solid)	2.83E+02	kg	
241-AZ-102	PO4	Total		2.63E+03	kg	
241-AZ-102	Sb	Sludge	NA sludge	1.96E-01	kg	
241-AZ-102	Sb	Supernatant	P3AZ2 (Liquid)	1.13E-01	kg	
241-AZ-102	Sb	Sludge	P3AZ2 (Solid)	6.73E+00	kg	
241-AZ-102	Sb	Sludge	PL2 (Solid)	3.67E-01	kg	
241-AZ-102	Sb	Sludge	SRR (Solid)	2.40E+00	kg	
241-AZ-102	Sb	Total		9.81E+00	kg	
241-AZ-102	Se	Sludge	NA sludge	4.75E-01	kg	
241-AZ-102	Se	Supernatant	P3AZ2 (Liquid)	2.19E+01	kg	
241-AZ-102	Se	Sludge	P3AZ2 (Solid)	1.63E+01	kg	
241-AZ-102	Se	Sludge	PL2 (Solid)	8.90E-01	kg	
241-AZ-102	Se	Sludge	SRR (Solid)	5.82E+00	kg	
241-AZ-102	Se	Total		4.54E+01	kg	
241-AZ-102	Si	Sludge	NA sludge	3.66E+01	kg	
241-AZ-102	Si	Supernatant	P3AZ2 (Liquid)	1.62E+02	kg	
241-AZ-102	Si	Sludge	P3AZ2 (Solid)	1.26E+03	kg	
241-AZ-102	Si	Sludge	PL2 (Solid)	6.87E+01	kg	
241-AZ-102	Si	Sludge	SRR (Solid)	4.49E+02	kg	
241-AZ-102	Si	Total		1.98E+03	kg	
241-AZ-102	SO4	Sludge	NA sludge	1.31E+02	kg	
241-AZ-102	SO4	Supernatant	P3AZ2 (Liquid)	5.84E+04	kg	
241-AZ-102	SO4	Sludge	P3AZ2 (Solid)	4.51E+03	kg	
241-AZ-102	SO4	Sludge	PL2 (Solid)	2.46E+02	kg	
241-AZ-102	SO4	Sludge	SRR (Solid)	1.61E+03	kg	
241-AZ-102	SO4	Total		6.49E+04	kg	
241-AZ-102	Sr	Sludge	NA sludge	1.24E+00	kg	
241-AZ-102	Sr	Supernatant	P3AZ2 (Liquid)	1.20E-01	kg	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-36

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-AZ-102	Sr	Sludge	P3AZ2 (Solid)	4.27E+01	kg	
241-AZ-102	Sr	Sludge	PL2 (Solid)	2.33E+00	kg	
241-AZ-102	Sr	Sludge	SRR (Solid)	1.52E+01	kg	
241-AZ-102	Sr	Total		6.16E+01	kg	
241-AZ-102	Th	Sludge	NA sludge	3.77E+00	kg	
241-AZ-102	Th	Supernatant	P3AZ2 (Liquid)	9.99E-05	kg	
241-AZ-102	Th	Sludge	P3AZ2 (Solid)	1.30E+02	kg	
241-AZ-102	Th	Sludge	PL2 (Solid)	7.08E+00	kg	
241-AZ-102	Th	Sludge	SRR (Solid)	4.62E+01	kg	
241-AZ-102	Th	Total		1.87E+02	kg	
241-AZ-102	Ti	Sludge	NA sludge	4.99E-01	kg	
241-AZ-102	Ti	Supernatant	P3AZ2 (Liquid)	5.48E-01	kg	
241-AZ-102	Ti	Sludge	P3AZ2 (Solid)	1.71E+01	kg	
241-AZ-102	Ti	Sludge	PL2 (Solid)	9.35E-01	kg	
241-AZ-102	Ti	Sludge	SRR (Solid)	6.11E+00	kg	
241-AZ-102	Ti	Total		2.52E+01	kg	
241-AZ-102	TIC as CO	Sludge	NA sludge	1.59E+02	kg	
241-AZ-102	TIC as CO	Supernatant	P3AZ2 (Liquid)	1.07E+05	kg	
241-AZ-102	TIC as CO	Sludge	P3AZ2 (Solid)	5.47E+03	kg	
241-AZ-102	TIC as CO	Sludge	PL2 (Solid)	2.98E+02	kg	
241-AZ-102	TIC as CO	Sludge	SRR (Solid)	1.95E+03	kg	
241-AZ-102	TIC as CO	Total		1.15E+05	kg	
241-AZ-102	TOC	Sludge	NA sludge	5.73E+00	kg	
241-AZ-102	TOC	Supernatant	P3AZ2 (Liquid)	6.61E+03	kg	
241-AZ-102	TOC	Sludge	P3AZ2 (Solid)	1.97E+02	kg	
241-AZ-102	TOC	Sludge	PL2 (Solid)	1.07E+01	kg	
241-AZ-102	TOC	Sludge	SRR (Solid)	7.02E+01	kg	
241-AZ-102	TOC	Total		6.90E+03	kg	
241-AZ-102	UTOTAL	Sludge	NA sludge	1.43E+02	kg	
241-AZ-102	UTOTAL	Supernatant	P3AZ2 (Liquid)	2.58E+02	kg	
241-AZ-102	UTOTAL	Sludge	P3AZ2 (Solid)	4.90E+03	kg	
241-AZ-102	UTOTAL	Sludge	PL2 (Solid)	2.67E+02	kg	
241-AZ-102	UTOTAL	Sludge	SRR (Solid)	1.75E+03	kg	
241-AZ-102	UTOTAL	Total		7.32E+03	kg	
241-AZ-102	V	Sludge	NA sludge	4.71E-02	kg	
241-AZ-102	V	Supernatant	P3AZ2 (Liquid)	1.76E+00	kg	
241-AZ-102	V	Sludge	P3AZ2 (Solid)	1.62E+00	kg	
241-AZ-102	V	Sludge	PL2 (Solid)	8.83E-02	kg	
241-AZ-102	V	Sludge	SRR (Solid)	5.77E-01	kg	
241-AZ-102	V	Total		4.09E+00	kg	
241-AZ-102	Y	Sludge	NA sludge	6.12E-01	kg	
241-AZ-102	Y	Supernatant	P3AZ2 (Liquid)	7.42E-02	kg	
241-AZ-102	Y	Sludge	P3AZ2 (Solid)	2.10E+01	kg	
241-AZ-102	Y	Sludge	PL2 (Solid)	1.15E+00	kg	
241-AZ-102	Y	Sludge	SRR (Solid)	7.49E+00	kg	
241-AZ-102	Y	Total		3.04E+01	kg	
241-AZ-102	Zn	Sludge	NA sludge	2.66E+00	kg	
241-AZ-102	Zn	Supernatant	P3AZ2 (Liquid)	1.11E+00	kg	
241-AZ-102	Zn	Sludge	P3AZ2 (Solid)	9.13E+01	kg	
241-AZ-102	Zn	Sludge	PL2 (Solid)	4.98E+00	kg	
241-AZ-102	Zn	Total		1.00E+02	kg	
241-AZ-102	Zr	Sludge	NA sludge	9.20E+01	kg	
241-AZ-102	Zr	Supernatant	P3AZ2 (Liquid)	1.04E+00	kg	
241-AZ-102	Zr	Sludge	P3AZ2 (Solid)	3.16E+03	kg	
241-AZ-102	Zr	Sludge	PL2 (Solid)	1.73E+02	kg	
241-AZ-102	Zr	Sludge	SRR (Solid)	1.13E+03	kg	
241-AZ-102	Zr	Total		4.56E+03	kg	

241-C-104	106Ru	Sludge	CWP1 (Solid)	2.05E-10	Ci	Summary	
241-C-104	106Ru	Sludge	CWP2 (Solid)	2.05E-08	Ci	106Ru	1.80E-04 Ci
241-C-104	106Ru	Sludge	CWZr1 (Solid)	3.82E-07	Ci	113mCd	3.10E+00 Ci
241-C-104	106Ru	Sludge	NA	1.80E-04	Ci	125Sb	7.68E+01 Ci
241-C-104	106Ru	Sludge	OWW3 (Solid)	2.49E-09	Ci	126Sn	8.29E-02 Ci
241-C-104	106Ru	Sludge	TH2 (Solid)	9.31E-08	Ci	129I	6.66E-01 Ci
241-C-104	106Ru	Total		1.80E-04	Ci	134Cs	5.41E-02 Ci
241-C-104	113mCd	Sludge	CWP1 (Solid)	7.35E-01	Ci	137Cs	8.86E+04 Ci
241-C-104	113mCd	Sludge	CWP2 (Solid)	3.89E-01	Ci	137mBa	8.36E+04 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO : 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-37

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-C-104	113mCd	Sludge	CWZr1 (Solid)	5.76E-02	Ci
241-C-104	113mCd	Sludge	NA	1.79E+00	Ci
241-C-104	113mCd	Sludge	OWW3 (Solid)	2.22E-04	Ci
241-C-104	113mCd	Sludge	TH2 (Solid)	1.30E-01	Ci
241-C-104	113mCd	Total		3.10E+00	Ci
241-C-104	125Sb	Sludge	CWP1 (Solid)	2.56E+01	Ci
241-C-104	125Sb	Sludge	CWP2 (Solid)	1.80E+01	Ci
241-C-104	125Sb	Sludge	CWZr1 (Solid)	7.06E+00	Ci
241-C-104	125Sb	Sludge	NA	1.19E+01	Ci
241-C-104	125Sb	Sludge	OWW3 (Solid)	8.07E+00	Ci
241-C-104	125Sb	Sludge	TH2 (Solid)	6.27E+00	Ci
241-C-104	125Sb	Total		7.68E+01	Ci
241-C-104	126Sn	Sludge	CWP1 (Solid)	1.09E-03	Ci
241-C-104	126Sn	Sludge	CWP2 (Solid)	4.45E-04	Ci
241-C-104	126Sn	Sludge	CWZr1 (Solid)	3.25E-03	Ci
241-C-104	126Sn	Sludge	NA	7.01E-02	Ci
241-C-104	126Sn	Sludge	OWW3 (Solid)	1.26E-05	Ci
241-C-104	126Sn	Sludge	TH2 (Solid)	8.06E-03	Ci
241-C-104	126Sn	Total		8.29E-02	Ci
241-C-104	129I	Sludge	CWP1 (Solid)	2.22E-01	Ci
241-C-104	129I	Sludge	CWP2 (Solid)	1.56E-01	Ci
241-C-104	129I	Sludge	CWZr1 (Solid)	6.12E-02	Ci
241-C-104	129I	Sludge	NA	1.03E-01	Ci
241-C-104	129I	Sludge	OWW3 (Solid)	7.00E-02	Ci
241-C-104	129I	Sludge	TH2 (Solid)	5.44E-02	Ci
241-C-104	129I	Total		6.66E-01	Ci
241-C-104	134Cs	Sludge	CWP1 (Solid)	1.83E-05	Ci
241-C-104	134Cs	Sludge	CWP2 (Solid)	1.11E-04	Ci
241-C-104	134Cs	Sludge	CWZr1 (Solid)	2.75E-02	Ci
241-C-104	134Cs	Sludge	NA	2.46E-02	Ci
241-C-104	134Cs	Sludge	OWW3 (Solid)	1.17E-05	Ci
241-C-104	134Cs	Sludge	TH2 (Solid)	1.90E-03	Ci
241-C-104	134Cs	Total		5.41E-02	Ci
241-C-104	137Cs	Sludge	CWP1 (Solid)	2.95E+04	Ci
241-C-104	137Cs	Sludge	CWP2 (Solid)	2.07E+04	Ci
241-C-104	137Cs	Sludge	CWZr1 (Solid)	8.14E+03	Ci
241-C-104	137Cs	Sludge	NA	1.37E+04	Ci
241-C-104	137Cs	Sludge	OWW3 (Solid)	9.31E+03	Ci
241-C-104	137Cs	Sludge	TH2 (Solid)	7.23E+03	Ci
241-C-104	137Cs	Total		8.86E+04	Ci
241-C-104	137mBa	Sludge	CWP1 (Solid)	2.78E+04	Ci
241-C-104	137mBa	Sludge	CWP2 (Solid)	1.95E+04	Ci
241-C-104	137mBa	Sludge	CWZr1 (Solid)	7.68E+03	Ci
241-C-104	137mBa	Sludge	NA	1.30E+04	Ci
241-C-104	137mBa	Sludge	OWW3 (Solid)	8.79E+03	Ci
241-C-104	137mBa	Sludge	TH2 (Solid)	6.83E+03	Ci
241-C-104	137mBa	Total		8.36E+04	Ci
241-C-104	14C	Sludge	CWP1 (Solid)	6.04E-01	Ci
241-C-104	14C	Sludge	CWP2 (Solid)	4.24E-01	Ci
241-C-104	14C	Sludge	CWZr1 (Solid)	1.67E-01	Ci
241-C-104	14C	Sludge	NA	2.82E-01	Ci
241-C-104	14C	Sludge	OWW3 (Solid)	1.91E-01	Ci
241-C-104	14C	Sludge	TH2 (Solid)	1.48E-01	Ci
241-C-104	14C	Total		1.82E+00	Ci
241-C-104	151Sm	Sludge	CWP1 (Solid)	1.10E+01	Ci
241-C-104	151Sm	Sludge	CWP2 (Solid)	4.34E+00	Ci
241-C-104	151Sm	Sludge	CWZr1 (Solid)	1.97E+01	Ci
241-C-104	151Sm	Sludge	NA	5.72E+04	Ci
241-C-104	151Sm	Sludge	OWW3 (Solid)	1.11E-01	Ci
241-C-104	151Sm	Sludge	TH2 (Solid)	2.80E+01	Ci
241-C-104	151Sm	Total		5.73E+04	Ci
241-C-104	152Eu	Sludge	CWP1 (Solid)	1.31E-03	Ci
241-C-104	152Eu	Sludge	CWP2 (Solid)	9.81E-04	Ci
241-C-104	152Eu	Sludge	CWZr1 (Solid)	2.51E-02	Ci
241-C-104	152Eu	Sludge	NA	1.53E+01	Ci
241-C-104	152Eu	Sludge	OWW3 (Solid)	6.25E-05	Ci
241-C-104	152Eu	Sludge	TH2 (Solid)	7.93E-03	Ci
241-C-104	152Eu	Total		1.53E+01	Ci
241-C-104	154Eu	Sludge	CWP1 (Solid)	2.84E+02	Ci

Summary	
14C	1.82E+00 Ci
151Sm	5.73E+04 Ci
152Eu	1.53E+01 Ci
154Eu	8.54E+02 Ci
155Eu	4.38E+02 Ci
226Ra	1.31E-04 Ci
227Ac	2.02E+00 Ci
228Ra	1.48E+00 Ci
229Th	5.53E-01 Ci
231Pa	1.70E-01 Ci
232Th	3.97E+00 Ci
232U	2.26E+00 Ci
233U	3.37E+02 Ci
234U	1.69E+01 Ci
235U	4.38E-01 Ci
236U	5.58E-01 Ci
237Np	3.59E+00 Ci
238Pu	2.29E+02 Ci
238U	9.56E+00 Ci
239Pu	5.18E+03 Ci
240Pu	1.33E+03 Ci
241Am	6.34E+03 Ci
241Pu	1.25E+04 Ci
242Cm	2.07E+00 Ci
242Pu	1.24E-01 Ci
243Am	1.38E+00 Ci
243Cm	1.84E-01 Ci
244Cm	4.11E+00 Ci
3H	4.00E+01 Ci
59Ni	5.68E+00 Ci
60Co	1.82E+02 Ci
63Ni	5.28E+02 Ci
79Se	5.24E+00 Ci
90Sr	4.47E+05 Ci
90Y	4.47E+05 Ci
93mNb	1.45E+00 Ci
93Zr	1.79E+00 Ci
99Tc	5.76E+01 Ci

CALCULATION SHEET

BY: E. Berrios
DATE: 12/05/05

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-38

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-C-104	154Eu	Sludge	CWP2 (Solid)	2.00E+02	Ci	
241-C-104	154Eu	Sludge	CWZr1 (Solid)	7.85E+01	Ci	
241-C-104	154Eu	Sludge	NA	1.33E+02	Ci	
241-C-104	154Eu	Sludge	OWW3 (Solid)	8.98E+01	Ci	
241-C-104	154Eu	Sludge	TH2 (Solid)	6.97E+01	Ci	
241-C-104	154Eu	Total		8.54E+02	Ci	
241-C-104	155Eu	Sludge	CWP1 (Solid)	1.46E+02	Ci	
241-C-104	155Eu	Sludge	CWP2 (Solid)	1.02E+02	Ci	
241-C-104	155Eu	Sludge	CWZr1 (Solid)	4.02E+01	Ci	
241-C-104	155Eu	Sludge	NA	6.79E+01	Ci	
241-C-104	155Eu	Sludge	OWW3 (Solid)	4.60E+01	Ci	
241-C-104	155Eu	Sludge	TH2 (Solid)	3.57E+01	Ci	
241-C-104	155Eu	Total		4.38E+02	Ci	
241-C-104	226Ra	Sludge	CWP1 (Solid)	3.49E-07	Ci	
241-C-104	226Ra	Sludge	CWP2 (Solid)	5.12E-07	Ci	
241-C-104	226Ra	Sludge	CWZr1 (Solid)	2.11E-07	Ci	
241-C-104	226Ra	Sludge	NA	5.21E-06	Ci	
241-C-104	226Ra	Sludge	OWW3 (Solid)	2.50E-10	Ci	
241-C-104	226Ra	Sludge	TH2 (Solid)	1.25E-04	Ci	
241-C-104	226Ra	Total		1.31E-04	Ci	
241-C-104	227Ac	Sludge	CWP1 (Solid)	1.89E-06	Ci	
241-C-104	227Ac	Sludge	CWP2 (Solid)	7.75E-03	Ci	
241-C-104	227Ac	Sludge	CWZr1 (Solid)	1.45E-06	Ci	
241-C-104	227Ac	Sludge	NA	1.33E-04	Ci	
241-C-104	227Ac	Sludge	OWW3 (Solid)	7.05E-07	Ci	
241-C-104	227Ac	Sludge	TH2 (Solid)	2.01E+00	Ci	
241-C-104	227Ac	Total		2.02E+00	Ci	
241-C-104	228Ra	Sludge	CWP1 (Solid)	3.13E-01	Ci	
241-C-104	228Ra	Sludge	CWP2 (Solid)	2.50E-01	Ci	
241-C-104	228Ra	Sludge	CWZr1 (Solid)	1.66E-01	Ci	
241-C-104	228Ra	Sludge	NA	1.96E-01	Ci	
241-C-104	228Ra	Sludge	OWW3 (Solid)	1.48E-01	Ci	
241-C-104	228Ra	Sludge	TH2 (Solid)	4.07E-01	Ci	
241-C-104	228Ra	Total		1.48E+00	Ci	
241-C-104	229Th	Sludge	CWP1 (Solid)	5.87E-10	Ci	
241-C-104	229Th	Sludge	CWP2 (Solid)	4.00E-02	Ci	
241-C-104	229Th	Sludge	CWZr1 (Solid)	9.40E-10	Ci	
241-C-104	229Th	Sludge	NA	1.37E-06	Ci	
241-C-104	229Th	Sludge	OWW3 (Solid)	1.57E-07	Ci	
241-C-104	229Th	Sludge	TH2 (Solid)	5.13E-01	Ci	
241-C-104	229Th	Total		5.53E-01	Ci	
241-C-104	231Pa	Sludge	CWP1 (Solid)	3.74E-06	Ci	
241-C-104	231Pa	Sludge	CWP2 (Solid)	4.04E-04	Ci	
241-C-104	231Pa	Sludge	CWZr1 (Solid)	3.25E-06	Ci	
241-C-104	231Pa	Sludge	NA	1.19E-03	Ci	
241-C-104	231Pa	Sludge	OWW3 (Solid)	1.04E-06	Ci	
241-C-104	231Pa	Sludge	TH2 (Solid)	1.68E-01	Ci	
241-C-104	231Pa	Total		1.70E-01	Ci	
241-C-104	232Th	Sludge	CWP1 (Solid)	1.32E+00	Ci	
241-C-104	232Th	Sludge	CWP2 (Solid)	9.27E-01	Ci	
241-C-104	232Th	Sludge	CWZr1 (Solid)	3.64E-01	Ci	
241-C-104	232Th	Sludge	NA	6.15E-01	Ci	
241-C-104	232Th	Sludge	OWW3 (Solid)	4.17E-01	Ci	
241-C-104	232Th	Sludge	TH2 (Solid)	3.24E-01	Ci	
241-C-104	232Th	Total		3.97E+00	Ci	
241-C-104	232U	Sludge	CWP1 (Solid)	1.34E-04	Ci	
241-C-104	232U	Sludge	CWP2 (Solid)	6.39E-02	Ci	
241-C-104	232U	Sludge	CWZr1 (Solid)	1.31E-04	Ci	
241-C-104	232U	Sludge	NA	5.92E-01	Ci	
241-C-104	232U	Sludge	OWW3 (Solid)	1.62E-01	Ci	
241-C-104	232U	Sludge	TH2 (Solid)	1.45E+00	Ci	
241-C-104	232U	Total		2.26E+00	Ci	
241-C-104	233U	Sludge	CWP1 (Solid)	1.12E+02	Ci	
241-C-104	233U	Sludge	CWP2 (Solid)	7.87E+01	Ci	
241-C-104	233U	Sludge	CWZr1 (Solid)	3.09E+01	Ci	
241-C-104	233U	Sludge	NA	5.23E+01	Ci	
241-C-104	233U	Sludge	OWW3 (Solid)	3.54E+01	Ci	
241-C-104	233U	Sludge	TH2 (Solid)	2.75E+01	Ci	
241-C-104	233U	Total		3.37E+02	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-39

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-C-104	234U	Sludge	CWP1 (Solid)	5.64E+00	Ci	
241-C-104	234U	Sludge	CWP2 (Solid)	3.96E+00	Ci	
241-C-104	234U	Sludge	CWZr1 (Solid)	1.56E+00	Ci	
241-C-104	234U	Sludge	NA	2.63E+00	Ci	
241-C-104	234U	Sludge	OWW3 (Solid)	1.78E+00	Ci	
241-C-104	234U	Sludge	TH2 (Solid)	1.38E+00	Ci	
241-C-104	234U	Total		1.69E+01	Ci	
241-C-104	235U	Sludge	CWP1 (Solid)	1.46E-01	Ci	
241-C-104	235U	Sludge	CWP2 (Solid)	1.02E-01	Ci	
241-C-104	235U	Sludge	CWZr1 (Solid)	4.02E-02	Ci	
241-C-104	235U	Sludge	NA	6.80E-02	Ci	
241-C-104	235U	Sludge	OWW3 (Solid)	4.61E-02	Ci	
241-C-104	235U	Sludge	TH2 (Solid)	3.58E-02	Ci	
241-C-104	235U	Total		4.38E-01	Ci	
241-C-104	236U	Sludge	CWP1 (Solid)	1.86E-01	Ci	
241-C-104	236U	Sludge	CWP2 (Solid)	1.30E-01	Ci	
241-C-104	236U	Sludge	CWZr1 (Solid)	5.12E-02	Ci	
241-C-104	236U	Sludge	NA	8.65E-02	Ci	
241-C-104	236U	Sludge	OWW3 (Solid)	5.86E-02	Ci	
241-C-104	236U	Sludge	TH2 (Solid)	4.55E-02	Ci	
241-C-104	236U	Total		5.58E-01	Ci	
241-C-104	237Np	Sludge	CWP1 (Solid)	1.19E+00	Ci	
241-C-104	237Np	Sludge	CWP2 (Solid)	8.38E-01	Ci	
241-C-104	237Np	Sludge	CWZr1 (Solid)	3.29E-01	Ci	
241-C-104	237Np	Sludge	NA	5.56E-01	Ci	
241-C-104	237Np	Sludge	OWW3 (Solid)	3.77E-01	Ci	
241-C-104	237Np	Sludge	TH2 (Solid)	2.93E-01	Ci	
241-C-104	237Np	Total		3.59E+00	Ci	
241-C-104	238Pu	Sludge	CWP1 (Solid)	3.09E+01	Ci	
241-C-104	238Pu	Sludge	CWP2 (Solid)	2.90E+01	Ci	
241-C-104	238Pu	Sludge	CWZr1 (Solid)	4.28E+01	Ci	
241-C-104	238Pu	Sludge	NA	6.28E+01	Ci	
241-C-104	238Pu	Sludge	OWW3 (Solid)	5.59E+01	Ci	
241-C-104	238Pu	Sludge	TH2 (Solid)	7.59E+00	Ci	
241-C-104	238Pu	Total		2.29E+02	Ci	
241-C-104	238U	Sludge	CWP1 (Solid)	3.18E+00	Ci	
241-C-104	238U	Sludge	CWP2 (Solid)	2.23E+00	Ci	
241-C-104	238U	Sludge	CWZr1 (Solid)	8.78E-01	Ci	
241-C-104	238U	Sludge	NA	1.48E+00	Ci	
241-C-104	238U	Sludge	OWW3 (Solid)	1.00E+00	Ci	
241-C-104	238U	Sludge	TH2 (Solid)	7.80E-01	Ci	
241-C-104	238U	Total		9.56E+00	Ci	
241-C-104	239Pu	Sludge	CWP1 (Solid)	1.79E+03	Ci	
241-C-104	239Pu	Sludge	CWP2 (Solid)	1.23E+03	Ci	
241-C-104	239Pu	Sludge	CWZr1 (Solid)	4.31E+02	Ci	
241-C-104	239Pu	Sludge	NA	7.76E+02	Ci	
241-C-104	239Pu	Sludge	OWW3 (Solid)	5.07E+02	Ci	
241-C-104	239Pu	Sludge	TH2 (Solid)	4.40E+02	Ci	
241-C-104	239Pu	Total		5.18E+03	Ci	
241-C-104	240Pu	Sludge	CWP1 (Solid)	3.73E+02	Ci	
241-C-104	240Pu	Sludge	CWP2 (Solid)	2.91E+02	Ci	
241-C-104	240Pu	Sludge	CWZr1 (Solid)	1.67E+02	Ci	
241-C-104	240Pu	Sludge	NA	2.34E+02	Ci	
241-C-104	240Pu	Sludge	OWW3 (Solid)	1.77E+02	Ci	
241-C-104	240Pu	Sludge	TH2 (Solid)	9.15E+01	Ci	
241-C-104	240Pu	Total		1.33E+03	Ci	
241-C-104	241Am	Sludge	CWP1 (Solid)	2.07E+03	Ci	
241-C-104	241Am	Sludge	CWP2 (Solid)	1.47E+03	Ci	
241-C-104	241Am	Sludge	CWZr1 (Solid)	6.07E+02	Ci	
241-C-104	241Am	Sludge	NA	1.00E+03	Ci	
241-C-104	241Am	Sludge	OWW3 (Solid)	6.88E+02	Ci	
241-C-104	241Am	Sludge	TH2 (Solid)	5.09E+02	Ci	
241-C-104	241Am	Total		6.34E+03	Ci	
241-C-104	241Pu	Sludge	CWP1 (Solid)	1.40E+03	Ci	
241-C-104	241Pu	Sludge	CWP2 (Solid)	1.82E+03	Ci	
241-C-104	241Pu	Sludge	CWZr1 (Solid)	2.94E+03	Ci	
241-C-104	241Pu	Sludge	NA	3.14E+03	Ci	
241-C-104	241Pu	Sludge	OWW3 (Solid)	2.90E+03	Ci	
241-C-104	241Pu	Sludge	TH2 (Solid)	3.43E+02	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-40

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-C-104	241Pu	Total		1.25E+04	Ci	
241-C-104	242Cm	Sludge	CWP1 (Solid)	6.90E-02	Ci	
241-C-104	242Cm	Sludge	CWP2 (Solid)	6.70E-02	Ci	
241-C-104	242Cm	Sludge	CWZr1 (Solid)	9.60E-02	Ci	
241-C-104	242Cm	Sludge	NA	8.09E-01	Ci	
241-C-104	242Cm	Sludge	OWW3 (Solid)	1.01E+00	Ci	
241-C-104	242Cm	Sludge	TH2 (Solid)	1.69E-02	Ci	
241-C-104	242Cm	Total		2.07E+00	Ci	
241-C-104	242Pu	Sludge	CWP1 (Solid)	1.16E-02	Ci	
241-C-104	242Pu	Sludge	CWP2 (Solid)	1.48E-02	Ci	
241-C-104	242Pu	Sludge	CWZr1 (Solid)	3.22E-02	Ci	
241-C-104	242Pu	Sludge	NA	3.21E-02	Ci	
241-C-104	242Pu	Sludge	OWW3 (Solid)	3.03E-02	Ci	
241-C-104	242Pu	Sludge	TH2 (Solid)	2.85E-03	Ci	
241-C-104	242Pu	Total		1.24E-01	Ci	
241-C-104	243Am	Sludge	CWP1 (Solid)	4.11E-02	Ci	
241-C-104	243Am	Sludge	CWP2 (Solid)	4.35E-02	Ci	
241-C-104	243Am	Sludge	CWZr1 (Solid)	6.34E-02	Ci	
241-C-104	243Am	Sludge	NA	5.91E-01	Ci	
241-C-104	243Am	Sludge	OWW3 (Solid)	6.26E-01	Ci	
241-C-104	243Am	Sludge	TH2 (Solid)	1.01E-02	Ci	
241-C-104	243Am	Total		1.38E+00	Ci	
241-C-104	243Cm	Sludge	CWP1 (Solid)	1.22E-03	Ci	
241-C-104	243Cm	Sludge	CWP2 (Solid)	3.31E-03	Ci	
241-C-104	243Cm	Sludge	CWZr1 (Solid)	2.55E-02	Ci	
241-C-104	243Cm	Sludge	NA	5.82E-02	Ci	
241-C-104	243Cm	Sludge	OWW3 (Solid)	9.52E-02	Ci	
241-C-104	243Cm	Sludge	TH2 (Solid)	2.99E-04	Ci	
241-C-104	243Cm	Total		1.84E-01	Ci	
241-C-104	244Cm	Sludge	CWP1 (Solid)	3.05E-02	Ci	
241-C-104	244Cm	Sludge	CWP2 (Solid)	9.81E-02	Ci	
241-C-104	244Cm	Sludge	CWZr1 (Solid)	5.25E-01	Ci	
241-C-104	244Cm	Sludge	NA	1.34E+00	Ci	
241-C-104	244Cm	Sludge	OWW3 (Solid)	2.10E+00	Ci	
241-C-104	244Cm	Sludge	TH2 (Solid)	7.48E-03	Ci	
241-C-104	244Cm	Total		4.11E+00	Ci	
241-C-104	3H	Sludge	CWP1 (Solid)	1.33E+01	Ci	
241-C-104	3H	Sludge	CWP2 (Solid)	9.34E+00	Ci	
241-C-104	3H	Sludge	CWZr1 (Solid)	3.67E+00	Ci	
241-C-104	3H	Sludge	NA	6.20E+00	Ci	
241-C-104	3H	Sludge	OWW3 (Solid)	4.20E+00	Ci	
241-C-104	3H	Sludge	TH2 (Solid)	3.26E+00	Ci	
241-C-104	3H	Total		4.00E+01	Ci	
241-C-104	59Ni	Sludge	CWP1 (Solid)	2.52E+00	Ci	
241-C-104	59Ni	Sludge	CWP2 (Solid)	1.75E+00	Ci	
241-C-104	59Ni	Sludge	CWZr1 (Solid)	2.64E-02	Ci	
241-C-104	59Ni	Sludge	NA	1.38E+00	Ci	
241-C-104	59Ni	Sludge	OWW3 (Solid)	9.83E-04	Ci	
241-C-104	59Ni	Sludge	TH2 (Solid)	7.15E-03	Ci	
241-C-104	59Ni	Total		5.68E+00	Ci	
241-C-104	60Co	Sludge	CWP1 (Solid)	6.05E+01	Ci	
241-C-104	60Co	Sludge	CWP2 (Solid)	4.25E+01	Ci	
241-C-104	60Co	Sludge	CWZr1 (Solid)	1.67E+01	Ci	
241-C-104	60Co	Sludge	NA	2.82E+01	Ci	
241-C-104	60Co	Sludge	OWW3 (Solid)	1.91E+01	Ci	
241-C-104	60Co	Sludge	TH2 (Solid)	1.48E+01	Ci	
241-C-104	60Co	Total		1.82E+02	Ci	
241-C-104	63Ni	Sludge	CWP1 (Solid)	2.31E+02	Ci	
241-C-104	63Ni	Sludge	CWP2 (Solid)	1.65E+02	Ci	
241-C-104	63Ni	Sludge	CWZr1 (Solid)	2.25E+00	Ci	
241-C-104	63Ni	Sludge	NA	1.29E+02	Ci	
241-C-104	63Ni	Sludge	OWW3 (Solid)	9.27E-02	Ci	
241-C-104	63Ni	Sludge	TH2 (Solid)	6.10E-01	Ci	
241-C-104	63Ni	Total		5.28E+02	Ci	
241-C-104	79Se	Sludge	CWP1 (Solid)	1.74E+00	Ci	
241-C-104	79Se	Sludge	CWP2 (Solid)	1.22E+00	Ci	
241-C-104	79Se	Sludge	CWZr1 (Solid)	4.81E-01	Ci	
241-C-104	79Se	Sludge	NA	8.13E-01	Ci	
241-C-104	79Se	Sludge	OWW3 (Solid)	5.51E-01	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO : 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-41

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions *Inorganic* and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary	
241-C-104	79Se	Sludge	TH2 (Solid)	4.28E-01	Ci		
241-C-104	79Se	Total		5.24E+00	Ci		
241-C-104	90Sr	Sludge	CWP1 (Solid)	1.49E+05	Ci		
241-C-104	90Sr	Sludge	CWP2 (Solid)	1.04E+05	Ci		
241-C-104	90Sr	Sludge	CWZr1 (Solid)	4.11E+04	Ci		
241-C-104	90Sr	Sludge	NA	6.93E+04	Ci		
241-C-104	90Sr	Sludge	OWW3 (Solid)	4.70E+04	Ci		
241-C-104	90Sr	Sludge	TH2 (Solid)	3.65E+04	Ci		
241-C-104	90Sr	Total		4.47E+05	Ci		
241-C-104	90Y	Sludge	CWP1 (Solid)	1.49E+05	Ci		
241-C-104	90Y	Sludge	CWP2 (Solid)	1.04E+05	Ci		
241-C-104	90Y	Sludge	CWZr1 (Solid)	4.11E+04	Ci		
241-C-104	90Y	Sludge	NA	6.93E+04	Ci		
241-C-104	90Y	Sludge	OWW3 (Solid)	4.70E+04	Ci		
241-C-104	90Y	Sludge	TH2 (Solid)	3.65E+04	Ci		
241-C-104	90Y	Total		4.47E+05	Ci		
241-C-104	93mNb	Sludge	CWP1 (Solid)	1.36E-02	Ci		
241-C-104	93mNb	Sludge	CWP2 (Solid)	5.05E-03	Ci		
241-C-104	93mNb	Sludge	CWZr1 (Solid)	5.65E-01	Ci		
241-C-104	93mNb	Sludge	NA	8.14E-01	Ci		
241-C-104	93mNb	Sludge	OWW3 (Solid)	1.35E-04	Ci		
241-C-104	93mNb	Sludge	TH2 (Solid)	5.12E-02	Ci		
241-C-104	93mNb	Total		1.45E+00	Ci		
241-C-104	93Zr	Sludge	CWP1 (Solid)	1.58E-02	Ci		
241-C-104	93Zr	Sludge	CWP2 (Solid)	6.21E-03	Ci		
241-C-104	93Zr	Sludge	CWZr1 (Solid)	7.07E-01	Ci		
241-C-104	93Zr	Sludge	NA	9.95E-01	Ci		
241-C-104	93Zr	Sludge	OWW3 (Solid)	1.73E-04	Ci		
241-C-104	93Zr	Sludge	TH2 (Solid)	6.54E-02	Ci		
241-C-104	93Zr	Total		1.79E+00	Ci		
241-C-104	99Tc	Sludge	CWP1 (Solid)	1.92E+01	Ci		
241-C-104	99Tc	Sludge	CWP2 (Solid)	1.35E+01	Ci		
241-C-104	99Tc	Sludge	CWZr1 (Solid)	5.29E+00	Ci		
241-C-104	99Tc	Sludge	NA	8.94E+00	Ci		
241-C-104	99Tc	Sludge	OWW3 (Solid)	6.06E+00	Ci		
241-C-104	99Tc	Sludge	TH2 (Solid)	4.70E+00	Ci		
241-C-104	99Tc	Total		5.76E+01	Ci		
241-C-104	Ag	Sludge	CWP1 (Solid)	3.49E+02	kg	Summary	
241-C-104	Ag	Sludge	CWP2 (Solid)	2.45E+02	kg	Ag	1.05E+03 kg
241-C-104	Ag	Sludge	CWZr1 (Solid)	9.64E+01	kg	Al	8.96E+04 kg
241-C-104	Ag	Sludge	NA	1.63E+02	kg	As	4.84E+01 kg
241-C-104	Ag	Sludge	OWW3 (Solid)	1.10E+02	kg	B	1.78E+03 kg
241-C-104	Ag	Sludge	TH2 (Solid)	8.56E+01	kg	Ba	1.46E+02 kg
241-C-104	Ag	Total		1.05E+03	kg	Be	3.79E+01 kg
241-C-104	Al	Sludge	CWP1 (Solid)	2.98E+04	kg	Bi	7.01E-01 kg
241-C-104	Al	Sludge	CWP2 (Solid)	2.09E+04	kg	Ca	2.97E+03 kg
241-C-104	Al	Sludge	CWZr1 (Solid)	8.23E+03	kg	Cd	1.02E+03 kg
241-C-104	Al	Sludge	NA	1.39E+04	kg	Ce	7.05E+01 kg
241-C-104	Al	Sludge	OWW3 (Solid)	9.42E+03	kg	Cl	7.95E+02 kg
241-C-104	Al	Sludge	TH2 (Solid)	7.31E+03	kg	CN	1.90E+01 kg
241-C-104	Al	Total		8.96E+04	kg	Co	9.69E+00 kg
241-C-104	As	Sludge	CWP1 (Solid)	1.61E+01	kg	Cr	1.45E+03 kg
241-C-104	As	Sludge	CWP2 (Solid)	1.13E+01	kg	Cu	1.33E+02 kg
241-C-104	As	Sludge	CWZr1 (Solid)	4.45E+00	kg	F	3.44E+04 kg
241-C-104	As	Sludge	NA	7.51E+00	kg	Fe	2.74E+04 kg
241-C-104	As	Sludge	OWW3 (Solid)	5.09E+00	kg	OH	0.00E+00 kg
241-C-104	As	Sludge	TH2 (Solid)	3.95E+00	kg	Hg	5.50E+01 kg
241-C-104	As	Total		4.84E+01	kg	K	1.32E+03 kg
241-C-104	B	Sludge	CWP1 (Solid)	5.92E+02	kg	La	4.84E+01 kg
241-C-104	B	Sludge	CWP2 (Solid)	4.16E+02	kg	Li	6.01E+00 kg
241-C-104	B	Sludge	CWZr1 (Solid)	1.63E+02	kg	Mg	2.05E+02 kg
241-C-104	B	Sludge	NA	2.76E+02	kg	Mn	6.97E+03 kg
241-C-104	B	Sludge	OWW3 (Solid)	1.87E+02	kg	Mo	2.17E+01 kg
241-C-104	B	Sludge	TH2 (Solid)	1.45E+02	kg	Na	1.77E+05 kg
241-C-104	B	Total		1.78E+03	kg	Nd	1.06E+02 kg
241-C-104	Ba	Sludge	CWP1 (Solid)	4.87E+01	kg	NH3	0.00E+00 kg
241-C-104	Ba	Sludge	CWP2 (Solid)	3.42E+01	kg	Ni	2.62E+03 kg
241-C-104	Ba	Sludge	CWZr1 (Solid)	1.34E+01	kg	NO2	3.63E+04 kg
241-C-104	Ba	Sludge	NA	2.27E+01	kg	NO3	1.95E+04 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-42

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-C-104	Ba	Sludge	OWW3 (Solid)	1.54E+01	kg
241-C-104	Ba	Sludge	TH2 (Solid)	1.19E+01	kg
241-C-104	Ba	Total		1.46E+02	kg
241-C-104	Be	Sludge	CWP1 (Solid)	1.26E+01	kg
241-C-104	Be	Sludge	CWP2 (Solid)	8.86E+00	kg
241-C-104	Be	Sludge	CWZr1 (Solid)	3.48E+00	kg
241-C-104	Be	Sludge	NA	5.88E+00	kg
241-C-104	Be	Sludge	OWW3 (Solid)	3.98E+00	kg
241-C-104	Be	Sludge	TH2 (Solid)	3.09E+00	kg
241-C-104	Be	Total		3.79E+01	kg
241-C-104	Bi	Sludge	CWP1 (Solid)	0.00E+00	kg
241-C-104	Bi	Sludge	CWP2 (Solid)	0.00E+00	kg
241-C-104	Bi	Sludge	CWZr1 (Solid)	0.00E+00	kg
241-C-104	Bi	Sludge	NA	7.01E-01	kg
241-C-104	Bi	Sludge	OWW3 (Solid)	0.00E+00	kg
241-C-104	Bi	Sludge	TH2 (Solid)	0.00E+00	kg
241-C-104	Bi	Total		7.01E-01	kg
241-C-104	Ca	Sludge	CWP1 (Solid)	9.87E+02	kg
241-C-104	Ca	Sludge	CWP2 (Solid)	6.93E+02	kg
241-C-104	Ca	Sludge	CWZr1 (Solid)	2.73E+02	kg
241-C-104	Ca	Sludge	NA	4.60E+02	kg
241-C-104	Ca	Sludge	OWW3 (Solid)	3.12E+02	kg
241-C-104	Ca	Sludge	TH2 (Solid)	2.42E+02	kg
241-C-104	Ca	Total		2.97E+03	kg
241-C-104	Cd	Sludge	CWP1 (Solid)	3.39E+02	kg
241-C-104	Cd	Sludge	CWP2 (Solid)	2.38E+02	kg
241-C-104	Cd	Sludge	CWZr1 (Solid)	9.37E+01	kg
241-C-104	Cd	Sludge	NA	1.58E+02	kg
241-C-104	Cd	Sludge	OWW3 (Solid)	1.07E+02	kg
241-C-104	Cd	Sludge	TH2 (Solid)	8.33E+01	kg
241-C-104	Cd	Total		1.02E+03	kg
241-C-104	Ce	Sludge	CWP1 (Solid)	2.35E+01	kg
241-C-104	Ce	Sludge	CWP2 (Solid)	1.65E+01	kg
241-C-104	Ce	Sludge	CWZr1 (Solid)	6.48E+00	kg
241-C-104	Ce	Sludge	NA	1.09E+01	kg
241-C-104	Ce	Sludge	OWW3 (Solid)	7.41E+00	kg
241-C-104	Ce	Sludge	TH2 (Solid)	5.76E+00	kg
241-C-104	Ce	Total		7.05E+01	kg
241-C-104	Cl	Sludge	CWP1 (Solid)	2.65E+02	kg
241-C-104	Cl	Sludge	CWP2 (Solid)	1.86E+02	kg
241-C-104	Cl	Sludge	CWZr1 (Solid)	7.30E+01	kg
241-C-104	Cl	Sludge	NA	1.23E+02	kg
241-C-104	Cl	Sludge	OWW3 (Solid)	8.36E+01	kg
241-C-104	Cl	Sludge	TH2 (Solid)	6.49E+01	kg
241-C-104	Cl	Total		7.95E+02	kg
241-C-104	CN	Sludge	CWP1 (Solid)	6.33E+00	kg
241-C-104	CN	Sludge	CWP2 (Solid)	4.45E+00	kg
241-C-104	CN	Sludge	CWZr1 (Solid)	1.75E+00	kg
241-C-104	CN	Sludge	NA	2.95E+00	kg
241-C-104	CN	Sludge	OWW3 (Solid)	2.00E+00	kg
241-C-104	CN	Sludge	TH2 (Solid)	1.55E+00	kg
241-C-104	CN	Total		1.90E+01	kg
241-C-104	Co	Sludge	CWP1 (Solid)	3.22E+00	kg
241-C-104	Co	Sludge	CWP2 (Solid)	2.27E+00	kg
241-C-104	Co	Sludge	CWZr1 (Solid)	8.90E-01	kg
241-C-104	Co	Sludge	NA	1.50E+00	kg
241-C-104	Co	Sludge	OWW3 (Solid)	1.02E+00	kg
241-C-104	Co	Sludge	TH2 (Solid)	7.91E-01	kg
241-C-104	Co	Total		9.69E+00	kg
241-C-104	Cr	Sludge	CWP1 (Solid)	4.83E+02	kg
241-C-104	Cr	Sludge	CWP2 (Solid)	3.39E+02	kg
241-C-104	Cr	Sludge	CWZr1 (Solid)	1.33E+02	kg
241-C-104	Cr	Sludge	NA	2.25E+02	kg
241-C-104	Cr	Sludge	OWW3 (Solid)	1.53E+02	kg
241-C-104	Cr	Sludge	TH2 (Solid)	1.19E+02	kg
241-C-104	Cr	Total		1.45E+03	kg
241-C-104	Cu	Sludge	CWP1 (Solid)	4.42E+01	kg
241-C-104	Cu	Sludge	CWP2 (Solid)	3.11E+01	kg
241-C-104	Cu	Sludge	CWZr1 (Solid)	1.22E+01	kg

Summary	
Oxalate	5.58E+03 kg
Pb	8.32E+02 kg
Pd	0.00E+00 kg
PO4	3.19E+03 kg
Pr	5.71E+01 kg
Rb	2.18E+02 kg
Rh	1.21E+02 kg
Ru	0.00E+00 kg
Sb	2.91E+01 kg
Se	4.84E+01 kg
Si	1.02E+04 kg
SO4	3.40E+03 kg
Sr	8.69E+01 kg
Ta	1.43E+00 kg
Te	0.00E+00 kg
Th	3.61E+04 kg
Ti	9.74E+01 kg
TIC as CO3	4.82E+04 kg
Tl	9.69E+01 kg
TOC	1.41E+04 kg
UTOTAL	2.87E+04 kg
V	2.70E+01 kg
W	0.00E+00 kg
Y	2.36E+01 kg
Zn	6.05E+02 kg
Zr	6.45E+04 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-43

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-C-104	Cu	Sludge	NA	2.06E+01	kg	
241-C-104	Cu	Sludge	OWW3 (Solid)	1.40E+01	kg	
241-C-104	Cu	Sludge	TH2 (Solid)	1.09E+01	kg	
241-C-104	Cu	Total		1.33E+02	kg	
241-C-104	F	Sludge	CWP1 (Solid)	1.14E+04	kg	
241-C-104	F	Sludge	CWP2 (Solid)	8.04E+03	kg	
241-C-104	F	Sludge	CWZr1 (Solid)	3.16E+03	kg	
241-C-104	F	Sludge	NA	5.33E+03	kg	
241-C-104	F	Sludge	OWW3 (Solid)	3.61E+03	kg	
241-C-104	F	Sludge	TH2 (Solid)	2.81E+03	kg	
241-C-104	F	Total		3.44E+04	kg	
241-C-104	Fe	Sludge	CWP1 (Solid)	9.12E+03	kg	
241-C-104	Fe	Sludge	CWP2 (Solid)	6.41E+03	kg	
241-C-104	Fe	Sludge	CWZr1 (Solid)	2.52E+03	kg	
241-C-104	Fe	Sludge	NA	4.25E+03	kg	
241-C-104	Fe	Sludge	OWW3 (Solid)	2.88E+03	kg	
241-C-104	Fe	Sludge	TH2 (Solid)	2.24E+03	kg	
241-C-104	Fe	Total		2.74E+04	kg	
241-C-104	Hg	Sludge	CWP1 (Solid)	1.83E+01	kg	
241-C-104	Hg	Sludge	CWP2 (Solid)	1.29E+01	kg	
241-C-104	Hg	Sludge	CWZr1 (Solid)	5.06E+00	kg	
241-C-104	Hg	Sludge	NA	8.54E+00	kg	
241-C-104	Hg	Sludge	OWW3 (Solid)	5.79E+00	kg	
241-C-104	Hg	Sludge	TH2 (Solid)	4.49E+00	kg	
241-C-104	Hg	Total		5.50E+01	kg	
241-C-104	K	Sludge	CWP1 (Solid)	4.40E+02	kg	
241-C-104	K	Sludge	CWP2 (Solid)	3.09E+02	kg	
241-C-104	K	Sludge	CWZr1 (Solid)	1.22E+02	kg	
241-C-104	K	Sludge	NA	2.05E+02	kg	
241-C-104	K	Sludge	OWW3 (Solid)	1.39E+02	kg	
241-C-104	K	Sludge	TH2 (Solid)	1.08E+02	kg	
241-C-104	K	Total		1.32E+03	kg	
241-C-104	La	Sludge	CWP1 (Solid)	1.61E+01	kg	
241-C-104	La	Sludge	CWP2 (Solid)	1.13E+01	kg	
241-C-104	La	Sludge	CWZr1 (Solid)	4.44E+00	kg	
241-C-104	La	Sludge	NA	7.50E+00	kg	
241-C-104	La	Sludge	OWW3 (Solid)	5.08E+00	kg	
241-C-104	La	Sludge	TH2 (Solid)	3.95E+00	kg	
241-C-104	La	Total		4.84E+01	kg	
241-C-104	Li	Sludge	CWP1 (Solid)	2.00E+00	kg	
241-C-104	Li	Sludge	CWP2 (Solid)	1.40E+00	kg	
241-C-104	Li	Sludge	CWZr1 (Solid)	5.52E-01	kg	
241-C-104	Li	Sludge	NA	9.32E-01	kg	
241-C-104	Li	Sludge	OWW3 (Solid)	6.32E-01	kg	
241-C-104	Li	Sludge	TH2 (Solid)	4.91E-01	kg	
241-C-104	Li	Total		6.01E+00	kg	
241-C-104	Mg	Sludge	CWP1 (Solid)	6.81E+01	kg	
241-C-104	Mg	Sludge	CWP2 (Solid)	4.79E+01	kg	
241-C-104	Mg	Sludge	CWZr1 (Solid)	1.88E+01	kg	
241-C-104	Mg	Sludge	NA	3.18E+01	kg	
241-C-104	Mg	Sludge	OWW3 (Solid)	2.15E+01	kg	
241-C-104	Mg	Sludge	TH2 (Solid)	1.67E+01	kg	
241-C-104	Mg	Total		2.05E+02	kg	
241-C-104	Mn	Sludge	CWP1 (Solid)	2.32E+03	kg	
241-C-104	Mn	Sludge	CWP2 (Solid)	1.63E+03	kg	
241-C-104	Mn	Sludge	CWZr1 (Solid)	6.40E+02	kg	
241-C-104	Mn	Sludge	NA	1.08E+03	kg	
241-C-104	Mn	Sludge	OWW3 (Solid)	7.33E+02	kg	
241-C-104	Mn	Sludge	TH2 (Solid)	5.69E+02	kg	
241-C-104	Mn	Total		6.97E+03	kg	
241-C-104	Mo	Sludge	CWP1 (Solid)	7.22E+00	kg	
241-C-104	Mo	Sludge	CWP2 (Solid)	5.07E+00	kg	
241-C-104	Mo	Sludge	CWZr1 (Solid)	1.99E+00	kg	
241-C-104	Mo	Sludge	NA	3.37E+00	kg	
241-C-104	Mo	Sludge	OWW3 (Solid)	2.28E+00	kg	
241-C-104	Mo	Sludge	TH2 (Solid)	1.77E+00	kg	
241-C-104	Mo	Total		2.17E+01	kg	
241-C-104	Na	Sludge	CWP1 (Solid)	5.89E+04	kg	
241-C-104	Na	Sludge	CWP2 (Solid)	4.14E+04	kg	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-44

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-C-104	Na	Sludge	CWZr1 (Solid)	1.63E+04	kg	
241-C-104	Na	Sludge	NA	2.75E+04	kg	
241-C-104	Na	Sludge	OWW3 (Solid)	1.86E+04	kg	
241-C-104	Na	Sludge	TH2 (Solid)	1.44E+04	kg	
241-C-104	Na	Total		1.77E+05	kg	
241-C-104	Nd	Sludge	CWP1 (Solid)	3.53E+01	kg	
241-C-104	Nd	Sludge	CWP2 (Solid)	2.48E+01	kg	
241-C-104	Nd	Sludge	CWZr1 (Solid)	9.76E+00	kg	
241-C-104	Nd	Sludge	NA	1.65E+01	kg	
241-C-104	Nd	Sludge	OWW3 (Solid)	1.12E+01	kg	
241-C-104	Nd	Sludge	TH2 (Solid)	8.67E+00	kg	
241-C-104	Nd	Total		1.06E+02	kg	
241-C-104	Ni	Sludge	CWP1 (Solid)	8.71E+02	kg	
241-C-104	Ni	Sludge	CWP2 (Solid)	6.12E+02	kg	
241-C-104	Ni	Sludge	CWZr1 (Solid)	2.40E+02	kg	
241-C-104	Ni	Sludge	NA	4.06E+02	kg	
241-C-104	Ni	Sludge	OWW3 (Solid)	2.75E+02	kg	
241-C-104	Ni	Sludge	TH2 (Solid)	2.14E+02	kg	
241-C-104	Ni	Total		2.62E+03	kg	
241-C-104	NO2	Sludge	CWP1 (Solid)	1.21E+04	kg	
241-C-104	NO2	Sludge	CWP2 (Solid)	8.48E+03	kg	
241-C-104	NO2	Sludge	CWZr1 (Solid)	3.33E+03	kg	
241-C-104	NO2	Sludge	NA	5.63E+03	kg	
241-C-104	NO2	Sludge	OWW3 (Solid)	3.81E+03	kg	
241-C-104	NO2	Sludge	TH2 (Solid)	2.96E+03	kg	
241-C-104	NO2	Total		3.63E+04	kg	
241-C-104	NO3	Sludge	CWP1 (Solid)	6.47E+03	kg	
241-C-104	NO3	Sludge	CWP2 (Solid)	4.55E+03	kg	
241-C-104	NO3	Sludge	CWZr1 (Solid)	1.79E+03	kg	
241-C-104	NO3	Sludge	NA	3.02E+03	kg	
241-C-104	NO3	Sludge	OWW3 (Solid)	2.04E+03	kg	
241-C-104	NO3	Sludge	TH2 (Solid)	1.59E+03	kg	
241-C-104	NO3	Total		1.95E+04	kg	
241-C-104	Oxalate	Sludge	CWP1 (Solid)	1.86E+03	kg	
241-C-104	Oxalate	Sludge	CWP2 (Solid)	1.30E+03	kg	
241-C-104	Oxalate	Sludge	CWZr1 (Solid)	5.12E+02	kg	
241-C-104	Oxalate	Sludge	NA	8.65E+02	kg	
241-C-104	Oxalate	Sludge	OWW3 (Solid)	5.86E+02	kg	
241-C-104	Oxalate	Sludge	TH2 (Solid)	4.55E+02	kg	
241-C-104	Oxalate	Total		5.58E+03	kg	
241-C-104	Pb	Sludge	CWP1 (Solid)	2.77E+02	kg	
241-C-104	Pb	Sludge	CWP2 (Solid)	1.94E+02	kg	
241-C-104	Pb	Sludge	CWZr1 (Solid)	7.64E+01	kg	
241-C-104	Pb	Sludge	NA	1.29E+02	kg	
241-C-104	Pb	Sludge	OWW3 (Solid)	8.74E+01	kg	
241-C-104	Pb	Sludge	TH2 (Solid)	6.79E+01	kg	
241-C-104	Pb	Total		8.32E+02	kg	
241-C-104	PO4	Sludge	CWP1 (Solid)	1.06E+03	kg	
241-C-104	PO4	Sludge	CWP2 (Solid)	7.45E+02	kg	
241-C-104	PO4	Sludge	CWZr1 (Solid)	2.93E+02	kg	
241-C-104	PO4	Sludge	NA	4.94E+02	kg	
241-C-104	PO4	Sludge	OWW3 (Solid)	3.35E+02	kg	
241-C-104	PO4	Sludge	TH2 (Solid)	2.60E+02	kg	
241-C-104	PO4	Total		3.19E+03	kg	
241-C-104	Pr	Sludge	CWP1 (Solid)	1.90E+01	kg	
241-C-104	Pr	Sludge	CWP2 (Solid)	1.33E+01	kg	
241-C-104	Pr	Sludge	CWZr1 (Solid)	5.25E+00	kg	
241-C-104	Pr	Sludge	NA	8.86E+00	kg	
241-C-104	Pr	Sludge	OWW3 (Solid)	6.00E+00	kg	
241-C-104	Pr	Sludge	TH2 (Solid)	4.66E+00	kg	
241-C-104	Pr	Total		5.71E+01	kg	
241-C-104	Rb	Sludge	CWP1 (Solid)	7.24E+01	kg	
241-C-104	Rb	Sludge	CWP2 (Solid)	5.08E+01	kg	
241-C-104	Rb	Sludge	CWZr1 (Solid)	2.00E+01	kg	
241-C-104	Rb	Sludge	NA	3.37E+01	kg	
241-C-104	Rb	Sludge	OWW3 (Solid)	2.29E+01	kg	
241-C-104	Rb	Sludge	TH2 (Solid)	1.78E+01	kg	
241-C-104	Rb	Total		2.18E+02	kg	
241-C-104	Rh	Sludge	CWP1 (Solid)	4.03E+01	kg	

CALCULATION SHEET

BY: E. Berrios
DATE: 12/05/05

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-45

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-C-104	Rh	Sludge	CWP2 (Solid)	2.83E+01	kg	
241-C-104	Rh	Sludge	CWZr1 (Solid)	1.11E+01	kg	
241-C-104	Rh	Sludge	NA	1.88E+01	kg	
241-C-104	Rh	Sludge	OWW3 (Solid)	1.27E+01	kg	
241-C-104	Rh	Sludge	TH2 (Solid)	9.90E+00	kg	
241-C-104	Rh	Total		1.21E+02	kg	
241-C-104	Sb	Sludge	CWP1 (Solid)	9.68E+00	kg	
241-C-104	Sb	Sludge	CWP2 (Solid)	6.80E+00	kg	
241-C-104	Sb	Sludge	CWZr1 (Solid)	2.67E+00	kg	
241-C-104	Sb	Sludge	NA	4.51E+00	kg	
241-C-104	Sb	Sludge	OWW3 (Solid)	3.06E+00	kg	
241-C-104	Sb	Sludge	TH2 (Solid)	2.38E+00	kg	
241-C-104	Sb	Total		2.91E+01	kg	
241-C-104	Se	Sludge	CWP1 (Solid)	1.61E+01	kg	
241-C-104	Se	Sludge	CWP2 (Solid)	1.13E+01	kg	
241-C-104	Se	Sludge	CWZr1 (Solid)	4.45E+00	kg	
241-C-104	Se	Sludge	NA	7.51E+00	kg	
241-C-104	Se	Sludge	OWW3 (Solid)	5.09E+00	kg	
241-C-104	Se	Sludge	TH2 (Solid)	3.95E+00	kg	
241-C-104	Se	Total		4.84E+01	kg	
241-C-104	Si	Sludge	CWP1 (Solid)	3.38E+03	kg	
241-C-104	Si	Sludge	CWP2 (Solid)	2.38E+03	kg	
241-C-104	Si	Sludge	CWZr1 (Solid)	9.34E+02	kg	
241-C-104	Si	Sludge	NA	1.58E+03	kg	
241-C-104	Si	Sludge	OWW3 (Solid)	1.07E+03	kg	
241-C-104	Si	Sludge	TH2 (Solid)	8.30E+02	kg	
241-C-104	Si	Total		1.02E+04	kg	
241-C-104	SO4	Sludge	CWP1 (Solid)	1.13E+03	kg	
241-C-104	SO4	Sludge	CWP2 (Solid)	7.94E+02	kg	
241-C-104	SO4	Sludge	CWZr1 (Solid)	3.12E+02	kg	
241-C-104	SO4	Sludge	NA	5.27E+02	kg	
241-C-104	SO4	Sludge	OWW3 (Solid)	3.57E+02	kg	
241-C-104	SO4	Sludge	TH2 (Solid)	2.77E+02	kg	
241-C-104	SO4	Total		3.40E+03	kg	
241-C-104	Sr	Sludge	CWP1 (Solid)	2.89E+01	kg	
241-C-104	Sr	Sludge	CWP2 (Solid)	2.03E+01	kg	
241-C-104	Sr	Sludge	CWZr1 (Solid)	7.98E+00	kg	
241-C-104	Sr	Sludge	NA	1.35E+01	kg	
241-C-104	Sr	Sludge	OWW3 (Solid)	9.14E+00	kg	
241-C-104	Sr	Sludge	TH2 (Solid)	7.10E+00	kg	
241-C-104	Sr	Total		8.69E+01	kg	
241-C-104	Ta	Sludge	CWP1 (Solid)	4.74E-01	kg	
241-C-104	Ta	Sludge	CWP2 (Solid)	3.33E-01	kg	
241-C-104	Ta	Sludge	CWZr1 (Solid)	1.31E-01	kg	
241-C-104	Ta	Sludge	NA	2.21E-01	kg	
241-C-104	Ta	Sludge	OWW3 (Solid)	1.50E-01	kg	
241-C-104	Ta	Sludge	TH2 (Solid)	1.16E-01	kg	
241-C-104	Ta	Total		1.43E+00	kg	
241-C-104	Th	Sludge	CWP1 (Solid)	1.20E+04	kg	
241-C-104	Th	Sludge	CWP2 (Solid)	8.43E+03	kg	
241-C-104	Th	Sludge	CWZr1 (Solid)	3.31E+03	kg	
241-C-104	Th	Sludge	NA	5.59E+03	kg	
241-C-104	Th	Sludge	OWW3 (Solid)	3.79E+03	kg	
241-C-104	Th	Sludge	TH2 (Solid)	2.94E+03	kg	
241-C-104	Th	Total		3.61E+04	kg	
241-C-104	Ti	Sludge	CWP1 (Solid)	3.24E+01	kg	
241-C-104	Ti	Sludge	CWP2 (Solid)	2.28E+01	kg	
241-C-104	Ti	Sludge	CWZr1 (Solid)	8.94E+00	kg	
241-C-104	Ti	Sludge	NA	1.51E+01	kg	
241-C-104	Ti	Sludge	OWW3 (Solid)	1.02E+01	kg	
241-C-104	Ti	Sludge	TH2 (Solid)	7.95E+00	kg	
241-C-104	Ti	Total		9.74E+01	kg	
241-C-104	TIC as CO	Sludge	CWP1 (Solid)	1.60E+04	kg	
241-C-104	TIC as CO	Sludge	CWP2 (Solid)	1.13E+04	kg	
241-C-104	TIC as CO	Sludge	CWZr1 (Solid)	4.43E+03	kg	
241-C-104	TIC as CO	Sludge	NA	7.48E+03	kg	
241-C-104	TIC as CO	Sludge	OWW3 (Solid)	5.07E+03	kg	
241-C-104	TIC as CO	Sludge	TH2 (Solid)	3.94E+03	kg	
241-C-104	TIC as CO	Total		4.82E+04	kg	

CALCULATION SHEET

BY: E. Berrios
DATE: 12/05/05

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-46

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-C-104	Tl	Sludge	CWP1 (Solid)	3.22E+01	kg	
241-C-104	Tl	Sludge	CWP2 (Solid)	2.27E+01	kg	
241-C-104	Tl	Sludge	CWZr1 (Solid)	8.90E+00	kg	
241-C-104	Tl	Sludge	NA	1.50E+01	kg	
241-C-104	Tl	Sludge	OWW3 (Solid)	1.02E+01	kg	
241-C-104	Tl	Sludge	TH2 (Solid)	7.91E+00	kg	
241-C-104	Tl	Total		9.69E+01	kg	
241-C-104	TOC	Sludge	CWP1 (Solid)	4.68E+03	kg	
241-C-104	TOC	Sludge	CWP2 (Solid)	3.29E+03	kg	
241-C-104	TOC	Sludge	CWZr1 (Solid)	1.29E+03	kg	
241-C-104	TOC	Sludge	NA	2.18E+03	kg	
241-C-104	TOC	Sludge	OWW3 (Solid)	1.48E+03	kg	
241-C-104	TOC	Sludge	TH2 (Solid)	1.15E+03	kg	
241-C-104	TOC	Total		1.41E+04	kg	
241-C-104	UTOTAL	Sludge	CWP1 (Solid)	9.53E+03	kg	
241-C-104	UTOTAL	Sludge	CWP2 (Solid)	6.70E+03	kg	
241-C-104	UTOTAL	Sludge	CWZr1 (Solid)	2.63E+03	kg	
241-C-104	UTOTAL	Sludge	NA	4.44E+03	kg	
241-C-104	UTOTAL	Sludge	OWW3 (Solid)	3.01E+03	kg	
241-C-104	UTOTAL	Sludge	TH2 (Solid)	2.34E+03	kg	
241-C-104	UTOTAL	Total		2.87E+04	kg	
241-C-104	V	Sludge	CWP1 (Solid)	9.00E+00	kg	
241-C-104	V	Sludge	CWP2 (Solid)	6.32E+00	kg	
241-C-104	V	Sludge	CWZr1 (Solid)	2.48E+00	kg	
241-C-104	V	Sludge	NA	4.19E+00	kg	
241-C-104	V	Sludge	OWW3 (Solid)	2.84E+00	kg	
241-C-104	V	Sludge	TH2 (Solid)	2.21E+00	kg	
241-C-104	V	Total		2.70E+01	kg	
241-C-104	Y	Sludge	CWP1 (Solid)	7.85E+00	kg	
241-C-104	Y	Sludge	CWP2 (Solid)	5.51E+00	kg	
241-C-104	Y	Sludge	CWZr1 (Solid)	2.17E+00	kg	
241-C-104	Y	Sludge	NA	3.66E+00	kg	
241-C-104	Y	Sludge	OWW3 (Solid)	2.48E+00	kg	
241-C-104	Y	Sludge	TH2 (Solid)	1 93E+00	kg	
241-C-104	Y	Total		2.36E+01	kg	
241-C-104	Zn	Sludge	CWP1 (Solid)	2.01E+02	kg	
241-C-104	Zn	Sludge	CWP2 (Solid)	1.41E+02	kg	
241-C-104	Zn	Sludge	CWZr1 (Solid)	5.55E+01	kg	
241-C-104	Zn	Sludge	NA	9.38E+01	kg	
241-C-104	Zn	Sludge	OWW3 (Solid)	6.35E+01	kg	
241-C-104	Zn	Sludge	TH2 (Solid)	4.93E+01	kg	
241-C-104	Zn	Total		6.05E+02	kg	
241-C-104	Zr	Sludge	CWP1 (Solid)	2.15E+04	kg	
241-C-104	Zr	Sludge	CWP2 (Solid)	1.51E+04	kg	
241-C-104	Zr	Sludge	CWZr1 (Solid)	5.92E+03	kg	
241-C-104	Zr	Sludge	NA	1.00E+04	kg	
241-C-104	Zr	Sludge	OWW3 (Solid)	6.78E+03	kg	
241-C-104	Zr	Sludge	TH2 (Solid)	5.27E+03	kg	
241-C-104	Zr	Total		6.45E+04	kg	

241-C-106	106Ru	Sludge	NA	4.52E-05	Ci	Summary	
241-C-106	106Ru	Supernatant	NA	0.00E+00	Ci	106Ru	4.52E-05 Ci
241-C-106	106Ru	Total		4.52E-05	Ci	113mCd	4.68E+00 Ci
241-C-106	113mCd	Sludge	NA	4.68E+00	Ci	125Sb	2.02E-01 Ci
241-C-106	113mCd	Supernatant	NA	0.00E+00	Ci	126Sn	1.62E+00 Ci
241-C-106	113mCd	Total		4.68E+00	Ci	129I	6.30E-04 Ci
241-C-106	125Sb	Sludge	NA	2.02E-01	Ci	134Cs	3.28E-03 Ci
241-C-106	125Sb	Supernatant	NA	2.14E-04	Ci	137Cs	1.45E+03 Ci
241-C-106	125Sb	Total		2.02E-01	Ci	137mBa	1.37E+03 Ci
241-C-106	126Sn	Supernatant	NA	0.00E+00	Ci	14C	8.22E-03 Ci
241-C-106	126Sn	Sludge	NA	1.62E+00	Ci	151Sm	8.85E+03 Ci
241-C-106	126Sn	Total		1.62E+00	Ci	152Eu	4.57E+00 Ci
241-C-106	129I	Sludge	NA	6.30E-04	Ci	154Eu	8.18E+01 Ci
241-C-106	129I	Supernatant	NA	4.28E-07	Ci	155Eu	7.90E+01 Ci
241-C-106	129I	Total		6.31E-04	Ci	226Ra	5.16E-04 Ci
241-C-106	134Cs	Sludge	NA	3.28E-03	Ci	227Ac	2.55E-03 Ci
241-C-106	134Cs	Supernatant	NA	3.32E-05	Ci	228Ra	3.24E-03 Ci

CALCULATION SHEET

BY: E. Berrios
DATE: 12/05/05

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-47

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-C-106	134Cs	Total		3.31E-03	Ci
241-C-106	137Cs	Sludge	NA	1.45E+03	Ci
241-C-106	137Cs	Supernatant	NA	1.40E-01	Ci
241-C-106	137Cs	Total		1.45E+03	Ci
241-C-106	137mBa	Sludge	NA	1.37E+03	Ci
241-C-106	137mBa	Supernatant	NA	1.32E-01	Ci
241-C-106	137mBa	Total		1.37E+03	Ci
241-C-106	14C	Sludge	NA	8.22E-03	Ci
241-C-106	14C	Supernatant	NA	9.69E-07	Ci
241-C-106	14C	Total		8.23E-03	Ci
241-C-106	151Sm	Supernatant	NA	0.00E+00	Ci
241-C-106	151Sm	Sludge	NA	8.85E+03	Ci
241-C-106	151Sm	Total		8.85E+03	Ci
241-C-106	152Eu	Sludge	NA	4.57E+00	Ci
241-C-106	152Eu	Supernatant	NA	7.27E-05	Ci
241-C-106	152Eu	Total		4.57E+00	Ci
241-C-106	154Eu	Sludge	NA	8.18E+01	Ci
241-C-106	154Eu	Supernatant	NA	2.47E-05	Ci
241-C-106	154Eu	Total		8.18E+01	Ci
241-C-106	155Eu	Sludge	NA	7.90E+01	Ci
241-C-106	155Eu	Supernatant	NA	5.38E-05	Ci
241-C-106	155Eu	Total		7.90E+01	Ci
241-C-106	226Ra	Sludge	NA	5.16E-04	Ci
241-C-106	226Ra	Supernatant	NA	8.77E-04	Ci
241-C-106	226Ra	Total		1.39E-03	Ci
241-C-106	227Ac	Sludge	NA	2.55E-03	Ci
241-C-106	227Ac	Supernatant	NA	0.00E+00	Ci
241-C-106	227Ac	Total		2.55E-03	Ci
241-C-106	228Ac	Sludge	NA	7.77E+01	Ci
241-C-106	228Ac	Supernatant	NA	3.70E-05	Ci
241-C-106	228Ac	Total		7.77E+01	Ci
241-C-106	228Ra	Sludge	NA	3.24E-03	Ci
241-C-106	228Ra	Supernatant	NA	7.60E-12	Ci
241-C-106	228Ra	Total		3.24E-03	Ci
241-C-106	228Th	Supernatant	NA	2.28E-09	Ci
241-C-106	228Th	Sludge	NA	5.75E-04	Ci
241-C-106	228Th	Total		5.75E-04	Ci
241-C-106	229Th	Sludge	NA	1.91E-05	Ci
241-C-106	229Th	Supernatant	NA	0.00E+00	Ci
241-C-106	229Th	Total		1.91E-05	Ci
241-C-106	230Th	Supernatant	NA	4.64E-08	Ci
241-C-106	230Th	Supernatant	NA	4.64E-08	Ci
241-C-106	230Th	Sludge	NA	9.56E-04	Ci
241-C-106	230Th	Sludge	NA	9.56E-04	Ci
241-C-106	230Th	Total		4.89E-05	kg
241-C-106	231Pa	Supernatant	NA	0.00E+00	Ci
241-C-106	231Pa	Sludge	NA	2.53E-03	Ci
241-C-106	231Pa	Total		2.53E-03	Ci
241-C-106	232Th	Sludge	NA	5.60E-04	Ci
241-C-106	232Th	Supernatant	NA	1.11E-11	Ci
241-C-106	232Th	Total		5.60E-04	Ci
241-C-106	232U	Sludge	NA	5.72E-04	Ci
241-C-106	232U	Supernatant	NA	0.00E+00	Ci
241-C-106	232U	Total		5.72E-04	Ci
241-C-106	233U	Supernatant	NA	5.39E-08	Ci
241-C-106	233U	Sludge	NA	1.83E-03	Ci
241-C-106	233U	Total		1.83E-03	Ci
241-C-106	234U	Sludge	NA	9.40E-04	Ci
241-C-106	234U	Supernatant	NA	9.85E-08	Ci
241-C-106	234U	Total		9.41E-04	Ci
241-C-106	235U	Sludge	NA	3.86E-05	Ci
241-C-106	235U	Supernatant	NA	4.04E-09	Ci
241-C-106	235U	Total		3.86E-05	Ci
241-C-106	236U	Sludge	NA	1.73E-05	Ci
241-C-106	236U	Supernatant	NA	1.67E-09	Ci
241-C-106	236U	Total		1.73E-05	Ci
241-C-106	237Np	Sludge	NA	5.41E-02	Ci
241-C-106	237Np	Supernatant	NA	5.99E-08	Ci
241-C-106	237Np	Total		5.41E-02	Ci

Summary	
229Th	1.91E-05 Ci
231Pa	2.53E-03 Ci
232Th	5.60E-04 Ci
232U	5.72E-04 Ci
233U	1.83E-03 Ci
234U	9.40E-04 Ci
235U	3.86E-05 Ci
236U	1.73E-05 Ci
237Np	5.41E-02 Ci
238Pu	2.70E+00 Ci
238U	9.02E-04 Ci
239Pu	1.67E+01 Ci
240Pu	3.57E+00 Ci
241Am	6.52E+01 Ci
241Pu	3.98E+01 Ci
242Cm	1.57E-01 Ci
242Pu	4.16E-04 Ci
243Am	3.06E-03 Ci
243Cm	3.02E-01 Ci
244Cm	7.26E+00 Ci
3H	1.02E-02 Ci
59Ni	1.05E+01 Ci
60Co	1.82E+01 Ci
63Ni	7.29E+01 Ci
79Se	9.57E-03 Ci
90Sr	6.61E+04 Ci
90Y	6.61E+04 Ci
93mNb	9.82E+00 Ci
93Zr	1.04E+01 Ci
99Tc	1.65E-01 Ci

CALCULATION SHEET

PROJECT. RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-48

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary	
241-C-106	238Pu	Sludge	NA	2.70E+00	Ci		
241-C-106	238Pu	Supernatant	NA	2.10E-07	Ci		
241-C-106	238Pu	Total		2.70E+00	Ci		
241-C-106	238U	Supernatant	NA	9.49E-08	Ci		
241-C-106	238U	Sludge	NA	9.02E-04	Ci		
241-C-106	238U	Total		9.02E-04	Ci		
241-C-106	239Pu	Sludge	NA	1.67E+01	Ci		
241-C-106	239Pu	Supernatant	NA	1.31E-06	Ci		
241-C-106	239Pu	Total		1.67E+01	Ci		
241-C-106	240Pu	Sludge	NA	3.57E+00	Ci		
241-C-106	240Pu	Supernatant	NA	2.79E-07	Ci		
241-C-106	240Pu	Total		3.57E+00	Ci		
241-C-106	241Am	Sludge	NA	6.52E+01	Ci		
241-C-106	241Am	Supernatant	NA	1.35E-06	Ci		
241-C-106	241Am	Total		6.52E+01	Ci		
241-C-106	241Pu	Sludge	NA	3.98E+01	Ci		
241-C-106	241Pu	Supernatant	NA	3.10E-06	Ci		
241-C-106	241Pu	Total		3.98E+01	Ci		
241-C-106	242Cm	Sludge	NA	1.57E-01	Ci		
241-C-106	242Cm	Supernatant	NA	3.26E-09	Ci		
241-C-106	242Cm	Total		1.57E-01	Ci		
241-C-106	242Pu	Sludge	NA	4.16E-04	Ci		
241-C-106	242Pu	Supernatant	NA	3.24E-11	Ci		
241-C-106	242Pu	Total		4.16E-04	Ci		
241-C-106	243Am	Sludge	NA	3.06E-03	Ci		
241-C-106	243Am	Supernatant	NA	6.32E-11	Ci		
241-C-106	243Am	Total		3.06E-03	Ci		
241-C-106	243Cm	Sludge	NA	3.02E-01	Ci		
241-C-106	243Cm	Supernatant	NA	5.41E-08	Ci		
241-C-106	243Cm	Total		3.02E-01	Ci		
241-C-106	244Cm	Sludge	NA	7.26E+00	Ci		
241-C-106	244Cm	Supernatant	NA	1.30E-06	Ci		
241-C-106	244Cm	Total		7.26E+00	Ci		
241-C-106	3H	Supernatant	NA	1.10E-06	Ci		
241-C-106	3H	Sludge	NA	1.02E-02	Ci		
241-C-106	3H	Total		1.02E-02	Ci		
241-C-106	59Ni	Sludge	NA	1.05E+01	Ci		
241-C-106	59Ni	Supernatant	NA	0.00E+00	Ci		
241-C-106	59Ni	Total		1.05E+01	Ci		
241-C-106	60Co	Sludge	NA	1.82E+01	Ci		
241-C-106	60Co	Supernatant	NA	8.41E-06	Ci		
241-C-106	60Co	Total		1.82E+01	Ci		
241-C-106	63Ni	Sludge	NA	7.29E+01	Ci		
241-C-106	63Ni	Supernatant	NA	2.33E-06	Ci		
241-C-106	63Ni	Total		7.29E+01	Ci		
241-C-106	79Se	Sludge	NA	9.57E-03	Ci		
241-C-106	79Se	Supernatant	NA	1.02E-06	Ci		
241-C-106	79Se	Total		9.57E-03	Ci		
241-C-106	90Sr	Sludge	NA	6.61E+04	Ci		
241-C-106	90Sr	Supernatant	NA	1.42E-02	Ci		
241-C-106	90Sr	Total		6.61E+04	Ci		
241-C-106	90Y	Sludge	NA	6.61E+04	Ci		
241-C-106	90Y	Supernatant	NA	1.42E-02	Ci		
241-C-106	90Y	Total		6.61E+04	Ci		
241-C-106	93mNb	Sludge	NA	9.82E+00	Ci		
241-C-106	93mNb	Supernatant	NA	0.00E+00	Ci		
241-C-106	93mNb	Total		9.82E+00	Ci		
241-C-106	93Zr	Sludge	NA	1.04E+01	Ci		
241-C-106	93Zr	Supernatant	NA	0.00E+00	Ci		
241-C-106	93Zr	Total		1.04E+01	Ci		
241-C-106	99Tc	Sludge	NA	1.65E-01	Ci		
241-C-106	99Tc	Supernatant	NA	3.44E-06	Ci		
241-C-106	99Tc	Total		1.65E-01	Ci		
241-C-106	Ag	Sludge	NA	7.84E+00	kg	Summary	
241-C-106	Ag	Supernatant	NA	3.09E-05	kg	Ag	7.84E+00 kg
241-C-106	Ag	Total		7.84E+00	kg	Al	3.82E+02 kg
241-C-106	Al	Sludge	NA	3.82E+02	kg	As	0.00E+00 kg
241-C-106	Al	Supernatant	NA	3.02E-02	kg	B	1.19E+00 kg
241-C-106	Al	Total		3.82E+02	kg	Ba	1.64E+00 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-49

BY. E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-C-106	As	Supernatant	NA	2.92E-04	kg
241-C-106	As	Total		2.92E-04	kg
241-C-106	B	Sludge	NA	1.19E+00	kg
241-C-106	B	Supernatant	NA	2.17E-04	kg
241-C-106	B	Total		1.19E+00	kg
241-C-106	Ba	Sludge	NA	1.64E+00	kg
241-C-106	Ba	Supernatant	NA	1.16E-05	kg
241-C-106	Ba	Total		1.64E+00	kg
241-C-106	Be	Sludge	NA	5.65E-02	kg
241-C-106	Be	Supernatant	NA	9.02E-06	kg
241-C-106	Be	Total		5.65E-02	kg
241-C-106	Bi	Sludge	NA	2.94E+00	kg
241-C-106	Bi	Supernatant	NA	5.54E-04	kg
241-C-106	Bi	Total		2.94E+00	kg
241-C-106	Br	Supernatant	NA	1.88E-02	kg
241-C-106	Br	Total		1.88E-02	kg
241-C-106	Ca	Sludge	NA	1.18E+02	kg
241-C-106	Ca	Supernatant	NA	1.11E-04	kg
241-C-106	Ca	Total		1.18E+02	kg
241-C-106	Cd	Supernatant	NA	3.09E-05	kg
241-C-106	Cd	Sludge	NA	1.44E+00	kg
241-C-106	Cd	Total		1.44E+00	kg
241-C-106	Ce	Sludge	NA	5.70E+00	kg
241-C-106	Ce	Supernatant	NA	2.83E-04	kg
241-C-106	Ce	Total		5.70E+00	kg
241-C-106	Cl	Sludge	NA	6.13E+00	kg
241-C-106	Cl	Supernatant	NA	5.67E-03	kg
241-C-106	Cl	Total		6.14E+00	kg
241-C-106	CN	Sludge	NA	7.80E-02	kg
241-C-106	CN	Supernatant	NA	3.06E-05	kg
241-C-106	CN	Total		7.80E-02	kg
241-C-106	Co	Sludge	NA	3.75E-01	kg
241-C-106	Co	Supernatant	NA	6.31E-05	kg
241-C-106	Co	Total		3.75E-01	kg
241-C-106	Cr	Sludge	NA	3.78E+00	kg
241-C-106	Cr	Supernatant	NA	2.58E-05	kg
241-C-106	Cr	Total		3.78E+00	kg
241-C-106	Cu	Sludge	NA	2.31E+00	kg
241-C-106	Cu	Supernatant	NA	2.58E-05	kg
241-C-106	Cu	Total		2.31E+00	kg
241-C-106	Eu	Sludge	NA	6.21E-01	kg
241-C-106	Eu	Supernatant	NA	1.55E-05	kg
241-C-106	Eu	Total		6.21E-01	kg
241-C-106	F	Sludge	NA	5.41E-01	kg
241-C-106	F	Supernatant	NA	1.94E-03	kg
241-C-106	F	Total		5.43E-01	kg
241-C-106	Fe	Sludge	NA	2.07E+02	kg
241-C-106	Fe	Supernatant	NA	2.96E-05	kg
241-C-106	Fe	Total		2.07E+02	kg
241-C-106	Free OH	Supernatant	NA	2.26E+00	kg
241-C-106	Free OH	Total		2.26E+00	kg
241-C-106	Hg	Sludge	NA	1.93E+00	kg
241-C-106	Hg	Supernatant	NA	9.71E-07	kg
241-C-106	Hg	Total		1.93E+00	kg
241-C-106	K	Sludge	NA	1.77E+01	kg
241-C-106	K	Supernatant	NA	4.51E-03	kg
241-C-106	K	Total		1.77E+01	kg
241-C-106	La	Sludge	NA	2.44E+00	kg
241-C-106	La	Supernatant	NA	3.22E-05	kg
241-C-106	La	Total		2.44E+00	kg
241-C-106	Li	Sludge	NA	1.13E-01	kg
241-C-106	Li	Supernatant	NA	1.80E-05	kg
241-C-106	Li	Total		1.13E-01	kg
241-C-106	Mg	Sludge	NA	7.10E+00	kg
241-C-106	Mg	Supernatant	NA	3.35E-04	kg
241-C-106	Mg	Total		7.10E+00	kg
241-C-106	Mn	Sludge	NA	5.49E+02	kg
241-C-106	Mn	Supernatant	NA	1.32E-05	kg
241-C-106	Mn	Total		5.49E+02	kg

Summary		
Be	5.65E-02	kg
Bi	2.94E+00	kg
Ca	1.18E+02	kg
Cd	1.44E+00	kg
Ce	5.70E+00	kg
Cl	6.13E+00	kg
CN	7.80E-02	kg
Co	3.75E-01	kg
Cr	3.78E+00	kg
Cu	2.31E+00	kg
F	5.41E-01	kg
Fe	2.07E+02	kg
OH	0.00E+00	kg
Hg	1.93E+00	kg
K	1.77E+01	kg
La	2.44E+00	kg
Li	1.13E-01	kg
Mg	7.10E+00	kg
Mn	5.49E+02	kg
Mo	3.05E-01	kg
Na	1.85E+02	kg
Nd	9.00E+00	kg
NH3	9.10E-01	kg
Ni	3.02E+01	kg
NO2	4.14E+01	kg
NO3	3.48E+01	kg
Oxalate	3.32E+02	kg
Pb	2.56E+01	kg
Pd	1.15E+00	kg
PO4	9.00E+01	kg
Pr	5.39E+00	kg
Rb	2.69E-01	kg
Rh	2.45E+00	kg
Ru	2.40E+00	kg
Sb	2.95E-01	kg
Se	6.24E-02	kg
Si	1.60E+01	kg
SO4	3.90E+00	kg
Sr	1.83E+00	kg
Ta	2.60E-01	kg
Te	2.40E+00	kg
Th	5.09E+00	kg
Ti	3.85E-01	kg
TIC as CO3	7.58E+01	kg
Tl	3.68E-01	kg
TOC	9.06E+01	kg
UTOTAL	2.70E+00	kg
V	2.94E-01	kg
W	0.00E+00	kg
Y	1.69E+00	kg
Zn	2.13E+00	kg
Zr	2.79E+00	kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-50

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-C-106	Mo	Sludge	NA	3.05E-01	kg	
241-C-106	Mo	Supernatant	NA	4.51E-05	kg	
241-C-106	Mo	Total		3.05E-01	kg	
241-C-106	Na	Sludge	NA	1.85E+02	kg	
241-C-106	Na	Supernatant	NA	3.15E+00	kg	
241-C-106	Na	Total		1.88E+02	kg	
241-C-106	Nb	Sludge	NA	4.23E+00	kg	
241-C-106	Nb	Supernatant	NA	6.44E-04	kg	
241-C-106	Nb	Total		4.23E+00	kg	
241-C-106	Nd	Sludge	NA	9.00E+00	kg	
241-C-106	Nd	Supernatant	NA	1.29E-04	kg	
241-C-106	Nd	Total		9.00E+00	kg	
241-C-106	NH3	Sludge	NA	9.10E-01	kg	
241-C-106	NH3	Supernatant	NA	2.99E-03	kg	
241-C-106	NH3	Total		9.13E-01	kg	
241-C-106	Ni	Sludge	NA	3.02E+01	kg	
241-C-106	Ni	Supernatant	NA	7.34E-05	kg	
241-C-106	Ni	Total		3.02E+01	kg	
241-C-106	NO2	Sludge	NA	4.14E+01	kg	
241-C-106	NO2	Supernatant	NA	1.75E-02	kg	
241-C-106	NO2	Total		4.14E+01	kg	
241-C-106	NO3	Sludge	NA	3.48E+01	kg	
241-C-106	NO3	Supernatant	NA	1.94E-02	kg	
241-C-106	NO3	Total		3.48E+01	kg	
241-C-106	Oxalate	Sludge	NA	3.32E+02	kg	
241-C-106	Oxalate	Supernatant	NA	3.94E-01	kg	
241-C-106	Oxalate	Total		3.32E+02	kg	
241-C-106	Pb	Sludge	NA	2.56E+01	kg	
241-C-106	Pb	Supernatant	NA	3.35E-04	kg	
241-C-106	Pb	Total		2.56E+01	kg	
241-C-106	Pd	Sludge	NA	1.15E+00	kg	
241-C-106	Pd	Supernatant	NA	9.92E-04	kg	
241-C-106	Pd	Total		1.15E+00	kg	
241-C-106	PO4	Sludge	NA	9.00E+01	kg	
241-C-106	PO4	Supernatant	NA	3.37E-02	kg	
241-C-106	PO4	Total		9.00E+01	kg	
241-C-106	Pr	Sludge	NA	5.39E+00	kg	
241-C-106	Pr	Supernatant	NA	1.80E-04	kg	
241-C-106	Pr	Total		5.39E+00	kg	
241-C-106	Rb	Sludge	NA	2.69E-01	kg	
241-C-106	Rb	Supernatant	NA	7.21E-03	kg	
241-C-106	Rb	Total		2.76E-01	kg	
241-C-106	Rh	Sludge	NA	2.45E+00	kg	
241-C-106	Rh	Supernatant	NA	3.86E-04	kg	
241-C-106	Rh	Total		2.45E+00	kg	
241-C-106	Ru	Sludge	NA	2.40E+00	kg	
241-C-106	Ru	Supernatant	NA	2.30E-04	kg	
241-C-106	Ru	Total		2.40E+00	kg	
241-C-106	Sb	Sludge	NA	2.95E-01	kg	
241-C-106	Sb	Supernatant	NA	2.19E-04	kg	
241-C-106	Sb	Total		2.96E-01	kg	
241-C-106	Se	Sludge	NA	6.24E-02	kg	
241-C-106	Se	Supernatant	NA	4.25E-04	kg	
241-C-106	Se	Total		6.28E-02	kg	
241-C-106	Si	Sludge	NA	1.60E+01	kg	
241-C-106	Si	Supernatant	NA	4.85E-03	kg	
241-C-106	Si	Total		1.60E+01	kg	
241-C-106	Sm	Sludge	NA	2.51E+00	kg	
241-C-106	Sm	Supernatant	NA	1.42E-04	kg	
241-C-106	Sm	Total		2.51E+00	kg	
241-C-106	Sn	Supernatant	NA	9.02E-04	kg	
241-C-106	Sn	Total		9.02E-04	kg	
241-C-106	SO4	Sludge	NA	3.90E+00	kg	
241-C-106	SO4	Supernatant	NA	4.83E-03	kg	
241-C-106	SO4	Total		3.90E+00	kg	
241-C-106	Sr	Sludge	NA	1.83E+00	kg	
241-C-106	Sr	Supernatant	NA	3.03E-06	kg	
241-C-106	Sr	Total		1.83E+00	kg	
241-C-106	Ta	Sludge	NA	2.60E-01	kg	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO. 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-51

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-C-106	Ta	Supernatant	NA	2.70E-04	kg	
241-C-106	Ta	Total		2.60E-01	kg	
241-C-106	Te	Sludge	NA	2.40E+00	kg	
241-C-106	Te	Supernatant	NA	5.54E-04	kg	
241-C-106	Te	Total		2.40E+00	kg	
241-C-106	Th	Sludge	NA	5.09E+00	kg	
241-C-106	Th	Supernatant	NA	1.01E-07	kg	
241-C-106	Th	Total		5.09E+00	kg	
241-C-106	Ti	Sludge	NA	3.85E-01	kg	
241-C-106	Ti	Supernatant	NA	7.73E-06	kg	
241-C-106	Ti	Total		3.85E-01	kg	
241-C-106	TIC as CO	Sludge	NA	7.58E+01	kg	
241-C-106	TIC as CO	Supernatant	NA	0.00E+00	kg	
241-C-106	TIC as CO	Total		7.58E+01	kg	
241-C-106	Tl	Sludge	NA	3.68E-01	kg	
241-C-106	Tl	Supernatant	NA	3.62E-04	kg	
241-C-106	Tl	Total		3.69E-01	kg	
241-C-106	TOC	Sludge	NA	9.06E+01	kg	
241-C-106	TOC	Supernatant	NA	1.07E-01	kg	
241-C-106	TOC	Total		9.07E+01	kg	
241-C-106	UTOTAL	Sludge	NA	2.70E+00	kg	
241-C-106	UTOTAL	Supernatant	NA	2.84E-04	kg	
241-C-106	UTOTAL	Total		2.70E+00	kg	
241-C-106	V	Sludge	NA	2.94E-01	kg	
241-C-106	V	Supernatant	NA	3.35E-05	kg	
241-C-106	V	Total		2.94E-01	kg	
241-C-106	W	Supernatant	NA	1.67E-02	kg	
241-C-106	W	Total		1.67E-02	kg	
241-C-106	Y	Sludge	NA	1.69E+00	kg	
241-C-106	Y	Supernatant	NA	6.44E-06	kg	
241-C-106	Y	Total		1.69E+00	kg	
241-C-106	Zn	Sludge	NA	2.13E+00	kg	
241-C-106	Zn	Supernatant	NA	4.33E-05	kg	
241-C-106	Zn	Total		2.13E+00	kg	
241-C-106	Zr	Sludge	NA	2.79E+00	kg	
241-C-106	Zr	Supernatant	NA	2.06E-05	kg	
241-C-106	Zr	Total		2.79E+00	kg	

241-C-107	106Ru	Sludge	1C (Solid)	4.45E-11	Ci	Summary	
241-C-107	106Ru	Sludge	CWP2 (Solid)	7.42E-09	Ci	106Ru	2.08E-03 Ci
241-C-107	106Ru	Sludge	SRR (Solid)	2.08E-03	Ci	113mCd	3.76E+00 Ci
241-C-107	106Ru	Total		2.08E-03	Ci	125Sb	1.31E+02 Ci
241-C-107	113mCd	Sludge	1C (Solid)	5.23E-02	Ci	126Sn	2.21E-01 Ci
241-C-107	113mCd	Sludge	CWP2 (Solid)	1.41E-01	Ci	129I	7.15E-01 Ci
241-C-107	113mCd	Sludge	SRR (Solid)	3.57E+00	Ci	134Cs	1.62E-01 Ci
241-C-107	113mCd	Total		3.76E+00	Ci	137Cs	5.89E+04 Ci
241-C-107	125Sb	Sludge	1C (Solid)	6.98E-04	Ci	137mBa	5.56E+04 Ci
241-C-107	125Sb	Sludge	CWP2 (Solid)	7.96E-04	Ci	14C	5.56E-01 Ci
241-C-107	125Sb	Sludge	SRR (Solid)	1.31E+02	Ci	151Sm	6.31E+05 Ci
241-C-107	125Sb	Total		1.31E+02	Ci	152Eu	1.37E+02 Ci
241-C-107	126Sn	Sludge	1C (Solid)	4.34E-03	Ci	154Eu	1.25E+03 Ci
241-C-107	126Sn	Sludge	CWP2 (Solid)	1.61E-04	Ci	155Eu	6.49E+02 Ci
241-C-107	126Sn	Sludge	SRR (Solid)	2.16E-01	Ci	226Ra	8.64E-06 Ci
241-C-107	126Sn	Total		2.21E-01	Ci	227Ac	2.86E-03 Ci
241-C-107	129I	Sludge	1C (Solid)	3.88E-01	Ci	228Ra	2.75E-02 Ci
241-C-107	129I	Sludge	CWP2 (Solid)	6.81E-02	Ci	229Th	1.45E-02 Ci
241-C-107	129I	Sludge	SRR (Solid)	2.59E-01	Ci	231Pa	5.32E-04 Ci
241-C-107	129I	Total		7.15E-01	Ci	232Th	7.24E-02 Ci
241-C-107	134Cs	Sludge	1C (Solid)	5.32E-07	Ci	232U	7.61E-02 Ci
241-C-107	134Cs	Sludge	CWP2 (Solid)	4.00E-05	Ci	233U	4.72E+00 Ci
241-C-107	134Cs	Sludge	SRR (Solid)	1.62E-01	Ci	234U	3.12E+00 Ci
241-C-107	134Cs	Total		1.62E-01	Ci	235U	1.34E-01 Ci
241-C-107	137Cs	Sludge	1C (Solid)	3.20E+04	Ci	236U	5.11E-02 Ci
241-C-107	137Cs	Sludge	CWP2 (Solid)	5.61E+03	Ci	237Np	5.28E-02 Ci
241-C-107	137Cs	Sludge	SRR (Solid)	2.14E+04	Ci	238Pu	4.43E+01 Ci
241-C-107	137Cs	Total		5.89E+04	Ci	238U	3.08E+00 Ci
241-C-107	137mBa	Sludge	1C (Solid)	3.02E+04	Ci	239Pu	2.18E+03 Ci

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO : D-52

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary	
241-C-107	137mBa	Sludge	CWP2 (Solid)	5.30E+03	Ci	240Pu	3.55E+02 Ci
241-C-107	137mBa	Sludge	SRR (Solid)	2.02E+04	Ci	241Am	6.69E+03 Ci
241-C-107	137mBa	Total		5.56E+04	Ci	241Pu	1.78E+03 Ci
241-C-107	14C	Sludge	1C (Solid)	2.07E-01	Ci	242Cm	2.62E+00 Ci
241-C-107	14C	Sludge	CWP2 (Solid)	8.62E-02	Ci	242Pu	1.63E-02 Ci
241-C-107	14C	Sludge	SRR (Solid)	2.63E-01	Ci	243Am	1.88E+00 Ci
241-C-107	14C	Total		5.56E-01	Ci	243Cm	1.55E-01 Ci
241-C-107	151Sm	Sludge	1C (Solid)	9.14E+01	Ci	244Cm	3.62E+00 Ci
241-C-107	151Sm	Sludge	CWP2 (Solid)	1.57E+00	Ci	3H	3.14E+00 Ci
241-C-107	151Sm	Sludge	SRR (Solid)	6.31E+05	Ci	59Ni	2.81E+00 Ci
241-C-107	151Sm	Total		6.31E+05	Ci	60Co	1.67E+02 Ci
241-C-107	152Eu	Sludge	1C (Solid)	2.93E-03	Ci	63Ni	2.61E+02 Ci
241-C-107	152Eu	Sludge	CWP2 (Solid)	3.54E-04	Ci	79Se	5.19E-02 Ci
241-C-107	152Eu	Sludge	SRR (Solid)	1.37E+02	Ci	90Sr	2.08E+06 Ci
241-C-107	152Eu	Total		1.37E+02	Ci	90Y	2.08E+06 Ci
241-C-107	154Eu	Sludge	1C (Solid)	1.98E-01	Ci	93mNb	3.72E+00 Ci
241-C-107	154Eu	Sludge	CWP2 (Solid)	2.49E-02	Ci	93Zr	4.50E+00 Ci
241-C-107	154Eu	Sludge	SRR (Solid)	1.25E+03	Ci	99Tc	3.77E+01 Ci
241-C-107	154Eu	Total		1.25E+03	Ci		
241-C-107	155Eu	Sludge	1C (Solid)	8.53E-02	Ci		
241-C-107	155Eu	Sludge	CWP2 (Solid)	1.13E-02	Ci		
241-C-107	155Eu	Sludge	SRR (Solid)	6.49E+02	Ci		
241-C-107	155Eu	Total		6.49E+02	Ci		
241-C-107	226Ra	Sludge	1C (Solid)	5.72E-06	Ci		
241-C-107	226Ra	Sludge	CWP2 (Solid)	1.85E-07	Ci		
241-C-107	226Ra	Sludge	SRR (Solid)	2.74E-06	Ci		
241-C-107	226Ra	Total		8.64E-06	Ci		
241-C-107	227Ac	Sludge	1C (Solid)	4.89E-05	Ci		
241-C-107	227Ac	Sludge	CWP2 (Solid)	2.80E-03	Ci		
241-C-107	227Ac	Sludge	SRR (Solid)	1.38E-05	Ci		
241-C-107	227Ac	Total		2.86E-03	Ci		
241-C-107	228Ra	Sludge	1C (Solid)	1.36E-02	Ci		
241-C-107	228Ra	Sludge	CWP2 (Solid)	2.86E-03	Ci		
241-C-107	228Ra	Sludge	SRR (Solid)	1.11E-02	Ci		
241-C-107	228Ra	Total		2.75E-02	Ci		
241-C-107	229Th	Sludge	1C (Solid)	1.81E-08	Ci		
241-C-107	229Th	Sludge	CWP2 (Solid)	1.45E-02	Ci		
241-C-107	229Th	Sludge	SRR (Solid)	1.63E-08	Ci		
241-C-107	229Th	Total		1.45E-02	Ci		
241-C-107	231Pa	Sludge	1C (Solid)	3.65E-04	Ci		
241-C-107	231Pa	Sludge	CWP2 (Solid)	1.46E-04	Ci		
241-C-107	231Pa	Sludge	SRR (Solid)	2.11E-05	Ci		
241-C-107	231Pa	Total		5.32E-04	Ci		
241-C-107	232Th	Sludge	1C (Solid)	3.93E-02	Ci		
241-C-107	232Th	Sludge	CWP2 (Solid)	6.89E-03	Ci		
241-C-107	232Th	Sludge	SRR (Solid)	2.63E-02	Ci		
241-C-107	232Th	Total		7.24E-02	Ci		
241-C-107	232U	Sludge	1C (Solid)	2.46E-05	Ci		
241-C-107	232U	Sludge	CWP2 (Solid)	7.60E-02	Ci		
241-C-107	232U	Sludge	SRR (Solid)	4.53E-05	Ci		
241-C-107	232U	Total		7.61E-02	Ci		
241-C-107	233U	Sludge	1C (Solid)	2.05E-06	Ci		
241-C-107	233U	Sludge	CWP2 (Solid)	4.72E+00	Ci		
241-C-107	233U	Sludge	SRR (Solid)	1.42E-04	Ci		
241-C-107	233U	Total		4.72E+00	Ci		
241-C-107	234U	Sludge	1C (Solid)	1.98E+00	Ci		
241-C-107	234U	Sludge	CWP2 (Solid)	6.50E-01	Ci		
241-C-107	234U	Sludge	SRR (Solid)	4.93E-01	Ci		
241-C-107	234U	Total		3.12E+00	Ci		
241-C-107	235U	Sludge	1C (Solid)	8.82E-02	Ci		
241-C-107	235U	Sludge	CWP2 (Solid)	2.54E-02	Ci		
241-C-107	235U	Sludge	SRR (Solid)	2.08E-02	Ci		
241-C-107	235U	Total		1.34E-01	Ci		
241-C-107	236U	Sludge	1C (Solid)	2.21E-02	Ci		
241-C-107	236U	Sludge	CWP2 (Solid)	1.60E-02	Ci		
241-C-107	236U	Sludge	SRR (Solid)	1.30E-02	Ci		
241-C-107	236U	Total		5.11E-02	Ci		
241-C-107	237Np	Sludge	1C (Solid)	1.99E-03	Ci		
241-C-107	237Np	Sludge	CWP2 (Solid)	1.08E-04	Ci		

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-53

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-C-107	237Np	Sludge	SRR (Solid)	5.07E-02	Ci	
241-C-107	237Np	Total		5.28E-02	Ci	
241-C-107	238Pu	Sludge	1C (Solid)	8.73E+00	Ci	
241-C-107	238Pu	Sludge	CWP2 (Solid)	4.61E+00	Ci	
241-C-107	238Pu	Sludge	SRR (Solid)	3.09E+01	Ci	
241-C-107	238Pu	Total		4.43E+01	Ci	
241-C-107	238U	Sludge	1C (Solid)	2.01E+00	Ci	
241-C-107	238U	Sludge	CWP2 (Solid)	5.86E-01	Ci	
241-C-107	238U	Sludge	SRR (Solid)	4.80E-01	Ci	
241-C-107	238U	Total		3.08E+00	Ci	
241-C-107	239Pu	Sludge	1C (Solid)	1.24E+03	Ci	
241-C-107	239Pu	Sludge	CWP2 (Solid)	1.95E+02	Ci	
241-C-107	239Pu	Sludge	SRR (Solid)	7.47E+02	Ci	
241-C-107	239Pu	Total		2.18E+03	Ci	
241-C-107	240Pu	Sludge	1C (Solid)	1.35E+02	Ci	
241-C-107	240Pu	Sludge	CWP2 (Solid)	4.62E+01	Ci	
241-C-107	240Pu	Sludge	SRR (Solid)	1.73E+02	Ci	
241-C-107	240Pu	Total		3.55E+02	Ci	
241-C-107	241Am	Sludge	1C (Solid)	3.63E+03	Ci	
241-C-107	241Am	Sludge	CWP2 (Solid)	6.37E+02	Ci	
241-C-107	241Am	Sludge	SRR (Solid)	2.43E+03	Ci	
241-C-107	241Am	Total		6.69E+03	Ci	
241-C-107	241Pu	Sludge	1C (Solid)	2.27E+02	Ci	
241-C-107	241Pu	Sludge	CWP2 (Solid)	2.89E+02	Ci	
241-C-107	241Pu	Sludge	SRR (Solid)	1.27E+03	Ci	
241-C-107	241Pu	Total		1.78E+03	Ci	
241-C-107	242Cm	Sludge	1C (Solid)	6.29E-01	Ci	
241-C-107	242Cm	Sludge	CWP2 (Solid)	2.59E-02	Ci	
241-C-107	242Cm	Sludge	SRR (Solid)	1.97E+00	Ci	
241-C-107	242Cm	Total		2.62E+00	Ci	
241-C-107	242Pu	Sludge	1C (Solid)	1.88E-03	Ci	
241-C-107	242Pu	Sludge	CWP2 (Solid)	2.34E-03	Ci	
241-C-107	242Pu	Sludge	SRR (Solid)	1.21E-02	Ci	
241-C-107	242Pu	Total		1.63E-02	Ci	
241-C-107	243Am	Sludge	1C (Solid)	3.69E-01	Ci	
241-C-107	243Am	Sludge	CWP2 (Solid)	1.68E-02	Ci	
241-C-107	243Am	Sludge	SRR (Solid)	1.49E+00	Ci	
241-C-107	243Am	Total		1.88E+00	Ci	
241-C-107	243Cm	Sludge	1C (Solid)	7.02E-03	Ci	
241-C-107	243Cm	Sludge	CWP2 (Solid)	1.28E-03	Ci	
241-C-107	243Cm	Sludge	SRR (Solid)	1.47E-01	Ci	
241-C-107	243Cm	Total		1.55E-01	Ci	
241-C-107	244Cm	Sludge	1C (Solid)	1.58E-01	Ci	
241-C-107	244Cm	Sludge	CWP2 (Solid)	3.79E-02	Ci	
241-C-107	244Cm	Sludge	SRR (Solid)	3.42E+00	Ci	
241-C-107	244Cm	Total		3.62E+00	Ci	
241-C-107	3H	Sludge	1C (Solid)	3.39E-01	Ci	
241-C-107	3H	Sludge	CWP2 (Solid)	3.53E-01	Ci	
241-C-107	3H	Sludge	SRR (Solid)	2.45E+00	Ci	
241-C-107	3H	Total		3.14E+00	Ci	
241-C-107	59Ni	Sludge	1C (Solid)	1.12E-02	Ci	
241-C-107	59Ni	Sludge	CWP2 (Solid)	6.31E-01	Ci	
241-C-107	59Ni	Sludge	SRR (Solid)	2.16E+00	Ci	
241-C-107	59Ni	Total		2.81E+00	Ci	
241-C-107	60Co	Sludge	1C (Solid)	7.15E-02	Ci	
241-C-107	60Co	Sludge	CWP2 (Solid)	6.34E-01	Ci	
241-C-107	60Co	Sludge	SRR (Solid)	1.67E+02	Ci	
241-C-107	60Co	Total		1.67E+02	Ci	
241-C-107	63Ni	Sludge	1C (Solid)	1.56E+00	Ci	
241-C-107	63Ni	Sludge	CWP2 (Solid)	5.96E+01	Ci	
241-C-107	63Ni	Sludge	SRR (Solid)	2.00E+02	Ci	
241-C-107	63Ni	Total		2.61E+02	Ci	
241-C-107	79Se	Sludge	1C (Solid)	1.15E-03	Ci	
241-C-107	79Se	Sludge	CWP2 (Solid)	3.89E-05	Ci	
241-C-107	79Se	Sludge	SRR (Solid)	5.07E-02	Ci	
241-C-107	79Se	Total		5.19E-02	Ci	
241-C-107	90Sr	Sludge	1C (Solid)	3.40E+05	Ci	
241-C-107	90Sr	Sludge	CWP2 (Solid)	5.97E+04	Ci	
241-C-107	90Sr	Sludge	SRR (Solid)	1.68E+06	Ci	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-54

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-C-107	90Sr	Total		2.08E+06	Ci
241-C-107	90Y	Sludge	1C (Solid)	3.40E+05	Ci
241-C-107	90Y	Sludge	CWP2 (Solid)	5.97E+04	Ci
241-C-107	90Y	Sludge	SRR (Solid)	1.68E+06	Ci
241-C-107	90Y	Total		2.08E+06	Ci
241-C-107	93mNb	Sludge	1C (Solid)	1.33E+00	Ci
241-C-107	93mNb	Sludge	CWP2 (Solid)	1.82E-03	Ci
241-C-107	93mNb	Sludge	SRR (Solid)	2.39E+00	Ci
241-C-107	93mNb	Total		3.72E+00	Ci
241-C-107	93Zr	Sludge	1C (Solid)	1.47E+00	Ci
241-C-107	93Zr	Sludge	CWP2 (Solid)	2.24E-03	Ci
241-C-107	93Zr	Sludge	SRR (Solid)	3.02E+00	Ci
241-C-107	93Zr	Total		4.50E+00	Ci
241-C-107	99Tc	Sludge	1C (Solid)	2.04E+01	Ci
241-C-107	99Tc	Sludge	CWP2 (Solid)	3.59E+00	Ci
241-C-107	99Tc	Sludge	SRR (Solid)	1.37E+01	Ci
241-C-107	99Tc	Total		3.77E+01	Ci
241-C-107	Ag	Sludge	1C (Solid)	7.77E+01	kg
241-C-107	Ag	Sludge	CWP2 (Solid)	2.61E+01	kg
241-C-107	Ag	Sludge	SRR (Solid)	1.89E+02	kg
241-C-107	Ag	Total		2.93E+02	kg
241-C-107	Al	Sludge	1C (Solid)	1.89E+04	kg
241-C-107	Al	Sludge	CWP2 (Solid)	1.64E+04	kg
241-C-107	Al	Sludge	SRR (Solid)	2.29E+04	kg
241-C-107	Al	Total		5.83E+04	kg
241-C-107	As	Sludge	1C (Solid)	5.37E+00	kg
241-C-107	As	Sludge	CWP2 (Solid)	9.42E-01	kg
241-C-107	As	Sludge	SRR (Solid)	3.59E+00	kg
241-C-107	As	Total		9.90E+00	kg
241-C-107	B	Sludge	1C (Solid)	5.97E+00	kg
241-C-107	B	Sludge	CWP2 (Solid)	1.05E+00	kg
241-C-107	B	Sludge	SRR (Solid)	3.99E+00	kg
241-C-107	B	Total		1.10E+01	kg
241-C-107	Ba	Sludge	1C (Solid)	2.62E+02	kg
241-C-107	Ba	Sludge	CWP2 (Solid)	1.52E+01	kg
241-C-107	Ba	Sludge	SRR (Solid)	4.49E+02	kg
241-C-107	Ba	Total		7.27E+02	kg
241-C-107	Be	Sludge	1C (Solid)	8.43E-01	kg
241-C-107	Be	Sludge	CWP2 (Solid)	1.48E-01	kg
241-C-107	Be	Sludge	SRR (Solid)	5.64E-01	kg
241-C-107	Be	Total		1.55E+00	kg
241-C-107	Bi	Sludge	1C (Solid)	9.80E+03	kg
241-C-107	Bi	Sludge	CWP2 (Solid)	4.83E+02	kg
241-C-107	Bi	Sludge	SRR (Solid)	5.27E+01	kg
241-C-107	Bi	Total		1.03E+04	kg
241-C-107	Ca	Sludge	1C (Solid)	4.80E+02	kg
241-C-107	Ca	Sludge	CWP2 (Solid)	8.40E+01	kg
241-C-107	Ca	Sludge	SRR (Solid)	6.73E+02	kg
241-C-107	Ca	Total		1.24E+03	kg
241-C-107	Cd	Sludge	1C (Solid)	3.23E+01	kg
241-C-107	Cd	Sludge	CWP2 (Solid)	1.27E+00	kg
241-C-107	Cd	Sludge	SRR (Solid)	6.13E+01	kg
241-C-107	Cd	Total		9.49E+01	kg
241-C-107	Ce	Sludge	1C (Solid)	3.12E+02	kg
241-C-107	Ce	Sludge	CWP2 (Solid)	4.03E+01	kg
241-C-107	Ce	Sludge	SRR (Solid)	4.24E+02	kg
241-C-107	Ce	Total		7.76E+02	kg
241-C-107	Cl	Sludge	1C (Solid)	5.72E+02	kg
241-C-107	Cl	Sludge	CWP2 (Solid)	5.88E+01	kg
241-C-107	Cl	Sludge	SRR (Solid)	2.34E+02	kg
241-C-107	Cl	Total		8.65E+02	kg
241-C-107	CN	Sludge	1C (Solid)	3.30E+00	kg
241-C-107	CN	Sludge	CWP2 (Solid)	5.79E-01	kg
241-C-107	CN	Sludge	SRR (Solid)	2.20E+00	kg
241-C-107	CN	Total		6.08E+00	kg
241-C-107	Co	Sludge	1C (Solid)	1.07E+01	kg
241-C-107	Co	Sludge	CWP2 (Solid)	1.06E+00	kg
241-C-107	Co	Sludge	SRR (Solid)	1.46E+01	kg
241-C-107	Co	Total		2.64E+01	kg

Summary	
Ag	2.93E+02 kg
Al	5.83E+04 kg
As	9.90E+00 kg
B	1.10E+01 kg
Ba	7.27E+02 kg
Be	1.55E+00 kg
Bi	1.03E+04 kg
Ca	1.24E+03 kg
Cd	9.49E+01 kg
Ce	7.76E+02 kg
Cl	8.65E+02 kg
CN	6.08E+00 kg
Co	2.64E+01 kg
Cr	9.26E+02 kg
Cu	2.27E+02 kg
F	6.34E+03 kg
Fe	1.02E+05 kg
OH	0.00E+00 kg
Hg	6.66E+01 kg
K	4.27E+02 kg
La	2.69E+02 kg
Li	1.65E+02 kg
Mg	4.75E+02 kg
Mn	5.01E+03 kg
Mo	4.56E+01 kg
Na	9.47E+04 kg
Nd	6.31E+02 kg
NH3	0.00E+00 kg
Ni	3.08E+03 kg
NO2	3.51E+04 kg
NO3	4.75E+04 kg
Oxalate	3.65E+02 kg
Pb	1.01E+04 kg
Pd	0.00E+00 kg
PO4	5.84E+04 kg
Pr	2.07E+02 kg
Rb	8.39E-01 kg
Rh	4.33E+01 kg
Ru	9.46E+02 kg
Sb	2.39E+00 kg
Se	4.99E+00 kg
Si	1.86E+03 kg
SO4	8.38E+03 kg
Sr	2.56E+02 kg
Ta	8.43E-01 kg
Te	1.79E+02 kg
Th	6.58E+02 kg
Ti	1.23E+02 kg
TIC as CO3	1.14E+04 kg
Tl	5.40E+00 kg
TOC	7.32E+02 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-55

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units
241-C-107	Cr	Sludge	1C (Solid)	5.29E+02	kg
241-C-107	Cr	Sludge	CWP2 (Solid)	3.61E+01	kg
241-C-107	Cr	Sludge	SRR (Solid)	3.61E+02	kg
241-C-107	Cr	Total		9.26E+02	kg
241-C-107	Cu	Sludge	1C (Solid)	8.36E+01	kg
241-C-107	Cu	Sludge	CWP2 (Solid)	1.74E+01	kg
241-C-107	Cu	Sludge	SRR (Solid)	1.27E+02	kg
241-C-107	Cu	Total		2.27E+02	kg
241-C-107	F	Sludge	1C (Solid)	5.77E+03	kg
241-C-107	F	Sludge	CWP2 (Solid)	2.49E+02	kg
241-C-107	F	Sludge	SRR (Solid)	3.19E+02	kg
241-C-107	F	Total		6.34E+03	kg
241-C-107	Fe	Sludge	1C (Solid)	4.17E+04	kg
241-C-107	Fe	Sludge	CWP2 (Solid)	2.83E+03	kg
241-C-107	Fe	Sludge	SRR (Solid)	5.79E+04	kg
241-C-107	Fe	Total		1.02E+05	kg
241-C-107	Hg	Sludge	1C (Solid)	3.61E+01	kg
241-C-107	Hg	Sludge	CWP2 (Solid)	6.34E+00	kg
241-C-107	Hg	Sludge	SRR (Solid)	2.41E+01	kg
241-C-107	Hg	Total		6.66E+01	kg
241-C-107	K	Sludge	1C (Solid)	2.46E+02	kg
241-C-107	K	Sludge	CWP2 (Solid)	7.90E+00	kg
241-C-107	K	Sludge	SRR (Solid)	1.73E+02	kg
241-C-107	K	Total		4.27E+02	kg
241-C-107	La	Sludge	1C (Solid)	9.87E+01	kg
241-C-107	La	Sludge	CWP2 (Solid)	1.71E+01	kg
241-C-107	La	Sludge	SRR (Solid)	1.53E+02	kg
241-C-107	La	Total		2.69E+02	kg
241-C-107	Li	Sludge	1C (Solid)	1.31E+02	kg
241-C-107	Li	Sludge	CWP2 (Solid)	1.44E+01	kg
241-C-107	Li	Sludge	SRR (Solid)	1.96E+01	kg
241-C-107	Li	Total		1.65E+02	kg
241-C-107	Mg	Sludge	1C (Solid)	2.31E+02	kg
241-C-107	Mg	Sludge	CWP2 (Solid)	3.49E+01	kg
241-C-107	Mg	Sludge	SRR (Solid)	2.08E+02	kg
241-C-107	Mg	Total		4.75E+02	kg
241-C-107	Mn	Sludge	1C (Solid)	1.84E+03	kg
241-C-107	Mn	Sludge	CWP2 (Solid)	2.17E+02	kg
241-C-107	Mn	Sludge	SRR (Solid)	2.95E+03	kg
241-C-107	Mn	Total		5.01E+03	kg
241-C-107	Mo	Sludge	1C (Solid)	2.02E+01	kg
241-C-107	Mo	Sludge	CWP2 (Solid)	2.60E+00	kg
241-C-107	Mo	Sludge	SRR (Solid)	2.28E+01	kg
241-C-107	Mo	Total		4.56E+01	kg
241-C-107	Na	Sludge	1C (Solid)	5.85E+04	kg
241-C-107	Na	Sludge	CWP2 (Solid)	7.88E+03	kg
241-C-107	Na	Sludge	SRR (Solid)	2.83E+04	kg
241-C-107	Na	Total		9.47E+04	kg
241-C-107	Nd	Sludge	1C (Solid)	2.31E+02	kg
241-C-107	Nd	Sludge	CWP2 (Solid)	3.42E+01	kg
241-C-107	Nd	Sludge	SRR (Solid)	3.65E+02	kg
241-C-107	Nd	Total		6.31E+02	kg
241-C-107	Ni	Sludge	1C (Solid)	9.37E+02	kg
241-C-107	Ni	Sludge	CWP2 (Solid)	6.49E+02	kg
241-C-107	Ni	Sludge	SRR (Solid)	1.49E+03	kg
241-C-107	Ni	Total		3.08E+03	kg
241-C-107	NO2	Sludge	1C (Solid)	2.05E+04	kg
241-C-107	NO2	Sludge	CWP2 (Solid)	2.58E+03	kg
241-C-107	NO2	Sludge	SRR (Solid)	1.21E+04	kg
241-C-107	NO2	Total		3.51E+04	kg
241-C-107	NO3	Sludge	1C (Solid)	3.43E+04	kg
241-C-107	NO3	Sludge	CWP2 (Solid)	3.21E+03	kg
241-C-107	NO3	Sludge	SRR (Solid)	1.00E+04	kg
241-C-107	NO3	Total		4.75E+04	kg
241-C-107	Oxalate	Sludge	1C (Solid)	2.01E+02	kg
241-C-107	Oxalate	Sludge	CWP2 (Solid)	2.96E+01	kg
241-C-107	Oxalate	Sludge	SRR (Solid)	1.34E+02	kg
241-C-107	Oxalate	Total		3.65E+02	kg
241-C-107	Pb	Sludge	1C (Solid)	3.45E+03	kg

Summary	
UTOTAL	9.23E+03 kg
V	2.50E+01 kg
W	6.71E+02 kg
Y	9.43E+01 kg
Zn	1.76E+02 kg
Zr	7.37E+01 kg

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.: D-56

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-C-107	Pb	Sludge	CWP2 (Solid)	1.66E+03	kg	
241-C-107	Pb	Sludge	SRR (Solid)	4.96E+03	kg	
241-C-107	Pb	Total		1.01E+04	kg	
241-C-107	PO4	Sludge	1C (Solid)	4.52E+04	kg	
241-C-107	PO4	Sludge	CWP2 (Solid)	8.25E+03	kg	
241-C-107	PO4	Sludge	SRR (Solid)	4.95E+03	kg	
241-C-107	PO4	Total		5.84E+04	kg	
241-C-107	Pr	Sludge	1C (Solid)	1.12E+02	kg	
241-C-107	Pr	Sludge	CWP2 (Solid)	1.97E+01	kg	
241-C-107	Pr	Sludge	SRR (Solid)	7.50E+01	kg	
241-C-107	Pr	Total		2.07E+02	kg	
241-C-107	Rb	Sludge	1C (Solid)	4.55E-01	kg	
241-C-107	Rb	Sludge	CWP2 (Solid)	7.98E-02	kg	
241-C-107	Rb	Sludge	SRR (Solid)	3.04E-01	kg	
241-C-107	Rb	Total		8.39E-01	kg	
241-C-107	Rh	Sludge	1C (Solid)	2.35E+01	kg	
241-C-107	Rh	Sludge	CWP2 (Solid)	4.12E+00	kg	
241-C-107	Rh	Sludge	SRR (Solid)	1.57E+01	kg	
241-C-107	Rh	Total		4.33E+01	kg	
241-C-107	Ru	Sludge	1C (Solid)	5.13E+02	kg	
241-C-107	Ru	Sludge	CWP2 (Solid)	9.00E+01	kg	
241-C-107	Ru	Sludge	SRR (Solid)	3.43E+02	kg	
241-C-107	Ru	Total		9.46E+02	kg	
241-C-107	Sb	Sludge	1C (Solid)	1.30E+00	kg	
241-C-107	Sb	Sludge	CWP2 (Solid)	2.28E-01	kg	
241-C-107	Sb	Sludge	SRR (Solid)	8.68E-01	kg	
241-C-107	Sb	Total		2.39E+00	kg	
241-C-107	Se	Sludge	1C (Solid)	2.70E+00	kg	
241-C-107	Se	Sludge	CWP2 (Solid)	4.75E-01	kg	
241-C-107	Se	Sludge	SRR (Solid)	1.81E+00	kg	
241-C-107	Se	Total		4.99E+00	kg	
241-C-107	Si	Sludge	1C (Solid)	9.78E+02	kg	
241-C-107	Si	Sludge	CWP2 (Solid)	1.22E+02	kg	
241-C-107	Si	Sludge	SRR (Solid)	7.58E+02	kg	
241-C-107	Si	Total		1.86E+03	kg	
241-C-107	SO4	Sludge	1C (Solid)	4.93E+03	kg	
241-C-107	SO4	Sludge	CWP2 (Solid)	5.01E+02	kg	
241-C-107	SO4	Sludge	SRR (Solid)	2.95E+03	kg	
241-C-107	SO4	Total		8.38E+03	kg	
241-C-107	Sr	Sludge	1C (Solid)	1.63E+02	kg	
241-C-107	Sr	Sludge	CWP2 (Solid)	2.42E+01	kg	
241-C-107	Sr	Sludge	SRR (Solid)	6.84E+01	kg	
241-C-107	Sr	Total		2.56E+02	kg	
241-C-107	Ta	Sludge	1C (Solid)	4.57E-01	kg	
241-C-107	Ta	Sludge	CWP2 (Solid)	8.02E-02	kg	
241-C-107	Ta	Sludge	SRR (Solid)	3.05E-01	kg	
241-C-107	Ta	Total		8.43E-01	kg	
241-C-107	Te	Sludge	1C (Solid)	9.68E+01	kg	
241-C-107	Te	Sludge	CWP2 (Solid)	1.70E+01	kg	
241-C-107	Te	Sludge	SRR (Solid)	6.47E+01	kg	
241-C-107	Te	Total		1.79E+02	kg	
241-C-107	Th	Sludge	1C (Solid)	3.57E+02	kg	
241-C-107	Th	Sludge	CWP2 (Solid)	6.26E+01	kg	
241-C-107	Th	Sludge	SRR (Solid)	2.39E+02	kg	
241-C-107	Th	Total		6.58E+02	kg	
241-C-107	Ti	Sludge	1C (Solid)	3.67E+01	kg	
241-C-107	Ti	Sludge	CWP2 (Solid)	1.49E+01	kg	
241-C-107	Ti	Sludge	SRR (Solid)	7.16E+01	kg	
241-C-107	Ti	Total		1.23E+02	kg	
241-C-107	TIC as CO	Sludge	1C (Solid)	6.16E+03	kg	
241-C-107	TIC as CO	Sludge	CWP2 (Solid)	1.08E+03	kg	
241-C-107	TIC as CO	Sludge	SRR (Solid)	4.12E+03	kg	
241-C-107	TIC as CO	Total		1.14E+04	kg	
241-C-107	Tl	Sludge	1C (Solid)	2.93E+00	kg	
241-C-107	Tl	Sludge	CWP2 (Solid)	5.14E-01	kg	
241-C-107	Tl	Sludge	SRR (Solid)	1.96E+00	kg	
241-C-107	Tl	Total		5.40E+00	kg	
241-C-107	TOC	Sludge	1C (Solid)	3.97E+02	kg	
241-C-107	TOC	Sludge	CWP2 (Solid)	6.97E+01	kg	

CALCULATION SHEET

PROJECT: RPP-WTP
JOB NO.: 24590
CALC NO.: 24590-WTP-M4C-FRP-00001
SHEET REV: 0D
SHEET NO.. D-57

BY: E. Berrios
DATE: 12/05/05

SUBJECT: WTP Air Emissions Inorganic and Radionuclide Constituents Feed Vector

Tank Name	Analyte	Waste Phase	Waste Type	Inventory	Units	Summary
241-C-107	TOC	Sludge	SRR (Solid)	2.66E+02	kg	
241-C-107	TOC	Total		7.32E+02	kg	
241-C-107	UTOTAL	Sludge	1C (Solid)	6.03E+03	kg	
241-C-107	UTOTAL	Sludge	CWP2 (Solid)	1.75E+03	kg	
241-C-107	UTOTAL	Sludge	SRR (Solid)	1.44E+03	kg	
241-C-107	UTOTAL	Total		9.23E+03	kg	
241-C-107	V	Sludge	1C (Solid)	1.35E+01	kg	
241-C-107	V	Sludge	CWP2 (Solid)	2.38E+00	kg	
241-C-107	V	Sludge	SRR (Solid)	9.05E+00	kg	
241-C-107	V	Total		2.50E+01	kg	
241-C-107	W	Sludge	1C (Solid)	3.64E+02	kg	
241-C-107	W	Sludge	CWP2 (Solid)	6.39E+01	kg	
241-C-107	W	Sludge	SRR (Solid)	2.43E+02	kg	
241-C-107	W	Total		6.71E+02	kg	
241-C-107	Y	Sludge	1C (Solid)	5.11E+01	kg	
241-C-107	Y	Sludge	CWP2 (Solid)	8.98E+00	kg	
241-C-107	Y	Sludge	SRR (Solid)	3.42E+01	kg	
241-C-107	Y	Total		9.43E+01	kg	
241-C-107	Zn	Sludge	1C (Solid)	7.40E+01	kg	
241-C-107	Zn	Sludge	CWP2 (Solid)	1.57E+01	kg	
241-C-107	Zn	Sludge	SRR (Solid)	8.66E+01	kg	
241-C-107	Zn	Total		1.76E+02	kg	
241-C-107	Zr	Sludge	1C (Solid)	2.67E+01	kg	
241-C-107	Zr	Sludge	CWP2 (Solid)	1.72E+00	kg	
241-C-107	Zr	Sludge	SRR (Solid)	4.53E+01	kg	
241-C-107	Zr	Total		7.37E+01	kg	

Appendix F

Report: Air Emissions Estimation of Products of Incomplete Combustion for the Hanford Tank Waste Treatment and Immobilization Plant

24590-WTP-RPT-PO-05-007, Rev 1

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History Sheet

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0	7/20/05	Initial Issue	E Berrios
1	1/24/06	Deleted phase information from Table 1. Also updated final approved reference for the LAW and HLW regulatory offgas test performed at VSL.	E. Berrios

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Acronyms

COPC	constituents of potential concern
DSCM	dry standard cubic meter
EPA	Environmental Protection Agency
PAH	polycyclic aromatic hydrocarbon
PIC	product of incomplete combustion
R&T	research and technology
SCFM	standard cubic feet per minute
TCO	thermal catalytic oxidizer
VSL	Vitreous State Laboratories
WTP	Hanford Tank Waste Treatment and Immobilization Plant

1 Introduction

During the initial stages of air permitting and risk assessment development, the Hanford Tank Waste Treatment and Immobilization Plant project identified 470 constituents of potential concern (COPC) to be evaluated of which 250 were classified as organic constituents in the feed and an additional 120 organic constituents as products of incomplete combustion (PICs). The PICs were comprised of both volatile and semi-volatile compounds. The semi-volatile compounds include a subset of polycyclic aromatic hydrocarbons (PAHs), and dioxins and furans. As the permitting process matured and more discussions occurred between the WTP personnel and the regulatory agencies, these numbers have changed slightly and now consist of a total of 456 COPCs of which 219 are classified as organic constituents in the feed and 135 as PICs. The remaining 102 COPCs are comprised of inorganic compounds, including radionuclides. The changes in the organic constituents were due to deletion of selected highly reactive herbicide and pesticide organics concluded not to be present in the WTP feed stream, as well as the reclassification of certain feed organic constituent to PICs. These changes are documented in the *Regulatory Data Quality Objectives Optimization Report* (24590-WTP-RPT-MGT-04-001) and in CCN 097844. Table 1 shows the updated PIC list used for this evaluation.

The initial basis for establishing air emissions rates for this original list of PICs (120 constituents) was documented in the *Estimation of Product of Incomplete Combustion Emissions for the River Protection Project Waste Treatment Plant* (RPT-24590-EN00005). This basis was established by reviewing the US Environmental Protection Agency list of combustion unit PICs and analyzing offgas emissions at the Catholic University Vitreous State Laboratory (VSL) vitrification test facility. PIC emissions rates were estimated for the purposes of human health and environmental risk assessment in two existing mixed waste treatment facilities. In conjunction with this information, relevant experimental data and applicable air pollution control standards were taken into consideration in developing the PICs air emissions estimates. Results from these evaluations concluded that a conservative approach to estimate PIC air emissions was to assume that they would be present at their detection limit at the stacks. The detection limits were then established by evaluating available melter testing data dating back to 1999 from the Catholic University of America Vitreous State Laboratories (VSL). The detection limits established by this process for the vitrification units were subsequently applied to the pretreatment stack emissions.

Since then, subsequent melter offgas tests, for regulatory and design purposes, using different WTP feeds (HLW and LAW) have been completed at VSL. Some of these tests included spiking with hazardous organic constituents. During these tests, PIC analysis was performed. It is therefore necessary to revisit the basis for the stack detection limits documented in RPT-24590-EN00005 and compare it to the recent VSL results to ensure that the original estimates are still bounding.

2 Purpose

The purpose of this report is to reconcile the recently obtained Research and Technology (R&T) data produced at VSL on PICs and compare it to the original PIC detection limit basis established in RPT-24590-EN00005. If the new data results show that previous basis is not bounding, then the new limits will become the new basis and a new air emissions estimate will need to be produced.

3 Scope

Recent R&T results includes data for PIC emissions from the melter and downstream of the thermal catalytic oxidizer (TCO) unit. The PICs generated at the melter undergo treatment throughout the primary offgas system for both LAW and HLW and are then treated through the TCO. The data of interest for this report are the PICs generated after the TCO as these will be representative of the stack emissions. Based on this, the data generated from LAW pilot melter tests will not be used, as it is only available from the melter generation point.

4 Evaluation

The first step of the evaluation included gathering the available R&T data and determining if any changes have occurred from the original basis. The second step was to update the air emissions data for the PICs using the new concentrations and updated stack conditions per engineering design.

4.1 Stack Concentrations

Four R&T reports were identified to have data for PICs downstream of the TCO unit. These are:

- Final Report Integrated Off-Gas System Test on the DM1200 Melter with RPP-WTP LAW Sub-Envelope C1 Simulants (24590-101-TSA-W000-0009-111-01, Rev 00B)
- Final Report Integrated Off-Gas System Test on the DM1200 Melter with RPP-WTP LAW Sub-Envelope A1 Simulants (24590-101-TSA-W000-0009-111-02, Rev 00B)
- Final Report Regulatory Off-gas Emissions Testing on the DM1200 Melter System Using HLW and LAW Simulants (24590-101-TSA-W000-0009-166-00001, Rev 00A)

The majority of the PIC data provided in these reports deals with dioxin and furans and several semi-volatiles. Table 2 presents a compilation of this data. The first two columns provide the PIC general data (CAS number and name). The third column shows the original stack detection limit established by RPT-24590-EN00005. The next four columns include the new R&T data used for comparison. The last three columns show the highest detection limit, and final detection limit chosen with a contingency factor of 50% applied. The logic for the contingency factor is as follows: if the highest concentration selected is the established one by RPT-24590-EN00005, then no changes are required for the concentration; if the highest concentration is based on new R&T test results, then a 50% contingency is added. This was done to provide a bounding number.

As can been seen from Table 2, Envelope C data provided the most changes to the dioxin and furans concentrations along with the only change in a semi-volatile (4,6-Dinitro-o-cresol). Envelope A caused one constituent concentration to increase (TCDD). These new concentrations, with the added 50% contingency are now considered the new bounding stack detection limits.

4.2 Air Emissions

As there were changes to the stack concentrations, a new air emissions estimate is required for the PICs. This estimate was generated as follows.

- Stack conditions for the Pretreatment , LAW, and HLW stacks were obtained from CCN 116807 *Process Engineering Stack Effluent Conditions Table 1,2, and 3 Replacement.* The stack volumetric flow rate in SCFM was converted to dry standard cubic meters per minute (DSCM/min).
- Each individual PIC concentration was then multiplied by the dry volumetric flowrate in dscm/min to arrive at a mass rate of the constituent in µg/min. The units of this mass rate were then converted to grams per second to match the units used for air permitting and environmental risk assessment purposes.

Below are detailed calculations for the process described above.

4.3 Pretreatment Facility

The stack conditions for the Pretreatment Facility, per CCN 116807 are:
Volumetric Flowrate: 4,000 SCFM
T = 100°F = 37.8 C = 310.8 K
Pressure = 14.6 psi
Relative humidity (RH) = 70%

The volumetric flow rate of dry air for this stream can be calculated by using the ideal gas law. Standard conditions are defined at a pressure of 14.7 psi and a temperature of 20 C (293 K). Converting from standard to actual gives the following flowrate:

$$\frac{P_S V_S}{T_S} = \frac{P_A V_A}{T_A}$$

where:

S = standard conditions
A = actual conditions

The actual volumetric flowrate is then calculated as:

$$V_A = V_S \times \frac{P_S}{P_A} \times \frac{T_A}{T_S}$$

$$V_A = 4{,}000 \frac{ft^3}{\min} \times \frac{14.7 psi}{14.6 psi} \times \frac{310.8K}{293K}$$

$V_A = 4{,}272$ ft^3/min

The dry volumetric flowrate can now be calculated the following way:

$P_A V_A = P_D V_D$
where:
A = actual
D = dry
V_D is the variable of interest, thus:
$V_D = V_A P_A / P_D$

From above:
$V_A = 4{,}272$ ft^3/min
$P_A = 14.6$ psi
$P_D = P_A$ - partial pressure of water at 100°F

The partial pressure of water can be calculated by using the relative humidity equation.

RH = partial pressure (pp) of water vapor in air / vapor pressure (vp) of water at 100°F
Therefore,
pp of water vapor in air = RH * vp of water at 100°F
From steam tables found in website http://science.csustan.edu/stkrm/INFO/H2O/H2O-vapor-pres.htm, vp of water at 100°F = 50 mmHg
pp = 0.70 * 50 mmHg = 35 mmHg = 0.677 psi

The dry volumetric flow rate is:

$$V_D = 4{,}272 \frac{ft^3}{\min} \times \frac{(14.6 psi - 0.677 psi)}{14.6 psi}$$

$V_D = 4{,}074$ ft^3/min dry

Converting to dry standard conditions:

$$V_S = V_A \times \frac{P_A}{P_S} \times \frac{T_S}{T_A}$$

$$V_S = 4{,}074 \frac{ft^3}{\min} \times \frac{14.6 psi}{14.7 psi} \times \frac{293K}{310.8K}$$

$V_S = 3{,}815$ standard ft^3/min dry

Converting to cubic meters per minute (dscm/min):

3,815 dry SCFM * 1 m^3 / 35.3145 ft^3 = 108 dscm/min

This flowrate can now be multiplied by each individual PIC concentration to arrive at the mass rate at the stack. The PIC TCDD is used as an example below.

PIC: TCDD
CAS#: 1746-01-06
Stack concentration: 1.84E-05 µg/dscm
Stack mass rate: 1.84E-05 µg/dscm * 108 dscm/min = 1.99E-03 µg/min
Converting to grams/second:
1.99E-03 µg/min * (1 g / 1E+06 µg) * (1 min / 60 seconds) = 3.31E-11 grams/sec
This mass rate is the new air emissions estimate for this compound.

Table 3 shows the calculations for all the PICs throughout the Pretreatment Facility.

4.4 LAW Vitrification Facility

The stack conditions for the LAW Facility, per CCN 116807 are:
Volumetric Flowrate: 7,150 SCFM
T = 150°F = 65.6 C = 338.6 K
Pressure = 14.5 psi
RH = 100%

The volumetric flow rate of dry air for this stream can be calculated by using the ideal gas law. Standard conditions are defined at a pressure of 14.7 psi and a temperature of 20 C (293 K). Converting from standard to actual gives the following flowrate:

$$\frac{P_S V_S}{T_S} = \frac{P_A V_A}{T_A}$$

where:

S = standard conditions
A = actual conditions

The actual volumetric flowrate is then calculated as:

$$V_A = V_S \times \frac{P_S}{P_A} \times \frac{T_A}{T_S}$$

$$V_A = 7{,}150 \frac{ft^3}{\min} \times \frac{14.7 psi}{14.5 psi} \times \frac{338.6 K}{293 K}$$

$V_A = 8{,}376$ ft^3/min

The dry volumetric flowrate can now be calculated the following way:

$P_A V_A = P_D V_D$
where:
A = actual
D = dry
V_D is the variable of interest, thus:
$V_D = P_A V_A / P_D$

From above:
$V_A = 8{,}376$ ft^3/min
$P_A = 14.5$ psi
$P_D = P_A$ - partial pressure of water at 150°F

The partial pressure of water can be calculated by using the relative humidity equation.

RH = partial pressure (pp) of water vapor in air / vapor pressure (vp) of water at 150°F
Therefore,
pp of water vapor in air = RH * vp of water at 150°F
From steam tables found in website http://science.csustan.edu/stkrm/INFO/H2O/H2O-vapor-pres.htm, vp of water at 150°F = 196 mmHg
pp = 1 * 196 mmHg = 196 mmHg = 3.79 psi

The dry volumetric flow rate is:

$$V_D = 8{,}376 \frac{ft^3}{\min} \times \frac{(14.5 psi - 3.79 psi)}{14.5 psi}$$

$V_D = 6{,}186$ ft^3/min dry

Converting to dry standard conditions:

$$V_S = V_A \times \frac{P_A}{P_S} \times \frac{T_S}{T_A}$$

$$V_S = 6{,}186 \frac{ft^3}{\min} \times \frac{14.5 psi}{14.7 psi} \times \frac{293K}{338.6K}$$

$V_S = 5{,}281$ standard ft^3/min dry

Converting to cubic meters per minute (dscm/min):

5,281 dry SCFM * 1 m^3 / 35.3145 ft^3 = 150 dscm/min

This flowrate can now be multiplied by each individual PIC concentration to arrive at the mass rate at the stack. The PIC TCDD is used as an example below.

PIC: TCDD
CAS#: 1746-01-06
Stack concentration: 1.84E-05 µg/dscm
Stack mass rate: 1.84E-05 µg/dscm * 150 dscm/min = 2.75E-03 µg/min
Converting to grams/second:
2.75E-03 µg/min * (1 g / 1E+06 µg) * (1 min / 60 seconds) = 4.58E-11 grams/sec
This mass rate is the new air emissions estimate for this compound.

Table 4 shows the calculations for all the PICs throughout the LAW Facility.

4.5 HLW Vitrification Facility

The stack conditions for the HLW Facility, per CCN 116807 are (note that this information is for one stack):
Volumetric Flowrate: 2,158 SCFM
T = 275°F = 135 C = 408 K
Pressure = 14.5 psi
RH = 2.8%

The volumetric flow rate of dry air for this stream can be calculated by using the ideal gas law. Standard conditions are defined at a pressure of 14.7 psi and a temperature of 20 C (293 K). Converting from standard to actual gives the following flowrate:

$$\frac{P_S V_S}{T_S} = \frac{P_A V_A}{T_A}$$

where:

S = standard conditions
A = actual conditions

The actual volumetric flowrate is then calculated as:

$$V_A = V_S \times \frac{P_S}{P_A} \times \frac{T_A}{T_S}$$

$$V_A = 2{,}158 \frac{ft^3}{\min} \times \frac{14.7 psi}{14.5 psi} \times \frac{408K}{293K}$$

V_A = 3,046 ft^3/min

The dry volumetric flowrate can now be calculated the following way:

$P_A V_A = P_D V_D$
where:

A = actual
D = dry
V_D is the variable of interest, thus:
$V_D = P_A V_A / P_D$

From above:
V_A = 3,046 ft^3/min
P_A = 14.5 psi
P_D = P_A - partial pressure of water at 275°F

The partial pressure of water can be calculated by using the relative humidity equation.

RH = partial pressure (pp) of water vapor in air / vapor pressure (vp) of water at 275°F
Therefore,
pp of water vapor in air = RH * vp of water at 275°F
From steam tables found in website http://science.csustan.edu/stkrm/INFO/H2O/H2O-vapor-pres.htm, vp of water at 275°F = 2,635 mmHg
pp = 0.028 * 2,635 mmHg = 73.8 mmHg = 1.43 psi

The dry volumetric flow rate is:

$$V_D = 3{,}046 \frac{ft^3}{\text{min}} \times \frac{(14.5 psi - 1.43 psi)}{14.5 psi}$$

V_D = 2,747 ft^3/min dry

Converting to dry standard conditions:

$$V_S = V_A \times \frac{P_A}{P_S} \times \frac{T_S}{T_A}$$

$$V_S = 2{,}747 \frac{ft^3}{\text{min}} \times \frac{14.5 psi}{14.7 psi} \times \frac{293K}{408K}$$

V_S = 1,946 standard ft^3/min dry

Converting to cubic meters per minute (dscm/min):

1,946 dry SCFM * 1 m^3 / 35.3145 ft^3 = 55 dscm/min

This flowrate can now be multiplied by each individual PIC concentration to arrive at the mass rate at the stack. The PIC TCDD is used as an example below.

PIC: TCDD
CAS#: 1746-01-06
Stack concentration: 1.84E-05 µg/dscm
Stack mass rate: 1.84E-05 µg/dscm * 55 dscm/min = 1.01E-03 µg/min
Converting to grams/second:
1.01E-03 µg/min * (1 g / 1E+06 µg) * (1 min / 60 seconds) = 1.69E-11 grams/sec

As there are two stacks in HLW this number is multiplied by two:
1.6970E-11 grams/sec * 2 = 3.38E-11 grams/sec
This mass rate is the new air emissions estimate for this compound.

Table 5 shows the calculations for all the PICs throughout the HLW Facility.

5 Conclusions

Recent R&T data has shown that PIC detection limits at the stack are higher than were previously predicted. Therefore, the current air emissions estimate for these compounds is no longer bounding. This new data has been reconciled and it shows that the majority of the dioxins and furans stack concentrations increased along with a few semi-volatile compounds. Based on the new concentrations a new PIC air emissions estimate has been developed and is summarized in Table 6.

Offgas testing has been concluded at the pilot melters located at VSL. Confirmatory tests will not occur until the WTP commissioning period. One remaining test deals with the activated carbon beds at the Idaho National Laboratories. If results from these tests show changes in the PIC emissions, this document will be updated to reflect these changes. Otherwise, an update will not be necessary for the PIC air emissions until the commissioning period as long as there are no changes on the stack flowrates.

6 References

24590-101-TSA-W000-0009-111-01, Rev 00B, *Final Report Integrated Off-Gas System Test on the DM1200 Melter with RPP-WTP LAW Sub-Envelope C1 Simulants*

24590-101-TSA-W000-0009-111-02, Rev 00B, *Final Report Integrated Off-Gas System Test on the DM1200 Melter with RPP-WTP LAW Sub-Envelope A1 Simulants*

24590-101-TSA-W000-0009-166-00001, Rev 00A, *Final Report Regulatory Off-gas Emissions Testing on the DM1200 Melter System Using HLW and LAW Simulants*

24590-WTP-RPT-MGT-04-001, Rev 0, *Regulatory Data Quality Objectives Optimization Report*

CCN 097844, Meeting Minutes, Lee Bostic, September 3, 2004, "Discuss and Resolve the Outstanding Risk Assessment Issues in the Risk Assessment Work Plan (RAWP)"

CCN 116807, Memorandum, Bret Yorgesen to Jennifer Su-Coker, March 23, 2005, "Process Engineering Stack Effluent Conditions Table 1, 2, and 3 Replacement"

http://science.csustan.edu/stkrm/INFO/H2O/H2O-vapor-pres.htm, Vapor Pressure of Water

RPT-24590-EN00005, Rev 0, *Estimation of Product of Incomplete Combustion Emissions for the River Protection Project Waste Treatment Plant*

Table 1 WTP Updated PIC List

CAS Registry Number	Compound	Category	Analytical Method EPA-SW-848 Method
1746-01-6	2,3,7,8-Tetrachlorodibenzo(p)dioxin (TCDD)	dioxin/furan	8290
19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo(p)dioxin	dioxin/furan	8290
3268-87-9	Octachlorodibenzo(p)dioxin	dioxin/furan	8290
35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo(p)dioxin	dioxin/furan	8290
39001-02-0	Octachlorodibenzofuran	dioxin/furan	8290
39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo(p)dioxin	dioxin/furan	8290
40321-76-4	1,2,3,7,8-Pentachlorodibenzo(p)dioxin	dioxin/furan	8290
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	dioxin/furan	8290
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	dioxin/furan	8290
57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	dioxin/furan	8290
57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	dioxin/furan	8290
57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	dioxin/furan	8290
57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo(p)dioxin	dioxin/furan	8290
60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	dioxin/furan	8290
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	dioxin/furan	8290
70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	dioxin/furan	8290
72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	dioxin/furan	8290
192-97-2	Benzo(e)pyrene	PAH	8270-C (pah)
205-82-3	Benzo(j)fluoranthene	PAH	8270-C (pah)
205-99-2	Benzo(b)fluoranthene	PAH	8270-C (pah)
207-08-9	Benzo(k)fluoranthene	PAH	8270-C (pah)
218-01-9	Chrysene	PAH	8270-C (pah)
5385-75-1	Dibenzo(a,e)fluoranthene	PAH	8270-C (pah)
56-55-3	Benzo(a)anthracene	PAH	8270-C (pah)
91-57-6	2-Methylnaphthalene	PAH	8270-C (pah)
100-02-7	4-Nitrophenol	semi-volatile	8270-C
100-25-4	1,4-Dinitrobenzene	semi-volatile	8270-C
100-51-6	Benzyl alcohol	semi-volatile	8270-C
100-52-7	Benzaldehyde	semi-volatile	8270-C
101-77-9	4,4-Methylenedianiline	semi-volatile	8270-C
103-33-3	Azobenzene	semi-volatile	8270-C
105-67-9	2,4-Dimethylphenol	semi-volatile	8270-C
106-44-5	p-Cresol (4-Methyl phenol)	semi-volatile	8270-C
106-47-8	p-Chloroaniline	semi-volatile	8270-C
106-49-0	p-Toluidine	semi-volatile	8270-C
106-51-4	Quinone	semi-volatile	8270-C
107-98-2	Propylene gylcol monomethyl ether	semi-volatile	8270-C
108-60-1	Dichloroisopropyl ether	semi-volatile	8270-C
109-86-4	2-Methoxyethanol	semi-volatile	8270-C
110-80-5	2-Ethoxyethanol	semi-volatile	8270-C
111-15-9	Ethylene glycol monoethyl ether acetate	semi-volatile	8270-C
111-44-4	Bis(2-chloroethyl) ether	semi-volatile	8270-C
111-91-1	Bis(2-chloroethoxy)methane	semi-volatile	8270-C
1120-71-4	1,3-Propane sultone	semi-volatile	8270-C
118-74-1	Hexachlorobenzene	semi-volatile	8270-C
119-90-4	3,3'-Dimethoxybenzidine (ortol-dianisidine)	semi-volatile	8270-C
121-14-2	2,4-Dinitrotoluene	semi-volatile	8270-C
122-66-7	1,2-Diphenylhydrazine	semi-volatile	8270-C

Table 1 WTP Updated PIC List

CAS Registry Number	Compound	Category	Analytical Method EPA-SW-848 Method
123-33-1	Maleic hydrazide	semi-volatile	8270-C
131-11-3	Dimethylphthalate	semi-volatile	8270-C
131-89-5	2-Cyclohexyl-4,6-dinitrophenol	semi-volatile	8270-C
133-06-2	Captan	semi-volatile	8270-C
145-73-3	Endothall	semi-volatile	8270-C
23950-58-5	Pronamide	semi-volatile	8270-C
319-84-6	Hexachlorocyclohexane (Lindane) Alpha BHC	semi-volatile	8270-C
319-85-7	Hexachlorocyclohexane (Lindane) Beta BHC	semi-volatile	8270-C
506-68-3	Cyanogen bromide	semi-volatile	8270-C
510-15-6	Chlorobenzilate	semi-volatile	8270-C
51-28-5	2,4-Dinitrophenol	semi-volatile	8270-C
51-79-6	Ethyl Carbamate (urethane)	semi-volatile	8270-C
528-29-0	o-Dinitrobenzene	semi-volatile	8270-C
532-27-4	2-Chloroacetophenone	semi-volatile	8270-C
534-52-1	4,6-Dinitro-o-cresol	semi-volatile	8270-C
57-24-9	Strychnine	semi-volatile	8270-C
57-74-9	Chlordane	semi-volatile	8270-C
584-84-9	2,4-Toluene diisocyante	semi-volatile	8270-C
58-89-9	gamma-BHC (Lindane)	semi-volatile	8270-C
60-11-7	Dimethyl aminoazobenzene	semi-volatile	8270-C
606-20-2	2,6-Dinitrotoluene	semi-volatile	8270-C
608-93-5	Pentachlorobenzene	semi-volatile	8270-C
62-50-0	Ethyl methanesulfonate	semi-volatile	8270-C
62-53-3	Aniline	semi-volatile	8270-C
65-85-0	Benzoic acid	semi-volatile	8270-C
70-30-4	Hexachlorophene	semi-volatile	8270-C
72-43-5	Methoxychlor	semi-volatile	8270-C
72-55-9	4,4'-DDE	semi-volatile	8270-C
76-44-8	Heptachlor	semi-volatile	8270-C
765-34-4	Glycidylaldehyde	semi-volatile	8270-C
77-47-4	Hexachlorocyclopentadiene	semi-volatile	8270-C
77-78-1	Dimethyl sulfate	semi-volatile	8270-C
822-06-0	Hexamethylene-1,5-diisocyanate	semi-volatile	8270-C
823-40-5	Toluene-2,6-diamine	semi-volatile	8270-C
82-68-8	Pentachloronitrobenzene (PCBN)	semi-volatile	8270-C
85-44-9	Phthalic anhydride	semi-volatile	8270-C
87-86-5	Pentachlorophenol	semi-volatile	8270-C
88-74-4	o-Nitroaniline (2-Nitroaniline)	semi-volatile	8270-C
90-04-0	o-Anisidine	semi-volatile	8270-C
91-94-1	3,3'-Dichlorobenzidine	semi-volatile	8270-C
94-59-7	Safrole	semi-volatile	8270-C
94-75-7	2,4-D and esters (!60C typed)	semi-volatile	8270-C
95-94-3	1,2,4,5-Tetrachlorobenzene	semi-volatile	8270-C
96-12-8	1,2-Dibromo-3-chloropropane	semi-volatile	8270-C
96-45-7	Ethylene thiourea	semi-volatile	8270-C
98-01-1	Furfural	semi-volatile	8270-C
98-07-7	Benzotrichloride	semi-volatile	8270-C
99-35-4	1,3,5-Trinitrobenzene	semi-volatile	8270-C

Table 1 WTP Updated PIC List

CAS Registry Number	Compound	Category	Analytical Method EPA-SW-848 Method
99-65-0	1,3-Dinitrobenzene	semi-volatile	8270-C
100-44-7	Benzyl chloride	volatile	8260-B
103-65-1	n-Propyl benzene (Isocumene)	volatile	8260-B
104-51-8	n-Butylbenzene	volatile	8260-B
106-43-4	4-Chlorotoluene (p-Tolyl chloride)	volatile	8260-B
106-89-8	Epichlorohydrin (1-chloro-2,3-epoxypropane)	volatile	8260-B
107-19-7	Propargyl alcohol	volatile	8260-B
107-21-1	Ethylene glycol	volatile	8260-B
108-67-8	1,3,5-Trimethyl benzene	volatile	8260-B
108-86-1	Bromobenzene (Phenyl bromide)	volatile	8260-B
109-77-3	Malononitrile	volatile	8260-B
124-48-1	Chlorodibromomethane	volatile	8260-B
135-98-8	sec-Butylbenzene	volatile	8260-B
156-59-2	cis-1,2-Dichloroethene	volatile	8260-B
25013-15-4	Methyl styrene (mixed isomers)	volatile	8260-B
41851-50-7	Chlorocyclopentadiene	volatile	8260-B
460-19-5	Cyanogen	volatile	8260-B
506-77-4	Cyanogen chloride	volatile	8260-B
540-73-8	1,2-Dimethylhydrazine	volatile	8260-B
542-75-6	1,3-Dichloropropene	volatile	8260-B
542-88-1	Dichloromethyl ether	volatile	8260-B
593-60-2	Bromoethene	volatile	8260-B
61626-71-9	Dichloropentadiene	volatile	8260-B
74-88-4	Iodomethane (Methyl iodide)	volatile	8260-B
74-95-3	Methylene bromide	volatile	8260-B
75-25-2	Bromoform	volatile	8260-B
75-29-6	2-Chloropropane	volatile	8260-B
75-44-5	Phosgene	volatile	8260-B
76-01-7	Pentachloroethane	volatile	8260-B
764-41-0	1,4-Dichloro-2-butene	volatile	8260-B
80-62-6	Methyl methacrylate	volatile	8260-B
87-61-6	1,2,3-Trichlorobenzene	volatile	8260-B
924-16-3	N-Nitrosodi-n-butylamine	volatile	8260-B
95-53-4	o-Toluidine	volatile	8260-B
95-63-6	1,2,4-Trimethyl benzene	volatile	8260-B
96-18-4	1,2,3-Trichloropropane	volatile	8260-B
97-63-2	Ethyl methacrylate	volatile	8260-B
98-06-6	tert-Butyl benzene	volatile	8260-B
99-87-6	p-Cymene	volatile	8260-B

Table 2 WTP PIC Stack Concentrations Evaluation

CAS Registry Number	Compound	Original Conc. µg/dscm	DM1200 Env A Conc. µg/dscm	DM1200 Env C Conc. µg/dscm	DM1200 HLW ROGT Conc. µg/dscm	DM1200 LAW ROGT Conc. µg/dscm	MAX µg/dscm	Source	MAX with Contingency µg/dscm
1746-01-6	2,3,7,8-Tetrachlorodibenzo(p)dioxin (TCDD)	9.38E-06	1.23E-05	1.84E-06	5.23E-06	7.06E-07	1.23E-05	Env A	1.84E-05
19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo(p)dioxin	1.56E-05	4.98E-06	5.09E-06	2.40E-06	1.41E-06	1.56E-05	Original	1.56E-05
3268-87-9	Octachlorodibenzo(p)dioxin	7.82E-05	3.64E-05	2 66E-05	4 14E-05	1 73E-05	7 82E-05	Original	7 82E-05
35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo(p)dioxin	3.13E-05	2 04E-05	1 47E-05	1.20E-05	5 65E-06	3.13E-05	Original	3.13E-05
39001-02-0	Octachlorodibenzofuran	6.25E-05	3.57E-05	1.95E-04	8.84E-05	3 57E-05	1 95E-04	Env C	2 92E-04
39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo(p)dioxin	1.56E-05	5 44E-06	6 85E-06	1.55E-06	1.06E-06	1 56E-05	Original	1 56E-05
40321-76-4	1,2,3,7,8-Pentachlorodibenzo(p)dioxin	1.56E-05	7.91E-06	8.30E-06	2.22E-06	7.06E-07	1.56E-05	Original	1 56E-05
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	7 82E-06	1 84E-05	8 30E-04	7.31E-06	6.00E-06	8.30E-04	Env C	1 24E-03
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1.56E-05	2.72E-05	7.49E-05	3.40E-05	1.77E-05	7.49E-05	Env C	1.12E-04
57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	7.82E-06	3.46E-05	1.07E-03	1.31E-05	5.65E-06	1.07E-03	Env C	1 61E-03
57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	7.82E-06	1.66E-05	1.16E-03	1 51E-05	7.77E-06	1.16E-03	Env C	1.74E-03
57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	1.25E-05	2.60E-05	5.26E-04	2.25E-05	1 31E-05	5.26E-04	Env C	7.89E-04
57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo(p)dioxin	1.56E-05	5.54E-06	5 09E-06	2.37E-06	7.06E-07	1.56E-05	Original	1.56E-05
60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	1 41E-05	1.89E-05	2.70E-04	8.02E-06	5 30E-06	2.70E-04	Env C	4 05E-04
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	1.56E-05	1 16E-04	1.54E-03	6.84E-05	4.48E-05	1.54E-03	Env C	2 31E-03
70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	1.41E-05	6 14E-05	1.07E-03	4.85E-05	3 07E-05	1.07E-03	Env C	1 61E-03
72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	1.56E-05	5.86E-06	2.37E-05	3.99E-06	2.47E-06	2.37E-05	Env C	3.55E-05
192-97-2	Benzo(e)pyrene	3	5.40E-02	0.00E+00	0.00E+00	0 00E+00	3	Original	3
205-82-3	Benzo(j)fluoranthene	3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3	Original	3
205-99-2	Benzo(b)fluoranthene	3	3.22E-02	0.00E+00	0.00E+00	0.00E+00	3	Original	3
207-08-9	Benzo(k)fluoranthene	3	8.12E-03	0.00E+00	0.00E+00	0 00E+00	3	Original	3
218-01-9	Chrysene	3	2.39E-02	0.00E+00	0 00E+00	0.00E+00	3	Original	3
5385-75-1	Dibenzo(a,e)fluoranthene	3	0.00E+00	0.00E+00	0.00E+00	0.00E+00	3	Original	3
56-55-3	Benzo(a)anthracene	3	4.13E-03	0.00E+00	0.00E+00	0 00E+00	3	Original	3
91-57-6	2-Methylnaphthalene	3	3.00E+00	0.00E+00	0 00E+00	0 00E+00	3	Original	3
100-02-7	4-Nitrophenol	15	0.00E+00	0.00E+00	0 00E+00	0 00E+00	15	Original	15
100-25-4	1,4-Dinitrobenzene	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
100-51-6	Benzyl alcohol	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
100-52-7	Benzaldehyde	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
101-77-9	4,4-Methylenedianiline	15	0.00E+00	0.00E+00	0 00E+00	0.00E+00	15	Original	15
103-33-3	Azobenzene	15	0.00E+00	0.00E+00	0.00E+00	0 00E+00	15	Original	15
105-67-9	2,4-Dimethylphenol	15	0.00E+00	0.00E+00	0.00E+00	0 00E+00	15	Original	15
106-44-5	p-Cresol (4-Methyl phenol)	15	0.00E+00	0 00E+00	0.00E+00	0 00E+00	15	Original	15
106-47-8	p-Chloroaniline	15	0.00E+00	0.00E+00	0.00E+00	0 00E+00	15	Original	15
106-49-0	p-Toluidine	15	0.00E+00	0 00E+00	0.00E+00	0 00E+00	15	Original	15
106-51-4	Quinone	15	0.00E+00	0 00E+00	0.00E+00	0.00E+00	15	Original	15
107-98-2	Propylene gylcol monomethyl ether	15	0.00E+00	0.00E+00	0.00E+00	0 00E+00	15	Original	15
108-60-1	Dichloroisopropyl ether	15	0.00E+00	0 00E+00	0 00E+00	0.00E+00	15	Original	15
109-86-4	2-Methoxyethanol	15	0.00E+00	0 00E+00	0.00E+00	0.00E+00	15	Original	15
110-80-5	2-Ethoxyethanol	15	0.00E+00	0 00E+00	0.00E+00	0.00E+00	15	Original	15
111-15-9	Ethylene glycol monoethyl ether acetate	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
111-44-4	Bis(2-chloroethyl) ether	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
111-91-1	Bis(2-chloroethoxy)methane	15	0.00E+00	0.00E+00	0.00E+00	0 00E+00	15	Original	15
1120-71-4	1,3-Propane sultone	15	0.00E+00	0.00E+00	0.00E+00	0 00E+00	15	Original	15
118-74-1	Hexachlorobenzene	15	0.00E+00	0.00E+00	0.00E+00	0 00E+00	15	Original	15
119-90-4	3,3'-Dimethoxybenzidine (ortol-dianisidine)	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
121-14-2	2,4-Dinitrotoluene	15	0 00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
122-66-7	1,2-Diphenylhydrazine	15	0.00E+00	0 00E+00	0.00E+00	0.00E+00	15	Original	15
123-33-1	Maleic hydrazide	15	0 00E+00	0 00E+00	0.00E+00	0.00E+00	15	Original	15
131-11-3	Dimethylphthalate	15	0.00E+00	0.00E+00	0.00E+00	0 00E+00	15	Original	15
131-89-5	2-Cyclohexyl-4,6-dinitrophenol	15	0.00E+00	0.00E+00	0 00E+00	0.00E+00	15	Original	15
133-06-2	Captan	15	0 00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
145-73-3	Endothall	15	0 00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
23950-58-5	Pronamide	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
319-84-6	Hexachlorocyclohexane (Lindane) Alpha BHC	15	0 00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
319-85-7	Hexachlorocyclohexane (Lindane) Beta BHC	15	0.00E+00	0.00E+00	0 00E+00	0.00E+00	15	Original	15
506-68-3	Cyanogen bromide	15	0.00E+00	0.00E+00	0 00E+00	0.00E+00	15	Original	15
510-15-6	Chlorobenzilate	15	0.00E+00	0.00E+00	0 00E+00	0 00E+00	15	Original	15
51-28-5	2,4-Dinitrophenol	15	0.00E+00	7.63E-01	0.00E+00	0 00E+00	15	Original	15
51-79-6	Ethyl Carbamate (urethane)	15	0.00E+00	0 00E+00	0.00E+00	0.00E+00	15	Original	15
528-29-0	o-Dinitrobenzene	15	0.00E+00	0.00E+00	0.00E+00	0 00E+00	15	Original	15
532-27-4	2-Chloroacetophenone	15	0.00E+00	0.00E+00	0 00E+00	0 00E+00	15	Original	15
534-52-1	4,6-Dinitro-o-cresol	15	0.00E+00	1.97E+02	0.00E+00	0 00E+00	197	Env C	295
57-24-9	Strychnine	15	0.00E+00	0.00E+00	0.00E+00	0 00E+00	15	Original	15
57-74-9	Chlordane	15	0.00E+00	0.00E+00	0 00E+00	0.00E+00	15	Original	15
584-84-9	2,4-Toluene diisocyante	15	0.00E+00	0.00E+00	0 00E+00	0.00E+00	15	Original	15
58-89-9	gamma-BHC (Lindane)	15	0.00E+00	0.00E+00	0.00E+00	0 00E+00	15	Original	15
60-11-7	Dimethyl aminoazobenzene	15	0 00E+00	0.00E+00	0 00E+00	0 00E+00	15	Original	15
606-20-2	2,6-Dinitrotoluene	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
608-93-5	Pentachlorobenzene	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
62-50-0	Ethyl methanesulfonate	15	0.00E+00	0.00E+00	0 00E+00	0.00E+00	15	Original	15

Table 2 WTP PIC Stack Concentrations Evaluation

CAS Registry Number	Compound	Original Conc. µg/dscm	DM1200 Env A Conc. µg/dscm	DM1200 Env C Conc. µg/dscm	DM1200 HLW ROGT Conc. µg/dscm	DM1200 LAW ROGT Conc. µg/dscm	MAX µg/dscm	Source	MAX with Contingency µg/dscm
62-53-3	Aniline	15	0.00E+00	0.00E+00	0 00E+00	0.00E+00	15	Original	15
65-85-0	Benzoic acid	15	0 00E+00	0.00E+00	0 00E+00	0.00E+00	15	Original	15
70-30-4	Hexachlorophene	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
72-43-5	Methoxychlor	15	0.00E+00	0.00E+00	0.00E+00	0 00E+00	15	Original	15
72-55-9	4,4'-DDE	15	0.00E+00	0.00E+00	0.00E+00	0 00E+00	15	Original	15
76-44-8	Heptachlor	15	0 00E+00	0.00E+00	0.00E+00	0 00E+00	15	Original	15
765-34-4	Glycidylaldehyde	15	0.00E+00	0.00E+00	0.00E+00	0 00E+00	15	Original	15
77-47-4	Hexachlorocyclopentadiene	15	0.00E+00	0.00E+00	0 00E+00	0.00E+00	15	Original	15
77-78-1	Dimethyl sulfate	15	0.00E+00	0.00E+00	0 00E+00	0.00E+00	15	Original	15
822-06-0	Hexamethylene-1,5-diisocyanate	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
823-40-5	Toluene-2,6-diamine	15	0.00E+00	0.00E+00	0.00E+00	0 00E+00	15	Original	15
82-68-8	Pentachloronitrobenzene (PCBN)	15	0 00E+00	0.00E+00	0.00E+00	0 00E+00	15	Original	15
85-44-9	Phthalic anhydride	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
87-86-5	Pentachlorophenol	15	0.00E+00	0.00E+00	0 00E+00	0.00E+00	15	Original	15
88-74-4	o-Nitroanilme (2-Nitroaniline)	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
90-04-0	o-Anisidine	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
91-94-1	3,3'-Dichlorobenzidine	15	0 00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
94-59-7	Safrole	15	0.00E+00	0 00E+00	0.00E+00	0.00E+00	15	Original	15
94-75-7	2,4-D and esters (!60C typed)	15	0.00E+00	0 00E+00	0.00E+00	0.00E+00	15	Original	15
95-94-3	1,2,4,5-Tetrachlorobenzene	15	0.00E+00	0 00E+00	0.00E+00	0 00E+00	15	Original	15
96-12-8	1,2-Dibromo-3-chloropropane	15	0.00E+00	0 00E+00	0.00E+00	0.00E+00	15	Original	15
96-45-7	Ethylene thiourea	15	0.00E+00	0.00E+00	0 00E+00	0.00E+00	15	Original	15
98-01-1	Furfural	15	0 00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
98-07-7	Benzotrichloride	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
99-35-4	1,3,5-Trinitrobenzene	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
99-65-0	1,3-Dinitrobenzene	15	0.00E+00	0.00E+00	0.00E+00	0.00E+00	15	Original	15
100-44-7	Benzyl chloride	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2	Original	2
103-65-1	n-Propyl benzene (Isocumene)	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2	Original	2
104-51-8	n-Butylbenzene	2	0.00E+00	0 00E+00	0.00E+00	0.00E+00	2	Original	2
106-43-4	4-Chlorotoluene (p-Tolyl chloride)	2	0.00E+00	0.00E+00	0.00E+00	0 00E+00	2	Original	2
106-89-8	Epichlorohydrin (1-chloro-2,3-epoxypropane)	2	0.00E+00	0.00E+00	0 00E+00	0.00E+00	2	Original	2
107-19-7	Propargyl alcohol	2	0.00E+00	0.00E+00	0 00E+00	0.00E+00	2	Original	2
107-21-1	Ethylene glycol	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2	Original	2
108-67-8	1,3,5-Trimethyl benzene	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2	Original	2
108-86-1	Bromobenzene (Phenyl bromide)	2	0 00E+00	0.00E+00	0.00E+00	0.00E+00	2	Original	2
109-77-3	Malononitrile	2	0 00E+00	0.00E+00	0 00E+00	0.00E+00	2	Original	2
124-48-1	Chlorodibromomethane	2	0 00E+00	0.00E+00	0.00E+00	0.00E+00	2	Original	2
135-98-8	sec-Butylbenzene	2	0.00E+00	0 00E+00	0.00E+00	0.00E+00	2	Original	2
156-59-2	cis-1,2-Dichloroethene	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2	Original	2
25013-15-4	Methyl styrene (mixed isomers)	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2	Original	2
41851-50-7	Chlorocyclopentadiene	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2	Original	2
460-19-5	Cyanogen	2	0.00E+00	0.00E+00	0.00E+00	0 00E+00	2	Original	2
506-77-4	Cyanogen chloride	2	0.00E+00	0.00E+00	0.00E+00	0 00E+00	2	Original	2
540-73-8	1,2-Dimethylhydrazine	2	0.00E+00	0.00E+00	0 00E+00	0.00E+00	2	Original	2
542-75-6	1,3-Dichloropropene	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2	Original	2
542-88-1	Dichloromethyl ether	2	0.00E+00	0 00E+00	0.00E+00	0.00E+00	2	Original	2
593-60-2	Bromoethene	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2	Original	2
61626-71-9	Dichloropentadiene	2	0.00E+00	0.00E+00	0 00E+00	0.00E+00	2	Original	2
74-88-4	Iodomethane (Methyl iodide)	2	0.00E+00	0.00E+00	0 00E+00	0.00E+00	2	Original	2
74-95-3	Methylene bromide	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2	Original	2
75-25-2	Bromoform	2	0.00E+00	0.00E+00	0 00E+00	0.00E+00	2	Original	2
75-29-6	2-Chloropropane	2	0 00E+00	0.00E+00	0.00E+00	0.00E+00	2	Original	2
75-44-5	Phosgene	2	0.00E+00	0 00E+00	0.00E+00	0 00E+00	2	Original	2
76-01-7	Pentachloroethane	2	0.00E+00	0 00E+00	0.00E+00	0.00E+00	2	Original	2
764-41-0	1,4-Dichloro-2-butene	2	0.00E+00	0.00E+00	0 00E+00	0 00E+00	2	Original	2
80-62-6	Methyl methacrylate	2	0.00E+00	0 00E+00	0 00E+00	0 00E+00	2	Original	2
87-61-6	1,2,3-Trichlorobenzene	2	0.00E+00	0.00E+00	0 00E+00	0.00E+00	2	Original	2
924-16-3	N-Nitrosodi-n-butylamine	2	0.00E+00	0.00E+00	0 00E+00	0.00E+00	2	Original	2
95-53-4	o-Toluidine	2	0.00E+00	0.00E+00	0 00E+00	0.00E+00	2	Original	2
95-63-6	1,2,4-Trimethyl benzene	2	0.00E+00	0.00E+00	0 00E+00	0.00E+00	2	Original	2
96-18-4	1,2,3-Trichloropropane	2	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2	Original	2
97-63-2	Ethyl methacrylate	2	0.00E+00	0 00E+00	0.00E+00	0 00E+00	2	Original	2
98-06-6	tert-Butyl benzene	2	0.00E+00	0 00E+00	0.00E+00	0.00E+00	2	Original	2
99-87-6	p-Cymene	2	0.00E+00	0 00E+00	0.00E+00	0 00E+00	2	Original	2

General Notes:

1 All concentrations are after TCO

2. If previous concentration is the max, no changes applied

3. If highest concentration is based on new numbers, then 50% contingency is applied

Table 3 Pretreatment Facility Stack PIC Air Emissions

CAS Registry Number	Compound	Max Conc. µg/dscm	PT Stack Mass Rate µg/min	PT Stack Mass Rate g/sec
1746-01-6	2,3,7,8-Tetrachlorodibenzo(p)dioxin (TCDD)	1.84E-05	1.99E-03	3.31E-11
19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo(p)dioxin	1.56E-05	1.69E-03	2.81E-11
3268-87-9	Octachlorodibenzo(p)dioxin	7.82E-05	8.44E-03	1.41E-10
35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo(p)dioxin	3.13E-05	3.38E-03	5.63E-11
39001-02-0	Octachlorodibenzofuran	2.92E-04	3.15E-02	5.25E-10
39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo(p)dioxin	1.56E-05	1.69E-03	2.81E-11
40321-76-4	1,2,3,7,8-Pentachlorodibenzo(p)dioxin	1.56E-05	1.69E-03	2.81E-11
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	1.24E-03	1.34E-01	2.24E-09
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1.12E-04	1.21E-02	2.02E-10
57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	1.61E-03	1.73E-01	2.89E-09
57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	1.74E-03	1.88E-01	3.14E-09
57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	7.89E-04	8.53E-02	1.42E-09
57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo(p)dioxin	1.56E-05	1.69E-03	2.81E-11
60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	4.05E-04	4.38E-02	7.30E-10
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	2.31E-03	2.49E-01	4.16E-09
70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	1.61E-03	1.74E-01	2.90E-09
72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	3.55E-05	3.84E-03	6.40E-11
192-97-2	Benzo(e)pyrene	3	3.24E+02	5.40E-06
205-82-3	Benzo(j)fluoranthene	3	3.24E+02	5.40E-06
205-99-2	Benzo(b)fluoranthene	3	3.24E+02	5.40E-06
207-08-9	Benzo(k)fluoranthene	3	3.24E+02	5.40E-06
218-01-9	Chrysene	3	3.24E+02	5.40E-06
5385-75-1	Dibenzo(a,e)fluoranthene	3	3.24E+02	5.40E-06
56-55-3	Benzo(a)anthracene	3	3.24E+02	5.40E-06
91-57-6	2-Methylnaphthalene	3	3.24E+02	5.40E-06
100-02-7	4-Nitrophenol	15	1.62E+03	2.70E-05
100-25-4	1,4-Dinitrobenzene	15	1.62E+03	2.70E-05
100-51-6	Benzyl alcohol	15	1.62E+03	2.70E-05
100-52-7	Benzaldehyde	15	1.62E+03	2.70E-05
101-77-9	4,4-Methylenedianiline	15	1.62E+03	2.70E-05
103-33-3	Azobenzene	15	1.62E+03	2.70E-05
105-67-9	2,4-Dimethylphenol	15	1.62E+03	2.70E-05
106-44-5	p-Cresol (4-Methyl phenol)	15	1.62E+03	2.70E-05
106-47-8	p-Chloroaniline	15	1.62E+03	2.70E-05
106-49-0	p-Toluidine	15	1.62E+03	2.70E-05
106-51-4	Quinone	15	1.62E+03	2.70E-05
107-98-2	Propylene gylcol monomethyl ether	15	1.62E+03	2.70E-05
108-60-1	Dichloroisopropyl ether	15	1.62E+03	2.70E-05
109-86-4	2-Methoxyethanol	15	1.62E+03	2.70E-05
110-80-5	2-Ethoxyethanol	15	1.62E+03	2.70E-05
111-15-9	Ethylene glycol monoethyl ether acetate	15	1.62E+03	2.70E-05
111-44-4	Bis(2-chloroethyl) ether	15	1.62E+03	2.70E-05
111-91-1	Bis(2-chloroethoxy)methane	15	1.62E+03	2.70E-05
1120-71-4	1,3-Propane sultone	15	1.62E+03	2.70E-05
118-74-1	Hexachlorobenzene	15	1.62E+03	2.70E-05
119-90-4	3,3'-Dimethoxybenzidine (ortol-dianisidine)	15	1.62E+03	2.70E-05
121-14-2	2,4-Dinitrotoluene	15	1.62E+03	2.70E-05
122-66-7	1,2-Diphenylhydrazine	15	1.62E+03	2.70E-05
123-33-1	Maleic hydrazide	15	1.62E+03	2.70E-05
131-11-3	Dimethylphthalate	15	1.62E+03	2.70E-05
131-89-5	2-Cyclohexyl-4,6-dinitrophenol	15	1.62E+03	2.70E-05
133-06-2	Captan	15	1.62E+03	2.70E-05
145-73-3	Endothall	15	1.62E+03	2.70E-05
23950-58-5	Pronamide	15	1.62E+03	2.70E-05

Table 3 Pretreatment Facility Stack PIC Air Emissions

CAS Registry Number	Compound	Max Conc. µg/dscm	PT Stack Mass Rate µg/min	PT Stack Mass Rate g/sec
319-84-6	Hexachlorocyclohexane (Lindane) Alpha BHC	15	1.62E+03	2.70E-05
319-85-7	Hexachlorocyclohexane (Lindane) Beta BHC	15	1.62E+03	2.70E-05
506-68-3	Cyanogen bromide	15	1.62E+03	2.70E-05
510-15-6	Chlorobenzilate	15	1.62E+03	2.70E-05
51-28-5	2,4-Dinitrophenol	15	1.62E+03	2.70E-05
51-79-6	Ethyl Carbamate (urethane)	15	1.62E+03	2.70E-05
528-29-0	o-Dinitrobenzene	15	1.62E+03	2.70E-05
532-27-4	2-Chloroacetophenone	15	1.62E+03	2.70E-05
534-52-1	4,6-Dinitro-o-cresol	295	3.19E+04	5.31E-04
57-24-9	Strychnine	15	1.62E+03	2.70E-05
57-74-9	Chlordane	15	1.62E+03	2.70E-05
584-84-9	2,4-Toluene diisocyante	15	1.62E+03	2.70E-05
58-89-9	gamma-BHC (Lindane)	15	1.62E+03	2.70E-05
60-11-7	Dimethyl aminoazobenzene	15	1.62E+03	2.70E-05
606-20-2	2,6-Dinitrotoluene	15	1.62E+03	2.70E-05
608-93-5	Pentachlorobenzene	15	1.62E+03	2.70E-05
62-50-0	Ethyl methanesulfonate	15	1.62E+03	2.70E-05
62-53-3	Aniline	15	1.62E+03	2.70E-05
65-85-0	Benzoic acid	15	1.62E+03	2.70E-05
70-30-4	Hexachlorophene	15	1.62E+03	2.70E-05
72-43-5	Methoxychlor	15	1.62E+03	2.70E-05
72-55-9	4,4'-DDE	15	1.62E+03	2.70E-05
76-44-8	Heptachlor	15	1.62E+03	2.70E-05
765-34-4	Glycidylaldehyde	15	1.62E+03	2.70E-05
77-47-4	Hexachlorocyclopentadiene	15	1.62E+03	2.70E-05
77-78-1	Dimethyl sulfate	15	1.62E+03	2.70E-05
822-06-0	Hexamethylene-1,5-diisocyanate	15	1.62E+03	2.70E-05
823-40-5	Toluene-2,6-diamine	15	1.62E+03	2.70E-05
82-68-8	Pentachloronitrobenzene (PCBN)	15	1.62E+03	2.70E-05
85-44-9	Phthalic anhydride	15	1.62E+03	2.70E-05
87-86-5	Pentachlorophenol	15	1.62E+03	2.70E-05
88-74-4	o-Nitroaniline (2-Nitroaniline)	15	1.62E+03	2.70E-05
90-04-0	o-Anisidine	15	1.62E+03	2.70E-05
91-94-1	3,3'-Dichlorobenzidine	15	1.62E+03	2.70E-05
94-59-7	Safrole	15	1.62E+03	2.70E-05
94-75-7	2,4-D and esters (!60C typed)	15	1.62E+03	2.70E-05
95-94-3	1,2,4,5-Tetrachlorobenzene	15	1.62E+03	2.70E-05
96-12-8	1,2-Dibromo-3-chloropropane	15	1.62E+03	2.70E-05
96-45-7	Ethylene thiourea	15	1.62E+03	2.70E-05
98-01-1	Furfural	15	1.62E+03	2.70E-05
98-07-7	Benzotrichloride	15	1.62E+03	2.70E-05
99-35-4	1,3,5-Trinitrobenzene	15	1.62E+03	2.70E-05
99-65-0	1,3-Dinitrobenzene	15	1.62E+03	2.70E-05
100-44-7	Benzyl chloride	2	2.16E+02	3.60E-06
103-65-1	n-Propyl benzene (Isocumene)	2	2.16E+02	3.60E-06
104-51-8	n-Butylbenzene	2	2.16E+02	3.60E-06
106-43-4	4-Chlorotoluene (p-Tolyl chloride)	2	2.16E+02	3.60E-06
106-89-8	Epichlorohydrin (1-chloro-2,3-epoxypropane)	2	2.16E+02	3.60E-06
107-19-7	Propargyl alcohol	2	2.16E+02	3.60E-06
107-21-1	Ethylene glycol	2	2.16E+02	3.60E-06
108-67-8	1,3,5-Trimethyl benzene	2	2.16E+02	3.60E-06
108-86-1	Bromobenzene (Phenyl bromide)	2	2.16E+02	3.60E-06
109-77-3	Malononitrile	2	2.16E+02	3.60E-06
124-48-1	Chlorodibromomethane	2	2.16E+02	3.60E-06

Table 3 Pretreatment Facility Stack PIC Air Emissions

CAS Registry Number	Compound	Max Conc. µg/dscm	PT Stack Mass Rate µg/min	PT Stack Mass Rate g/sec
135-98-8	sec-Butylbenzene	2	2.16E+02	3.60E-06
156-59-2	cis-1,2-Dichloroethene	2	2.16E+02	3.60E-06
25013-15-4	Methyl styrene (mixed isomers)	2	2.16E+02	3.60E-06
41851-50-7	Chlorocyclopentadiene	2	2.16E+02	3.60E-06
460-19-5	Cyanogen	2	2.16E+02	3.60E-06
506-77-4	Cyanogen chloride	2	2.16E+02	3.60E-06
540-73-8	1,2-Dimethylhydrazine	2	2.16E+02	3.60E-06
542-75-6	1,3-Dichloropropene	2	2.16E+02	3.60E-06
542-88-1	Dichloromethyl ether	2	2.16E+02	3.60E-06
593-60-2	Bromoethene	2	2.16E+02	3.60E-06
61626-71-9	Dichloropentadiene	2	2.16E+02	3.60E-06
74-88-4	Iodomethane (Methyl iodide)	2	2.16E+02	3.60E-06
74-95-3	Methylene bromide	2	2.16E+02	3.60E-06
75-25-2	Bromoform	2	2.16E+02	3.60E-06
75-29-6	2-Chloropropane	2	2.16E+02	3.60E-06
75-44-5	Phosgene	2	2.16E+02	3.60E-06
76-01-7	Pentachloroethane	2	2.16E+02	3.60E-06
764-41-0	1,4-Dichloro-2-butene	2	2.16E+02	3.60E-06
80-62-6	Methyl methacrylate	2	2.16E+02	3.60E-06
87-61-6	1,2,3-Trichlorobenzene	2	2.16E+02	3.60E-06
924-16-3	N-Nitrosodi-n-butylamine	2	2.16E+02	3.60E-06
95-53-4	o-Toluidine	2	2.16E+02	3.60E-06
95-63-6	1,2,4-Trimethyl benzene	2	2.16E+02	3.60E-06
96-18-4	1,2,3-Trichloropropane	2	2.16E+02	3.60E-06
97-63-2	Ethyl methacrylate	2	2.16E+02	3.60E-06
98-06-6	tert-Butyl benzene	2	2.16E+02	3.60E-06
99-87-6	p-Cymene	2	2.16E+02	3.60E-06

PT Stack Conditions:

Volumetric Flow:	4,000	SCFM	
Temperature:	100	F	311 K
Water content:	0.03	lb H2O/lb air	
Density:	0.0624	lb/ft3	
Relative Humidity:	70%		
Pressure:	14.6	psi	
VP H2O @ 100F:	50	mmHg	
Standard temperature:	20	C	293 K
Standard pressure:	14.7	psi	
Actual volumetric flowrate:	4,272	ACFM	

$V_D = V_A P_A / P_D$

$P_D = P_A$ - partial pressure (pp) water @ 100F

pp = RH * VP H2O @ 100F

pp =	35	mmHg
pp =	0.677	psi
P_D =	13.9	psi
V_D =	4074	DCFM
V_S =	3815	SCFM
Dry volumetric rate:	108	DSCM/min

Table 4 LAW Facility Stack PIC Air Emissions

CAS Registry Number	Compound	Max Conc. µg/dscm	LAW Stack Mass Rate µg/min	LAW Stack Mass Rate g/sec
1746-01-6	2,3,7,8-Tetrachlorodibenzo(p)dioxin (TCDD)	1.84E-05	2.75E-03	4.58E-11
19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo(p)dioxin	1.56E-05	2.34E-03	3.90E-11
3268-87-9	Octachlorodibenzo(p)dioxin	7.82E-05	1.17E-02	1.95E-10
35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo(p)dioxin	3.13E-05	4.67E-03	7.79E-11
39001-02-0	Octachlorodibenzofuran	2.92E-04	4.36E-02	7.27E-10
39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo(p)dioxin	1.56E-05	2.34E-03	3.90E-11
40321-76-4	1,2,3,7,8-Pentachlorodibenzo(p)dioxin	1.56E-05	2.34E-03	3.90E-11
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	1.24E-03	1.86E-01	3.10E-09
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1.12E-04	1.68E-02	2.80E-10
57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	1.61E-03	2.40E-01	4.00E-09
57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	1.74E-03	2.61E-01	4.34E-09
57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	7.89E-04	1.18E-01	1.97E-09
57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo(p)dioxin	1.56E-05	2.34E-03	3.90E-11
60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	4.05E-04	6.06E-02	1.01E-09
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	2.31E-03	3.45E-01	5.76E-09
70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	1.61E-03	2.41E-01	4.01E-09
72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	3.55E-05	5.31E-03	8.86E-11
192-97-2	Benzo(e)pyrene	3	4.49E+02	7.48E-06
205-82-3	Benzo(j)fluoranthene	3	4.49E+02	7.48E-06
205-99-2	Benzo(b)fluoranthene	3	4.49E+02	7.48E-06
207-08-9	Benzo(k)fluoranthene	3	4.49E+02	7.48E-06
218-01-9	Chrysene	3	4.49E+02	7.48E-06
5385-75-1	Dibenzo(a,e)fluoranthene	3	4.49E+02	7.48E-06
56-55-3	Benzo(a)anthracene	3	4.49E+02	7.48E-06
91-57-6	2-Methylnaphthalene	3	4.49E+02	7.48E-06
100-02-7	4-Nitrophenol	15	2.24E+03	3.74E-05
100-25-4	1,4-Dinitrobenzene	15	2.24E+03	3.74E-05
100-51-6	Benzyl alcohol	15	2.24E+03	3.74E-05
100-52-7	Benzaldehyde	15	2.24E+03	3.74E-05
101-77-9	4,4-Methylenedianiline	15	2.24E+03	3.74E-05
103-33-3	Azobenzene	15	2.24E+03	3.74E-05
105-67-9	2,4-Dimethylphenol	15	2.24E+03	3.74E-05
106-44-5	p-Cresol (4-Methyl phenol)	15	2.24E+03	3.74E-05
106-47-8	p-Chloroaniline	15	2.24E+03	3.74E-05
106-49-0	p-Toluidine	15	2.24E+03	3.74E-05
106-51-4	Quinone	15	2.24E+03	3.74E-05
107-98-2	Propylene gylcol monomethyl ether	15	2.24E+03	3.74E-05
108-60-1	Dichloroisopropyl ether	15	2.24E+03	3.74E-05
109-86-4	2-Methoxyethanol	15	2.24E+03	3.74E-05
110-80-5	2-Ethoxyethanol	15	2.24E+03	3.74E-05
111-15-9	Ethylene glycol monoethyl ether acetate	15	2.24E+03	3.74E-05
111-44-4	Bis(2-chloroethyl) ether	15	2.24E+03	3.74E-05
111-91-1	Bis(2-chloroethoxy)methane	15	2.24E+03	3.74E-05
1120-71-4	1,3-Propane sultone	15	2.24E+03	3.74E-05
118-74-1	Hexachlorobenzene	15	2.24E+03	3.74E-05
119-90-4	3,3'-Dimethoxybenzidine (ortol-dianisidine)	15	2.24E+03	3.74E-05
121-14-2	2,4-Dinitrotoluene	15	2.24E+03	3.74E-05
122-66-7	1,2-Diphenylhydrazine	15	2.24E+03	3.74E-05
123-33-1	Maleic hydrazide	15	2.24E+03	3.74E-05
131-11-3	Dimethylphthalate	15	2.24E+03	3.74E-05
131-89-5	2-Cyclohexyl-4,6-dinitrophenol	15	2.24E+03	3.74E-05
133-06-2	Captan	15	2.24E+03	3.74E-05
145-73-3	Endothall	15	2.24E+03	3.74E-05
23950-58-5	Pronamide	15	2.24E+03	3.74E-05

Table 4 LAW Facility Stack PIC Air Emissions

CAS Registry Number	Compound	Max Conc. µg/dscm	LAW Stack Mass Rate µg/min	LAW Stack Mass Rate g/sec
319-84-6	Hexachlorocyclohexane (Lindane) Alpha BHC	15	2.24E+03	3.74E-05
319-85-7	Hexachlorocyclohexane (Lindane) Beta BHC	15	2.24E+03	3.74E-05
506-68-3	Cyanogen bromide	15	2.24E+03	3.74E-05
510-15-6	Chlorobenzilate	15	2.24E+03	3.74E-05
51-28-5	2,4-Dinitrophenol	15	2.24E+03	3.74E-05
51-79-6	Ethyl Carbamate (urethane)	15	2.24E+03	3.74E-05
528-29-0	o-Dinitrobenzene	15	2.24E+03	3.74E-05
532-27-4	2-Chloroacetophenone	15	2.24E+03	3.74E-05
534-52-1	4,6-Dinitro-o-cresol	295	4.41E+04	7.36E-04
57-24-9	Strychnine	15	2.24E+03	3.74E-05
57-74-9	Chlordane	15	2.24E+03	3.74E-05
584-84-9	2,4-Toluene diisocyante	15	2.24E+03	3.74E-05
58-89-9	gamma-BHC (Lindane)	15	2.24E+03	3.74E-05
60-11-7	Dimethyl aminoazobenzene	15	2.24E+03	3.74E-05
606-20-2	2,6-Dinitrotoluene	15	2.24E+03	3.74E-05
608-93-5	Pentachlorobenzene	15	2.24E+03	3.74E-05
62-50-0	Ethyl methanesulfonate	15	2.24E+03	3.74E-05
62-53-3	Aniline	15	2.24E+03	3.74E-05
65-85-0	Benzoic acid	15	2.24E+03	3.74E-05
70-30-4	Hexachlorophene	15	2.24E+03	3.74E-05
72-43-5	Methoxychlor	15	2.24E+03	3.74E-05
72-55-9	4,4'-DDE	15	2.24E+03	3.74E-05
76-44-8	Heptachlor	15	2.24E+03	3.74E-05
765-34-4	Glycidylaldehyde	15	2.24E+03	3.74E-05
77-47-4	Hexachlorocyclopentadiene	15	2.24E+03	3.74E-05
77-78-1	Dimethyl sulfate	15	2.24E+03	3.74E-05
822-06-0	Hexamethylene-1,5-diisocyanate	15	2.24E+03	3.74E-05
823-40-5	Toluene-2,6-diamine	15	2.24E+03	3.74E-05
82-68-8	Pentachloronitrobenzene (PCBN)	15	2.24E+03	3.74E-05
85-44-9	Phthalic anhydride	15	2.24E+03	3.74E-05
87-86-5	Pentachlorophenol	15	2.24E+03	3.74E-05
88-74-4	o-Nitroaniline (2-Nitroaniline)	15	2.24E+03	3.74E-05
90-04-0	o-Anisidine	15	2.24E+03	3.74E-05
91-94-1	3,3'-Dichlorobenzidine	15	2.24E+03	3.74E-05
94-59-7	Safrole	15	2.24E+03	3.74E-05
94-75-7	2,4-D and esters (!60C typed)	15	2.24E+03	3.74E-05
95-94-3	1,2,4,5-Tetrachlorobenzene	15	2.24E+03	3.74E-05
96-12-8	1,2-Dibromo-3-chloropropane	15	2.24E+03	3.74E-05
96-45-7	Ethylene thiourea	15	2.24E+03	3.74E-05
98-01-1	Furfural	15	2.24E+03	3.74E-05
98-07-7	Benzotrichloride	15	2.24E+03	3.74E-05
99-35-4	1,3,5-Trinitrobenzene	15	2.24E+03	3.74E-05
99-65-0	1,3-Dinitrobenzene	15	2.24E+03	3.74E-05
100-44-7	Benzyl chloride	2	2.99E+02	4.98E-06
103-65-1	n-Propyl benzene (Isocumene)	2	2.99E+02	4.98E-06
104-51-8	n-Butylbenzene	2	2.99E+02	4.98E-06
106-43-4	4-Chlorotoluene (p-Tolyl chloride)	2	2.99E+02	4.98E-06
106-89-8	Epichlorohydrin (1-chloro-2,3-epoxypropane)	2	2.99E+02	4.98E-06
107-19-7	Propargyl alcohol	2	2.99E+02	4.98E-06
107-21-1	Ethylene glycol	2	2.99E+02	4.98E-06
108-67-8	1,3,5-Trimethyl benzene	2	2.99E+02	4.98E-06
108-86-1	Bromobenzene (Phenyl bromide)	2	2.99E+02	4.98E-06
109-77-3	Malononitrile	2	2.99E+02	4.98E-06
124-48-1	Chlorodibromomethane	2	2.99E+02	4.98E-06

Table 4 LAW Facility Stack PIC Air Emissions

CAS Registry Number	Compound	Max Conc. µg/dscm	LAW Stack Mass Rate µg/min	LAW Stack Mass Rate g/sec
135-98-8	sec-Butylbenzene	2	2.99E+02	4.98E-06
156-59-2	cis-1,2-Dichloroethene	2	2.99E+02	4.98E-06
25013-15-4	Methyl styrene (mixed isomers)	2	2.99E+02	4.98E-06
41851-50-7	Chlorocyclopentadiene	2	2.99E+02	4.98E-06
460-19-5	Cyanogen	2	2.99E+02	4.98E-06
506-77-4	Cyanogen chloride	2	2.99E+02	4.98E-06
540-73-8	1,2-Dimethylhydrazine	2	2.99E+02	4.98E-06
542-75-6	1,3-Dichloropropene	2	2.99E+02	4.98E-06
542-88-1	Dichloromethyl ether	2	2.99E+02	4.98E-06
593-60-2	Bromoethene	2	2.99E+02	4.98E-06
61626-71-9	Dichloropentadiene	2	2.99E+02	4.98E-06
74-88-4	Iodomethane (Methyl iodide)	2	2.99E+02	4.98E-06
74-95-3	Methylene bromide	2	2.99E+02	4.98E-06
75-25-2	Bromoform	2	2.99E+02	4.98E-06
75-29-6	2-Chloropropane	2	2.99E+02	4.98E-06
75-44-5	Phosgene	2	2.99E+02	4.98E-06
76-01-7	Pentachloroethane	2	2.99E+02	4.98E-06
764-41-0	1,4-Dichloro-2-butene	2	2.99E+02	4.98E-06
80-62-6	Methyl methacrylate	2	2.99E+02	4.98E-06
87-61-6	1,2,3-Trichlorobenzene	2	2.99E+02	4.98E-06
924-16-3	N-Nitrosodi-n-butylamine	2	2.99E+02	4.98E-06
95-53-4	o-Toluidine	2	2.99E+02	4.98E-06
95-63-6	1,2,4-Trimethyl benzene	2	2.99E+02	4.98E-06
96-18-4	1,2,3-Trichloropropane	2	2.99E+02	4.98E-06
97-63-2	Ethyl methacrylate	2	2.99E+02	4.98E-06
98-06-6	tert-Butyl benzene	2	2.99E+02	4.98E-06
99-87-6	p-Cymene	2	2.99E+02	4.98E-06

LAW Stack Conditions:

Volumetric Flow:	7,150 SCFM	
Temperature:	150 F	339 K
Water content:	0.186 lb H2O/lb air	
Density:	0.0616 lb/ft3	
Relative Humidity:	100%	
Pressure:	14.5 psi	
VP H2O @ 150F:	196 mmHg	
Standard temperature:	20 C	293 K
Standard pressure:	14.7 psi	
Actual volumetric flowrate:	8,376 ACFM	

$V_D = V_A P_A/P_D$
$P_D = P_A$ - partial pressure (pp) water @ 100F
pp = RH * VP H2O @ 100F

pp =	196 mmHg	
pp =	3.79 psi	
P_D =	10.7 psi	
V_D =	6186 DCFM	
V_S =	5281 SCFM	
Dry volumetric rate:	150 DSCM/min	

Table 5 HLW Facility Stack PIC Air Emissions

CAS Registry Number	Compound	Max Conc. µg/dscm	HLW Stack Mass Rate µg/min	HLW Stack Mass Rate g/sec	Total HLW Mass Rate g/sec
1746-01-6	2,3,7,8-Tetrachlorodibenzo(p)dioxin (TCDD)	1.84E-05	1.01E-03	1.69E-11	3.38E-11
19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo(p)dioxin	1.56E-05	8.61E-04	1.44E-11	2.87E-11
3268-87-9	Octachlorodibenzo(p)dioxin	7.82E-05	4.31E-03	7.18E-11	1.44E-10
35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo(p)dioxin	3.13E-05	1.72E-03	2.87E-11	5.74E-11
39001-02-0	Octachlorodibenzofuran	2.92E-04	1.61E-02	2.68E-10	5.36E-10
39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo(p)dioxin	1.56E-05	8.61E-04	1.44E-11	2.87E-11
40321-76-4	1,2,3,7,8-Pentachlorodibenzo(p)dioxin	1.56E-05	8.61E-04	1.44E-11	2.87E-11
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	1.24E-03	6.86E-02	1.14E-09	2.29E-09
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	1.12E-04	6.19E-03	1.03E-10	2.06E-10
57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	1.61E-03	8.84E-02	1.47E-09	2.95E-09
57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	1.74E-03	9.60E-02	1.60E-09	3.20E-09
57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	7.89E-04	4.35E-02	7.25E-10	1.45E-09
57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo(p)dioxin	1.56E-05	8.61E-04	1.44E-11	2.87E-11
60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	4.05E-04	2.23E-02	3.72E-10	7.44E-10
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	2.31E-03	1.27E-01	2.12E-09	4.24E-09
70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	1.61E-03	8.87E-02	1.48E-09	2.96E-09
72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	3.55E-05	1.96E-03	3.26E-11	6.53E-11
192-97-2	Benzo(e)pyrene	3	1.65E+02	2.75E-06	5.51E-06
205-82-3	Benzo(j)fluoranthene	3	1.65E+02	2.75E-06	5.51E-06
205-99-2	Benzo(b)fluoranthene	3	1.65E+02	2.75E-06	5.51E-06
207-08-9	Benzo(k)fluoranthene	3	1.65E+02	2.75E-06	5.51E-06
218-01-9	Chrysene	3	1.65E+02	2.75E-06	5.51E-06
5385-75-1	Dibenzo(a,e)fluoranthene	3	1.65E+02	2.75E-06	5.51E-06
56-55-3	Benzo(a)anthracene	3	1.65E+02	2.75E-06	5.51E-06
91-57-6	2-Methylnaphthalene	3	1.65E+02	2.75E-06	5.51E-06
100-02-7	4-Nitrophenol	15	8.26E+02	1.38E-05	2.75E-05
100-25-4	1,4-Dinitrobenzene	15	8.26E+02	1.38E-05	2.75E-05
100-51-6	Benzyl alcohol	15	8.26E+02	1.38E-05	2.75E-05
100-52-7	Benzaldehyde	15	8.26E+02	1.38E-05	2.75E-05
101-77-9	4,4-Methylenedianiline	15	8.26E+02	1.38E-05	2.75E-05
103-33-3	Azobenzene	15	8.26E+02	1.38E-05	2.75E-05
105-67-9	2,4-Dimethylphenol	15	8.26E+02	1.38E-05	2.75E-05
106-44-5	p-Cresol (4-Methyl phenol)	15	8.26E+02	1.38E-05	2.75E-05
106-47-8	p-Chloroaniline	15	8.26E+02	1.38E-05	2.75E-05
106-49-0	p-Toluidine	15	8.26E+02	1.38E-05	2.75E-05
106-51-4	Quinone	15	8.26E+02	1.38E-05	2.75E-05
107-98-2	Propylene gylcol monomethyl ether	15	8.26E+02	1.38E-05	2.75E-05
108-60-1	Dichloroisopropyl ether	15	8.26E+02	1.38E-05	2.75E-05
109-86-4	2-Methoxyethanol	15	8.26E+02	1.38E-05	2.75E-05
110-80-5	2-Ethoxyethanol	15	8.26E+02	1.38E-05	2.75E-05
111-15-9	Ethylene glycol monoethyl ether acetate	15	8.26E+02	1.38E-05	2.75E-05
111-44-4	Bis(2-chloroethyl) ether	15	8.26E+02	1.38E-05	2.75E-05
111-91-1	Bis(2-chloroethoxy)methane	15	8.26E+02	1.38E-05	2.75E-05
1120-71-4	1,3-Propane sultone	15	8.26E+02	1.38E-05	2.75E-05
118-74-1	Hexachlorobenzene	15	8.26E+02	1.38E-05	2.75E-05
119-90-4	3,3'-Dimethoxybenzidine (ortol-dianisidine)	15	8.26E+02	1.38E-05	2.75E-05
121-14-2	2,4-Dinitrotoluene	15	8.26E+02	1.38E-05	2.75E-05
122-66-7	1,2-Diphenylhydrazine	15	8.26E+02	1.38E-05	2.75E-05
123-33-1	Maleic hydrazide	15	8.26E+02	1.38E-05	2.75E-05
131-11-3	Dimethylphthalate	15	8.26E+02	1.38E-05	2.75E-05
131-89-5	2-Cyclohexyl-4,6-dinitrophenol	15	8.26E+02	1.38E-05	2.75E-05
133-06-2	Captan	15	8.26E+02	1.38E-05	2.75E-05
145-73-3	Endothall	15	8.26E+02	1.38E-05	2.75E-05
23950-58-5	Pronamide	15	8.26E+02	1.38E-05	2.75E-05

Table 5 HLW Facility Stack PIC Air Emissions

CAS Registry Number	Compound	Max Conc. µg/dscm	HLW Stack Mass Rate µg/min	HLW Stack Mass Rate g/sec	Total HLW Mass Rate g/sec
319-84-6	Hexachlorocyclohexane (Lindane) Alpha BHC	15	8.26E+02	1.38E-05	2.75E-05
319-85-7	Hexachlorocyclohexane (Lindane) Beta BHC	15	8.26E+02	1.38E-05	2.75E-05
506-68-3	Cyanogen bromide	15	8.26E+02	1.38E-05	2.75E-05
510-15-6	Chlorobenzilate	15	8.26E+02	1.38E-05	2.75E-05
51-28-5	2,4-Dinitrophenol	15	8.26E+02	1.38E-05	2.75E-05
51-79-6	Ethyl Carbamate (urethane)	15	8.26E+02	1.38E-05	2.75E-05
528-29-0	o-Dinitrobenzene	15	8.26E+02	1.38E-05	2.75E-05
532-27-4	2-Chloroacetophenone	15	8.26E+02	1.38E-05	2.75E-05
534-52-1	4,6-Dinitro-o-cresol	295	1.63E+04	2.71E-04	5.42E-04
57-24-9	Strychnine	15	8.26E+02	1.38E-05	2.75E-05
57-74-9	Chlordane	15	8.26E+02	1.38E-05	2.75E-05
584-84-9	2,4-Toluene diisocyante	15	8.26E+02	1.38E-05	2.75E-05
58-89-9	gamma-BHC (Lindane)	15	8.26E+02	1.38E-05	2.75E-05
60-11-7	Dimethyl aminoazobenzene	15	8.26E+02	1.38E-05	2.75E-05
606-20-2	2,6-Dinitrotoluene	15	8.26E+02	1.38E-05	2.75E-05
608-93-5	Pentachlorobenzene	15	8.26E+02	1.38E-05	2.75E-05
62-50-0	Ethyl methanesulfonate	15	8.26E+02	1.38E-05	2.75E-05
62-53-3	Aniline	15	8.26E+02	1.38E-05	2.75E-05
65-85-0	Benzoic acid	15	8.26E+02	1.38E-05	2.75E-05
70-30-4	Hexachlorophene	15	8.26E+02	1.38E-05	2.75E-05
72-43-5	Methoxychlor	15	8.26E+02	1.38E-05	2.75E-05
72-55-9	4,4'-DDE	15	8.26E+02	1.38E-05	2.75E-05
76-44-8	Heptachlor	15	8.26E+02	1.38E-05	2.75E-05
765-34-4	Glycidylaldehyde	15	8.26E+02	1.38E-05	2.75E-05
77-47-4	Hexachlorocyclopentadiene	15	8.26E+02	1.38E-05	2.75E-05
77-78-1	Dimethyl sulfate	15	8.26E+02	1.38E-05	2.75E-05
822-06-0	Hexamethylene-1,5-diisocyanate	15	8.26E+02	1.38E-05	2.75E-05
823-40-5	Toluene-2,6-diamine	15	8.26E+02	1.38E-05	2.75E-05
82-68-8	Pentachloronitrobenzene (PCBN)	15	8.26E+02	1.38E-05	2.75E-05
85-44-9	Phthalic anhydride	15	8.26E+02	1.38E-05	2.75E-05
87-86-5	Pentachlorophenol	15	8.26E+02	1.38E-05	2.75E-05
88-74-4	o-Nitroaniline (2-Nitroaniline)	15	8.26E+02	1.38E-05	2.75E-05
90-04-0	o-Anisidine	15	8.26E+02	1.38E-05	2.75E-05
91-94-1	3,3'-Dichlorobenzidine	15	8.26E+02	1.38E-05	2.75E-05
94-59-7	Safrole	15	8.26E+02	1.38E-05	2.75E-05
94-75-7	2,4-D and esters (!60C typed)	15	8.26E+02	1.38E-05	2.75E-05
95-94-3	1,2,4,5-Tetrachlorobenzene	15	8.26E+02	1.38E-05	2.75E-05
96-12-8	1,2-Dibromo-3-chloropropane	15	8.26E+02	1.38E-05	2.75E-05
96-45-7	Ethylene thiourea	15	8.26E+02	1.38E-05	2.75E-05
98-01-1	Furfural	15	8.26E+02	1.38E-05	2.75E-05
98-07-7	Benzotrichloride	15	8.26E+02	1.38E-05	2.75E-05
99-35-4	1,3,5-Trinitrobenzene	15	8.26E+02	1.38E-05	2.75E-05
99-65-0	1,3-Dinitrobenzene	15	8.26E+02	1.38E-05	2.75E-05
100-44-7	Benzyl chloride	2	1.10E+02	1.84E-06	3.67E-06
103-65-1	n-Propyl benzene (Isocumene)	2	1.10E+02	1.84E-06	3.67E-06
104-51-8	n-Butylbenzene	2	1.10E+02	1.84E-06	3.67E-06
106-43-4	4-Chlorotoluene (p-Tolyl chloride)	2	1.10E+02	1.84E-06	3.67E-06
106-89-8	Epichlorohydrin (1-chloro-2,3-epoxypropane)	2	1.10E+02	1.84E-06	3.67E-06
107-19-7	Propargyl alcohol	2	1.10E+02	1.84E-06	3.67E-06
107-21-1	Ethylene glycol	2	1.10E+02	1.84E-06	3.67E-06
108-67-8	1,3,5-Trimethyl benzene	2	1.10E+02	1.84E-06	3.67E-06
108-86-1	Bromobenzene (Phenyl bromide)	2	1.10E+02	1.84E-06	3.67E-06
109-77-3	Malononitrile	2	1.10E+02	1.84E-06	3.67E-06
124-48-1	Chlorodibromomethane	2	1.10E+02	1.84E-06	3.67E-06

Table 5 HLW Facility Stack PIC Air Emissions

CAS Registry Number	Compound	Max Conc. µg/dscm	HLW Stack Mass Rate µg/min	HLW Stack Mass Rate g/sec	Total HLW Mass Rate g/sec
135-98-8	sec-Butylbenzene	2	1.10E+02	1.84E-06	3.67E-06
156-59-2	cis-1,2-Dichloroethene	2	1.10E+02	1.84E-06	3.67E-06
25013-15-4	Methyl styrene (mixed isomers)	2	1.10E+02	1.84E-06	3.67E-06
41851-50-7	Chlorocyclopentadiene	2	1.10E+02	1.84E-06	3.67E-06
460-19-5	Cyanogen	2	1.10E+02	1.84E-06	3.67E-06
506-77-4	Cyanogen chloride	2	1.10E+02	1.84E-06	3.67E-06
540-73-8	1,2-Dimethylhydrazine	2	1.10E+02	1.84E-06	3.67E-06
542-75-6	1,3-Dichloropropene	2	1.10E+02	1.84E-06	3.67E-06
542-88-1	Dichloromethyl ether	2	1.10E+02	1.84E-06	3.67E-06
593-60-2	Bromoethene	2	1.10E+02	1.84E-06	3.67E-06
61626-71-9	Dichloropentadiene	2	1.10E+02	1.84E-06	3.67E-06
74-88-4	Iodomethane (Methyl iodide)	2	1.10E+02	1.84E-06	3.67E-06
74-95-3	Methylene bromide	2	1.10E+02	1.84E-06	3.67E-06
75-25-2	Bromoform	2	1.10E+02	1.84E-06	3.67E-06
75-29-6	2-Chloropropane	2	1.10E+02	1.84E-06	3.67E-06
75-44-5	Phosgene	2	1.10E+02	1.84E-06	3.67E-06
76-01-7	Pentachloroethane	2	1.10E+02	1.84E-06	3.67E-06
764-41-0	1,4-Dichloro-2-butene	2	1.10E+02	1.84E-06	3.67E-06
80-62-6	Methyl methacrylate	2	1.10E+02	1.84E-06	3.67E-06
87-61-6	1,2,3-Trichlorobenzene	2	1.10E+02	1.84E-06	3.67E-06
924-16-3	N-Nitrosodi-n-butylamine	2	1.10E+02	1.84E-06	3.67E-06
95-53-4	o-Toluidine	2	1.10E+02	1.84E-06	3.67E-06
95-63-6	1,2,4-Trimethyl benzene	2	1.10E+02	1.84E-06	3.67E-06
96-18-4	1,2,3-Trichloropropane	2	1.10E+02	1.84E-06	3.67E-06
97-63-2	Ethyl methacrylate	2	1.10E+02	1.84E-06	3.67E-06
98-06-6	tert-Butyl benzene	2	1.10E+02	1.84E-06	3.67E-06
99-87-6	p-Cymene	2	1.10E+02	1.84E-06	3.67E-06

HLW Stack Conditions:

Volumetric Flow:	2,158	SCFM	
Temperature:	275	F	408 K
Water content:	0.05	lb H2O/lb air	
Density:	0.047	lb/ft3	
Relative Humidity:	3%		
Pressure:	14.5	psi	
VP H2O @ 150F:	2635	mmHg	
Standard temperature:	20	C	293 K
Standard pressure:	14.7	psi	
Actual volumetric flowrate:	3,046	ACFM	

$V_D = V_A P_A / P_D$

$P_D = P_A$ - partial pressure (pp) water @ 100F

pp = RH * VP H2O @ 100F

pp =	73.78	mmHg
pp =	1.43	psi
P_D =	13.1	psi
V_D =	2747	DCFM
V_S =	1946	SCFM
Dry volumetric rate:	55	DSCM/min

Table 6 Summary WTP Stacks PIC Air Emissions

CAS Registry Number	Compound	PT Stack Mass Rate g/sec	LAW Stack Mass Rate g/sec	HLW Stack Mass Rate g/sec
1746-01-6	2,3,7,8-Tetrachlorodibenzo(p)dioxin (TCDD)	3.31E-11	4.58E-11	3.38E-11
19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo(p)dioxin	2.81E-11	3.90E-11	2.87E-11
3268-87-9	Octachlorodibenzo(p)dioxin	1.41E-10	1.95E-10	1.44E-10
35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo(p)dioxin	5.63E-11	7.79E-11	5.74E-11
39001-02-0	Octachlorodibenzofuran	5.25E-10	7.27E-10	5.36E-10
39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo(p)dioxin	2.81E-11	3.90E-11	2.87E-11
40321-76-4	1,2,3,7,8-Pentachlorodibenzo(p)dioxin	2.81E-11	3.90E-11	2.87E-11
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	2.24E-09	3.10E-09	2.29E-09
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	2.02E-10	2.80E-10	2.06E-10
57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	2.89E-09	4.00E-09	2.95E-09
57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	3.14E-09	4.34E-09	3.20E-09
57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	1.42E-09	1.97E-09	1.45E-09
57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo(p)dioxin	2.81E-11	3.90E-11	2.87E-11
60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	7.30E-10	1.01E-09	7.44E-10
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	4.16E-09	5.76E-09	4.24E-09
70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	2.90E-09	4.01E-09	2.96E-09
72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	6.40E-11	8.86E-11	6.53E-11
192-97-2	Benzo(e)pyrene	5.40E-06	7.48E-06	5.51E-06
205-82-3	Benzo(j)fluoranthene	5.40E-06	7.48E-06	5.51E-06
205-99-2	Benzo(b)fluoranthene	5.40E-06	7.48E-06	5.51E-06
207-08-9	Benzo(k)fluoranthene	5.40E-06	7.48E-06	5.51E-06
218-01-9	Chrysene	5.40E-06	7.48E-06	5.51E-06
5385-75-1	Dibenzo(a,e)fluoranthene	5.40E-06	7.48E-06	5.51E-06
56-55-3	Benzo(a)anthracene	5.40E-06	7.48E-06	5.51E-06
91-57-6	2-Methylnaphthalene	5.40E-06	7.48E-06	5.51E-06
100-02-7	4-Nitrophenol	2.70E-05	3.74E-05	2.75E-05
100-25-4	1,4-Dinitrobenzene	2.70E-05	3.74E-05	2.75E-05
100-51-6	Benzyl alcohol	2.70E-05	3.74E-05	2.75E-05
100-52-7	Benzaldehyde	2.70E-05	3.74E-05	2.75E-05
101-77-9	4,4-Methylenedianiline	2.70E-05	3.74E-05	2.75E-05
103-33-3	Azobenzene	2.70E-05	3.74E-05	2.75E-05
105-67-9	2,4-Dimethylphenol	2.70E-05	3.74E-05	2.75E-05
106-44-5	p-Cresol (4-Methyl phenol)	2.70E-05	3.74E-05	2.75E-05
106-47-8	p-Chloroaniline	2.70E-05	3.74E-05	2.75E-05
106-49-0	p-Toluidine	2.70E-05	3.74E-05	2.75E-05
106-51-4	Quinone	2.70E-05	3.74E-05	2.75E-05
107-98-2	Propylene gylcol monomethyl ether	2.70E-05	3.74E-05	2.75E-05
108-60-1	Dichloroisopropyl ether	2.70E-05	3.74E-05	2.75E-05
109-86-4	2-Methoxyethanol	2.70E-05	3.74E-05	2.75E-05
110-80-5	2-Ethoxyethanol	2.70E-05	3.74E-05	2.75E-05
111-15-9	Ethylene glycol monoethyl ether acetate	2.70E-05	3.74E-05	2.75E-05
111-44-4	Bis(2-chloroethyl) ether	2.70E-05	3.74E-05	2.75E-05
111-91-1	Bis(2-chloroethoxy)methane	2.70E-05	3.74E-05	2.75E-05
1120-71-4	1,3-Propane sultone	2.70E-05	3.74E-05	2.75E-05
118-74-1	Hexachlorobenzene	2.70E-05	3.74E-05	2.75E-05
119-90-4	3,3'-Dimethoxybenzidine (ortol-dianisidine)	2.70E-05	3.74E-05	2.75E-05
121-14-2	2,4-Dinitrotoluene	2.70E-05	3.74E-05	2.75E-05
122-66-7	1,2-Diphenylhydrazine	2.70E-05	3.74E-05	2.75E-05

Table 6 Summary WTP Stacks PIC Air Emissions

CAS Registry Number	Compound	PT Stack Mass Rate g/sec	LAW Stack Mass Rate g/sec	HLW Stack Mass Rate g/sec
123-33-1	Maleic hydrazide	2.70E-05	3.74E-05	2.75E-05
131-11-3	Dimethylphthalate	2.70E-05	3.74E-05	2.75E-05
131-89-5	2-Cyclohexyl-4,6-dinitrophenol	2.70E-05	3.74E-05	2.75E-05
133-06-2	Captan	2.70E-05	3.74E-05	2.75E-05
145-73-3	Endothall	2.70E-05	3.74E-05	2.75E-05
23950-58-5	Pronamide	2.70E-05	3.74E-05	2.75E-05
319-84-6	Hexachlorocyclohexane (Lindane) Alpha BHC	2.70E-05	3.74E-05	2.75E-05
319-85-7	Hexachlorocyclohexane (Lindane) Beta BHC	2.70E-05	3.74E-05	2.75E-05
506-68-3	Cyanogen bromide	2.70E-05	3.74E-05	2.75E-05
510-15-6	Chlorobenzilate	2.70E-05	3.74E-05	2.75E-05
51-28-5	2,4-Dinitrophenol	2.70E-05	3.74E-05	2.75E-05
51-79-6	Ethyl Carbamate (urethane)	2.70E-05	3.74E-05	2.75E-05
528-29-0	o-Dinitrobenzene	2.70E-05	3.74E-05	2.75E-05
532-27-4	2-Chloroacetophenone	2.70E-05	3.74E-05	2.75E-05
534-52-1	4,6-Dinitro-o-cresol	5.31E-04	7.36E-04	5.42E-04
57-24-9	Strychnine	2.70E-05	3.74E-05	2.75E-05
57-74-9	Chlordane	2.70E-05	3.74E-05	2.75E-05
584-84-9	2,4-Toluene diisocyante	2.70E-05	3.74E-05	2.75E-05
58-89-9	gamma-BHC (Lindane)	2.70E-05	3.74E-05	2.75E-05
60-11-7	Dimethyl aminoazobenzene	2.70E-05	3.74E-05	2.75E-05
606-20-2	2,6-Dinitrotoluene	2.70E-05	3.74E-05	2.75E-05
608-93-5	Pentachlorobenzene	2.70E-05	3.74E-05	2.75E-05
62-50-0	Ethyl methanesulfonate	2.70E-05	3.74E-05	2.75E-05
62-53-3	Aniline	2.70E-05	3.74E-05	2.75E-05
65-85-0	Benzoic acid	2.70E-05	3.74E-05	2.75E-05
70-30-4	Hexachlorophene	2.70E-05	3.74E-05	2.75E-05
72-43-5	Methoxychlor	2.70E-05	3.74E-05	2.75E-05
72-55-9	4,4'-DDE	2.70E-05	3.74E-05	2.75E-05
76-44-8	Heptachlor	2.70E-05	3.74E-05	2.75E-05
765-34-4	Glycidylaldehyde	2.70E-05	3.74E-05	2.75E-05
77-47-4	Hexachlorocyclopentadiene	2.70E-05	3.74E-05	2.75E-05
77-78-1	Dimethyl sulfate	2.70E-05	3.74E-05	2.75E-05
822-06-0	Hexamethylene-1,5-diisocyanate	2.70E-05	3.74E-05	2.75E-05
823-40-5	Toluene-2,6-diamine	2.70E-05	3.74E-05	2.75E-05
82-68-8	Pentachloronitrobenzene (PCBN)	2.70E-05	3.74E-05	2.75E-05
85-44-9	Phthalic anhydride	2.70E-05	3.74E-05	2.75E-05
87-86-5	Pentachlorophenol	2.70E-05	3.74E-05	2.75E-05
88-74-4	o-Nitroaniline (2-Nitroaniline)	2.70E-05	3.74E-05	2.75E-05
90-04-0	o-Anisidine	2.70E-05	3.74E-05	2.75E-05
91-94-1	3,3'-Dichlorobenzidine	2.70E-05	3.74E-05	2.75E-05
94-59-7	Safrole	2.70E-05	3.74E-05	2.75E-05
94-75-7	2,4-D and esters (!60C typed)	2.70E-05	3.74E-05	2.75E-05
95-94-3	1,2,4,5-Tetrachlorobenzene	2.70E-05	3.74E-05	2.75E-05
96-12-8	1,2-Dibromo-3-chloropropane	2.70E-05	3.74E-05	2.75E-05
96-45-7	Ethylene thiourea	2.70E-05	3.74E-05	2.75E-05
98-01-1	Furfural	2.70E-05	3.74E-05	2.75E-05
98-07-7	Benzotrichloride	2.70E-05	3.74E-05	2.75E-05
99-35-4	1,3,5-Trinitrobenzene	2.70E-05	3.74E-05	2.75E-05

Table 6 Summary WTP Stacks PIC Air Emissions

CAS Registry Number	Compound	PT Stack Mass Rate g/sec	LAW Stack Mass Rate g/sec	HLW Stack Mass Rate g/sec
99-65-0	1,3-Dinitrobenzene	2.70E-05	3.74E-05	2.75E-05
100-44-7	Benzyl chloride	3.60E-06	4.98E-06	3.67E-06
103-65-1	n-Propyl benzene (Isocumene)	3.60E-06	4.98E-06	3.67E-06
104-51-8	n-Butylbenzene	3.60E-06	4.98E-06	3.67E-06
106-43-4	4-Chlorotoluene (p-Tolyl chloride)	3.60E-06	4.98E-06	3.67E-06
106-89-8	Epichlorohydrin (1-chloro-2,3-epoxypropane)	3.60E-06	4.98E-06	3.67E-06
107-19-7	Propargyl alcohol	3.60E-06	4.98E-06	3.67E-06
107-21-1	Ethylene glycol	3.60E-06	4.98E-06	3.67E-06
108-67-8	1,3,5-Trimethyl benzene	3.60E-06	4.98E-06	3.67E-06
108-86-1	Bromobenzene (Phenyl bromide)	3.60E-06	4.98E-06	3.67E-06
109-77-3	Malononitrile	3.60E-06	4.98E-06	3.67E-06
124-48-1	Chlorodibromomethane	3.60E-06	4.98E-06	3.67E-06
135-98-8	sec-Butylbenzene	3.60E-06	4.98E-06	3.67E-06
156-59-2	cis-1,2-Dichloroethene	3.60E-06	4.98E-06	3.67E-06
25013-15-4	Methyl styrene (mixed isomers)	3.60E-06	4.98E-06	3.67E-06
41851-50-7	Chlorocyclopentadiene	3.60E-06	4.98E-06	3.67E-06
460-19-5	Cyanogen	3.60E-06	4.98E-06	3.67E-06
506-77-4	Cyanogen chloride	3.60E-06	4.98E-06	3.67E-06
540-73-8	1,2-Dimethylhydrazine	3.60E-06	4.98E-06	3.67E-06
542-75-6	1,3-Dichloropropene	3.60E-06	4.98E-06	3.67E-06
542-88-1	Dichloromethyl ether	3.60E-06	4.98E-06	3.67E-06
593-60-2	Bromoethene	3.60E-06	4.98E-06	3.67E-06
61626-71-9	Dichloropentadiene	3.60E-06	4.98E-06	3.67E-06
74-88-4	Iodomethane (Methyl iodide)	3.60E-06	4.98E-06	3.67E-06
74-95-3	Methylene bromide	3.60E-06	4.98E-06	3.67E-06
75-25-2	Bromoform	3.60E-06	4.98E-06	3.67E-06
75-29-6	2-Chloropropane	3.60E-06	4.98E-06	3.67E-06
75-44-5	Phosgene	3.60E-06	4.98E-06	3.67E-06
76-01-7	Pentachloroethane	3.60E-06	4.98E-06	3.67E-06
764-41-0	1,4-Dichloro-2-butene	3.60E-06	4.98E-06	3.67E-06
80-62-6	Methyl methacrylate	3.60E-06	4.98E-06	3.67E-06
87-61-6	1,2,3-Trichlorobenzene	3.60E-06	4.98E-06	3.67E-06
924-16-3	N-Nitrosodi-n-butylamine	3.60E-06	4.98E-06	3.67E-06
95-53-4	o-Toluidine	3.60E-06	4.98E-06	3.67E-06
95-63-6	1,2,4-Trimethyl benzene	3.60E-06	4.98E-06	3.67E-06
96-18-4	1,2,3-Trichloropropane	3.60E-06	4.98E-06	3.67E-06
97-63-2	Ethyl methacrylate	3.60E-06	4.98E-06	3.67E-06
98-06-6	tert-Butyl benzene	3.60E-06	4.98E-06	3.67E-06
99-87-6	p-Cymene	3.60E-06	4.98E-06	3.67E-06

Appendix G

Update 2: Vapor Phase Partitioning Coefficients

CCN 129507

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R10663840

RPP WTP

Memorandum

To: Edgardo Berrios, MS4-C1 Date: January 6, 2006

From: Lee Bostic CCN: 129507

Ext: 371-3127

Subject: **UPDATE 2: VAPOR PHASE PARTITIONING COEFFICIENTS**

References: 1) CCN 057415, Memo, from G. Bertolin, SAIC, to J. Cook, BNI, "Phase Determination for COPCs Potentially Emitted from the Hanford Tank Waste Treatment and Immobilization Plant (WTP)," dated May 2, 2003.

2) CCN 101085, Memo, from D. B. Blumenkranz, to J. R. Cook, "Update to Vapor Phase Partitioning Coefficients," dated February 9, 2005.

1.0 Purpose

This memorandum updates the vapor phase partitioning coefficients and phase type provided by Reference 2. The methodology determines the phase type of constituents of potential concern (COPCs) in the Hanford Tank Waste Treatment and Immobilization Plant (WTP) offgas emissions by determining the vapor phase partitioning coefficients (F_v). F_v is used to classify a COPC into one of three categories:

- Vapor phase
- Particle phase
- Particle-bound phase

An F_v value is calculated for each COPC identified by WTP as having a potential to be fed to the process facility and emitted to the atmosphere from the WTP process.

2.0 Background

The phase type of a COPC affects the efficiency of the WTP offgas control system for that compound. For example, the particle and particle-bound phases will be attenuated by HEPA filtration, whereas the vapor phase constituents will not. In addition, the phase type affects the uptake of COPCs in WTP emissions by environmental receptors.

The memorandum documenting the phase type for WTP COPCs was originally issued in 2003 by Science Applications International Corporation (SAIC), reference 1. It was updated in 2005 by WTP staff, reference 2. This second update incorporates more recently available data for the WTP COPCs, re-calculates the F_v, and updates the previous phase determination.

A major change to the data update approach was necessary when the US Environmental Protection Agency (EPA) updated the 1998 version of the Human Health Risk Assessment Protocol [HHRAP] (EPA 1998) and issued the final HHRAP (EPA 2005a). Previously, EPA published F_v values in Appendix A-3 to the 1998 HHRAP. In the 2005 HHRAP (EPA 2005a) EPA removed the published Fv values and referred the user to their Companion Database (EPA 2005b) for the data required to calculate the F_v.

3.0 Applicable Codes and Standards

None. See text and reference list for applicable EPA guidance documents.

The sources of data, methods, and results of this analysis are consistent with the EPA HHRAP (EPA 2005a).

4.0 Methodology

The phase of each COPC is based on its F_v, a unitless parameter which is defined as the fraction of the COPC that is in the vapor phase. F_v has a range of 0 to 1. COPCs with F_v values approaching 0 have low vapor pressures and are considered to be primarily in the particle phase, while COPCs with F_v values of 1 have high vapor pressures and are therefore considered to exist primarily in the vapor phase. COPCs with intermediate F_v values are considered to be in the particle-bound phase.

The following criteria are the basis for determining the phase type of a COPC:

- $F_v < 0.05$; phase type = particle
- $F_v = 1.0$; phase type = vapor
- $0.05 \leq F_v < 1.0$; phase type = particle-bound

The F_v value and phase type for COPCs is determined by using the equations presented in Section 4.2. The phase determination is found in Table 2. If data were not available or needed for a phase determination calculation, it is indicated as n/a, not available.

4.1 Assumptions and Other Applicable Data

The procedure for computing F_v values is described in the final HHRAP (EPA 2005a). Data necessary for calculation of F_v includes the melting point temperature and vapor pressure. Section 4.2 provides details of the calculation.

Melting point temperature and vapor pressure data were obtained from several sources in the hierarchy listed here (note, complete references are provided in Section 6.0):

1. *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities, Final,* EPA 2005a
2. *Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities, Companion Database,* EPA 2005b.
3. *Exposure and Human Health Reassessment of 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD) and Related Compounds,* EPA 2003.
4. *Superfund Chemical Data Matrix (SCDM),* EPA. 2004.
5. Syracuse Research Corporation (SRC). CHEMFATE Database, SRC 2005a.
6. Syracuse Research Corporation (SRC). PHYSPROP Database, SRC 2005b.
7. *Chemical Properties Handbook,* Chapter 7 Table: "Vapor Pressure: Organic Compounds", Yaws 1999

The EPA HHRAP Companion Database (EPA 2005b), TCDD Reassessment (EPA 2003), and the SCDM (EPA 2004) are secondary data references, which refer in many cases to one of the other references in the hierarchy. The selection process started by reviewing the secondary reference; to confirm the secondary reference, the primary reference was reviewed and data was taken from the primary source. The data source was updated to the primary reference and used if it was available. If the primary reference was not available, the secondary database reference was used and noted as the data source.

The SRC 2005a CHEMFATE data source was preferred to the SRC 2005b PHYSPROP data source. If more than one value was found in SRC 2005a, the recommended value was selected; if more that one value was recommended, the measured value was selected or if both values were calculated the higher value was selected. If no value was available in CHEMFATE (SRC 2005a) a value was selected from PHYSPROP (SRC 2005B) or Yaws 1999, if available. Attachment 1 provides copies of the raw data used in calculating the F_v.

4.2 Organics

For organic COPCs that are liquid at ambient conditions, F_v is defined by the following equation[1]:

$$F_v = 1 - (cS_T)/(p^\circ_L + cS_T) \qquad \text{Eq. 1}$$

where,

F_v = Fraction of compound in the vapor phase (unitless)
c = Junge constant[2] (1.7×10^{-4} atm-cm)

[1] HHRAP (EPA 2005a), Appendix A, Section A2-2.5, Equation A-2-1.

$p°_L$ = Liquid phase vapor pressure of compound (atm)
S_T = Whitby's average surface area of particulates (3.5×10^{-6} cm^2/cm^3 air)

Bidleman (1998) determined that F_v is explained better by the liquid phase vapor pressure ($p°_L$) rather than the solid phase vapor pressure ($p°_s$). Therefore, if a COPC is a solid at ambient conditions, the following equation[3] was used to determine the liquid phase vapor pressure of the COPC before calculating F_v in Equation 1.

$$\text{Ln}\ (p°_L / p°_s) = \Delta S_f/R \cdot (T_m - T_a)/ T_a \qquad \text{Eq. 2}$$

where,

$p°_L$ = Liquid-phase vapor pressure of chemical (atm)
$p°_s$ = Solid-phase vapor pressure of chemical (atm)
$\Delta S_f/R$ = Entropy of fusion over the universal gas constant = 6.79 (unitless)
T_m = Melting point of chemical (°K)
T_a = Ambient temperature = 298 °K

Physical property data were taken from the data sources in the hierarchical order as described in Section 4.1.

4.3 Metals

All metals (with the exception of mercury) are considered to be nonvolatile (e.g. particles) and are therefore assigned an F_v of 0 (EPA 2005a). Elemental mercury, is assigned an F_v of 1; divalent mercury (Hg^{+2}) is assigned an F_v of 0.85 (EPA 2005a). Methyl mercury is not assumed to form in the WTP process; it forms after deposition in the environment, is considered to be nonvolatile, and assigned an F_v of 0 (EPA 2005a).

4.4 Radionuclides

Radionuclides, with the exception of tritium, carbon-14, and iodine-129, are metals and therefore assigned an F_v of 0, consistent with the HHRAP (EPA 2005a) guidance for metals. Tritium is always found as a vapor at ambient conditions. Carbon-14 is assumed to exist as $^{14}CO_2$, and is therefore considered to be a vapor phase compound. Non-radioactive iodine has a vapor pressure of 0.233 mm Hg at 25°C (SRC 2005b) and thus, has an F_v of 1; the non-radioactive value was used for iodine-129.

Assumptions: $F_v = 1$ for tritium, carbon-14, and iodine-129; for other radionuclides $F_v = 0$.

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[2] The Junge constant can depend on (1) the compound (sorbate) molecular weight, (2) the surface concentration for monolayer coverage, and (3) the difference between the heat of desorption from the particle surface and the heat of vaporization of the liquid-phase sorbate. Because a constant was used for these calculations, some uncertainty is introduced.

[3] HHRAP (EPA 2005a), Appendix A, Section A2-2.5, Equation A-2-2.

4.5 Compounds Without Data

Several compounds have vapor pressure data but do not have melting point temperature data to enable determination of whether the vapor pressure given is for a solid or liquid phase. In those events, the vapor pressure was assumed to be for a liquid[4].

The vapor pressure for one COPC, trichlorofluoroethane, CAS # 27154-33-2 was calculated from equations in Yaws 1999. The calculated value was assumed to be for the liquid phase. Data were not found for two other COPCs, Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl)sulfide, CAS# 96-69-5 and dichloropentadiene, CAS# 61626-71-9.

Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl)sulfide (CAS# 96-69-5) is a solid at ambient temperatures and has a melting temperature of 150 °C and a molecular weight of 358.5378 g/mol. The compound contains two phenyl groups connected with a carbon-sulfur-carbon bond. Each phenyl ring has a hydroxyl, methyl, and butyl group attached (Table 1). Diphenyl disulfide, nitrophenyl phenyl sulfide, 4-chloro-4'-nitrodiphenyl sulfide, and 4,4'-di-tert-butyldiphenylmethane were all considered as possible sources of surrogate F_v or vapor pressure data, however, no data on these chemicals was found in available resources. Examination of data available for COPCs within that weight range that were solids at ambient temperatures indicates bus (3-tert-butyl-4-hydroxy-6-methyl-phenyl) sulfide is likely to be particle-bound with a F_v value in the range of 0.5 to 1.0. The conservative approach is to consider bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl)sulfide a vapor and assign a F_v value of 1.0. This assumption is supported by diphenyl sulfide, a compound made of two phenyl groups connected with a carbon-sulfur-carbon bond, which had a F_v of 0.994 when computed using the vapor pressure.

For dichloropentadiene (CAS# 61626-71-9), no information on specific isomers could be located. The data for structurally similar compounds, 1,3-pentadiene, 1,3-butadiene, cis-1,3-dichloropropene, and trans-1,3-dichloropropene indicate that light-weight alkene chains bonded with chlorine atoms typically exist in the vapor phase ($F_v = 1.0$). Based on its structural similarity to these compounds, dichloropentadiene was assigned a F_v value of 1.0.

5.0 Results

These results confirm and update the values originally provided by SAIC (057415) and updated by Blumenkranz (101085). The results provide the basis for determining the phase type and modeling of each COPC identified in the WTP emissions estimate used to support permitting. Table 2 presents data for each of the COPCs being evaluated, including melting point temperature, as found in the source data, melting point temperature in degrees Kelvin, vapor

[4] This assumption is likely realistic; however some non-conservative uncertainty is introduced since the F_v would be slightly higher if the vapor pressure used was $p°_s$, though it is unlikely to change the phase determination for the COPC.

Pressure, as found and vapor pressure converted to liquid vapor pressure in atmospheres, calculated F_v value and the phase type determination. The results are used in determining the decontamination factor for each COPC in the offgas processing system. The table is sorted by organic and inorganic COPC groups; COPCs of particular interest are grouped (i.e., Dioxins/furans, PCBs, and polycyclic aromatic hydrocarbons [PAHs]) and then by CAS number.

Updated values are rounded to four significant digits since that is likely the limit of the physical property measurement precision. Vapor pressures for COPCs with melting point temperature greater than 25°C were considered to be solid phase vapor pressures and the updated data were converted from solid vapor pressure at ambient temperatures to liquid vapor pressure (per Equation 2) for use in the F_v computation (Equation 1).

At the bottom of Table 2 are found eleven additional constituents found in Hanford tank vapor space during a survey by CH2M Hill Hanford Group (CHG). These COPCs were intentionally segregated from other constituents we have agreed with Ecology to evaluate because currently, we have not been able to locate applicable toxicity data for evaluating them. However, data is continually updated and therefore these COPCs will be tracked in the emission estimate.

6.0 References

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Table 1. Surrogate F_v Values

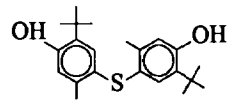
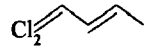
Compound Structure	CAS Number	Compound	Phase Type	Vapor Fraction (F_v)	Basis for F_v
	96-69-5	Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl)sulfide	vapor	1.00	Conservative assumption. Similar compounds have high F_v values.
	61626-71-9	Dichloropentadiene	vapor	1.00	Conservative assumption. Light-weight alkene compound.

Table 2. Vapor Phase Partitioning Coefficients (F_v) and Phase Determination

CAS# [3]	COPC Name	PIC [3] / Feed [1]	Class [2]	Tm [3] °C	Tm [3] °K	Tm [3] Source [7]	Vp [3] mmHg	Vp [3] atm	Vp [3] Source [7]	Vp [3] Used [4]	Fv [3]	Phase Type	Source for non-calculated Fv's
100-00-5	p-Nitrochlorobenzene	F	LSB	83.5	356.5	SRC 2005b	2.19E-02	2.88E-05	SRC 2005b	1.09E-04	1	vapor	
100-02-7	4-Nitrophenol	P	LSB	115	388	SRC 2005a	4.10E-05	5.39E-08	SRC 2005a	4.19E-07	0.999	particle bound	
100-21-0	p-Phthalic acid	F	OLSVOL	300	573	SRC 2005a	9.20E-06	1.21E-08	SRC 2005a	6.37E-06	1	vapor	
100-25-4	1,4-Dinitrobenzene	F	LSB	174	447	SRC 2005b	2.61E-05	3.43E-08	SRC 2005b	1.02E-06	0.999	particle bound	
100-41-4	Ethyl benzene	F	ANHH	-94.975	178.025	SRC 2005a	9.60E+00	1.26E-02	SRC 2005a	1.26E-02	1	vapor	
100-42-5	Styrene	F	ANHH	-30.628	242.372	SRC 2005a	6.12E+00	8.05E-03	EPA 2004	8.05E-03	1	vapor	
100-44-7	Benzyl chloride	P	LSB	-39.2	233.8	SRC 2005a	1.30E+00	1.71E-03	SRC 2005a	1.71E-03	1	vapor	
100-51-6	Benzyl alcohol	P	ANHH	-15.2	257.8	SRC 2005b	6.26E-02	8.24E-05	SRC 2005a	8.24E-05	1	vapor	
100-52-7	Benzaldehyde	P	ANHH	-26	247	SRC 2005b	1.27E-01	1.67E-04	SRC 2005b	1.67E-04	1	vapor	
10061-01-5	cis-1,3-Dichloropropene	F	NAHH	-50	223	SRC 2005b	2.63E+01	3.46E-02	SRC 2005b	3.46E-02	1	vapor	
10061-02-6	trans-1,3-Dichloropropene	F	NAHH	n/a [6]	273		3.40E+01	4.47E-02	SRC 2005b	4.47E-02	1	vapor	
101-55-3	4-Bromophenylphenyl ether	F	OHSVOL	18.7	291.7	SRC 2005a	1.50E-03	1.97E-06	SRC 2005a	1.97E-06	1	vapor	
101-77-9	4,4-Methylenedianiline	P	OLSVOL	89	362	SRC 2005a	2.97E+00	3.91E-03	SRC 2005a	1.68E-02	1	vapor	
101-84-8	Diphenyl ether	F	OLSVOL	28	301	SRC 2005a	2.00E-02	2.63E-05	SRC 2005a	2.82E-05	1	vapor	
103-33-3	Azobenzene	P	OHSVOL	68	341	SRC 2005b	3.61E-04	4.75E-07	SRC 2005b	1.27E-06	1	vapor	
103-65-1	n-Propyl benzene (Isocumene)	P	LSB	-99.5	173.5	SRC 2005b	3.42E+00	4.50E-03	SRC 2005a	4.50E-03	1	vapor	

Table 2. Vapor Phase Partitioning Coefficients (F_v) and Phase Determination

CAS# [3]	COPC Name	PIC [3] / Feed [1]	Class [2]	Tm [3] °C	Tm [3] °K	Tm [3] Source [7]	Vp [3] mmHg	Vp [3] atm	Vp [3] Source [7]	Vp [3] Used [4]	Fv [3]	Phase Type	Source for non-calculated Fv's
104-51-8	n-Butylbenzene	P	LSB	-87.9	185.1	SRC 2005b	1.06E+00	1.39E-03	SRC 2005b	1.39E-03	1	vapor	
105-67-9	2,4-Dimethylphenol	P	LSB	24.54	297.54	SRC 2005a	9.80E-02	1.29E-04	SRC 2005a	1.29E-04	1	vapor	
106-35-4	3-Heptanone	F	NANHH	-39	234	SRC 2005b	2.60E+00	3.42E-03	SRC 2005b	3.42E-03	1	vapor	
106-42-3	p-Xylene	F	ANHH	13.263	286.263	SRC 2005a	8.90E+00	1.17E-02	SRC 2005a	1.17E-02	1	vapor	
106-43-4	4-Chlorotoluene (p-Tolyl chloride)	P	LSB	7.5	280.5	SRC 2005b	2.69E+00	3.54E-03	SRC 2005a	3.54E-03	1	vapor	
106-44-5	p-Cresol	P	LSB	34.739	307.739	SRC 2005a	1.10E-01	1.45E-04	SRC 2005a	1.81E-04	1	vapor	
106-46-7	1,4-Dichlorobenzene	F	LSB	53.13	326.13	SRC 2005a	1.00E+00	1.32E-03	SRC 2005a	2.50E-03	1	vapor	
106-47-8	p-Chloroaniline	P	LSB	72.5	345.5	SRC 2005b	1.23E-02	1.62E-05	SRC 2005a	4.78E-05	1	vapor	
106-49-0	p-Toluidine	P	LSB	43.7	316.7	SRC 2005b	2.86E-01	3.76E-04	SRC 2005b	5.76E-04	1	vapor	
106-51-4	Quinone	P	OLSVOL	115.7	388.7	SRC 2005a	3.75E+01	4.93E-02	SRC 2005a	3.90E-01	1	vapor	
106-88-7	1,2-Epoxybutane	F	NANHH	-150	123	SRC 2005a	1.80E+02	2.37E-01	SRC 2005a	2.37E-01	1	vapor	
106-89-8	Epichlorohydrin	P	OLSVOL	-57.2	215.8	SRC 2005a	1.64E+01	2.16E-02	SRC 2005a	2.16E-02	1	vapor	
106-93-4	Ethylene dibromide	F	OLSVOL	9.79	282.79	SRC 2005a	1.33E+01	1.75E-02	SRC 2005a	1.75E-02	1	vapor	
106-97-8	Butane	F	NANHH	-138.4	134.6	SRC 2005a	1.82E+03	2.39E+00	SRC 2005b	2.39E+00	1	vapor	
106-99-0	1,3-Butadiene	F	NANHH	-108.966	164.034	SRC 2005a	2.11E+03	2.77E+00	SRC 2005a	2.77E+00	1	vapor	
107-02-8	Acrolein	F	NANHH	-86.95	186.05	SRC 2005a	2.74E+02	3.61E-01	SRC 2005a	3.61E-01	1	vapor	

Table 2. Vapor Phase Partitioning Coefficients (F_v) and Phase Determination

CAS# [3]	COPC Name	PIC [3] / Feed[1]	Class[2]	Tm [3] °C	Tm [3] °K	Tm [3] Source [7]	Vp [3] mmHg	Vp [3] atm	Vp [3] Source [7]	Vp [3] Used [4]	Fv [3]	Phase Type	Source for non-calculated Fv's
107-05-1	3-Chloropropene (Allyl chloride)	F	NAHH	-134.5	138.5	SRC 2005a	3.68E+02	4.84E-01	SRC 2005a	4.84E-01	1	vapor	
107-06-2	1,2-Dichloroethane	F	NAHH	-35.66	237.34	SRC 2005a	7.89E+01	1.04E-01	SRC 2005a	1.04E-01	1	vapor	
107-12-0	Propionitrile	F	NANHH	-91.8	181.2	SRC 2005a	4.74E+01	6.24E-02	SRC 2005a	6.24E-02	1	vapor	
107-13-1	Acrylonitrile	F	NANHH	-83.55	189.45	SRC 2005a	1.09E+02	1.43E-01	SRC 2005a	1.43E-01	1	vapor	
107-18-6	2-Propene-1-ol (Allyl Alcohol)	F	NANHH	-129	144	SRC 2005a	2.61E+01	3.43E-02	SRC 2005a	3.43E-02	1	vapor	
107-19-7	Propargyl alcohol	P	NANHH	-51.8	221.2	SRC 2005a	1.56E+01	2.05E-02	SRC 2005a	2.05E-02	1	vapor	
107-21-1	Ethylene glycol	P	OLSVOL	-12.6	260.4	SRC 2005a	9.20E-02	1.21E-04	SRC 2005a	1.21E-04	1	vapor	
107-31-3	Formic acid, methyl ester	F	NANHH	-99	174	SRC 2005b	5.86E+02	7.71E-01	SRC 2005a	7.71E-01	1	vapor	
107-66-4	Dibutylphosphate	F	OHSVOL	n/a	273		9.60E-05	1.26E-07	SRC 2005b	1.26E-07	0.995	particle bound	
107-87-9	2-Pentanone	F	NANHH	-78	195	SRC 2005a	3.54E+01	4.66E-02	SRC 2005a	4.66E-02	1	vapor	
107-98-2	Propylene glycol monomethyl ether	P	NANHH	-142	131	SRC 2005a	1.25E+01	1.64E-02	SRC 2005a	1.64E-02	1	vapor	
108-03-2	1-Nitropropane	F	NANHH	-108	165	SRC 2005b	1.01E+01	1.33E-02	SRC 2005b	1.33E-02	1	vapor	
108-05-4	Vinyl acetate	F	NANHH	-92.8	180.2	SRC 2005a	9.02E+01	1.19E-01	SRC 2005a	1.19E-01	1	vapor	
108-10-1	Hexone (4-Methyl-2-pentanone or MIBK)	F	NANHH	-84	189	SRC 2005a	1.99E+01	2.61E-02	SRC 2005a	2.61E-02	1	vapor	
108-20-3	Bis(isopropyl)ether	F	NANHH	-86.8	186.2	SRC 2005b	1.49E+02	1.96E-01	SRC 2005a	1.96E-01	1	vapor	
108-38-3	m-Xylene	F	ANHH	-47.872	225.128	SRC 2005a	8.45E+00	1.11E-02	SRC 2005a	1.11E-02	1	vapor	

Table 2. Vapor Phase Partitioning Coefficients (F_v) and Phase Determination

CAS# [3]	COPC Name	PIC [3] / Feed [1]	Class [2]	Tm [3] °C	Tm [3] °K	Tm [3] Source [7]	Vp [3] mmHg	Vp [3] atm	Vp [3] Source [7]	Vp [3] Used [4]	*Fv* [3]	Phase Type	Source for non-calculated *Fv*'s
108-39-4	m-Cresol	F	LSB	12.22	285.22	SRC 2005a	1.38E-01	1.82E-04	SRC 2005a	1.82E-04	1	vapor	
108-60-1	Dichloroisopropyl ether (2,2'-Oxybis(1-chloropropane))	P	OLSVOL	-97	176	SRC 2005a	8.80E-01	1.16E-03	SRC 2005a	1.16E-03	1	vapor	
108-67-8	1,3,5-Trimethyl benzene	P	LSB	-44.7	228.3	SRC 2005b	2.48E+00	3.26E-03	SRC 2005b	3.26E-03	1	vapor	
108-86-1	Bromobenzene (Phenyl bromide)	P	LSB	-30.6	242.4	SRC 2005b	4.18E+00	5.50E-03	SRC 2005b	5.50E-03	1	vapor	
108-87-2	Methylcyclohexane	F	NANHH	-126.6	146.4	SRC 2005b	4.60E+01	6.05E-02	SRC 2005b	6.05E-02	1	vapor	
108-88-3	Toluene	F	ANHH	-94.991	178.009	SRC 2005a	2.84E+01	3.74E-02	SRC 2005a	3.74E-02	1	vapor	
108-90-7	Chlorobenzene	F	LSB	-45.58	227.42	SRC 2005a	1.20E+01	1.58E-02	SRC 2005a	1.58E-02	1	vapor	
108-93-0	Cyclohexanol	F	OLSVOL	24	297	SRC 2005a	8.00E-01	1.05E-03	SRC 2005a	1.05E-03	1	vapor	
108-94-1	Cyclohexanone	F	NANHH	-31	242	SRC 2005b	4.33E+00	5.70E-03	SRC 2005a	5.70E-03	1	vapor	
108-95-2	Phenol	F	LSB	40.9	313.9	SRC 2005a	2.76E-01	3.63E-04	SRC 2005a	5.22E-04	1	vapor	
109-66-0	n-Pentane	F	NANHH	-130	143	SRC 2005a	5.14E+02	6.76E-01	SRC 2005b	6.76E-01	1	vapor	
109-77-3	Malononitrile	P	OLSVOL	32	305	SRC 2005b	2.00E-01	2.63E-04	SRC 2005b	3.09E-04	1	vapor	
109-86-4	2-Methoxyethanol	P	NANHH	-85.1	187.9	SRC 2005a	9.01E+00	1.19E-02	SRC 2005a	1.19E-02	1	vapor	
109-99-9	Tetrahydrofuran	F	OLSVOL	-108.3	164.7	SRC 2005b	1.62E+02	2.13E-01	SRC 2005a	2.13E-01	1	vapor	
110-12-3	5-Methyl-2-hexanone	F	NANHH	-73.9	199.1	SRC 2005a	5.20E+00	6.84E-03	SRC 2005a	6.84E-03	1	vapor	
110-43-0	2-Heptanone	F	NANHH	-35.5	237.5	SRC 2005a	2.73E+00	3.59E-03	SRC 2005a	3.59E-03	1	vapor	

Table 2. Vapor Phase Partitioning Coefficients (F_v) and Phase Determination

CAS# [3]	COPC Name	PIC [3] / Feed [1]	Class [2]	Tm [3] °C	Tm [3] °K	Tm [3] Source [7]	Vp [3] mmHg	Vp [3] atm	Vp [3] Source [7]	Vp [3] Used [4]	Fv [3]	Phase Type	Source for non-calculated Fv's
110-54-3	n-Hexane	F	NANHH	-95.3	177.7	SRC 2005b	1.51E+02	1.99E-01	SRC 2005a	1.99E-01	1	vapor	
110-62-3	n-Valeraldehyde	F	NANHH	-91.5	181.5	SRC 2005b	2.60E+01	3.42E-02	SRC 2005b	3.42E-02	1	vapor	
110-80-5	2-Ethoxyethanol	P	NANHH	-100	173	SRC 2005a	5.31E+00	6.99E-03	SRC 2005a	6.99E-03	1	vapor	
110-82-7	Cyclohexane	F	NANHH	6.554	279.554	SRC 2005a	9.69E+01	1.27E-01	SRC 2005a	1.27E-01	1	vapor	
110-83-8	Cyclohexene	F	NANHH	-103.5	169.5	SRC 2005b	8.90E+01	1.17E-01	SRC 2005b	1.17E-01	1	vapor	
110-86-1	Pyridine	F	OLSVOL	-41.55	231.45	SRC 2005a	2.08E+01	2.74E-02	SRC 2005a	2.74E-02	1	vapor	
111-15-9	Ethylene glycol monoethyl ether acetate	P	OLSVOL	-61.7	211.3	SRC 2005b	2.34E+00	3.08E-03	SRC 2005a	3.08E-03	1	vapor	
111-44-4	Bis(2-chloroethyl) ether	P	OLSVOL	-46.8	226.2	SRC 2005a	1.55E+00	2.04E-03	SRC 2005a	2.04E-03	1	vapor	
111-65-9	n-Octane	F	NANHH	-56.8	216.2	SRC 2005b	1.41E+01	1.86E-02	SRC 2005b	1.86E-02	1	vapor	
111-76-2	Ethylene glycol monobutyl ether	F	OLSVOL	-75	198	SRC 2005a	8.67E-01	1.14E-03	SRC 2005a	1.14E-03	1	vapor	
111-84-2	n-Nonane	F	NANHH	-53.5	219.5	SRC 2005b	4.45E+00	5.86E-03	SRC 2005a	5.86E-03	1	vapor	
111-91-1	Bis(2-chloroethoxy)methane	P	OLSVOL	-32	241	SRC 2005a	1.40E-04	1.84E-07	SRC 2005a	1.84E-07	0.997	particle bound	
1120-71-4	1,3-Propane sultone	P	OLSVOL	95.68	368.68	SRC 2005a	1.70E+01	2.24E-02	SRC 2005a	1.12E-01	1	vapor	
117-81-7	Bis(2-ethylhexyl) phthalate (DEHP)	F	PHT	-50	223	SRC 2005a	6.78E-08	8.92E-11	SRC 2005a	8.92E-11	0.13	particle bound	
117-84-0	n-Dioctyl phthalate	F	PHT	-25	248	SRC 2005a	2.60E-06	3.42E-09	SRC 2005a	3.42E-09	0.852	particle bound	
118-74-1	Hexachlorobenzene	P	OHSVOL	228.7	501.7	SRC 2005a	1.80E-05	2.37E-08	SRC 2005a	2.46E-06	1	vapor	

Table 2. Vapor Phase Partitioning Coefficients (F_v) and Phase Determination

CAS# [3]	COPC Name	PIC [3] / Feed [1]	Class [2]	Tm [3] °C	Tm [3] °K	Tm [3] Source [7]	Vp [3] mmHg	Vp [3] atm	Vp [3] Source [7]	Vp [3] Used [4]	Fv [3]	Phase Type	Source for non-calculated Fv's
119-90-4	3,3'-Dimethoxybenzidine	P	OHSVOL	138	411	SRC 2005a	2.12E-07	2.79E-10	SRC 2005a	3.66E-09	0.86	particle bound	
120-82-1	1,2,4-Trichlorobenzene	F	LSB	17	290	SRC 2005a	4.31E-01	5.66E-04	SRC 2005a	5.66E-04	1	vapor	
120-83-2	2,4-Dichlorophenol	F	LSB	43	316	SRC 2005a	6.70E-02	8.82E-05	SRC 2005a	1.33E-04	1	vapor	
121-14-2	2,4-Dinitrotoluene	P	LSB	70	343	SRC 2005a	1.47E-04	1.93E-07	SRC 2005a	5.39E-07	0.999	particle bound	
121-44-8	Triethylamine	F	NANHH	-115	158	SRC 2005a	5.71E+01	7.51E-02	SRC 2005a	7.51E-02	1	vapor	
121-69-7	Dimethylaniline	F	OLSVOL	2.45	275.45	SRC 2005a	7.00E-01	9.21E-04	SRC 2005a	9.21E-04	1	vapor	
122-39-4	N,N-Diphenylamine	F	OLSVOL	53	326	SRC 2005a	6.68E-04	8.79E-07	SRC 2005a	1.66E-06	1	vapor	
122-66-7	1,2-Diphenylhydrazine	P	OLSVOL	126	399	SRC 2005a	4.31E-04	5.67E-07	SRC 2005a	5.66E-06	1	vapor	
123-19-3	4-Heptanone	F	NANHH	-33	240	SRC 2005b	6.12E+00	8.05E-03	SRC 2005b	8.05E-03	1	vapor	
123-33-1	Maleic hydrazide	P	OLSVOL	306	579	SRC 2005a	2.77E-06	3.64E-09	SRC 2005b	2.20E-06	1	vapor	
123-38-6	n-Propionaldehyde	F	NANHH	-80	193	SRC 2005a	3.17E+02	4.17E-01	SRC 2005a	4.17E-01	1	vapor	
123-51-3	3-Methyl-1-butanol	F	NANHH	-117.2	155.8	SRC 2005b	2.37E+00	3.12E-03	SRC 2005b	3.12E-03	1	vapor	
123-86-4	Acetic acid n-butyl ester	F	NANHH	-78	195	SRC 2005b	1.15E+01	1.51E-02	SRC 2005a	1.51E-02	1	vapor	
123-91-1	1,4-Dioxane	F	NANHH	11.8	284.8	SRC 2005a	3.81E+01	5.01E-02	SRC 2005a	5.01E-02	1	vapor	
124-48-1	Chlorodibromomethane	P	NAHH	-22	251	SRC 2005a	4.90E+00	6.45E-03	SRC 2005a	6.45E-03	1	vapor	
126-73-8	Tributyl phosphate	F	OHSVOL	-79	194	SRC 2005a	1.20E-04	1.58E-07	SRC 2005a	1.58E-07	0.996	particle bound	

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CAS# [3]	COPC Name	PIC [3] / Feed [1]	Class [2]	Tm [3] °C	Tm [3] °K	Tm [3] Source [7]	Vp [3] mmHg	Vp [3] atm	Vp [3] Source [7]	Vp [3] Used [4]	*Fv* [3]	Phase Type	Source for non-calculated *Fv*'s
126-98-7	2-Methyl-2-propenenitrile	F	NANHH	-35.8	237.2	SRC 2005b	7.12E+01	9.37E-02	SRC 2005a	9.37E-02	1	vapor	
127-18-4	1,1,2,2-Tetrachloroethene	F	NAHH	-22.35	250.65	SRC 2005a	1.86E+01	2.44E-02	SRC 2005a	2.44E-02	1	vapor	
127-19-5	N,N-Dimethylacetamide	F	NANHH	-20	253	SRC 2005b	2.00E+00	2.63E-03	SRC 2005b	2.63E-03	1	vapor	
128-37-0	2,6-Bis(tert-butyl)-4-methylphenol	F	OHSVOL	71	344	SRC 2005b	5.16E-03	6.79E-06	SRC 2005b	1.94E-05	1	vapor	
131-11-3	Dimethyl phthalate	P	PHT	2	275	SRC 2005a	1.65E-03	2.17E-06	SRC 2005a	2.17E-06	1	vapor	
131-89-5	2-Cyclohexyl-4,6-dinitrophenol	P	OHSVOL	107	380	SRC 2005b	4.19E-08	5.51E-11	SRC 2005b	3.57E-10	0.375	particle bound	
132-64-9	Dibenzofuran	F	ANHH	81	354	SRC 2005b	1.80E-04	2.37E-07	SRC 2005b	8.48E-07	0.999	particle bound	
133-06-2	Captan	P	OHSVOL	178	451	SRC 2005a	6.00E-05	7.89E-08	SRC 2005a	2.58E-06	1	vapor	
135-98-8	sec-Butylbenzene	P	LSB	-82.7	190.3	SRC 2005b	1.75E+00	2.30E-03	SRC 2005b	2.30E-03	1	vapor	
141-78-6	Acetic acid ethyl ester (Ethyl acetate)	F	NANHH	-83.6	189.4	SRC 2005a	9.37E+01	1.23E-01	SRC 2005a	1.23E-01	1	vapor	
141-79-7	4-Methyl-3-penten-2-one	F	NANHH	-59	214	SRC 2005b	1.10E+01	1.45E-02	SRC 2005a	1.45E-02	1	vapor	
142-82-5	n-Heptane	F	NANHH	-90.6	182.4	SRC 2005b	4.60E+01	6.05E-02	SRC 2005b	6.05E-02	1	vapor	
144-62-7	Oxalic acid	F	OLSVOL	189.5	462.5	SRC 2005b	2.34E-04	3.08E-07	SRC 2005b	1.31E-05	1	vapor	
145-73-3	Endothall	P	PEST	144	417	SRC 2005b	1.57E-10	2.07E-13	SRC 2005b	3.11E-12	0.005	particle	
156-59-2	cis-1,2-Dichloroethene	P	NAHH	-80.1	192.9	SRC 2005a	2.03E+02	2.67E-01	SRC 2005a	2.67E-01	1	vapor	
156-60-5	trans-1,2-Dichloroethylene	F	NAHH	-49.8	223.2	SRC 2005a	3.33E+02	4.38E-01	SRC 2005a	4.38E-01	1	vapor	

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1634-04-4	Methyl tert-butyl ether	F	NANHH	-109	164	SRC 2005a	2.49E+02	3.28E-01	SRC 2005a	3.28E-01	1	vapor	
23950-58-5	Pronamide	P	OHSVOL	155	428	SRC 2005b	4.35E-07	5.72E-10	SRC 2005b	1.11E-08	0.949	particle bound	
25013-15-4	Methyl styrene (mixed isomers)	P	OLSVOL	n/a	273	SRC 2005b	1.50E+00	1.97E-03	SRC 2005b	1.97E-03	1	vapor	
25551-13-7	Trimethyl benzene	F	LSB	n/a	273	SRC 2005b	2.10E+00	2.76E-03	SRC 2005b	2.76E-03	1	vapor	
26140-60-3	Terphenyls	F	OHSVOL	n/a	273	SRC 2005b	3.09E-06	4.07E-09	SRC 2005b	4.07E-09	0.872	particle bound	
27154-33-2	Trichlorofluoroethane	F	NAHH	n/a				7.51E-02	Yaws 1999	7.51E-02	1	vapor	
287-92-3	Cyclopentane	F	NANHH	-93.8	179.2	SRC 2005b	3.18E+02	4.18E-01	SRC 2005a	4.18E-01	1	vapor	
319-84-6	alpha-BHC	P	PEST	160	433	SRC 2005a	4.50E-05	5.92E-08	SRC 2005a	1.28E-06	1	vapor	
319-85-7	beta-BHC	P	PEST	315	588	SRC 2005a	4.66E-07	6.13E-10	SRC 2005a	4.54E-07	0.999	particle bound	
4170-30-3	2-Butenaldehyde (2-Butenal or Crotonaldehyde)	F	NANHH	-76.5	196.5	SRC 2005b	3.00E+01	3.95E-02	SRC 2005b	3.95E-02	1	vapor	
41851-50-7	Chlorocyclopentadiene	P	OLSVOL	n/a	273	SRC 2005b	2.04E+01	2.68E-02	SRC 2005b	2.68E-02	1	*vapor*	
460-19-5	Cyanogen	P	NANHH	-27.9	245.1	SRC 2005b	4.30E+03	5.66E+00	SRC 2005a	5.66E+00	1	vapor	
50-00-0	Formaldehyde	F	NANHH	-92	181	SRC 2005a	5.24E+03	6.89E+00	SRC 2005a	6.89E+00	1	vapor	
506-68-3	Cyanogen bromide	P	NAHH	52	325	SRC 2005b	1.22E+02	1.61E-01	SRC 2005b	2.97E-01	1	vapor	
506-77-4	Cyanogen chloride	P	NAHH	-6.5	266.5	SRC 2005b	1.23E+03	1.61E+00	SRC 2005a	1.61E+00	1	vapor	
510-15-6	Chlorobenzilate	P	OHSVOL	37	310	SRC 2005a	2.20E-06	2.89E-09	SRC 2005a	3.81E-09	0.865	particle bound	
51-28-5	2,4-Dinitrophenol	P	LSB	114	387	SRC 2005a	5.10E-03	6.71E-06	SRC 2005a	5.10E-05	1	vapor	

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CAS# [3]	COPC Name	PIC [3] / Feed [1]	Class [2]	Tm [3] °C	Tm [3] °K	Tm [3] Source [7]	Vp [3] mmHg	Vp [3] atm	Vp [3] Source [7]	Vp [3] Used [4]	Fv [3]	Phase Type	Source for non-calculated Fv's
51-79-6	Ethyl Carbamate (urethane)	P	OLSVOL	48	321	SRC 2005a	7.60E-01	1.00E-03	SRC 2005a	1.69E-03	1	vapor	
528-29-0	o-Dinitrobenzene	P	LSB	118.5	391.5	SRC 2005b	4.55E-05	5.99E-08	SRC 2005b	5.04E-07	0.999	particle bound	
532-27-4	2-Chloroacetophenone	P	OLSVOL	58	331	SRC 2005a	5.40E-03	7.11E-06	SRC 2005a	1.51E-05	1	vapor	
534-52-1	4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)	P	LSB	84	357	SRC 2005a	3.24E-04	4.26E-07	SRC 2005a	1.64E-06	1	vapor	
540-59-0	1,2-Dichloroethylene	F	NAHH	-57	216	SRC 2005a	2.01E+02	2.64E-01	SRC 2005a	2.64E-01	1	vapor	
540-73-8	1,2-Dimethylhydrazine	P	OLSVOL	-85	188	SRC 2005a	6.99E+01	9.20E-02	SRC 2005a	9.20E-02	1	vapor	
540-84-1	2,2,4-Trimethylpentane	F	NANHH	-107.3	165.7	SRC 2005b	4.93E+01	6.49E-02	SRC 2005b	6.49E-02	1	vapor	
541-73-1	1,3-Dichlorobenzene	F	LSB	-24.76	248.24	SRC 2005a	2.15E+00	2.83E-03	SRC 2005a	2.83E-03	1	vapor	
542-75-6	1,3-Dichloropropene	P	NAHH	-48	225	SRC 2005a	3.40E+01	4.47E-02	SRC 2005a	4.47E-02	1	vapor	
542-88-1	Dichloromethyl ether	P	OLSVOL	-41.5	231.5	SRC 2005a	3.00E+01	3.95E-02	SRC 2005a	3.95E-02	1	vapor	
56-23-5	Carbon tetrachloride	F	NAHH	-23	250	SRC 2005a	1.14E+02	1.50E-01	SRC 2005a	1.50E-01	1	vapor	
563-80-4	3-Methyl-2-butanone	F	NANHH	-92	181	SRC 2005b	5.22E+01	6.87E-02	SRC 2005a	6.87E-02	1	vapor	
57-14-7	1,1-Dimethylhydrazine	F	OLSVOL	-57.2	215.8	SRC 2005a	1.57E+02	2.07E-01	SRC 2005a	2.07E-01	1	vapor	
57-24-9	Strychnine	P	OHSVOL	290	563	SRC 2005a	9.43E-12	1.24E-14	SRC 2005a	5.20E-12	0.009	particle	
57-74-9	Chlordane	P	PEST	107	380	SRC 2005a	9.80E-06	1.29E-08	SRC 2005a	8.35E-08	0.993	particle bound	
584-84-9	2,4-Toluene diisocyante	P	OLSVOL	19.5	292.5	SRC 2005a	8.00E-03	1.05E-05	SRC 2005a	1.05E-05	1	vapor	

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58-89-9	gamma-BHC (Lindane)	P	PEST	112	385	SRC 2005a	4.10E-04	5.39E-07	SRC 2005a	3.92E-06	1	vapor	
58-90-2	2,3,4,6-Tetrachlorophenol	F	AHH	70	343	SRC 2005a	1.44E-03	1.89E-06	SRC 2005a	5.28E-06	1	vapor	
591-78-6	2-Hexanone	F	NANHH	-55.5	217.5	SRC 2005b	1.16E+01	1.53E-02	SRC 2005a	1.53E-02	1	vapor	
593-60-2	Bromoethene	P	NAHH	-139.54	133.46	SRC 2005a	1.03E+03	1.36E+00	SRC 2005a	1.36E+00	1	vapor	
59-50-7	4-Chloro-3-methylphenol	F	AHH	67	340	SRC 2005b	5.00E-02	6.58E-05	SRC 2005b	1.71E-04	1	vapor	
59-89-2	N-Nitrosomorpholine	F	OLSVOL	29	302	SRC 2005a	3.60E-02	4.74E-05	SRC 2005a	5.19E-05	1	vapor	
60-11-7	Dimethyl aminoazobenzene	P	OHSVOL	114	387	SRC 2005a	7.00E-08	9.21E-11	SRC 2005a	7.00E-10	0.54	particle bound	
60-29-7	Ethyl ether	F	NANHH	-116.3	156.7	SRC 2005b	5.37E+02	7.07E-01	SRC 2005a	7.07E-01	1	vapor	
603-34-9	Triphenylamine	F	OHSVOL	127	400	SRC 2005b	3.92E-04	5.16E-07	SRC 2005b	5.27E-06	1	vapor	
60-34-4	Methylhydrazine	F	OLSVOL	-52.4	220.6	SRC 2005a	5.00E+01	6.58E-02	SRC 2005a	6.58E-02	1	vapor	
60-35-5	Acetamide	F	NANHH	69.5	342.5	SRC 2005a	1.10E-01	1.45E-04	SRC 2005a	3.99E-04	1	vapor	
606-20-2	2,6-Dinitrotoluene	P	LSB	71	344	SRC 2005a	5.67E-04	7.46E-07	SRC 2005a	2.13E-06	1	vapor	
608-93-5	Pentachlorobenzene	P	OHSVOL	86	359	SRC 2005a	2.19E-03	2.88E-06	SRC 2005a	1.16E-05	1	vapor	
61626-71-9	Dichloropentadiene	P	OLSVOL	n/a					n/a	n/a	1	vapor	Conservative Assumption
621-64-7	di-n-Propylnitrosamine	F	OLSVOL	7	280	SRC 2005a	1.30E-01	1.71E-04	SRC 2005a	1.71E-04	1	vapor	
62-50-0	Ethyl methanesulfonate	P	OLSVOL	-0.41	272.59	SRC 2005a	2.06E-01	2.71E-04	SRC 2005a	2.71E-04	1	vapor	

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62-53-3	Aniline	P	LSB	-5.98	267.02	EPA 2004	4.90E-01	6.45E-04	EPA 2004	6.45E-04	1	vapor	
627-13-4	Nitric acid, propyl ester	F	OLSVOL	-100	173	SRC 2005b	2.35E+01	3.09E-02	SRC 2005b	3.09E-02	1	vapor	
62-75-9	N-Nitroso-N,N-dimethylamine (Dimethylnitrosamine)	F	OLSVOL	-50	223	SRC 2005a	2.70E+00	3.55E-03	SRC 2005a	3.55E-03	1	vapor	
630-20-6	1,1,1,2-Tetrachloroethane	F	NAHH	-68.7	204.3	SRC 2005a	1.20E+01	1.58E-02	SRC 2005a	1.58E-02	1	vapor	
64-17-5	Ethyl alcohol	F	NANHH	-114.49	158.51	SRC 2005a	5.93E+01	7.80E-02	SRC 2005a	7.80E-02	1	vapor	
64-18-6	Formic acid	F	NANHH	8.27	281.27	SRC 2005a	4.53E+01	5.96E-02	SRC 2005a	5.96E-02	1	vapor	
64-19-7	Acetic acid	F	NANHH	16.6	289.6	SRC 2005b	1.57E+01	2.07E-02	SRC 2005a	2.07E-02	1	vapor	
65-85-0	Benzoic acid	P	OLSVOL	122.4	395.4	SRC 2005b	7.00E-04	9.21E-07	SRC 2005b	8.47E-06	1	vapor	
67-56-1	Methyl alcohol	F	NANHH	-97.68	175.32	SRC 2005a	1.26E+02	1.66E-01	SRC 2005a	1.66E-01	1	vapor	
67-63-0	2-Propyl alcohol (Isopropanol; Propan-2-01)	F	NANHH	-88	185	SRC 2005a	4.54E+01	5.98E-02	SRC 2005a	5.98E-02	1	vapor	
67-64-1	2-Propanone (Acetone)	F	NANHH	-94.7	178.3	SRC 2005a	2.30E+02	3.03E-01	SRC 2005a	3.03E-01	1	vapor	
67-66-3	Chloroform	F	NAHH	-63.52	209.48	SRC 2005a	1.97E+02	2.60E-01	SRC 2005a	2.60E-01	1	vapor	
67-72-1	Hexachloroethane	F	OHSVOL	186.8	459.8	SRC 2005a	2.10E-01	2.76E-04	SRC 2005a	1.10E-02	1	vapor	
684-16-2	Hexafluoroacetone	F	NAHH	-125	148	SRC 2005b	5.00E+00	6.58E-03	SRC 2005a	6.58E-03	1	vapor	
70-30-4	Hexachlorophene	P	OHSVOL	165	438	SRC 2005a	1.50E-10	1.97E-13	SRC 2005a	4.79E-12	0.008	particle	
71-23-8	n-Propyl alcohol	F	NANHH	-127	146	SRC 2005a	2.10E+01	2.76E-02	SRC 2005a	2.76E-02	1	vapor	

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71-36-3	n-Butyl alcohol	F	NANHH	-88.62	184.38	SRC 2005a	7.00E+00	9.21E-03	SRC 2005a	9.21E-03	1	vapor	
71-43-2	Benzene	F	ANHH	5.53	278.53	SRC 2005a	9.50E+01	1.25E-01	SRC 2005a	1.25E-01	1	vapor	
71-55-6	1,1,1-Trichloroethane	F	NAHH	-30.4	242.6	SRC 2005a	1.24E+02	1.63E-01	SRC 2005a	1.63E-01	1	vapor	
72-43-5	Methoxychlor	P	PEST	89	362	SRC 2005a	6.00E-07	7.89E-10	SRC 2005a	3.39E-09	0.851	particle bound	
72-55-9	4,4'-DDE	P	PEST	89	362	SRC 2005a	6.00E-06	7.89E-09	SRC 2005a	3.39E-08	0.983	particle bound	
74-83-9	Bromomethane	F	NAHH	-94.07	178.93	SRC 2005a	1.62E+03	2.13E+00	SRC 2005a	2.13E+00	1	vapor	
74-87-3	Chloromethane	F	NAHH	-97.7	175.3	SRC 2005a	4.30E+03	5.66E+00	SRC 2005a	5.66E+00	1	vapor	
74-88-4	Iodomethane (Methyl iodide)	P	NAHH	-66.45	206.55	SRC 2005a	4.04E+02	5.32E-01	SRC 2005a	5.32E-01	1	vapor	
74-95-3	Methylene bromide	P	NAHH	-52.7	220.3	SRC 2005a	4.44E+01	5.84E-02	SRC 2005a	5.84E-02	1	vapor	
74-97-5	Bromochloromethane	F	NAHH	-87.9	185.1	SRC 2005b	1.43E+02	1.88E-01	SRC 2005b	1.88E-01	1	vapor	
74-99-7	Methylacetylene	F	NANHH	-102.7	170.3	SRC 2005b	4.31E+03	5.67E+00	SRC 2005b	5.67E+00	1	vapor	
75-00-3	Chloroethane	F	NAHH	-136.4	136.6	SRC 2005a	1.01E+03	1.33E+00	SRC 2005a	1.33E+00	1	vapor	
75-01-4	1-Chloroethene	F	NAHH	-153.8	119.2	SRC 2005a	2.98E+03	3.92E+00	SRC 2005a	3.92E+00	1	vapor	
75-05-8	Acetonitrile	F	NANHH	-45	228	SRC 2005a	8.88E+01	1.17E-01	SRC 2005a	1.17E-01	1	vapor	
75-07-0	Acetaldehyde	F	NANHH	-123	150	SRC 2005a	9.02E+02	1.19E+00	SRC 2005a	1.19E+00	1	vapor	
75-09-2	Dichloromethane	F	NAHH	-94.92	178.08	SRC 2005a	4.33E+02	5.70E-01	SRC 2005a	5.70E-01	1	vapor	

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CAS# [3]	COPC Name	PIC [3] / Feed [1]	Class [2]	Tm [3] °C	Tm [3] °K	Tm [3] Source [7]	Vp [3] mmHg	Vp [3] atm	Vp [3] Source [7]	Vp [3] Used [4]	Fv [3]	Phase Type	Source for non-calculated Fv's
75-12-7	Formamide	F	NANHH	2.55	275.55	SRC 2005a	6.10E-02	8.03E-05	SRC 2005a	8.03E-05	1	vapor	
75-15-0	Carbon disulfide	F	NANHH	-120	153	EPA 2004	3.59E+02	4.72E-01	SRC 2005a	4.72E-01	1	vapor	
75-21-8	Oxirane	F	NANHH	-111	162	SRC 2005a	1.31E+03	1.73E+00	SRC 2005a	1.73E+00	1	vapor	
75-25-2	Bromoform	P	NAHH	8.05	281.05	SRC 2005a	5.51E+00	7.25E-03	SRC 2005a	7.25E-03	1	vapor	
75-27-4	Bromodichloromethane	F	NAHH	-55	218	SRC 2005a	5.00E+01	6.58E-02	SRC 2005a	6.58E-02	1	vapor	
75-29-6	2-Chloropropane	P	NAHH	-117.2	155.8	SRC 2005b	5.15E+02	6.78E-01	SRC 2005b	6.78E-01	1	vapor	
75-34-3	1,1-Dichloroethane	F	NAHH	-96.96	176.04	SRC 2005a	2.27E+02	2.99E-01	SRC 2005a	2.99E-01	1	vapor	
75-35-4	1,1-Dichloroethene	F	NAHH	-122.56	150.44	SRC 2005a	6.00E+02	7.89E-01	SRC 2005a	7.89E-01	1	vapor	
75-43-4	Dichlorofluoromethane	F	NAHH	-135	138	SRC 2005b	1.36E+03	1.79E+00	SRC 2005a	1.79E+00	1	vapor	
75-44-5	Phosgene	P	NANHH	-118	155	SRC 2005a	1.42E+03	1.87E+00	SRC 2005a	1.87E+00	1	vapor	
75-45-6	Chlorodifluoromethane	F	NAHH	-157.4	115.6	SRC 2005b	7.25E+03	9.54E+00	SRC 2005b	9.54E+00	1	vapor	
75-50-3	Trimethylamine	F	NANHH	-124	149	SRC 2005a	1.61E+03	2.11E+00	SRC 2005a	2.11E+00	1	vapor	
75-52-5	Nitromethane	F	NANHH	-28.5	244.5	SRC 2005b	3.58E+01	4.71E-02	SRC 2005b	4.71E-02	1	vapor	
75-55-8	2-Methylaziridine	F	NANHH	-65	208	SRC 2005a	1.12E+02	1.47E-01	SRC 2005a	1.47E-01	1	vapor	
75-61-6	Difluorodibromomethane	F	NAHH	-110.1	162.9	SRC 2005b	8.20E+02	1.08E+00	SRC 2005a	1.08E+00	1	vapor	
75-63-8	Trifluorobromomethane	F	NAHH	-172	101	SRC 2005b	1.22E+04	1.61E+01	SRC 2005b	1.61E+01	1	vapor	

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75-65-0	2-Methyl-2-propanol	F	NANHH	25.62	298.62	SRC 2005a	4.17E+01	5.49E-02	SRC 2005a	5.56E-02	1	vapor	
75-69-4	Trichlorofluoromethane	F	NAHH	-110.48	162.52	EPA 2004	8.03E+02	1.06E+00	EPA 2004	1.06E+00	1	vapor	
75-71-8	Dichlorodifluoromethane	F	NAHH	-158	115	SRC 2005a	4.85E+03	6.38E+00	SRC 2005a	6.38E+00	1	vapor	
76-01-7	Pentachloroethane	P	NAHH	-29	244	SRC 2005a	3.50E+00	4.61E-03	SRC 2005a	4.61E-03	1	vapor	
76-03-9	Trichloroacetic acid	F	NAHH	57.5	330.5	SRC 2005b	6.00E-02	7.89E-05	SRC 2005b	1.66E-04	1	vapor	
76-11-9	1,1,1,2-Tetrachloro-2,2-difluoroethane	F	NAHH	40.6	313.6	SRC 2005b	6.00E+01	7.89E-02	SRC 2005b	1.13E-01	1	vapor	
76-12-0	1,1,2,2-Tetrachloro-1,2-difluoroethane	F	NAHH	26	299	SRC 2005b	2.20E+04	2.90E+01	SRC 2005a	2.96E+01	1	vapor	
76-13-1	1,2,2-Trichloro-1,1,2-trifluoroethane (Freon 113)	F	NAHH	-36.4	236.6	SRC 2005a	3.32E+02	4.36E-01	SRC 2005a	4.36E-01	1	vapor	
76-14-2	1,2-Dichloro-1,1,2,2-tetrafluoroethane	F	NAHH	-94	179	SRC 2005a	2.01E+03	2.65E+00	SRC 2005a	2.65E+00	1	vapor	
76-15-3	Chloropentafluoroethane	F	NAHH	-99.4	173.6	SRC 2005b	7.59E+02	9.99E-01	SRC 2005a	9.99E-01	1	vapor	
764-41-0	1,4-Dichloro-2-butene	P	NAHH	3.5	276.5	SRC 2005b	3.00E+00	3.95E-03	SRC 2005b	3.95E-03	1	vapor	
76-44-8	Heptachlor	P	PEST	96	369	SRC 2005a	4.00E+04	5.26E+01	SRC 2005a	2.65E+02	1	vapor	
765-34-4	Glycidylaldehyde	P	NANHH	-62	211	SRC 2005a	2.70E+01	3.55E-02	SRC 2005a	3.55E-02	1	vapor	
77-47-4	Hexachlorocyclopentadiene	P	OHSVOL	11.34	284.34	SRC 2005a	6.00E-02	7.89E-05	SRC 2005a	7.89E-05	1	vapor	
77-78-1	Dimethyl sulfate	P	OLSVOL	-27	246	SRC 2005a	6.80E-01	8.95E-04	SRC 2005a	8.95E-04	1	vapor	
78-83-1	2-Methylpropyl alcohol (Isobutyl alcohol)	F	NANHH	-108	165	SRC 2005a	1.05E+01	1.38E-02	SRC 2005a	1.38E-02	1	vapor	

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78-87-5	1,2-Dichloropropane	F	NAHH	-70	203	EPA 2004	5.20E+01	6.84E-02	SRC 2005a	6.84E-02	1	vapor	
78-92-2	1-Methylpropyl alcohol (2-Butanol)	F	NANHH	-114.7	158.3	SRC 2005a	1.83E+01	2.41E-02	SRC 2005a	2.41E-02	1	vapor	
78-93-3	2-Butanone	F	NANHH	-87	186	EPA 2004	9.53E+01	1.25E-01	SRC 2005a	1.25E-01	1	vapor	
79-00-5	1,1,2-Trichloroethane	F	NAHH	-37	236	EPA 2004	2.33E+01	3.06E-02	SRC 2005a	3.06E-02	1	vapor	
79-01-6	1,1,2-Trichloroethylene	F	NAHH	-84.8	188.2	SRC 2005a	7.35E+01	9.67E-02	SRC 2005a	9.67E-02	1	vapor	
79-09-4	Propionic acid	F	NANHH	-20.8	252.2	SRC 2005a	3.53E+00	4.64E-03	SRC 2005a	4.64E-03	1	vapor	
79-10-7	2-Propenoic acid	F	OLSVOL	13.5	286.5	SRC 2005a	4.00E+00	5.26E-03	SRC 2005a	5.26E-03	1	vapor	
79-20-9	Methyl acetate	F	NANHH	-98.1	174.9	SRC 2005a	2.16E+02	2.84E-01	SRC 2005a	2.84E-01	1	vapor	
79-34-5	1,1,2,2-Tetrachloroethane	F	NAHH	-44	229	SRC 2005a	4.62E+00	6.08E-03	SRC 2005a	6.08E-03	1	vapor	
80-62-6	Methyl methacrylate	P	NANHH	-48	225	SRC 2005b	3.84E+01	5.05E-02	SRC 2005a	5.05E-02	1	vapor	
822-06-0	Hexamethylene-1,5-diisocyanate	P	OHSVOL	-67	206	SRC 2005b	3.00E-02	3.95E-05	SRC 2005a	3.95E-05	1	vapor	
823-40-5	Toluene-2,6-diamine	P	LSB	105	378	SRC 2005a	2.46E-03	3.24E-06	SRC 2005a	2.00E-05	1	vapor	
82-68-8	Pentachloronitrobenzene	P	OHSVOL	144	417	SRC 2005b	1.13E-04	1.49E-07	SRC 2005a	2.24E-06	1	vapor	
84-66-2	Diethyl phthalate	F	PHT	-41	232	EPA 2004	1.65E-03	2.17E-06	SRC 2005a	2.17E-06	1	vapor	
84-74-2	Dibutyl phthalate	F	PHT	-35	238	EPA 2004	7.30E-05	9.61E-08	SRC 2005a	9.61E-08	0.994	particle bound	
85-44-9	Phthalic anhydride	P	OLSVOL	130.8	403.8	SRC 2005b	5.17E-04	6.80E-07	SRC 2005a	7.58E-06	1	vapor	

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85-68-7	Butylbenzyl phthalate	F	PHT	-35	238	SRC 2005a	8.25E-06	1.09E-08	SRC 2005a	1.09E-08	0.948	particle bound	
87-61-6	1,2,3-Trichlorobenzene	P	LSB	52.6	325.6	SRC 2005a	2.10E-01	2.76E-04	SRC 2005a	5.18E-04	1	vapor	
87-68-3	Hexachlorobutadiene	F	OHSVOL	-21	252	EPA 2004	2.21E-01	2.91E-04	SRC 2005a	2.91E-04	1	vapor	
87-86-5	Pentachlorophenol	P	OHSVOL	170	443	EPA 2004	3.17E-05	4.17E-08	SRC 2005a	1.14E-06	0.999	particle bound	
88-06-2	2,4,6-Trichlorophenol	F	LSB	69	342	EPA 2004	2.40E-02	3.16E-05	SRC 2005a	8.61E-05	1	vapor	
88-72-2	2-Nitrotoluene	F	ANHH	-10	263	SRC 2005b	1.88E-01	2.47E-04	SRC 2005b	2.47E-04	1	vapor	
88-74-4	o-Nitroaniline	P	LSB	71.2	344.2	SRC 2005b	8.78E-04	1.16E-06	SRC 2005a	3.31E-06	1	vapor	
88-75-5	2-Nitrophenol	F	LSB	44.8	317.8	SRC 2005b	1.13E-01	1.49E-04	SRC 2005a	2.33E-04	1	vapor	
90-04-0	o-Anisidine	P	OLSVOL	5	278	SRC 2005a	8.00E-02	1.05E-04	SRC 2005a	1.05E-04	1	vapor	
91-22-5	Quinoline	F	OLSVOL	-14.85	258.15	SRC 2005a	6.00E-02	7.89E-05	SRC 2005a	7.89E-05	1	vapor	
91-94-1	3,3'-Dichlorobenzidine	P	OHSVOL	132	405	SRC 2005a	3.71E-08	4.88E-11	SRC 2005a	5.59E-10	0.484	particle bound	
924-16-3	N-Nitrosodi-n-butylamine	P	OLSVOL	2.13	275.13	SRC 2005a	3.00E-02	3.95E-05	SRC 2005a	3.95E-05	1	vapor	
92-52-4	1,1`-Biphenyl	F	OLSVOL	69	342	SRC 2005a	9.64E-03	1.27E-05	SRC 2005a	3.46E-05	1	vapor	
92-93-3	4-Nitrobiphenyl	F	ANHH	113.7	386.7	SRC 2005a	1.00E-04	1.32E-07	SRC 2005a	9.93E-07	0.999	particle bound	
94-59-7	Safrole	P	OLSVOL	11.2	284.2	SRC 2005a	7.06E-02	9.29E-05	SRC 2005a	9.29E-05	1	vapor	
94-75-7	2,4-D and esters (160C typed)	P	PEST	140.5	413.5	SRC 2005a	6.00E-07	7.89E-10	SRC 2005a	1.10E-08	0.949	particle bound	

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95-47-6	o-Xylene	F	ANHH	-25.182	247.818	SRC 2005a	6.61E+00	8.70E-03	SRC 2005a	8.70E-03	1	vapor	
95-48-7	o-Cresol	F	LSB	30.944	303.944	SRC 2005a	2.99E-01	3.93E-04	SRC 2005a	4.50E-04	1	vapor	
95-49-8	2-Chlorotoluene	F	LSB	-35.59	237.41	SRC 2005a	3.43E+00	4.51E-03	SRC 2005a	4.51E-03	1	vapor	
95-50-1	1,2-Dichlorobenzene	F	LSB	17.01	290.01	SRC 2005a	1.36E+00	1.79E-03	SRC 2005a	1.79E-03	1	vapor	
95-53-4	o-Toluidine	P	LSB	-16.1	256.9	SRC 2005a	3.20E-01	4.21E-04	SRC 2005a	4.21E-04	1	vapor	
95-57-8	2-Chlorophenol	F	LSB	9.8	282.8	SRC 2005b	2.34E+00	3.08E-03	SRC 2005a	3.08E-03	1	vapor	
95-63-6	1,2,4-Trimethyl benzene	P	LSB	-43.78	229.22	SRC 2005a	2.10E+00	2.76E-03	SRC 2005a	2.76E-03	1	vapor	
95-94-3	1,2,4,5-Tetrachlorobenzene	P	OHSVOL	139.5	412.5	SRC 2005a	5.40E-03	7.11E-06	SRC 2005a	9.65E-05	1	vapor	
95-95-4	2,4,5-Trichlorophenol	F	LSB	68	341	SRC 2005a	2.00E-02	2.63E-05	SRC 2005a	7.01E-05	1	vapor	
96-12-8	1,2-Dibromo-3-chloropropane	P	NAHH	6	279	SRC 2005a	5.80E-01	7.63E-04	SRC 2005a	7.63E-04	1	vapor	
96-18-4	1,2,3-Trichloropropane	P	NAHH	-14.7	258.3	SRC 2005a	3.69E+00	4.85E-03	SRC 2005a	4.85E-03	1	vapor	
96-22-0	3-Pentanone	F	NANHH	-39	234	SRC 2005b	3.77E+01	4.96E-02	SRC 2005b	4.96E-02	1	vapor	
96-45-7	Ethylene thiourea	P	OLSVOL	203	476	SRC 2005a	1.40E-04	1.84E-07	SRC 2005a	1.06E-05	1	vapor	
96-69-5	Bis(3-tert-butyl-4-hydroxy-6-methyl-phenyl)sulfide	F	OHSVOL						n/a	n/a	1	vapor	Conservative Assumption
97-63-2	Ethyl methacrylate	P	NANHH	-44.7	228.3	SRC 2005a	2.06E+01	2.71E-02	SRC 2005a	2.71E-02	1	vapor	
98-01-1	Furfural	P	OLSVOL	-36.5	236.5	SRC 2005b	2.21E+00	2.91E-03	SRC 2005a	2.91E-03	1	vapor	

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98-06-6	tert-Butyl benzene	P	LSB	-57.8	215.2	SRC 2005b	2.20E+00	2.89E-03	SRC 2005b	2.89E-03	1	vapor	
98-07-7	Benzotrichloride	P	LSB	-4.75	268.25	SRC 2005a	4.70E-01	6.18E-04	SRC 2005a	6.18E-04	1	vapor	
98-51-1	p-tert-Butyltoluene	F	NANHH	-52	221	SRC 2005b	6.71E-01	8.83E-04	SRC 2005a	8.83E-04	1	vapor	
98-82-8	Cumene	F	LSB	-96.033	176.967	SRC 2005a	4.50E+00	5.92E-03	SRC 2005a	5.92E-03	1	vapor	
98-83-9	alpha-Methylstyrene	F	LSB	-23.2	249.8	SRC 2005b	2.50E+00	3.29E-03	SRC 2005a	3.29E-03	1	vapor	
98-86-2	Acetophenone	F	OLSVOL	19.62	292.62	SRC 2005a	3.97E-01	5.22E-04	SRC 2005a	5.22E-04	1	vapor	
98-95-3	Nitrobenzene	F	LSB	5.76	278.76	SRC 2005a	2.45E-01	3.22E-04	SRC 2005a	3.22E-04	1	vapor	
99-35-4	1,3,5-Trinitrobenzene	P	OHSVOL	121.5	394.5	SRC 2005a	6.44E-06	8.47E-09	SRC 2005a	7.64E-08	0.992	particle bound	
99-65-0	1,3-Dinitrobenzene	P	LSB	90	363	SRC 2005a	9.00E-04	1.18E-06	SRC 2005a	5.21E-06	1	vapor	
99-87-6	p-Cymene	P	NANHH	-68.9	204.1	SRC 2005b	1.46E+00	1.92E-03	SRC 2005a	1.92E-03	1	vapor	
1321-64-8	Pentachloronaphthalene	F	HPAH	n/a	273	SRC 2005b	1.49E-05	1.96E-08	SRC 2005b	1.96E-08	0.971	particle bound	
1321-65-9	Trichloronaphthalene	F	HPAH	n/a	273	SRC 2005b	3.14E-04	4.13E-07	SRC 2005b	4.13E-07	0.999	particle bound	
1335-87-1	Hexachloronaphthalene	F	HPAH	118.3	391.3	SRC 2005a	3.33E-06	4.38E-09	SRC 2005b	3.67E-08	0.984	particle bound	
1335-88-2	Tetrachloronaphthalene	F	HPAH	198	471	SRC 2005b	1.00E-06	1.32E-09	SRC 2005b	6.78E-08	0.991	particle bound	
189-55-9	Dibenzo[a,i]pyrene	F	HPAH	281.5	554.5	SRC 2005a	2.00E-12	2.63E-15	SRC 2005a	9.09E-13	0.002	particle	
189-64-0	Dibenzo[a,h]pyrene	F	HPAH	317	590	SRC 2005b	6.41E-12	8.43E-15	SRC 2005b	6.54E-12	0.011	particle	

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191-24-2	Benzo[g,h,i]perylene	F	HPAH	277	550	SRC 2005a	1.01E-10	1.33E-13	SRC 2005a	4.14E-11	0.065	particle bound	
191-30-0	Benzo[a,i]pyrene	F	HPAH	162.4	435.4	SRC 2005b	4.80E-10	6.32E-13	SRC 2005b	1.45E-11	0.024	particle	
192-65-4	Dibenzo[a,e]pyrene	F	HPAH	233.5	506.5	SRC 2005b	7.03E-11	9.25E-14	SRC 2005b	1.07E-11	0.018	particle	
192-97-2	Benzo[e]pyrene	P	HPAH	310	583	SRC 2005b	5.70E-09	7.50E-12	SRC 2005b	4.96E-09	0.893	particle bound	
193-39-5	Indeno[1,2,3-cd]pyrene	F	HPAH	163.6	436.6	SRC 2005a	1.00E-10	1.32E-13	SRC 2005a	3.10E-12	0.005	particle	
205-82-3	Benzo[j]fluoranthene	F	HPAH	166	439	SRC 2005b	2.62E-08	3.45E-11	SRC 2005b	8.57E-10	0.59	particle bound	
205-99-2	Benzo[b]fluoranthene	F	HPAH	168	441	SRC 2005a	5.00E-07	6.58E-10	SRC 2005a	1.71E-08	0.966	particle bound	
206-44-0	Fluoranthene	F	HPAH	111	384	SRC 2005a	7.80E-06	1.03E-08	SRC 2005a	7.28E-08	0.992	particle bound	
207-08-9	Benzo[k]fluoranthene	F	HPAH	217	490	SRC 2005a	2.00E-09	2.63E-12	SRC 2005a	2.09E-10	0.26	particle bound	
218-01-9	Chrysene	F	HPAH	255	528	SRC 2005a	6.23E-09	8.20E-12	SRC 2005a	1.55E-09	0.722	particle bound	
2234-13-1	Octachloronaphthalene	F	HPAH	197	470	SRC 2005a	1.52E-08	2.00E-11	SRC 2005a	1.01E-09	0.629	particle bound	
224-42-0	Dibenz[a,j]acridine	F	HPAH	216	489	SRC 2005b	1.85E-09	2.43E-12	SRC 2005b	1.89E-10	0.241	particle bound	
226-36-8	Dibenz[a,h]acridine	F	HPAH	226	499	SRC 2005b	1.85E-09	2.43E-12	SRC 2005b	2.37E-10	0.285	particle bound	
3697-24-3	5-Methylchrysene	F	HPAH	118	391	SRC 2005b	2.53E-07	3.33E-10	SRC 2005b	2.77E-09	0.823	particle bound	
50-32-8	Benzo[a]pyrene	F	HPAH	179.3	452.3	SRC 2005a	5.49E-09	7.22E-12	SRC 2005a	2.43E-10	0.29	particle bound	
53-70-3	Dibenz[a,h]anthracene	F	HPAH	269	542	SRC 2005a	1.00E-10	1.32E-13	SRC 2005a	3.42E-11	0.054	particle bound	

Table 2. Vapor Phase Partitioning Coefficients (F_v) and Phase Determination

CAS# [3]	COPC Name	PIC [3] / Feed [1]	Class [2]	Tm [3] °C	Tm [3] °K	Tm [3] Source [7]	Vp [3] mmHg	Vp [3] atm	Vp [3] Source [7]	Vp [3] Used [4]	Fv [3]	Phase Type	Source for non-calculated Fv's
5385-75-1	Dibenzo[a,e]fluoranthene	P	HPAH	232	505	SRC 2005b	7.33E-11	9.64E-14	SRC 2005b	1.08E-11	0.018	particle	
56-49-5	3-Methylcholanthrene	F	HPAH	179	452	SRC 2005a	7.73E-09	1.02E-11	SRC 2005a	3.40E-10	0.364	particle bound	
56-55-3	Benzo[a]anthracene	F	HPAH	84	357	EPA 2004	1.05E-07	1.38E-10	SRC 2005a	5.30E-10	0.471	particle bound	
120-12-7	Anthracene	F	LPAH	216.4	489.4	SRC 2005a	2.67E-06	3.51E-09	SRC 2005a	2.75E-07	0.998	particle bound	
129-00-0	Pyrene	F	LPAH	151	424	SRC 2005a	4.59E-06	6.04E-09	SRC 2005a	1.07E-07	0.994	particle bound	
208-96-8	Acenaphthylene	F	LPAH	88	361	SRC 2005a	9.12E-04	1.20E-06	SRC 2005a	5.04E-06	1	vapor	
602-87-9	5-Nitroacenaphthene	F	LPAH	100.5	373.5	SRC 2005b	2.65E-05	3.49E-08	SRC 2005b	1.95E-07	0.997	particle bound	
83-32-9	Acenaphthene	F	LPAH	93	366	EPA 2004	2.50E-03	3.29E-06	SRC 2005a	1.55E-05	1	vapor	
85-01-8	Phenanthrene	F	LPAH	99	372	EPA 2004	1.12E-04	1.47E-07	SRC 2005a	7.96E-07	0.999	particle bound	
86-73-7	Fluorene	F	LPAH	110	383	EPA 2004	6.33E-04	8.33E-07	SRC 2005a	5.78E-06	1	vapor	
91-20-3	Naphthalene	F	LPAH	80.29	353.29	SRC 2005a	8.50E-02	1.12E-04	SRC 2005a	3.94E-04	1	vapor	
91-57-6	2-Methylnaphthalene	P	LPAH	34.6	307.6	SRC 2005a	5.50E-02	7.24E-05	SRC 2005a	9.01E-05	1	vapor	
91-58-7	2-Chloronaphthalene	F	LPAH	59.5	332.5	SRC 2005a	7.98E-03	1.05E-05	SRC 2005a	2.30E-05	1	vapor	
95-13-6	Indene	F	LPAH	-1.8	271.2	SRC 2005b	2.23E+00	2.93E-03	SRC 2005a	2.93E-03	1	vapor	
1746-01-6	2,3,7,8-Tetrachlorodibenzo(p)dioxin	P	D/F	306	579	EPA 2003	1.50E-09	1.97E-12	EPA 2003	1.19E-09	0.667	particle bound	
19408-74-3	1,2,3,7,8,9-Hexachlorodibenzo(p)dioxin	P	D/F	244	517	EPA 2003	4.90E-11	6.45E-14	EPA 2003	9.47E-12	0.016	particle	

Table 2. Vapor Phase Partitioning Coefficients (F_v) and Phase Determination

CAS# [3]	COPC Name	PIC [3] / Feed [1]	Class [2]	Tm [3] °C	Tm [3] °K	Tm [3] Source [7]	Vp [3] mmHg	Vp [3] atm	Vp [3] Source [7]	Vp [3] Used [4]	Fv [3]	Phase Type	Source for non-calculated Fv's
3268-87-9	1,2,3,4,6,7,8,9 Octachlorodibenzo(p)dioxin	P	D/F	326	599	EPA 2003	8.25E-13	1.09E-15	EPA 2003	1.03E-12	0.002	particle	
35822-46-9	1,2,3,4,6,7,8-Heptachlorodibenzo(p)dioxin	P	D/F	265	538	EPA 2003	5.60E-12	7.37E-15	EPA 2003	1.75E-12	0.003	particle	
39001-02-0	1,2,3,4,6,7,8,9 Octachlorodibenzofuran	P	D/F	260	533	EPA 2003	3.75E-12	4.93E-15	EPA 2003	1.04E-12	0.002	particle	
39227-28-6	1,2,3,4,7,8-Hexachlorodibenzo(p)dioxin	P	D/F	275	548	EPA 2003	3.80E-11	5.00E-14	EPA 2003	1.49E-11	0.024	particle	
40321-76-4	1,2,3,7,8-Pentachlorodibenzo(p)dioxin	P	D/F	241	514	EPA 2003	4.40E-10	5.79E-13	EPA 2003	7.94E-11	0.118	particle bound	
51207-31-9	2,3,7,8-Tetrachlorodibenzofuran	P	D/F	228	501	EPA 2003	1.50E-08	1.97E-11	EPA 2003	2.01E-09	0.772	particle bound	
55673-89-7	1,2,3,4,7,8,9-Heptachlorodibenzofuran	P	D/F	223	496	EPA 2003	4.70E-11	6.18E-14	EPA 2003	5.63E-12	0.009	particle	
57117-31-4	2,3,4,7,8-Pentachlorodibenzofuran	P	D/F	196.5	469.5	EPA 2003	2.60E-09	3.42E-12	EPA 2003	1.70E-10	0.223	particle bound	
57117-41-6	1,2,3,7,8-Pentachlorodibenzofuran	P	D/F	227	500	EPA 2003	1.70E-09	2.24E-12	EPA 2003	2.23E-10	0.273	particle bound	
57117-44-9	1,2,3,6,7,8-Hexachlorodibenzofuran	P	D/F	234	507	EPA 2003	2.20E-10	2.89E-13	EPA 2003	3.39E-11	0.054	particle bound	
57653-85-7	1,2,3,6,7,8-Hexachlorodibenzo(p)dioxin	P	D/F	286	559	EPA 2003	3.60E-11	4.74E-14	EPA 2003	1.81E-11	0.03	particle	
60851-34-5	2,3,4,6,7,8-Hexachlorodibenzofuran	P	D/F	240	513	EPA 2003	2.00E-10	2.63E-13	EPA 2003	3.53E-11	0.056	particle bound	
67562-39-4	1,2,3,4,6,7,8-Heptachlorodibenzofuran	P	D/F	237	510	EPA 2003	3.50E-11	4.61E-14	EPA 2003	5.77E-12	0.01	particle	
70648-26-9	1,2,3,4,7,8-Hexachlorodibenzofuran	P	D/F	226.5	499.5	EPA 2003	2.40E-10	3.16E-13	EPA 2003	3.11E-11	0.05	particle bound	
72918-21-9	1,2,3,7,8,9-Hexachlorodibenzofuran	P	D/F	249	522	EPA 2003	1.80E-10	2.37E-13	EPA 2003	3.90E-11	0.062	particle bound	
1336-36-3	Polychlorinated biphenyls (PCBs)	F	PCB	n/a	273		3.75E-01	4.93E-04	SRC 2005a	4.93E-04	1	vapor	

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CAS# [3]	COPC Name	PIC [3] / Feed [1]	Class [2]	Tm [3] °C	Tm [3] °K	Tm [3] Source [7]	Vp [3] mmHg	Vp [3] atm	Vp [3] Source [7]	Vp [3] Used [4]	Fv [3]	Phase Type	Source for non-calculated Fvs
31508-00-6	2,3',4,4',5-Pentachlorobiphenyl (PBC 118)	F	PCB	113	386	EPA 2003	3.14E-07	4.13E-10	EPA 2003	3.07E-09	0.838	particle bound	
32598-13-3	3,3',4,4'-Tetrachlorobiphenyl (PCB 77)	F	PCB	181	454	EPA 2003	4.47E-07	5.88E-10	EPA 2003	2.06E-08	0.972	particle bound	
32598-14-4	2,3,3',4,4'-Pentachlorobiphenyl (PCB 105)	F	PCB	117.5	390.5	EPA 2003	8.28E-07	1.09E-09	EPA 2003	8.97E-09	0.938	particle bound	
32774-16-6	3,3',4,4',5,5'-Hexachlorobiphenyl (PCB 169)	F	PCB	210	483	EPA 2003	1.81E-07	2.38E-10	EPA 2003	1.61E-08	0.964	particle bound	
35065-29-3	2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB 180)	F	PCB	114	387	EPA 2003	2.72E-07	3.58E-10	[5] EPA 2003	2.72E-09	0.82	particle bound	
35065-30-6	2,2',3,3',4,4',5-Heptachlorobiphenyl (PCB 170)	F	PCB	138.5	411.5	EPA 2003	6.46E-09	8.50E-12	EPA 2003	1.13E-10	0.159	particle bound	
38380-08-4	2,3,3',4,4',5-Hexachlorobiphenyl (PCB 156)	F	PCB	131	404	EPA 2003	1.47E-07	1.93E-10	EPA 2003	2.16E-09	0.784	particle bound	
39635-31-9	2,3,3',4,4',5,5'-Heptachlorobiphenyl (PCB 189)	F	PCB	163	436	EPA 2003	1.31E-08	1.72E-11	EPA 2003	4.00E-10	0.402	particle bound	
52663-72-6	2,3',4,4',5,5'-Hexachlorobiphenyl (PCB 167)	F	PCB	127	400	EPA 2003	1.95E-07	2.57E-10	EPA 2003	2.62E-09	0.815	particle bound	
57465-28-8	3,3',4,4',5-Pentachlorobiphenyl (PCB 126)	F	PCB	161	434	EPA 2003	2.96E-07	3.89E-10	EPA 2003	8.64E-09	0.936	particle bound	
65510-44-3	2',3,4,4',5-Pentachlorobiphenyl (PCB 123)	F	PCB	135	408	EPA 2003	8.78E-07	1.16E-09	EPA 2003	1.42E-08	0.96	particle bound	
69782-90-7	2,3,3',4,4',5'-Hexachlorobiphenyl (PCB 157)	F	PCB	162	435	EPA 2003	5.47E-08	7.20E-11	EPA 2003	1.63E-09	0.733	particle bound	
70362-50-4	3,4,4',5-Tetrachlorobiphenyl (PCB 81)	F	PCB	163	436	EPA 2003	7.85E-07	1.03E-09	EPA 2003	2.40E-08	0.976	particle bound	
74472-37-0	2,3,4,4',5-Pentachlorobiphenyl (PCB 114)	F	PCB	99	372	EPA 2003	4.18E-07	5.50E-10	EPA 2003	2.97E-09	0.833	particle bound	
18540-29-9	Chromium (hexavalent)	F	METAL						n/a	n/a	0	particle	EPA 2005a
7429-90-5	Aluminum	F	METAL						n/a	n/a	0	particle	EPA 2005a
7439-89-6	Iron	F	METAL						n/a	n/a	0	particle	EPA 2005a

Table 2. Vapor Phase Partitioning Coefficients (F_v) and Phase Determination

CAS# [3]	COPC Name	PIC [3] / Feed [1]	Class [2]	Tm [3] °C	Tm [3] °K	Tm [3] Source [7]	Vp [3] mmHg	Vp [3] atm	Vp [3] Source [7]	Vp [3] Used [4]	*Fv* [3]	Phase Type	Source for non-calculated *Fv*'s
7439-92-1	Lead	F	METAL						n/a	n/a	0	particle	EPA 2005a
7439-93-2	Lithium	F	METAL						n/a	n/a	0	particle	EPA 2005a
7439-95-4	Magnesium	F	METAL						n/a	n/a	0	particle	EPA 2005a
7439-96-5	Manganese	F	METAL						n/a	n/a	0	particle	EPA 2005a
7439-97-6	Mercury - elemental	F	METAL						n/a	n/a	1	vapor	EPA 2005a
7487-94-7	Mercury - Hg+2	F	METAL						n/a	n/a	0.85	particle bound	EPA 2005a
22967-92-6	Methylmercury	F	METAL						n/a	n/a	0	particle	EPA 2005a
7439-98-7	Molybdenum	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-02-0	Nickel	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-09-7	Potassium	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-16-6	Rhodium	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-21-3	Silicon	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-22-4	Silver	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-23-5	Sodium	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-24-6	Strontium (total)	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-25-7	Tantalum	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-28-0	Thallium	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-31-5	Tin	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-33-7	Tungsten	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-36-0	Antimony	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-38-2	Arsenic	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-39-3	Barium	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-41-7	Beryllium	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-42-8	Boron	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-43-9	Cadmium	F	METAL						n/a	n/a	0	particle	EPA 2005a

Table 2. Vapor Phase Partitioning Coefficients (F_v) and Phase Determination

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7440-48-4	Cobalt	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-50-8	Copper	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-61-1	Uranium	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-62-2	Vanadium	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-65-5	Yttrium	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-66-6	Zinc	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-67-7	Zirconium	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-69-9	Bismuth	F	METAL						n/a	n/a	0	particle	EPA 2005a
7440-70-2	Calcium	F	METAL						n/a	n/a	0	particle	EPA 2005a
7723-14-0	Phosphorous	F	METAL						n/a	n/a	0	particle	EPA 2005a
7782-49-2	Selenium	F	METAL						n/a	n/a	0	particle	EPA 2005a
14265-44-2	Phosphate	F	NMA						n/a	n/a	0	particle	Assumption
14280-30-9	Hydroxide	F	NMA						n/a	n/a	0	particle	Assumption
14797-55-8	Nitrate	F	NMA						n/a	n/a	0	particle	Assumption
14797-65-0	Nitrite	F	NMA						n/a	n/a	0	particle	Assumption
14808-79-8	Sulfate	F	NMA						n/a	n/a	0	particle	Assumption
16887-00-6	Chloride	F	NMA						n/a	n/a	0	particle	Assumption
16984-48-8	Fluoride	F	NMA						n/a	n/a	0	particle	Assumption
24959-67-9	Bromide	F	NMA	n/a	273	SRC 2005b	7.94E-09	1.04E-11	SRC 2005b	1.04E-11	0.017	particle	Assumption
57-12-5	Cyanide	F	NMA	n/a	273		3.08E+02	4.05E-01	SRC 2005b	4.05E-01	1	vapor	
63705-05-5	Total sulfur	F	NMA						n/a	n/a	0	particle	EPA 2005a
7553-56-2	Iodine	F	NMA	113.6	386.6	SRC 2005b	2.33E-01	3.07E-04	SRC 2005b	2.31E-03	1	vapor	
7647-01-0	Hydrogen Chloride	F	NMA	n/a	273		3.54E+04	4.66E+01	SRC 2005a	4.66E+01	1	vapor	

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7664-39-3	Hydrogen Fluoride	F	NMA	-83.36	189.64	SRC 2005b	9.17E+02	1.21E+00	SRC 2005a	1.21E+00	1	vapor	
7664-41-7	Ammonia/Ammonium	F	NMA	-77.7	195.3	SRC 2005b	7.51E+03	9.88E+00	SRC 2005a	9.88E+00	1	vapor	
7782-50-5	Chlorine	F	NMA	-101	172	SRC 2005b	5.85E+03	7.70E+00	SRC 2005a	7.70E+00	1	vapor	
10102-44-0	Nitrogen dioxide	F	CrtPOL	-9.3	263.7	SRC 2005b	9.08E+02	1.19E+00	SRC 2005a	1.19E+00	1	vapor	
630-08-0	Carbon monoxide	F	CrtPOL						n/a	n/a	1	vapor	
7446-09-5	Sulfur dioxide	F	CrtPOL						n/a	n/a	1	vapor	
no cas #	Particulate matter	F	CrtPOL						n/a	n/a	0	particle	
10028-17-8	Tritium	F	RAD						n/a	n/a	1	vapor	Assumption
10045-97-3	Cesium-137	F	RAD						n/a	n/a	0	particle	EPA 2005a
10098-91-6	Yttrium-90	F	RAD						n/a	n/a	0	particle	EPA 2005a
10098-97-2	Strontium-90	F	RAD						n/a	n/a	0	particle	EPA 2005a
10198-40-0	Cobalt-60	F	RAD						n/a	n/a	0	particle	EPA 2005a
13966-29-5	Uranium-234	F	RAD						n/a	n/a	0	particle	EPA 2005a
13967-48-1	Ruthenium-106	F	RAD						n/a	n/a	0	particle	EPA 2005a
13967-70-9	Cesium-134	F	RAD						n/a	n/a	0	particle	EPA 2005a
13968-55-3	Uranium-233	F	RAD						n/a	n/a	0	particle	EPA 2005a
13981-15-2	Curium-244	F	RAD						n/a	n/a	0	particle	EPA 2005a
13981-16-3	Plutonium-238	F	RAD						n/a	n/a	0	particle	EPA 2005a
13981-37-8	Nickel-63	F	RAD						n/a	n/a	0	particle	EPA 2005a
13981-97-0	Barium-137m	F	RAD						n/a	n/a	0	particle	EPA 2005a
13982-10-0	Plutonium-242	F	RAD						n/a	n/a	0	particle	EPA 2005a
13982-63-3	Radium-226	F	RAD						n/a	n/a	0	particle	EPA 2005a
13982-70-2	Uranium-236	F	RAD						n/a	n/a	0	particle	EPA 2005a

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13994-20-2	Neptunium-237	F	RAD						n/a	n/a	0	particle	EPA 2005a
14119-32-5	Plutonium-241	F	RAD						n/a	n/a	0	particle	EPA 2005a
14119-33-6	Plutonium-240	F	RAD						n/a	n/a	0	particle	EPA 2005a
14133-76-7	Technetium-99	F	RAD						n/a	n/a	0	particle	EPA 2005a
14158-29-3	Uranium-232	F	RAD						n/a	n/a	0	particle	EPA 2005a
14234-35-6	Antimony-125	F	RAD						n/a	n/a	0	particle	EPA 2005a
14331-85-2	Protactinium-231	F	RAD						n/a	n/a	0	particle	EPA 2005a
14336-66-4	Cadmium-113m	F	RAD						n/a	n/a	0	particle	EPA 2005a
14336-70-0	Nickel-59	F	RAD						n/a	n/a	0	particle	EPA 2005a
14391-16-3	Europium-155	F	RAD						n/a	n/a	0	particle	EPA 2005a
14596-10-2	Americium-241	F	RAD						n/a	n/a	0	particle	EPA 2005a
14683-23-9	Europium-152	F	RAD						n/a	n/a	0	particle	EPA 2005a
14762-75-5	Carbon-14	F	RAD						n/a	n/a	1	vapor	Assumption
14952-40-0	Actinium-227	F	RAD						n/a	n/a	0	particle	EPA 2005a
14993-75-0	Americium-243	F	RAD						n/a	n/a	0	particle	EPA 2005a
15046-84-1	Iodine-129	F	RAD	113.6	386.6	SRC 2005b	2.33E-01	3.07E-04	SRC 2005b	2.31E-03	1	vapor	
15117-48-3	Plutonium-239	F	RAD						n/a	n/a	0	particle	EPA 2005a
15117-96-1	Uranium-235	F	RAD						n/a	n/a	0	particle	EPA 2005a
15262-20-1	Radium-228	F	RAD						n/a	n/a	0	particle	EPA 2005a
15510-73-3	Curium-242	F	RAD						n/a	n/a	0	particle	EPA 2005a
15585-10-1	Europium-154	F	RAD						n/a	n/a	0	particle	EPA 2005a
15594-54-4	Thorium-229	F	RAD						n/a	n/a	0	particle	EPA 2005a
15715-94-3	Samarium-151	F	RAD						n/a	n/a	0	particle	EPA 2005a
15751-77-6	Zirconium-93	F	RAD						n/a	n/a	0	particle	EPA 2005a
15757-87-6	Curium-243	F	RAD						n/a	n/a	0	particle	EPA 2005a

Table 2. Vapor Phase Partitioning Coefficients (F_v) and Phase Determination

CAS# [3]	COPC Name	PIC [3] / Feed [1]	Class [2]	Tm [3] °C	Tm [3] °K	Tm [3] Source [7]	Vp [3] mmHg	Vp [3] atm	Vp [3] Source [7]	Vp [3] Used [4]	Fv [3]	Phase Type	Source for non-calculated Fv's
15758-45-9	Selenium-79	F	RAD						n/a	n/a	0	particle	EPA 2005a
15832-50-5	Tin-126	F	RAD						n/a	n/a	0	particle	EPA 2005a
7440-29-1	Thorium-232	F	RAD						n/a	n/a	0	particle	EPA 2005a
7440-03-1	Niobium-93m	F	RAD						n/a	n/a	0	particle	EPA 2005a
7440-61-1R	Uranium-238	F	RAD						n/a	n/a	0	particle	EPA 2005a
CHG Identified Compounds in Tank Headspace													
100-40-3	4-Vinylcyclohexene	F	NANHH	-108.9	164.1	SRC 2005b	1.57E+01	2.07E-02	SRC 2005a	2.07E-02	1	vapor	
104-76-7	2-Ethyl-1-Hexanol	F	NANHH	-76	197	SRC 2005a	1.36E-01	1.79E-04	SRC 2005a	1.79E-04	1	vapor	
10595-95-6	N-Methyl-N-Nitrosoethamine	F	OLSVOL	n/a	273	SRC 2005b	1.10E+00	1.45E-03	SRC 2005b	1.45E-03	1	vapor	
109-74-0	Butyronitrile	F	NANHH	-111.9	161.1	SRC 2005b	1.95E+01	2.57E-02	SRC 2005b	2.57E-02	1	vapor	
110-59-8	Valeronitrile	F	NANHH	-96.2	176.8	SRC 2005b	7.30E+00	9.61E-03	SRC 2005a	9.61E-03	1	vapor	
123-72-8	Butyraldehyde	F	NANHH	-96.4	176.6	SRC 2005a	1.11E+02	1.47E-01	SRC 2005a	1.47E-01	1	vapor	
134-32-7	1-Naphthylamine	F	LPAH	50	323	SRC 2005a	2.75E-03	3.62E-06	SRC 2005a	6.40E-06	1	vapor	
589-38-8	3-Hexanone	F	NANHH	-55.5	217.5	SRC 2005b	1.39E+01	1.83E-02	SRC 2005b	1.83E-02	1	vapor	
628-73-9	Hexanenitrile	F	NANHH	-80.3	192.7	SRC 2005b	2.85E+00	3.75E-03	SRC 2005a	3.75E-03	1	vapor	
75-02-5	Vinyl Fluoride	F	NAHH	-156	117	SRC 2005a	6.00E+00	7.89E-03	SRC 2005a	7.89E-03	1	vapor	
79-46-9	2-Nitropropane	F	NANHH	-91.32	181.68	SRC 2005a	1.80E+01	2.37E-02	SRC 2005a	2.37E-02	1	vapor	

Table Notes:

[1] P= PIC and F=Feed Constituent

[2] **Class Legend**

Non-aromatic Halogenated Hydrocarbons	NAHH
Non-aromatic Nonhalogenated Hydrocarbons	NANHH
Non-metals and Anions	NMA
Other Heavy Semivolatile Compounds (molecular weight >200 g/mole)	OHSVOL
Other Light Semivolatile Compounds (molecular weight <200 g/mole)	OLSVOL
Phthalates	PHT
Polychlorinated Biphenyls (PCBs)	PCB
Radionuclides	Rad
Aromatic Halogenated Hydrocarbons	AHH
Aromatic Nonhalogenated Hydrocarbons	ANHH
Criteria Pollutants	CrtPol
Dioxin and Furan Compounds (PCDDs/PCDFs)	D/F
Heavy Polycyclic Aromatic Hydrocarbons (molecular weight >200 g/mole)	HPAH
Herbicides and Organochlorinated Pesticides	PEST
Light Polycyclic Aromatic Hydrocarbons (molecular weight <200 g/mole)	LPAH
Light Substituted Benzene Compounds (molecular weight <200 g/mole)	LSB
Metals	Metal

[3] **Abbreviations**

CAS# = Chemical Abstracts Registry Service
COPC = Constituent of Potential Concern
PIC = Product of Incomplete Combustion
Tm = Melting Point Temperature
°C = Degrees Centigrade
°K = Degrees Kelvin
Vp = Vapor Pressure
mmHg = Millimeters of Mercury
atm = Atmosphere
F_v = Fraction of COPC in vapor phase

[4] "Vp Used" Column identifies the liquid vapor pressure used to calculate the F_v

[5] 2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB 180) has two values in this document; the value provided in Appendix A, Table A1 appears to be the correct one and was selected.

[6] n/a = Not Available

[7] Source references are provided in Section 6.0

129507

O. Lee Bostic
Environmental Data Management Lead
Environmental & Nuclear Safety

DBB/OLB/es

Attachment: WTP Risk Assessment Work Plan Identified Constituents of Potential Concern (COPC) Supporting Data

Distribution

Addressee	MSIN
Berrios, E.	MS4-C1
Blumenkranz, D. B.	MS4-D2
Bostic, O. L.	MS4-D2
Cook, J. R.	MS4-D2
PDC	MS9-A

Attachment to CCN 129507

WTP RISK ASSESSMENT WORK PLAN IDENTIFIED
CONSTITUENTS OF POTENTIAL CONCERN (COPC) SUPPORTING DATA

- *Aromatic Halogenated Hydrocarbons* *(AHH)*
- *Aromatic Nonhalogenated Hydrocarbons* *(ANHH)*
- *CHG-Identified Compounds in Tank Headspace* *(CHG)*
- *Criteria Pollutants* *(CrtPol)*
- *Dioxin and Furan Compounds (PCDDs/PCDFs) & Polychlorinated Biphenyls (PCBs)* *(D/F / PCB)*
- *Heavy Polycyclic Aromatic Hydrocarbons (molecular weight >200 g/mole)* *(HPAH)*
- *Herbicides and Organochlorinated Pesticides* *(PEST)*
- *Light Polycyclic Aromatic Hydrocarbons (molecular weight <200 g/mole)* *(LPAH)*
- *Light Substituted Benzene Compounds (molecular weight <200 g/mole)* *(LSB)*
- *Metals* *(Metal)*
- *Non-aromatic Halogenated Hydrocarbons* *(NAHH)*
- *Non-aromatic Nonhalogenated Hydrocarbons* *(NANHH)*
- *Non-metals and Anions* *(NMA)*
- *Other Heavy Semivolatile Compounds (molecular weight >200 g/mole)* *(OHSVOL)*
- *Other Light Semivolatile Compounds (molecular weight >200 g/mole)* *(OLSVOL)*
- *Phthalates* *(PHT)*

WTP RISK ASSESSMENT WORK PLAN IDENTIFIED CONSTITUENTS OF POTENTIAL CONCERN (COPC) SUPPORT DATA

Aromatic Halogenated Hydrocarbons (AHH)

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000059-50-7
Chem Name  : 3-METHYL-4-CHLOROPHENOL
Mol Formula: C7H7ClO
Mol Weight : 142.59
Melting Pt : 67 deg C
Boiling Pt : 235 deg C
Water Solubility:
   Value : 3830 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : KUHNE,R ET AL. (1995)
Log P (octanol-water):
   Value : 3.10
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 0.05 mm Hg
   Temp  : 20 deg C
   Type  : EXP
   Ref   : MABEY,WR ET AL. (1981)
pKa Dissociation Constant:
   Value : 9.55
   Temp  : 25 deg C
   Type  : EXP
   Ref   : SERJEANT,EP & DEMPSEY,B (1979)
Henry's Law Constant:
   Value : 2.45E-006 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : VP/WSOL
Atmospheric OH Rate Constant:
   Value : 2.57E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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CAS #: 000058-90-2 Name: 2,3,4,6-TETRACHLOROPHENOL

```
**********************************************************************************
MELT    2,3,4,6-TETRACHLOROPHENOL                                CAS#    58-90-2
  Melting Point   :  69-70       DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  FREITER,ER (1978A)
**********************************************************************************

VP      2,3,4,6-TETRACHLOROPHENOL                                CAS#    58-90-2
  Vapor Pressure :  1.44E-3     MM HG       MEAS
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  BIDLEMAN,TF & RENBERG,L (1985)
**********************************************************************************


   BIDLEMAN,TF & RENBERG,L (1985)
   BIDLEMAN,T.F.; RENBERG,L.; DETERMINATION OF VAPOR PRESSURES FOR
   CHLOROGUAIACOLS, CHLOROVERATROLES, AND NONYLPHENOL BY GAS CHROMATOGRAPHY.;
   CHEMOSPHERE; 14:1475-81; 1985

   FREITER,ER (1978A)
   FREITER,E.R.; CHLOROPHENOLS.;  IN: KIRK-OTHMER ENCYCL. CHEM. TECH. 3RD NEW
   YORK,NY; WILEY INTERSCIENCE. 5:864-72; 1978A

End of Search
```

WTP RISK ASSESSMENT WORK PLAN IDENTIFIED CONSTITUENTS OF POTENTIAL CONCERN (COPC) SUPPORT DATA

Aromatic Nonhalogenated Hydrocarbons (ANHH)

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CAS #: 000100-41-4 Name: ETHYLBENZENE

```
**********************************************************************
MELT    ETHYLBENZENE                                          CAS#   100-41-4
  Melting Point  :  -94.975     DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      ETHYLBENZENE                                          CAS#   100-41-4
  Vapor Pressure :  .9571E 01   TORR        MEASURED
  Temperature (C):  25.
  Abbrev. Ref.   :  DREISBACH,RR (1955)
**********************************************************************

VP      ETHYLBENZENE                                          CAS#   100-41-4
  Vapor Pressure :  .9508E 01   .20E 02     .40E 02     .100E 03    TORR
                    CALCULATED
  Temperature (C):  25.00       38.60       52.75       74.105
  Remarks        :  CALC FROM ANTOINE EQN
  Abbrev. Ref.   :  ZWOLINSKI,BJ & WILHOIT,RC (1971)
**********************************************************************

VP      ETHYLBENZENE                                          CAS#   100-41-4
  Vapor Pressure :  9.60        MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1985)
**********************************************************************


   DAUBERT,TE & DANNER,RP (1985)
   DAUBERT,T.E.; DANNER,R.P.; DATA COMPILATION TABLES OF PROPERTIES OF PURE
   COMPOUNDS.;  AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. PP.450; 1985

   DREISBACH,RR (1955)
   DREISBACH,R.R.; PHYSICAL PROPERTIES OF CHEMICAL COMPOUNDS. I.; ADVANCES IN
   CHEMISTRY SERIES NO. 15.; WASHINGTON, DC: AMERICAN CHEMICAL SOCIETY.; 1955

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

   ZWOLINSKI,BJ & WILHOIT,RC (1971)
   ZWOLINSKI,B.J.; WILHOIT,R.C.; HANDBOOK OF VAPOR PRESSURES AND HEATS OF
   VAPORIZATON OF HYDROCARBONS AND RELATED COMPOUNDS.;  API44-TRC101. COLLEGE
```

STATION,TX: THERMODYNAMCS RESEARCH CENTER.; 1971

End of Search

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Ethyl benzene
CAS Number: 000100-41-4

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	1.0E-1	mg/kg/day	IRIS
Inhal RfD:	2.9E-1	mg/kg/day	IRIS
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	3.5E+3	mg/kg	ACGIH
Dermal LD50:	1.5E+4	mg/kg	RTECS
Gas Inhal LC50:	4.0E+3	ppm	RTECS
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	1.3E+3	µg/L	ECOTOX
Salt Ecol LC50:	2.1E+2	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	9.1E+1	days	THOMAS
Photolysis:	2.1E-1	days	CHEMFATE
Biodeg:	2.0E+1	days	CHEMFATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	9.8E-1	days	THOMAS
Photolysis:	2.1E-1	days	CHEMFATE
Biodeg:	2.0E+1	days	CHEMFATE
Radio:		days	
Log Kow:	3.1E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	Yes		
Particulate:	No		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	1.1E+2		
Density:	8.7E-1	g/mL @ 20.00	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	9.6E+0	Torr	CHEMFATE
Henry's Law:	7.9E-3	atm-m3/mol	CHEMFATE
Water Solub:	1.7E+2	mg/L	CHEMFATE
Distrib Coef:	7.3E-1	ml/g	SSG_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:			
Salt BCF:			
Log Kow:	3.1E+0		CHEMFATE
Water Solub:	1.7E+2		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	-9.5E+1	C
Boiling Point:	1.4E+2	C
Formula:	C8 H10	

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CAS #: 000100-41-4 Name: ETHYLBENZENE

```
**********************************************************************
MELT    ETHYLBENZENE                                          CAS#   100-41-4
  Melting Point  :  -94.975     DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      ETHYLBENZENE                                          CAS#   100-41-4
  Vapor Pressure :  .9571E 01   TORR        MEASURED
  Temperature (C):  25.
  Abbrev. Ref.   :  DREISBACH,RR (1955)
**********************************************************************

VP      ETHYLBENZENE                                          CAS#   100-41-4
  Vapor Pressure :  .9508E 01   .20E 02     .40E 02     .100E 03    TORR
                    CALCULATED
  Temperature (C):  25.00       38.60       52.75       74.105
  Remarks        :  CALC FROM ANTOINE EQN
  Abbrev. Ref.   :  ZWOLINSKI,BJ & WILHOIT,RC (1971)
**********************************************************************

VP      ETHYLBENZENE                                          CAS#   100-41-4
  Vapor Pressure :  9.60        MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1985)
**********************************************************************


   DAUBERT,TE & DANNER,RP (1985)
   DAUBERT,T.E.; DANNER,R.P.; DATA COMPILATION TABLES OF PROPERTIES OF PURE
   COMPOUNDS.;  AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. PP.450; 1985

   DREISBACH,RR (1955)
   DREISBACH,R.R.; PHYSICAL PROPERTIES OF CHEMICAL COMPOUNDS. I.; ADVANCES IN
   CHEMISTRY SERIES NO. 15.; WASHINGTON, DC: AMERICAN CHEMICAL SOCIETY.; 1955

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

   ZWOLINSKI,BJ & WILHOIT,RC (1971)
   ZWOLINSKI,B.J.; WILHOIT,R.C.; HANDBOOK OF VAPOR PRESSURES AND HEATS OF
   VAPORIZATON OF HYDROCARBONS AND RELATED COMPOUNDS.;  API44-TRC101. COLLEGE
```

STATION,TX: THERMODYNAMCS RESEARCH CENTER.; 1971

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CHEMFATE Search Results

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CAS #: 000100-42-5 Name: STYRENE

```
**********************************************************************
MELT    STYRENE                                              CAS#   100-42-5
  Melting Point  :  -30.628     DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      STYRENE                                              CAS#   100-42-5
  Vapor Pressure :  .55E 01     .135E 02    TORR        MEASURED
  Temperature (C):  20.         37.
  Abbrev. Ref.   :  NATIONAL ACADEMY OF SCIENCES (1980)
**********************************************************************

VP      STYRENE                                              CAS#   100-42-5
  Vapor Pressure :  6.4         MM HG       MEAS
  Temperature (C):  25
  Abbrev. Ref.   :  CHAO,J ET AL. (1983)
**********************************************************************

VP      STYRENE                                              CAS#   100-42-5
  Vapor Pressure :  6.12        MM HG       MEAS
  Temperature (C):  25
  Remarks        :  INTERPOLATED DATA OBTAINED IN THE RANGE -31 TO 375 DEG C,
                    SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************


   CHAO,J ET AL. (1983)
   CHAO,J.; LIN,C.T.; CHUNG,T.H.; VAPOR PRESSURE OF COAL CHEMICALS.; J. PHYS.
   CHEM. REF. DATA.; 12:1033-63.; 1983

   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989

   NATIONAL ACADEMY OF SCIENCES (1980)
   NATIONAL ACADEMY OF SCIENCES;  THE ALKYL BENZENES.; WASHINGTON, DC: NATIONA
   ACADEMY PRESS. USEPA CONTRACT 68-01-4655; 1980

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
```

WILEY-INTERSCIENCE. 2:PP.1325; 1986

End of Search

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Styrene

CAS Number: 000100-42-5

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	2.0E-1	mg/kg/day	IRIS
Inhal RfD:	2.9E-1	mg/kg/day	IRIS
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	5.0E+3	mg/kg	ACGIH
Dermal LD50:		mg/kg	
Gas Inhal LC50:	2.8E+3	ppm	ACGIH
Dust Inhal LC50:	1.0E+4	mg/L	RTECS
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	1.8E+3	µg/L	ECOTOX
Salt Ecol LC50:	5.1E+3	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	9.0E+1	days	THOMAS
Photolysis:		days	
Biodeg:	2.8E+1	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	9.7E-1	days	THOMAS
Photolysis:		days	
Biodeg:	2.8E+1	days	FATERATE
Radio:		days	
Log Kow:	3.0E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	No	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	1.0E+2	
Density:	9.1E-1	g/mL @ 20.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	6.1E+0	Torr	CHEMFATE
Henry's Law:	2.7E-3	atm-m3/mol	CHEMFATE
Water Solub:	3.1E+2	mg/L	CHEMFATE
Distrib Coef:	1.2E+2	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:			
Salt BCF:			
Log Kow:	3.0E+0		CHEMFATE
Water Solub:	3.1E+2		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	-3.1E+1	C
Boiling Point:	1.5E+2	C
Formula:	C8 H8	

CLASS INFORMATION

Class	Parent Substance

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CAS #: 000100-42-5 Name: STYRENE

```
**********************************************************************
MELT    STYRENE                                              CAS#   100-42-5
  Melting Point  :  -30.628     DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      STYRENE                                              CAS#   100-42-5
  Vapor Pressure :  .55E 01     .135E 02    TORR        MEASURED
  Temperature (C):  20.         37.
  Abbrev. Ref.   :  NATIONAL ACADEMY OF SCIENCES (1980)
**********************************************************************

VP      STYRENE                                              CAS#   100-42-5
  Vapor Pressure :  6.4         MM HG       MEAS
  Temperature (C):  25
  Abbrev. Ref.   :  CHAO,J ET AL. (1983)
**********************************************************************

VP      STYRENE                                              CAS#   100-42-5
  Vapor Pressure :  6.12        MM HG       MEAS
  Temperature (C):  25
  Remarks        :  INTERPOLATED DATA OBTAINED IN THE RANGE -31 TO 375 DEG C,
                    SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************


   CHAO,J ET AL. (1983)
   CHAO,J.; LIN,C.T.; CHUNG,T.H.; VAPOR PRESSURE OF COAL CHEMICALS.; J. PHYS.
   CHEM. REF. DATA.; 12:1033-63.; 1983

   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989

   NATIONAL ACADEMY OF SCIENCES (1980)
   NATIONAL ACADEMY OF SCIENCES;  THE ALKYL BENZENES.; WASHINGTON, DC: NATIONA
   ACADEMY PRESS. USEPA CONTRACT 68-01-4655; 1980

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
```

WILEY-INTERSCIENCE. 2:PP.1325; 1986

End of Search

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000100-51-6 Name: BENZYL ALCOHOL

```
**********************************************************************
VP      BENZYL ALCOHOL                                        CAS#   100-51-6
  Vapor Pressure :  .1E-01      TORR        MEASURED
  Temperature (C):  30.
  Abbrev. Ref.    :  RINGK,W (1978)
**********************************************************************

VP      BENZYL ALCOHOL                                        CAS#   100-51-6
  Vapor Pressure :  .626E-01    .137E 00    TORR        MEASURED
  Temperature (C):  20.         29.5
  Remarks         :  UNITS CONVERTED, UPPER TEMP MEASURED, LOWER ONE EXTRAP FRO
                     ANTOINE EQN
  Abbrev. Ref.    :  GRAYSON,BT & FOSBRAEY,LA (1982)
**********************************************************************


   GRAYSON,BT & FOSBRAEY,LA (1982)
   GRAYSON,B.T.; FOSBRAEY,L.A.; DETERMINATION OF THE VAPOUR PRESSURE OF
   PESTICIDES.; PESTIC. SCI.; 13:269-78.; 1982

   RINGK,W (1978)
   RINGK,W.; BENZYL ALCOHOL AND B-PHENETHYL GLYCOL.;  IN: KIRK-OTHMER ENCYCL.
   CHEM. TECH. 3RD ED. 3:793-82.; 1978

End of Search
```

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000100-51-6
Chem Name  : BENZYL ALCOHOL
Mol Formula: C7H8O
Mol Weight : 108.14
Melting Pt : -15.2 deg C
Boiling Pt : 205.3 deg C
Water Solubility:
   Value : 4.29E+004 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 1.10
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 0.094 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : DAUBERT,TE & DANNER,RP (1989)
pKa Dissociation Constant:
   Value : 15.4
   Temp  :
   Type  : EXP
   Ref   : SERJEANT,EP & DEMPSEY,B (1979)
Henry's Law Constant:
   Value : 3.37E-007 atm-m3/mole
   Temp  : 25 deg C
   Type  : EXP
   Ref   : ABRAHAM,MH ET AL. (1994)
Atmospheric OH Rate Constant:
   Value : 2.29E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EXP
   Ref   : ATKINSON,R (1989)
```

Back To PhysProp Demo Page

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000100-52-7
Chem Name  : BENZALDEHYDE
Mol Formula: C7H6O
Mol Weight : 106.13
Melting Pt : -26 deg C
Boiling Pt : 179 deg C
Water Solubility:
   Value : 6570 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 1.48
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 0.127 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : AMBROSE,D ET AL. (1975A)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 2.67E-005 atm-m3/mole
   Temp  : 25 deg C
   Type  : EXP
   Ref   : BETTERTON,EA & HOFFMAN,MR (1988)
Atmospheric OH Rate Constant:
   Value : 1.29E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EXP
   Ref   : ATKINSON,R (1989)
```

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CHEMFATE Search Results

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CAS #: 000100-52-7 Name: BENZALDEHYDE

```
**********************************************************************
VP      BENZALDEHYDE                                        CAS#   100-52-7
  Vapor Pressure :  .127E 01    .30E 01     .65E 01     TORR        MEASURED
  Temperature (C):  25.0        38.5        51.9
  Remarks        :  UNITS CONVERTED
  Abbrev. Ref.   :  AMBROSE,D ET AL. (1975A)
**********************************************************************

VP      BENZALDEHYDE                                        CAS#   100-52-7
  Vapor Pressure :  .975E 00    TORR        MEASURED
  Temperature (C):  26.2
  Abbrev. Ref.   :  WILLIAMS,AE (1978)
**********************************************************************


   AMBROSE,D ET AL. (1975A)
   AMBROSE,D.; CONNETT,J.E.; GREEN,J.H.S.; HALES,J.L.; HEAD,A.J.; MARTIN,J.F.;
   THERMODYNAMIC PROPERTIES OF ORGANIC OXYGEN COMPOUNDS. 42. PHYSICAL AND
   THERMODYNAMIC PROPERTIES OF BENZALDEHYDE.; J. CHEM. THERM.; 7:1143-57.; 197

   WILLIAMS,AE (1978)
   WILLIAMS,A.E.; BENZALDEHYDE.;  IN: KIRK-OTHMER ENCYCL. CHEM. TECH. 3RD ED.
   3:736-43.; 1978

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Xylene, p-
CAS Number: 000106-42-3

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:		mg/kg/day	
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	5.0E+3	mg/kg	RTECS
Dermal LD50:		mg/kg	
Gas Inhal LC50:	3.9E+3	ppm	ACGIH
Dust Inhal LC50:	1.5E+1	mg/L	RTECS
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	2.6E+3	µg/L	ECOTOX
Salt Ecol LC50:	2.0E+3	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	9.1E+1	days	THOMAS
Photolysis:	8.3E-2	days	CHEMFATE
Biodeg:	2.8E+1	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	9.8E-1	days	THOMAS
Photolysis:	8.3E-2	days	CHEMFATE
Biodeg:	2.8E+1	days	FATERATE
Radio:		days	
Log Kow:	3.1E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	No	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	1.1E+2	
Density:	8.6E-1	g/mL @ 20.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	8.9E+0	Torr	CHEMFATE
Henry's Law:	7.7E-3	atm-m3/mol	CHEMFATE
Water Solub:	1.6E+2	mg/L	CHEMFATE
Distrib Coef:	7.8E-1	ml/g	SSG_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:			
Salt BCF:			
Log Kow:	3.1E+0		CHEMFATE
Water Solub:	1.6E+2		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	1.3E+1	C
Boiling Point:	1.4E+2	C
Formula:	C8 H10	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000106-42-3 Name: P-XYLENE

```
**********************************************************************
MELT    P-XYLENE                                              CAS#   106-42-3
  Melting Point  :  13.263      DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      P-XYLENE                                              CAS#   106-42-3
  Vapor Pressure :  .3460E+01   .8760E+01   .1984E+02   TORR        CALCULATED
  Temperature (C):  10.0        25.0        40.0
  Remarks        :  CALC FROM ANTOINE EQN
  Abbrev. Ref.   :  ZWOLINSKI,BJ & WILHOIT,RC (1971)
**********************************************************************

VP      P-XYLENE                                              CAS#   106-42-3
  Vapor Pressure :  8.84        MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  CHAO,J ET AL. (1983)
**********************************************************************

VP      P-XYLENE                                              CAS#   106-42-3
  Vapor Pressure :  8.90        MM HG       MEAS
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************


   CHAO,J ET AL. (1983)
   CHAO,J.; LIN,C.T.; CHUNG,T.H.; VAPOR PRESSURE OF COAL CHEMICALS.; J. PHYS.
   CHEM. REF. DATA.; 12:1033-63.; 1983

   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

   ZWOLINSKI,BJ & WILHOIT,RC (1971)
```

ZWOLINSKI,B.J.; WILHOIT,R.C.; HANDBOOK OF VAPOR PRESSURES AND HEATS OF VAPORIZATON OF HYDROCARBONS AND RELATED COMPOUNDS.; API44-TRC101. COLLEGE STATION,TX: THERMODYNAMCS RESEARCH CENTER.; 1971

End of Search

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Xylene, m-
CAS Number: 000108-38-3

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	2.0E+0	mg/kg/day	HEAST
Inhal RfD:		mg/kg/day	
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	5.3E+3	mg/kg	ACGIH
Dermal LD50:	1.2E+4	mg/kg	ACGIH
Gas Inhal LC50:	5.3E+3	ppm	ACGIH
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	5.3E+3	µg/L	ECOTOX
Salt Ecol LC50:	2.9E+3	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	9.1E+1	days	THOMAS
Photolysis:	1.2E-1	days	CHEMFATE
Biodeg:	2.8E+1	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	9.8E-1	days	THOMAS
Photolysis:	1.2E-1	days	CHEMFATE
Biodeg:	2.8E+1	days	FATERATE
Radio:		days	
Log Kow:	3.2E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	No	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	1.1E+2	
Density:	8.6E-1	g/mL @ 20.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	8.5E+0	Torr	CHEMFATE
Henry's Law:	7.3E-3	atm-m3/mol	CHEMFATE
Water Solub:	1.6E+2	mg/L	CHEMFATE
Distrib Coef:	8.1E-1	ml/g	SSG_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:			
Salt BCF:			
Log Kow:	3.2E+0		CHEMFATE
Water Solub:	1.6E+2		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	-4.8E+1	C
Boiling Point:	1.4E+2	C
Formula:	C8 H10	

CLASS INFORMATION

Class	Parent Substance

CHEMFATE Search Results

Return to EFDB page

CAS #: 000108-38-3 Name: M-XYLENE

```
**********************************************************************
MELT    M-XYLENE                                              CAS#   108-38-3
  Melting Point   :  -47.872     DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      M-XYLENE                                              CAS#   108-38-3
  Vapor Pressure :  .830E 01    TORR         CALCULATED
  Temperature (C):  25.
  Remarks         :  CALC FROM ANTOINE EQN
  Abbrev. Ref.    :  ZWOLINSKI,BJ & WILHOIT,RC (1971)
**********************************************************************

VP      M-XYLENE                                              CAS#   108-38-3
  Vapor Pressure :  8.29        MM HG
  Temperature (C):  25
  Abbrev. Ref.    :  CHAO,J ET AL. (1983)
**********************************************************************

VP      M-XYLENE                                              CAS#   108-38-3
  Vapor Pressure :  8.454       MM HG        MEAS
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************


   CHAO,J ET AL. (1983)
   CHAO,J.; LIN,C.T.; CHUNG,T.H.; VAPOR PRESSURE OF COAL CHEMICALS.; J. PHYS.
   CHEM. REF. DATA.; 12:1033-63.; 1983

   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

   ZWOLINSKI,BJ & WILHOIT,RC (1971)
   ZWOLINSKI,B.J.; WILHOIT,R.C.; HANDBOOK OF VAPOR PRESSURES AND HEATS OF
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VAPORIZATON OF HYDROCARBONS AND RELATED COMPOUNDS.; API44-TRC101. COLLEGE STATION,TX: THERMODYNAMCS RESEARCH CENTER.; 1971

End of Search

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Toluene
CAS Number: 000108-88-3

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	2.0E-1	mg/kg/day	IRIS
Inhal RfD:	1.1E-1	mg/kg/day	IRIS
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	2.6E+3	mg/kg	ACGIH
Dermal LD50:	1.2E+4	mg/kg	ACGIH
Gas Inhal LC50:	5.3E+3	ppm	ACGIH
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	4.9E+3	µg/L	ECOTOX
Salt Ecol LC50:	3.1E+3	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	8.4E+1	days	THOMAS
Photolysis:	2.8E-1	days	CHEMFATE
Biodeg:	9.0E+1	days	CHEMFATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	9.1E-1	days	THOMAS
Photolysis:	2.8E-1	days	CHEMFATE
Biodeg:	9.0E+1	days	CHEMFATE
Radio:		days	
Log Kow:	2.7E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	No	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	9.2E+1	
Density:	8.7E-1	g/mL @ 20.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	2.8E+1	Torr	CHEMFATE
Henry's Law:	6.6E-3	atm-m3/mol	CHEMFATE
Water Solub:	5.3E+2	mg/L	CHEMFATE
Distrib Coef:	3.6E-1	ml/g	SSG_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:	3.1E+1		ECOTOX
ENVIRONMENTAL			
Fresh BCF:	3.0E+3		ECOTOX
Salt BCF:	3.1E+1		ECOTOX
Log Kow:	2.7E+0		CHEMFATE
Water Solub:	5.3E+2		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	-9.5E+1	C
Boiling Point:	1.1E+2	C
Formula:	C7 H8	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000108-88-3 Name: TOLUENE

```
**********************************************************************
MELT    TOLUENE                                              CAS#   108-88-3
  Melting Point  :  -94.991     DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      TOLUENE                                              CAS#   108-88-3
  Vapor Pressure :  28.4        MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1985)
**********************************************************************


   DAUBERT,TE & DANNER,RP (1985)
   DAUBERT,T.E.; DANNER,R.P.; DATA COMPILATION TABLES OF PROPERTIES OF PURE
   COMPOUNDS.;  AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. PP.450; 1985

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

End of Search
```

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CHEMFATE Search Results

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CAS #: 000132-64-9 Name: DIBENZOFURAN

```
**********************************************************************
MELT    DIBENZOFURAN                                          CAS#   132-64-9
  Melting Point  :  81-83       DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DEAN,JA (1985)
**********************************************************************

VP      DIBENZOFURAN                                          CAS#   132-64-9
  Vapor Pressure :  1.8E-4      MM HG
  Temperature (C):  25
  Remarks        :  CALCULATED BY PCCHEM-PCGEMS, SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  SRC (1988)
**********************************************************************


   DEAN,JA (1985)
   DEAN,J.A.; LANGE'S HANDBOOK OF CHEMISTRY 13TH ED.;  NY, NY: MCGRAW-HILL BOO
   CO.; 1985

   SRC (1988)
   SRC.; SYRACUSE RESEARCH CORPORATION CALCULATED VALUES;   1988

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Benzene
CAS Number: 000071-43-2

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	4.0E-3	mg/kg/day	IRIS
Inhal RfD:	8.6E-3	mg/kg/day	IRIS
Oral Slope:	5.5E-2	(mg/kg/day)^-1	IRIS
Oral Wt-of-Evid:	A		
Inhal Slope:	2.7E-2	(mg/kg/day)^-1	IRIS
Inhal Wt-of-Evid:	A		
Oral ED10:	3.7E+0	mg/kg/day	EPA_ED10
Oral ED10 Wgt:	A		
Inhal ED10:	3.7E+0	mg/kg/day	EPA_ED10
Inhal ED10 Wgt:	A		
Oral LD50:	9.3E+2	mg/kg	RTECS
Dermal LD50:	4.8E+1	mg/kg	RTECS
Gas Inhal LC50:	1.0E+4	ppm	RTECS
Dust Inhal LC50:	1.5E+2	mg/L	RTECS
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	1.0E+3	µg/L	ECOTOX
Salt Ecol LC50:	1.0E+3	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	7.8E+1	days	THOMAS
Photolysis:	6.7E+2	days	CHEMFATE
Biodeg:	6.0E+0	days	CHEMFATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	8.4E-1	days	THOMAS
Photolysis:	6.7E+2	days	CHEMFATE
Biodeg:	6.0E+0	days	CHEMFATE
Radio:		days	
Log Kow:	2.1E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	No	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	7.8E+1	
Density:	8.8E-1	g/mL @ 20.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	9.5E+1	Torr	CHEMFATE
Henry's Law:	5.6E-3	atm-m3/mol	CHEMFATE
Water Solub:	1.8E+3	mg/L	CHEMFATE
Distrib Coef:	1.2E-1	ml/g	SSG_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	1.4E+3		ECOTOX
Salt BCF:	8.5E+3		ECOTOX
ENVIRONMENTAL			
Fresh BCF:	2.2E+3		ECOTOX
Salt BCF:	1.0E+4		ECOTOX
Log Kow:	2.1E+0		CHEMFATE
Water Solub:	1.8E+3		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	5.5E+0	C
Boiling Point:	8.0E+1	C
Formula:	C6 H6	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000071-43-2 Name: BENZENE

```
**********************************************************************
MELT    BENZENE                                              CAS#    71-43-2
  Melting Point  :  5.53        DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      BENZENE                                              CAS#    71-43-2
  Vapor Pressure :  .95E 02     TORR        MEASURED
  Temperature (C):  25.
  Abbrev. Ref.   :  THIBODEAUX,LJ (1981)
**********************************************************************

VP      BENZENE                                              CAS#    71-43-2
  Vapor Pressure :  .4553E+02   .9518E+02   .1828E+03  TORR        CALCULATED
  Temperature (C):  10.0        25.0        40.0
  Remarks        :  CALC FROM ANTOINE EQN
  Abbrev. Ref.   :  ZWOLINSKI,BJ & WILHOIT,RC (1971)
**********************************************************************

VP      BENZENE                                              CAS#    71-43-2
  Vapor Pressure :  95.2        MM HG
  Temperature (C):  25
  Abbrev. Ref.   :  BOUBLIK,T ET AL. (1984)
**********************************************************************

VP      BENZENE                                              CAS#    71-43-2
  Vapor Pressure :  95.0        MM HG
  Temperature (C):  25
  Remarks        :  EVALUATED DATABASE - SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************


   BOUBLIK,T ET AL. (1984)
   BOUBLIK,T.; FRIED,V.; HALA,E.; THE VAPOR PRESSURES OF PURE SUBSTANCES:
   SELECTED VALUES OF THE TEMPERATURE DEPENDENCE OF THE VAPOUR PRESSURES OF SO
   PURE SUBSTANCES IN THE NORMAL AND LOW PRESSURE REGION. VOL. 17.;  AMSTERDAM
   NETHERLANDS: ELSEVIER SCI. PUBL.; 1984

   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989
```

RIDDICK,JA ET AL. (1986)
RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI AND METHODS OF PURIFICATION.; TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY WILEY-INTERSCIENCE. 2:PP.1325; 1986

THIBODEAUX,LJ (1981)
THIBODEAUX,L.J.; ESTIMATING THE AIR EMISSIONS OF CHEMICALS FROM HAZARDOUS WASTE LANDFILLS.; J. HAZARDOUS MATERIALS; 4:235-44.; 1981

ZWOLINSKI,BJ & WILHOIT,RC (1971)
ZWOLINSKI,B.J.; WILHOIT,R.C.; HANDBOOK OF VAPOR PRESSURES AND HEATS OF VAPORIZATON OF HYDROCARBONS AND RELATED COMPOUNDS.; API44-TRC101. COLLEGE STATION,TX: THERMODYNAMCS RESEARCH CENTER.; 1971

End of Search

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here.
References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000088-72-2
Chem Name  : 2-NITROTOLUENE
Mol Formula: C7H7NO2
Mol Weight : 137.14
Melting Pt : -10 deg C
Boiling Pt : 222 deg C
Water Solubility:
   Value : 650 mg/L
   Temp  : 30 deg C
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 2.30
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 0.188 mm Hg
   Temp  : 25 deg C
   Type  : EXT
   Ref   : PERRY,RH & GREEN,D (1984)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 1.25E-005 atm-m3/mole
   Temp  : 25 deg C
   Type  : EXP
   Ref   : ALTSCHUH,J ET AL. (1999)
Atmospheric OH Rate Constant:
   Value : 7E-013 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EXP
   Ref   : ATKINSON,R (1989)
```

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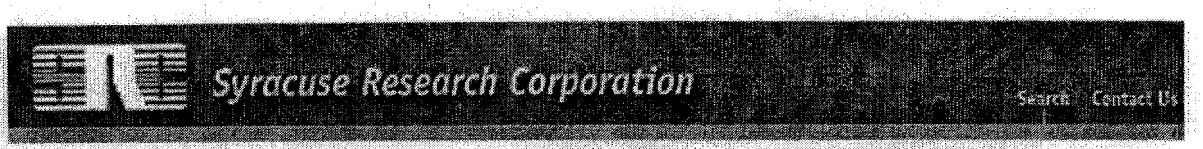

CHEMFATE Search Results

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CAS #: 000092-93-3 Name: P-NITROBIPHENYL

```
**********************************************************************
MELT    P-NITROBIPHENYL                                    CAS#    92-93-3
  Melting Point  :  113.7       DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  MERCK INDEX (1983)
**********************************************************************

VP      P-NITROBIPHENYL                                    CAS#    92-93-3
  Vapor Pressure :  1.0E-4      MM HG
  Temperature (C):  25
  Remarks        :  ESTIMATED FROM THE WSOL AND HENRY'S LAW CONSTANT, SRC
                    RECOMMENDED VALUE
  Abbrev. Ref.   :  SRC (1988)
**********************************************************************


   MERCK INDEX (1983)
   MERCK INDEX.; THE MERCK INDEX. AN ENCYCLOPEDIA OF CHEMICALS AND DRUGS 10TH
   ED.;  WINDHOLZ,M ED. RAHWAY, N.J.: MERCK AND CO., INC.; 1983

   SRC (1988)
   SRC.; SYRACUSE RESEARCH CORPORATION CALCULATED VALUES;   1988

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Xylene, o-
CAS Number: 000095-47-6

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	2.0E+0	mg/kg/day	HEAST
Inhal RfD:		mg/kg/day	
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	5.0E+3	mg/kg	RTECS
Dermal LD50:		mg/kg	
Gas Inhal LC50:	4.6E+3	ppm	ACGIH
Dust Inhal LC50:	3.0E+1	mg/L	RTECS
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	5.3E+3	µg/L	ECOTOX
Salt Ecol LC50:	1.1E+3	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	9.1E+1	days	THOMAS
Photolysis:		days	
Biodeg:	2.8E+1	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	9.8E-1	days	THOMAS
Photolysis:		days	
Biodeg:	2.8E+1	days	FATERATE
Radio:		days	
Log Kow:	3.1E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	Yes		
Particulate:	No		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	1.1E+2		
Density:	8.8E-1	g/mL @ 10.00	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	6.6E+0	Torr	CHEMFATE
Henry's Law:	5.2E-3	atm-m3/mol	CHEMFATE
Water Solub:	1.8E+2	mg/L	CHEMFATE
Distrib Coef:	7.3E-1	ml/g	SSG_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:			
Salt BCF:			
Log Kow:	3.1E+0		CHEMFATE
Water Solub:	1.8E+2		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	-2.5E+1	C
Boiling Point:	1.4E+2	C
Formula:	C8 H10	

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CAS #: 000095-47-6 Name: O-XYLENE

```
**********************************************************************
MELT    O-XYLENE                                          CAS#    95-47-6
  Melting Point  :  -25.182     DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      O-XYLENE                                          CAS#    95-47-6
  Vapor Pressure :  .2550E+01   .6620E+01   .1534E+02   TORR        CALCULATED
  Temperature (C):  10.0        25.0        40.0
  Remarks        :  CALC FROM ANTOINE EQN
  Abbrev. Ref.   :  ZWOLINSKI,BJ & WILHOIT,RC (1971)
**********************************************************************

VP      O-XYLENE                                          CAS#    95-47-6
  Vapor Pressure :  6.61        MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1985)
**********************************************************************


   DAUBERT,TE & DANNER,RP (1985)
   DAUBERT,T.E.; DANNER,R.P.; DATA COMPILATION TABLES OF PROPERTIES OF PURE
   COMPOUNDS.;  AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. PP.450; 1985

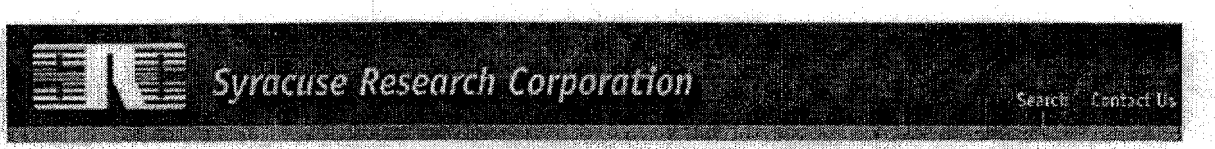
   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

   ZWOLINSKI,BJ & WILHOIT,RC (1971)
   ZWOLINSKI,B.J.; WILHOIT,R.C.; HANDBOOK OF VAPOR PRESSURES AND HEATS OF
   VAPORIZATON OF HYDROCARBONS AND RELATED COMPOUNDS.;  API44-TRC101. COLLEGE
   STATION,TX: THERMODYNAMCS RESEARCH CENTER.; 1971

End of Search
```

WTP RISK ASSESSMENT WORK PLAN IDENTIFIED CONSTITUENTS OF POTENTIAL CONCERN (COPC) SUPPORT DATA

CHG-Identified Compounds in Tank Headspace (CHG)



CHEMFATE Search Results

Return to EFDB page

CAS #: 000100-40-3 Name: 4-VINYLCYCLOHEXENE

```
**********************************************************************************
VP      4-VINYLCYCLOHEXENE                                      CAS#   100-40-3
  Vapor Pressure :  1.571E+01   MM HG       MEASURED
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************************


   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989

End of Search
```

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000100-40-3
Chem Name  : 4-VINYLCYCLOHEXENE
Mol Formula: C8H12
Mol Weight : 108.18
Melting Pt : -108.9 deg C
Boiling Pt : 128 deg C
Water Solubility:
   Value : 50 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 3.93
   Type  : EXP
   Ref   : CHEM INSPECT TEST INST (1992)
Vapor Pressure:
   Value : 15.7 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : DAUBERT,TE & DANNER,RP (1989)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.0448 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : VP/WSOL
Atmospheric OH Rate Constant:
   Value : 8.93E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000104-76-7 Name: 2-ETHYL-1-HEXANOL

```
**********************************************************************************
MELT    2-ETHYL-1-HEXANOL                                        CAS#   104-76-7
  Melting Point  :  -76          DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************************

VP      2-ETHYL-1-HEXANOL                                        CAS#   104-76-7
  Vapor Pressure :  0.136        MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1985)
**********************************************************************************


   DAUBERT,TE & DANNER,RP (1985)
   DAUBERT,T.E.; DANNER,R.P.; DATA COMPILATION TABLES OF PROPERTIES OF PURE
   COMPOUNDS.;  AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. PP.450; 1985

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

End of Search
```

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 010595-95-6
Chem Name  : N-METHYL-N-NITROSOETHAMINE
Mol Formula: C3H8N2O
Mol Weight : 88.11
Melting Pt :
Boiling Pt : 170 deg C
Water Solubility:
   Value : 3E+005 mg/L
   Temp  : 20 deg C
   Type  : EXP
   Ref   : IARC (1978)
Log P (octanol-water):
   Value : 0.04
   Type  : EXP
   Ref   : VERA,A ET AL. (1992)
Vapor Pressure:
   Value : 1.1 mm Hg
   Temp  : 20 deg C
   Type  : EST
   Ref   : KLEIN,RG (1982)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 1.44E-006 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 1E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : ATKINSON,R (1988)
```

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Data From SRC PhysProp Database:

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References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000109-74-0
Chem Name  : BUTYRONITRILE
Mol Formula: C4H7N
Mol Weight : 69.11
Melting Pt : -111.9 deg C
Boiling Pt : 117.6 deg C
Water Solubility:
   Value : 3.3E+004 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : RIDDICK,JA ET AL. (1986)
Log P (octanol-water):
   Value : 0.53
   Type  : EXP
   Ref   : TANII,H & HASHIMOTO,K (1984)
Vapor Pressure:
   Value : 19.5 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : DAUBERT,TE & DANNER,RP (1989)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 5.23E-005 atm-m3/mole
   Temp  : 25 deg C
   Type  : EXP
   Ref   : BUTLER,JAV AND RAMCHANDANI,CN (1935)
Atmospheric OH Rate Constant:
   Value : 7.56E-013 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : ATKINSON,R (1988)
```

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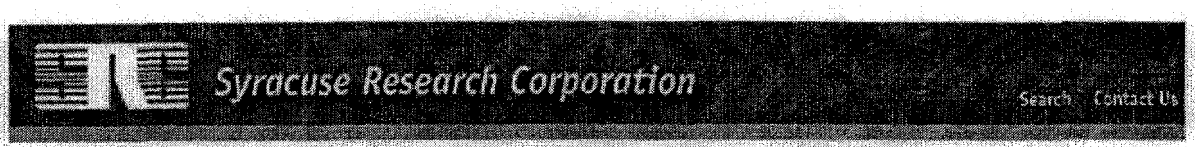

CHEMFATE Search Results

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CAS #: 000110-59-8 Name: VALERONITRILE

```
**********************************************************************
VP      VALERONITRILE                                    CAS#   110-59-8
  Vapor Pressure :  7.300E+00   MM HG       MEASURED
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************
```

DAUBERT,TE & DANNER,RP (1989)
DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE CHEMICALS: DATA COMPILATION.; DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA, AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK, NY., 4 VOL.; 1989

End of Search

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000110-59-8
Chem Name  : VALERONITRILE
Mol Formula: C5H9N
Mol Weight : 83.13
Melting Pt : -96.2 deg C
Boiling Pt : 141.3 deg C
Water Solubility:
   Value : 7750 mg/L
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM ET AL. (1996)
Log P (octanol-water):
   Value : 1.12
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 7.3 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : DAUBERT,TE & DANNER,RP (1989)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 7.15E-005 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 1.67E-012 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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CHEMFATE Search Results

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CAS #: 000123-72-8 Name: BUTRALDEHYDE

```
**********************************************************************
MELT    BUTRALDEHYDE                                          CAS#   123-72-8
  Melting Point  :  -96.4       DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      BUTRALDEHYDE                                          CAS#   123-72-8
  Vapor Pressure :  .122E 02    TORR        MEASURED
  Temperature (C):  20.
  Abbrev. Ref.   :  SHERMAN,PD (1978A)
**********************************************************************

VP      BUTRALDEHYDE                                          CAS#   123-72-8
  Vapor Pressure :  111.4       MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1985)
**********************************************************************


   DAUBERT,TE & DANNER,RP (1985)
   DAUBERT,T.E.; DANNER,R.P.; DATA COMPILATION TABLES OF PROPERTIES OF PURE
   COMPOUNDS.;  AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. PP.450; 1985

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

   SHERMAN,PD (1978A)
   SHERMAN,P.D.; BUTYRALDEHYDE.;  IN: KIRK-OTHMER ENCYCL. CHEM. TECH. 3RD ED.
   4:376-6.; 1978A

End of Search
```

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000134-32-7 Name: 1-NAPHTHYLAMINE

```
**********************************************************************
MELT    1-NAPHTHYLAMINE                                    CAS#   134-32-7
  Melting Point   :  50          DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  MERCK INDEX (1983)
**********************************************************************

VP      1-NAPHTHYLAMINE                                    CAS#   134-32-7
  Vapor Pressure :  2.75E-3      MM HG        CALC
  Temperature (C):  25
  Remarks         :  EXTRAPOLATED FROM EXPERIMENTAL DATA OBTAINED IN THE RANGE
                     52-372 DEG C, CORRECTED FOR SUPERCOOLED LIQUID, SRC
                     RECOMMENDED VALUE
  Abbrev. Ref.    :  CHAO,J ET AL. (1983)
**********************************************************************


   CHAO,J ET AL. (1983)
   CHAO,J.; LIN,C.T.; CHUNG,T.H.; VAPOR PRESSURE OF COAL CHEMICALS.; J. PHYS.
   CHEM. REF. DATA.; 12:1033-63.; 1983

   MERCK INDEX (1983)
   MERCK INDEX.; THE MERCK INDEX. AN ENCYCLOPEDIA OF CHEMICALS AND DRUGS 10TH
   ED.;  WINDHOLZ,M ED. RAHWAY, N.J.: MERCK AND CO., INC.; 1983

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```

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References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000589-38-8
Chem Name  : 3-HEXANONE
Mol Formula: C6H12O
Mol Weight : 100.16
Melting Pt : -55.5 deg C
Boiling Pt : 123.5 deg C
Water Solubility:
   Value : 1.47E+004 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 1.24
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1995)
Vapor Pressure:
   Value : 13.9 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : YAWS,CL (1994A)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.000125 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : VP/WSOL
Atmospheric OH Rate Constant:
   Value : 6.9E-012 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EXP
   Ref   : ATKINSON,R (1989)
```

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CHEMFATE Search Results

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CAS #: 000628-73-9 Name: HEXANENITRILE

```
**********************************************************************
VP      HEXANENITRILE                                    CAS#   628-73-9
  Vapor Pressure :  2.850E+00   MM HG       MEASURED
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************

   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989

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```

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References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000628-73-9
Chem Name  : HEXANENITRILE
Mol Formula: C6H11N
Mol Weight : 97.16
Melting Pt : -80.3 deg C
Boiling Pt : 163.6 deg C
Water Solubility:
   Value : 2480 mg/L
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM ET AL. (1996)
Log P (octanol-water):
   Value : 1.66
   Type  : EXP
   Ref   : TANII,H & HASHIMOTO,K (1984)
Vapor Pressure:
   Value : 2.85 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : DAUBERT,TE & DANNER,RP (1989)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 9.49E-005 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 3.09E-012 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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CAS #: 000075-02-5 Name: FLUOROETHENE

```
**********************************************************************
MELT    FLUOROETHENE                                          CAS#    75-02-5
  Melting Point   :  -156        DEGC
  Remarks         :  CALCULATED BY EQUATION 20 IN NEELY,WB & BLAU,GE (1985), SR
                     RECOMMENDED VALUE
  Abbrev. Ref.    :  SRC (1988)
**********************************************************************

VP      FLUOROETHENE                                          CAS#    75-02-5
  Vapor Pressure :  2.0E4        MM HG
  Temperature (C):  22.98
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  ENGINEERING SCIENCES DATA UNIT (1976)
**********************************************************************

VP      FLUOROETHENE                                          CAS#    75-02-5
  Vapor Pressure :  6.000E+00    MM HG        MEASURED
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************


   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989

   ENGINEERING SCIENCES DATA UNIT (1976)
   ENGINEERING SCIENCES DATA UNIT.; VAPOR PRESSURES AND CRITICAL POINTS OF
   LIQUIDS. VII. HALOGENATED ETHANES AND ETHYLENES.;  ENG. SCI. DATA ITEM.
   76004. PP.43.; 1976

   SRC (1988)
   SRC.; SYRACUSE RESEARCH CORPORATION CALCULATED VALUES;   1988

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```

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CHEMFATE Search Results

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CAS #: 000079-46-9 Name: 2-NITROPROPANE

```
**********************************************************************
MELT    2-NITROPROPANE                                      CAS#    79-46-9
  Melting Point   :  -91.32      DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  BAKER,PJJR & BOLLMEIER,AFJR (1981)
**********************************************************************

VP      2-NITROPROPANE                                      CAS#    79-46-9
  Vapor Pressure :  .1742E 02   TORR        MEASURED
  Temperature (C):  25.
  Abbrev. Ref.    :  DORIGAN,J ET AL. (1976)
**********************************************************************

VP      2-NITROPROPANE                                      CAS#    79-46-9
  Vapor Pressure :  18          MM HG
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  BAKER,PJJR & BOLLMEIER,AFJR (1981)
**********************************************************************


   BAKER,PJJR & BOLLMEIER,AFJR (1981)
   BAKER,P.J. JR.; BOLLMEIER,A.F. JR.; NITROPARAFFINS.;  IN: KIRK-OTHMER ENCYC
   CHEM. TECH. 15:969-87.; 1981

   DORIGAN,J ET AL. (1976)
   DORIGAN,J.; FULLER,B.; DUFFY,R.; PRELIMINARY SCORING OF SELECTED ORGANIC AI
   POLLUTANTS. APPENDIX III-CHEMISTRY, PRODUCTION, AND TOXICITY OF CHEMICALS F
   THROUGH N.;  EPA-450/3-77-008D. RESEARCH TRIANGLE PARK,NC: U.S. EPA. PP.303
   1976

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```

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Criteria Pollutants (CrtPol)

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CHEMFATE Search Results

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CAS #: 010102-44-0 Name: NITROGEN DIOXIDE

```
**********************************************************************************
VP      NITROGEN DIOXIDE                                        CAS# 10102-44-0
  Vapor Pressure :  9.079E+02   MM HG       MEASURED
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************************


   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989

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```

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```
CAS Number : 010102-44-0
Chem Name  : NITROGEN DIOXIDE
Mol Formula: NO2
Mol Weight : 46.01
Melting Pt : -9.3 deg C
Boiling Pt : 21.15 deg C
Water Solubility:
   Value : 1.71E+005 mg/L
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM ET AL. (1996)
Log P (octanol-water):
   Value : -0.58
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1995)
Vapor Pressure:
   Value : 900 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : DAUBERT,TE & DANNER,RP (1989)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.0245 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 1.1E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EXP
   Ref   : GROSJEAN,D (1985)
```

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```
CAS Number : 000630-08-0
Chem Name  : CARBON MONOXIDE
Mol Formula: CO
Mol Weight : 28.01
Melting Pt : -205 deg C
Boiling Pt : -191.5 deg C
Water Solubility:
   Value : 2290 mg/L
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM ET AL. (1996)
Log P (octanol-water):
   Value : 1.78
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1995)
Vapor Pressure:
   Value : 1.55E+008 mm Hg
   Temp  : 25 deg C
   Type  : EXT
   Ref   : YAWS,CL (1994)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Atmospheric OH Rate Constant:
   Value : 6.86E-015 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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```
CAS Number : 007446-09-5
Chem Name  : SULFUR DIOXIDE
Mol Formula: O2S
Mol Weight : 64.06
Melting Pt : -72 deg C
Boiling Pt : -10 deg C
Water Solubility:
   Value : 1.07E+005 mg/L
   Temp  : 21 deg C
   Type  : EXP
   Ref   : VENABLE,CS & FUWA,T (1922)
Log P (octanol-water):
   Value : -2.20
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1995)
Vapor Pressure:
   Value : 3000 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : DAUBERT,TE & DANNER,RP (1989)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.00081 atm-m3/mole
   Temp  : 25 deg C
   Type  : EXP
   Ref   : BETTERTON,EA (1992)
Atmospheric OH Rate Constant:
   Value : 6E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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WTP RISK ASSESSMENT WORK PLAN IDENTIFIED CONSTITUENTS OF POTENTIAL CONCERN (COPC) SUPPORT DATA

Dioxin and Furan Compounds (PCDDs/PCDFs) (D/F) &
Polychlorinated Biphenyls (PCBs) (PCB)

DRAFT
DO NOT CITE OR QUOTE

December 2003
NAS Review Draft
www.epa.gov/ncea/dioxin

Exposure and Human Health Reassessment of 2,3,7,8-Tetrachlorodibenzo-*p*-Dioxin (TCDD) and Related Compounds

Part I: Estimating Exposure to Dioxin-Like Compounds

Volume 2: Properties, Environmental Levels, and Background Exposures

Exposure Assessment and Risk Characterization Group
National Center for Environmental Assessment - Washington Office
Office of Research and Development
U.S. Environmental Protection Agency
Washington, DC

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Table 2-3. Selected Physical-Chemical Property Values for the "Dioxin-Like" CDD, CDF, and PCB Congeners

Chemical	Melting Point		Water Solubility			Vapor Pressure			Henry's Constant		Log K_{ow}	
CAS No. (IUPAC No.)	Value (°C)[a]	Ref.	Value (mg/l)[a,c]	Temp. (°C)	Ref. [R][a]	Value (mm Hg)[a,c]	Temp. (°C)	Ref. [R][a]	Value (atm-m³/mol)[a]	Ref. [R][b]	Value	Ref. [R][b]
Tetrachlorodibenzo-p-dioxins (MW = 321.98)												
2,3,7,8-TCDD 1746-01-6	305-306	9	1.93E-05	25	4,53 [1]	(1.50E-09)	25	9,53 [2]	(3.29E-05)	53 [4]	6.80	53 [1]
Congener Group Average			(3.3E-04)	25	20	(1.4E-08)	25	20	(1.7E-05)	20	(6.5)	20
Pentachlorodibenzo-p-dioxins (MW = 356.42)												
1,2,3,7,8-PeCDD 40321-76-4	240-241	9				(4.4E-10)	25	9 [4]			6.64	10 [2]
Congener Group Average			(1.18E-04)	20	20	(5.6E-10)	25	20	(2.6E-06)	20	(6.6)	20
Hexachlorodibenzo-p-dioxins (MW = 390.87)												
1,2,3,4,7,8-HxCDD 39227-28-6	273-275	9	4.42E-06	25	6,53 [2]	(3.8E-11)	25	53 [4]	(1.07E-05)	53 [4]	7.80	53 [4]
1,2,3,6,7,8-HxCDD 57653-85-7	285-286	9				(3.6E-11)	25	9 [5]				
1,2,3,7,8,9-HxCDD 19408-74-3	243-244	9				(4.9E-11)	25	9 [5]				
Congener Group Average			(4.4E-06)	25	20	(4.4E-11)	25	20	(1.1E-05)	20	(7.3)	20
Heptachlorodibenzo-p-dioxins (MW = 425.31)												
1,2,3,4,6,7,8-HpCDD 35822-46-9	264-265	9	2.40E-06	20	6,53 [2]	(5.6E-12)	25	9,53 [4]	(1.26E-05)	53 [4]	8.00	53 [4]
Congener Group Average			(2.4E-06)	20	20	(3.2E-11)	25	20	(1.26E-05)	20	(8.0)	20
Octachlorodibenzo-p-dioxins (MW = 460.76)												
1,2,3,4,6,7,8,9-OCDD 3268-87-9	325-326	6	7.4E-08	25	5,53 [2]	(8.25E-13)	25	9,53 [2]	(6.75E-06)	5,53 [4]	8.20	5,53 [2]

Table 2-3. P-Chem Properties for the Dioxin-Like Congeners (continued)

Chemical	Melting Point		Water Solubility			Vapor Pressure			Henry's Constant		Log K_{ow}	
CAS No. (IUPAC No.)	Value (°C)[a]	Ref.	Value (mg/l)[a,c]	Temp. (°C)	Ref. [R][b]	Value (mm Hg)[a,c]	Temp. (°C)	Ref. [R][b]	Value (atm-m³/mol)[a,c]	Ref. [R][b]	Value	Ref. [R][b]
Tetrachlorodibenzofurans (MW = 305.98)												
2,3,7,8-TCDF 51207-31-9	227-228	21	4.19E-04	22.7	11 [2]	(1.5E-08)	25	21,53 [4]	(1.44E-05)	53 [4]	6.1	53 [2]
Congener Group Average			(4.2E-04)	22.7	20	(2.5E-08)	25	20	(1.4E-05)	20	(6.2)	20
Pentachlorodibenzofurans (MW = 340.42)												
1,2,3,7,8-PeCDF 57117-41-6	225-227	21				(1.7E-09)	25	21 [4]			6.79	10 [2]
2,3,4,7,8-PeCDF 57117-31-4	196-196.5	21	2.36E-04	22.7	11 [2]	(2.6E-09)	25	21,53 [4]	(4.98E-06)	53 [4]	6.5	53 [2]
Congener Group Average			(2.4E-04)	22.7	20	(2.7E-09)	25	20	(5.0E-06)	20	(6.4)	20
Hexachlorodibenzofurans (MW = 374.87)												
1,2,3,4,7,8-HxCDF 70648-26-9	225.5-226.5	21	8.25E-06	22.7	11 [2]	(2.4E-10)	25	21,53 [5]	(1.43E-05)	19 [5]	(7.0)	53
1,2,3,6,7,8-HxCDF 57117-44-9	232-234	21	1.77E-05	22.7	11 [2]	(2.2E-10)	25	21 [5]	(7.31E-06)	53 [5]		
1,2,3,7,8,9-HxCDF 72918-21-9	246-249[d]	21										
2,3,4,6,7,8-HxCDF 60851-34-5	239-240	21				(2.0E-10)	25	21 [5]				
Congener Group Average			(1.3E-05)	22.7	20	(2.8E-10)	25	20	(1.1E-05)	20	(7.0)	20
Heptachlorodibenzofurans (MW = 409.31)												
1,2,3,4,6,7,8-HpCDF 67562-39-4	236-237	21	1.35E-06	22.7	11 [2]	(3.5E-11)	25	21,53 [4]	(1.41E-05)	53 [4]	(7.4)	53 [2]

Table 2-3. P-Chem Properties for the Dioxin-Like Congeners (continued)

Chemical	Melting Point		Water Solubility			Vapor Pressure			Henry's Constant		Log K_{ow}	
CAS No. (IUPAC No.)	Value (°C)[a]	Ref.	Value (mg/l)[a,c]	Temp. (°C)	Ref. (R)[b]	Value (mm Hg)[a,c]	Temp. (°C)	Ref. (R)[b]	Value (atm-m³/mol)[a]	Ref. (R)[b]	Value	Ref. (R)[a]
1,2,3,4,7,8,9-HpCDF 55673-89-7	221-223	21				1.07E-10 (4.7E-11)	25	21,53 [4]				
Congener Group Average			(1.4E-06)	22.7	20	(4.7E-11)	25	20	(1.4E-05)	20	(7.4)	20
Octachlorodibenzofurans (MW = 444.76)												
1,2,3,4,6,7,8,9-OCDF 39001-02-0	258-260	21	(1.16E-06)	25	11 [2]	3.75E-12	25	21 [2]	(1.88E-06)	19 [4]	8.0	53 [4]
Tetrachloro-PCB (MW = 291.99)												
3,3',4,4'-TCB 32598-13-3 (77)	180-181	58	1.0E-03	25	56 [2]	4.47E-07	25	56 [2]	1.70E-05	56 [2]	6.5	56 [2]
3,4,4',5-TCB 70362-60-4 (81)	160-163	58	2.92E-03	25	17 [5]	(7.85E-07)	25	18 [4]	1.28E-04	41 [4]	(6.36)	15 [5]
Pentachloro-PCB (MW = 326.44)												
2,3,3',4,4'-PeCB 32598-14-4 (105)	116.5-117.5	56	(1.90E-03)	25	35 [5]	(8.28E-07)	25	18 [4]	(9.93E-05)	35 [5]	(6.0)	56 [2]
2,3,4,4',5-PeCB 74472-37-0 (114)	98-99	58	(2.58E-03)	20	41 [2]	(4.18E-07)	20	41 [2]	6.90E-05	41 [4]	(6.65)	15 [5]
2,3',4,4',5-PeCB 31508-00-6 (118)	111-113	58	(1.59E-03)	20	41 [2]	(3.14E-07)	20	41 [2]	8.50E-05	41 [4]	7.12	31 [4]
2',3,4,4',5-PeCB 65510-44-3(123)	134-135	58	(1.64E-03)	25	17 [5]	(8.78E-07)	25	18 [4]	1.74E-04	35 [5]	(6.74)	15 [5]
3,3',4,4',5-PeCB 57465-28-8 (126)	160-161	58	(1.03E-03)	25	17 [5]	(2.96E-07)	25	18 [4]	(5.40E-05)	35 [5]	(6.89)	15 [5]
Hexachloro-PCB (MW = 360.88)												

Table 2-3. P-Chem Properties for the Dioxin-Like Congeners (continued)

Chemical CAS No. (IUPAC No.)	Melting Point		Water Solubility			Vapor Pressure			Henry's Constant		Log K_{ow}	
	Value (°C)[a]	Ref.	Value (mg/l)[a,c]	Temp. (°C)	Ref. [R][b]	Value (mm Hg)[a,c]	Temp. (°C)	Ref. [R][b]	Value (atm-m³/mol)[a]	Ref. [R][b]	Value	Ref. [R][b]
2,3,3',4,4',5-HxCB 38380-08-4 (156)	129.5-131	58	(4.10E-04)	20	41 [2]	(1.47E-07)	25	18 [2]	8.70E-04	43 [4]	7.16	14 [3]
2,3,3',4,4',5'-HxCB 69782-90-7 (157)	161-162	58	(3.61E-04)	25	17 [5]	(5.47E-08)	25	18 [4]	5.80E-04	43 [4]	7.19	14 [3]
2,3',4,4',5,5'-HxCB 52663-72-6 (167)	125-127	58	(3.61E-04)	25	17 [5]	(1.95E-07)	25	18 [4]	(1.10E-04)	35 [5]	7.09	14 [3]
3,3',4,4',5,5'-HxCB 32774-16-6 (169)	208-210	58	(3.61E-05)	25	17 [5]	(1.81E-07)	25	56 [5]	(6.52E-05)	35 [5]	7.46	14 [3]
Heptachloro-PCB (MW = 395.33)												
2,3,3',4,4',5,5'-HpCB 39635-31-9 (189)	162-163	58	(6.26E-05)	25	17 [5]	(1.31E-08)	25	18 [4]	(6.65E-05)	35 [5]	(7.71)	15 [5]
2,2',3,3',4,4',5-HpCB 35065-30-6 (170)	136.5-138.5	58	(2.27E-04)	20	41 [2]	(6.46E-09)	25	41 [2]	1.50E-05	41 [4]	(7.27)	15 [5]
2,2',3,4,4',5,5'-HpCB 35069-29-3 (180)	112.5-114	58	(4.40E-04)	20	41 [2]	(2.72E-08)	25	41 [2]	3.20E-05	41 [4]	(7.36)	15 [5]

Footnote References

a Values are presented as they appeared in the referenced article. Values in ( ) are either estimated or are calculated/extrapolated from experimental values.

b [R] is the ranking of the value from the cited reference.

c For several PCB congeners, subcooled liquid values were converted to solid values using the melting points presented in this table and the conversion methodology presented in Eitzer and Hites (1988) and Mackay et al. (1992).

$\ln (P_w/P_s) = 6.79 (T_m-T)/T$

where: P_w = subcooled value
P_s = solid value
T_m = melting point (°K)
T = ambient temperature (°K)

d The melting point value for this congener obtained from Ref. 21; however, it was attributed through a probably typographical error to 1,2,3,6,8,9-HxCDF.

1. Marple et al. (1986a)
2. USEPA (1990)
3. Podoll et al. (1986)
4. Marple et al. (1986b)
5. Shiu et al. (1988)
6. Friesen et al. (1985)
8. Burkhard and Kuehl (1986)
9. Rordorf (1987)
10 Sijm et al. (1989)
11. Friesen et al. (1990b)
13. Dunnivant and Elzerman (1988)
14. Risby et al. (1990)
15. Hawker and Connell (1988)
16. Sabljic and Gusten (1989)
17. Abramowitz and Yalkowsky (1990)
18. Foreman and Bidleman (1985)
19. Calculated by the VP/WS ratio technique
20. Average of all literature values (measured and calculated)
21. Rordorf (1989)
22. Dulin et al. (1986)
23. Choudhry and Webster (1987)
25. Choudhry et al. (1990)
30. Orth et al. (1989)
31. Rapaport and Eisenreich (1984)
33. Eitzer and Hites (1988)
35. Dunnivant et al. (1992)
41. Murphy et al. (1987)
43. Murphy et al. (1983)
45. Webster et al. (1986)
50. Marple et al. (1987)
51. Santl et al. (1994)
52. Rordorf et al. (1990)
53. Mackay et al. (1992a)
54. Eitzer and Hites (1989)
55. Sacan and Inel (1995)
56. Mackay et al. (1992b)

Table 2-3. P-Chem Properties for the Dioxin-Like Congeners (continued)

within a homologue group 42. EPRI (1990) 58. Bolgar et al. (1995)

APPENDIX A. ENVIRONMENTAL CHEMISTRY

The tables in this appendix are discussed in Chapter 2. References listed at the end of each table are included in the reference list at the end of Chapter 2. Following are the tables included in this Appendix:

Page

Table A-1. Physical and Chemical Properties For the Dioxin, Furan, and PCB Congeners A-2

Table A-2. Rankings For the Physical and Chemical Property Literature A-17

Table A-1. P-Chem Properties for the Dioxin, Furan, and PCB Congeners

Congener	Water Solubility			Vapor Pressure			Henry's Law Constant		Log K_{ow}		Log K_{oc}	
CAS No.	Value[a,c] (mg/l)	Temp. (°C)	Ref.	Value[a,b] (mm Hg)	Temp. (°C)	Ref.	Value[a] (atm-m³/mol)	Ref.	Value[a]	Ref.	Value[a]	Ref.
Tetrachlorodibenzo-p-dioxins (MW=321.98)												
1,2,3,4-TCDD 30746-58-8	3.88E-04-6.30E-04 [5.50E-04]	25 [25]	5,38,46,51,53 [53]	1.81E-08-4.80E-08 [4.80E-08]	25 [25]	9,33,53 [9,53]	1.99E-05-(3.70E-05) [1.99E-05]	5,51,53 [51]	(5.50)-(8.97) [6.60]	5,7,8,10, 26,29,53 [53]		
1,2,3,6-TCDD 71669-25-5									6.86	10		
1,2,3,7-TCDD 67028-18-6	2.80E-04-7.30E-04 [4.20E-04]	20-26 [20]	6,53 [6,53]	(7.50E-09)-(5.3E-08) [7.50E-09]	25 [25]	9,21,52,53 [21,53]	(7.57E-06)	9,53	(5.50)-(8.81) [6.90]	5,7,8,10, 26,53 [53]	4.26-6.55	45,53
1,2,3,8-TCDD 53555-02-5									6.48	10		
1,2,3,9-TCDD 71669-26-6									6.39	10		
1,2,4,6-TCDD 71669-27-7									6.10	10		
1,2,4,7-TCDD 71669-28-8									6.25	10		
1,2,4,8-TCDD 71669-29-9									6.25	10		
1,2,4,9-TCDD 71665-99-1									6.10	10		
1,2,6,7-TCDD 40581-90-6												
1,2,6,8-TCDD 67323-56-2									6.43	10		
1,2,6,9-TCDD 40581-91-7												

Table A-1 (continued)

Congener	Water Solubility			Vapor Pressure			Henry's Law Constant		Log K_{oa}		Log K_{ow}	
CAS No.	Value[a,c] (mg/l)	Temp. (°C)	Ref.	Value[a,b] (mm Hg)	Temp. (°C)	Ref.	Value[a] (atm-m³/mol)	Ref.	Value[a]	Ref.	Value[a]	Ref.
1,2,7,8-TCDD 34816-53-0									6.38	10		
1,2,7,9-TCDD 71669-23-3									6.86	10		
1,2,8,9-TCDD 62470-54-6												
1,3,6,8-TCDD 33423-92-6	1.68E-04-(6.0E-04) [3.2E-04]	20-25 [20]	6,7,38,53 [7,53]	(5.25E-09)-4.03E-06 [5.25E-09]	20-25 [25]	7,9,53 [9,53]	(5.92E-06)-6.81E-05 [6.95E-06]	5,7,53 [53]	(5.5)-(9.43) [7.10]	5,7,8,10, 26,53 [5,53]	2.05-(6.74)	53
1,3,6,9-TCDD 71669-24-4									6.25	10		
1,3,7,8-TCDD 50585-46-1				(6.3E-09)	25	9			6.30	10		
1,3,7,9-TCDD 62470-53-5									6.39-7.06 [6.39]	8,10 [10]		
1,4,6,9-TCDD 40581-93-9									6.38	10		
1,4,7,8-TCDD 40581-94-0									6.39	10		
2,3,7,8-TCDD 1746-01-6	7.91E-06-4.83E-04 [1.93E-05]	17-25 [25]	1,2,4,5,27, 36,50,53 [4,53]	7.40E-10-3.38E-08 [1.50E-09]	25 [25]	2,3,5,9,3 4,53 [9,53]	(2.07E-08)-(1.02E-04) [3.29E-05]	2,3,5,53 [53]	5.38-8.93 [6.80]	2,4,5,8,10, 50,53 [53]	3.06-8.50 [6.4-6.66]	32,47,48, 49,50,53,57 [50,57]
Congener Group Average	(3.3E-04)	25	20	(1.4E-08)	25	20	(1.7E-05)	20	(6.5)	20		

Table A-1 (continued)

Congener	Water Solubility			Vapor Pressure			Henry's Law Constant		Log K_{oa}		Log K_{ow}	
CAS No.	Value[a,c] (mg/l)	Temp. (°C)	Ref.	Value[a,b] (mm Hg)	Temp. (°C)	Ref.	Value[a] (atm-m³/mol)	Ref.	Value[a]	Ref.	Value[a]	Ref.
Pentachlorodibenzo-p-dioxins (MW = 356.42)												
1,2,3,4,6-PeCDD 67028-19-7									6.30	10		
1,2,3,4,7-PeCDD 39227-61-7	9.55E-05-8.16E-03 [1.18E-04]	20-26 [20]	5,6,38,53 [6,53]	(6.60E-10)-7.5E-09 (6.60E-10)	25 [25]	5,9,53 [9,53]	(2.63E-06)	5,53	6.60-(10.05) [7.40]	5,7,8,10, 26,53 [53]	4.85-6.38	45,53
1,2,3,6,7-PeCDD 71925-15-0									6.74	10		
1,2,3,6,8-PeCDD 71925-16-1									6.53	10		
1,2,3,6,9-PeCDD 82291-34-7									6.24	10		
1,2,3,7,8-PeCDD 40321-76-4				(4.4E-10)-9.48E-10 [4.40E-10]	25 [25]	9,33 [9]			6.64	10		
1,2,3,7,9-PeCDD 71925-17-2									6.40	10		
1,2,3,8,9-PeCDD 71925-18-3												
1,2,4,6,7-PeCDD 82291-35-8												
1,2,4,6,8-PeCDD 71998-76-0												
1,2,4,6,9-PeCDD 82291-36-9									6.60	10		
1,2,4,7,8-PeCDD 58802-08-7				(5.8E-10)	25	9			6.20	10		

Table A-1 (continued)

Congener	Water Solubility			Vapor Pressure			Henry's Law Constant		Log K_{ow}		Log K_{oc}	
CAS No.	Value[a,c] (mg/l)	Temp. (°C)	Ref.	Value[a,b] (mm Hg)	Temp. (°C)	Ref.	Value[a] (atm-m³/mol)	Ref.	Value[a]	Ref.	Value[a]	Ref.
1,2,4,7,9-PeCDD 82291-37-0												
1,2,4,8,9-PeCDD 82291-38-1												
Congener Group Average	(1.18E-04)	20	20	(5.6E-10)	25	20	(2.6E-06)	20	(6.6)	20		
Hexachlorodibenzo-p-dioxins (MW=390.87)												
1,2,3,4,6,7-HxCDD 58200-66-1												
1,2,3,4,6,8-HxCDD 58200-67-2									6.85	10		
1,2,3,4,6,9-HxCDD 58200-68-3												
1,2,3,4,7,8-HxCDD 39227-28-6	4.00E-06-6.44E-06 [4.42E-06]	21-26 [25]	5,6,53 [6,53]	(3.8E-11)-1.01E-10 [3.8E-11]	25 [25]	5,9,33,53 [9,53]	(1.07E-05)-(4.46E-05) [1.07E-05]	5,19,53 [53]	7.79-10.44 [7.80]	7,8,26,53 [53]	5.02-(7.10)	45,53
1,2,3,6,7,8-HxCDD 57653-85-7				(3.6E-11)	25	9						
1,2,3,6,7,9-HxCDD 64461-98-9									7.59	10		
1,2,3,6,8,9-HxCDD 58200-69-4									7.59	10		

Table A-1 (continued)

Congener	Water Solubility			Vapor Pressure			Henry's Law Constant		Log K_{ow}		Log K_{oc}	
CAS No.	Value[a,c] (mg/l)	Temp. (°C)	Ref.	Value[a,b] (mm Hg)	Temp. (°C)	Ref.	Value[a] (atm-m^3/mol)	Ref.	Value[a]	Ref.	Value[a]	Ref.
1,2,3,7,8,9-HxCDD 19408-74-3				(4.9E-11)	25	9						
1,2,4,6,7,9-HxCDD 39227-62-8				(5.1E-11)	25	9			6.85	10		
1,2,4,6,8,9-HxCDD 58802-09-8									6.85	10		
Congener Group Average	(4.4E-06)	25	20	(4.4E-11)	25	20	(1.1E-05)	20	(7.3)	20		
Heptachlorodibenzo-p-dioxins (MW=425.31)												
1,2,3,4,6,7,8-HpCDD 35822-46-9	2.3E-06-2.56E-06 [2.4E-06]	20-26 [20]	5,6,53 [6,53]	(5.6E-12)-(2.40E-10) [5.6E-12]	25 [25]	9,33,53 [9,53]	(1.31E-06)-(1.26E-05) [1.26E-05]	5,53 [53]	7.92-(11.98) [8.00]	7,8,10,26,53 [53]	5.47-(7.80)	53
1,2,3,4,6,7,9-HpCDD 58200-70-7												
Congener Group Average	(2.4E-06)	20	20	(5.6E-12)	25	20	(1.3E-05)	20	(8.0)	20		
Octachlorodibenzo-p-dioxin (MW=460.76)												
1,2,3,4,6,7,8,9-OCDD 3268-87-9	7.4E-08-7.36E-06 [7.4E-08]	20-25 [25]	5,6,7,53 [5,53]	(8.25E-13)-6.54E-08 [8.25E-13]	20-25	7,9,33,53 [9,53]	(6.75E-06)	5,53	(7.5)-(13) [8.20]	5,7,8,26,29,53 [5,53]	5.92-(7.90)	53
Tetrachlorodibenzofurans (MW=305.98)												
1,2,3,4-TCDF 30402-14-3				(3.1E-08)	25	21			6.17	10		

Table A-1 (continued)

Congener	Water Solubility			Vapor Pressure			Henry's Law Constant		$\log K_{oc}$		$\log K_{ow}$	
CAS No.	Value[a,c] (mg/l)	Temp. (°C)	Ref.	Value[a,b] (mm Hg)	Temp. (°C)	Ref.	Value[a] (atm-m³/mol)	Ref.	Value[a]	Ref.	Value[a]	Ref.
1,2,3,6-TCDF 83704-21-6									6.15	10		
1,2,3,7-TCDF 83704-22-7				(3.2E-08)	25	21						
1,2,3,8-TCDF 62615-08-1				(2.1E-08)	25	21			6.15	10		
1,2,3,9-TCDF 83704-23-8									6.06	10		
1,2,4,6-TCDF 71998-73-7												
1,2,4,7-TCDF 83719-40-8												
1,2,4,8-TCDF 64126-87-0				(2.2E-08)	25	21			6.31	10		
1,2,4,9-TCDF 83704-24-9												
1,2,6,7-TCDF 83704-25-0				(2.0E-08)	25	21			6.25	10		
1,2,6,8-TCDF 83710-07-0												
1,2,6,9-TCDF 70648-18-9												
1,2,7,8-TCDF 58802-20-3				(1.8E-08)	25	21			6.23	10		
1,2,7,9-TCDF 83704-26-1				(2.5E-08)	25	21			6.25	10		

Table A-1 (continued)

Congener	Water Solubility			Vapor Pressure			Henry's Law Constant		Log K_{ow}		Log K_{oc}	
CAS No.	Value[a,c] (mg/l)	Temp. (°C)	Ref.	Value[a,b] (mm Hg)	Temp. (°C)	Ref.	Value[a] (atm-m³/mol)	Ref.	Value[a]	Ref.	Value[a]	Ref.
1,2,8,9-TCDF 70648-22-5												
1,3,4,6-TCDF 83704-27-2									6.31	10		
1,3,4,7-TCDF 70648-16-7									6.23	10		
1,3,4,8-TCDF 92341-04-3									6.13	10		
1,3,4,9-TCDF 83704-28-3									5.89	10		
1,3,6,7-TCDF 57117-36-9				(2.8E-08)	25	21						
1,3,6,8-TCDF 71998-72-6				(2.7E-08)	25	21			6.37	10		
1,3,6,9-TCDF 83690-98-6												
1,3,7,8-TCDF 57117-35-8									6.34	10		
1,3,7,9-TCDF 64560-17-4				(1.9E-08)	25	21			6.34	10		
1,4,6,7-TCDF 66794-59-0				(2.6E-08)	25	21			6.15	10		
1,4,6,8-TCDF 82911-58-8												
1,4,6,9-TCDF 70648-19-0									5.60	10		

Table A-1 (continued)

Congener	Water Solubility			Vapor Pressure			Henry's Law Constant		Log K_{oa}		Log K_{ow}	
CAS No.	Value[a-c] (mg/l)	Temp. (°C)	Ref.	Value[a,b] (mm Hg)	Temp. (°C)	Ref.	Value[a] (atm-m³/mol)	Ref.	Value[a]	Ref.	Value[a]	Ref.
1,4,7,8-TCDF 83704-29-4												
1,6,7,8-TCDF 83704-33-0									6.17	10		
2,3,4,6-TCDF 83704-30-7				(4.0E-08)	25	21			6.11	10		
2,3,4,7-TCDF 83704-31-8				(2.9E-08)	25	21			6.06	10		
2,3,4,8-TCDF 83704-32-9				(2.8E-08)	25	21						
2,3,6,7-TCDF 57117-39-2				(2.1E-08)	25	21			6.31	10		
2,3,6,8-TCDF 57117-37-0				(2.0E-08)	25	21			6.73	10		
2,3,7,8-TCDF 51207-31-9	4.19E-04	22.7	11	8.96E-09-(1.5E-08) [1.5E-08]	25 [25]	21,33,53 [21,53]	(1.44E-05)-(1.48E-05) [1.44E-05]	53,54 [53]	5.82-6.53 [6.1]	8,10,53 [53]	(5.20)-(7.50)	53
2,4,6,7-TCDF 57117-38-1				(3.3E-08)	25	21			6.25	10		
2,4,6,8-TCDF 58802-19-0				(2.0E-08)	25	21			6.17	10		
3,4,6,7-TCDF 57117-40-5												
Congener Group Average	(4.2E-04)	22.7	20	(2.5E-08)	25	20	(1.4E-05)	20	(6.2)	20		
Pentachlorodibenzofurans (MW = 340.42)												

Table A-1 (continued)

Congener	Water Solubility			Vapor Pressure			Henry's Law Constant		Log K_{oc}		Log K_{ow}	
CAS No.	Value[a,c] (mg/l)	Temp. (°C)	Ref.	Value[a,b] (mm Hg)	Temp. (°C)	Ref.	Value[a] (atm-m³/mol)	Ref.	Value[a]	Ref.	Value[a]	Ref.
1,2,3,4,6-PeCDF 83704-47-6				(2.7E-09)	25	21						
1,2,3,4,7-PeCDF 83704-48-7									6.53	10		
1,2,3,4,8-PeCDF 67517-48-0				(3.6E-09)	25	21			6.79	10		
1,2,3,4,9-PeCDF 83704-49-8												
1,2,3,6,7-PeCDF 57117-42-7				(2.2E-09)	25	21			6.26	10		
1,2,3,6,8-PeCDF 83704-51-2									6.33	10		
1,2,3,6,9-PeCDF 83704-52-3												
1,2,3,7,8-PeCDF 57117-41-6				(1.7E-09)-2.72E-09 [1.7E-09]	25	21,33 [21]			6.79	10		
1,2,3,7,9-PeCDF 83704-53-4												
1,2,3,8,9-PeCDF 83704-54-5												
1,2,4,6,7-PeCDF 83704-50-1				(3.5E-09)	25	21			6.27	10		
1,2,4,6,8-PeCDF 69698-57-3				(2.3E-09)	25	21			6.34	10		
1,2,4,6,9-PeCDF 70648-24-7									6.59	10		

Table A-1 (continued)

Congener	Water Solubility			Vapor Pressure			Henry's Law Constant		Log K_{oc}		Log K_{ow}	
CAS No.	Value[a,c] (mg/l)	Temp. (°C)	Ref.	Value[a,b] (mm Hg)	Temp. (°C)	Ref.	Value[a] (atm-m³/mol)	Ref.	Value[a]	Ref.	Value[a]	Ref.
1,2,4,7,8-PeCDF 58802-15-6				(1.5E-09)	25	21			6.26	10		
1,2,4,7,9-PeCDF 71998-74-8				(2.6E-09)	25	21			6.19	10		
1,2,4,8,9-PeCDF 70648-23-6												
1,2,6,7,8-PeCDF 69433-00-7				(1.9E-09)	25	21			6.42	10		
1,2,6,7,9-PeCDF 70872-82-1									6.51	10		
1,3,4,6,7-PeCDF 83704-36-3				(2.7E-09)	25	21			6.19	10		
1,3,4,6,8-PeCDF 83704-55-6									6.24	10		
1,3,4,6,9-PeCDF 70648-15-6									6.34	10		
1,3,4,7,8-PeCDF 58802-16-7				(4.3E-09)	25	21						
1,3,4,7,9-PeCDF 70648-20-3									6.33	10		
1,3,6,7,8-PeCDF 70648-21-4												
1,4,6,7,8-PeCDF 83704-35-2									6.53	10		
2,3,4,6,7-PeCDF 57117-43-8				(2.4E-09)	25	21			6.47	10		

Table A-1 (continued)

Congener	Water Solubility			Vapor Pressure			Henry's Law Constant		Log K_{ow}		Log K_{oc}	
CAS No.	Value[a,c] (mg/l)	Temp. (°C)	Ref.	Value[a,b] (mm Hg)	Temp. (°C)	Ref.	Value[a] (atm-m³/mol)	Ref.	Value[a]	Ref.	Value[a]	Ref.
2,3,4,6,8-PeCDF 67481-22-5				(1.9E-09)	25	21			6.59	10		
2,3,4,7,8-PeCDF 57117-31-4	2.36E-04	22.7	11	(2.63E-09)- 3.29E-09 [2.63E-09]	25 [25]	21,33 [53]	(4.98E-06)	53	6.92-(7.82) [6.5]	10,53 [53]	5.59- (7.40)	53
Congener Group Average	(2.4E-04)	22.7	20	(2.7E-09)	25	20	(5.0E-06)	20	(6.4)	20		

Table A-1 (continued)

Congener	Water Solubility			Vapor Pressure			Henry's Law Constant		Log K_{ow}		Log K_{oc}	
CAS No.	Value[a,c] (mg/l)	Temp. (°C)	Ref.	Value[a,b] (mm Hg)	Temp. (°C)	Ref.	Value[a] (atm-m³/mol)	Ref.	Value[a]	Ref.	Value[a]	Ref.
Hexachlorodibenzofurans (MW = 374.87)												
1,2,3,4,6,7-HxCDF 79060-60-9				(2.4E-10)	25	21						
1,2,3,4,6,8-HxCDF 69698-60-8				(2.2E-10)	25	21						
1,2,3,4,6,9-HxCDF 91538-83-9				(4.1E-10)	25	21						
1,2,3,4,7,8-HxCDF 70648-26-9	8.25E-06	22.7	11	(2.4E-10)-(6.7E-10) [2.4E-10]	25 [25]	21,52,53 [21,53]	(1.43E-05)	19	(7.0)	53	(7.40)	53
1,2,3,4,7,9-HxCDF 91538-84-0				(2.8E-10)	25	21						
1,2,3,4,8,9-HxCDF 92341-07-6												
1,2,3,6,7,8-HxCDF 57117-44-9	1.77E-05	22.7	11	(2.2E-10) - (6.68E-10) [2.2E-10]	25 [25]	21,53 [21,53]	(6.1E-06)-(7.31E-06) [7.31E-06]	19,53 [53]				
1,2,3,6,7,9-HxCDF 92341-06-5												
1,2,3,6,8,9-HxCDF 75198-38-8				(3.4E-10)	25	21						

Table A-1 (continued)

Congener	Water Solubility			Vapor Pressure			Henry's Law Constant		Log K_{ow}		Log K_{oc}	
CAS No.	Value[a,e] (mg/l)	Temp. (°C)	Ref.	Value[a,b] (mm Hg)	Temp. (°C)	Ref.	Value[a] (atm-m³/mol)	Ref.	Value[c]	Ref.	Value[e]	Ref.
1,2,3,7,8,9-HxCDF 72918-21-9				(1.8E-10)	25	21						
1,2,4,6,7,8-HxCDF 67562-40-7				(2.6E-10)	25	21						
1,2,4,6,7,9-HxCDF 75627-02-0				(5.7E-10)	25	21						
1,2,4,6,8,9-HxCDF 69698-59-5				(1.8E-10)	25	21						
1,3,4,6,7,8-HxCDF 71998-75-9				(2.3E-10)	25	21						
1,3,4,6,7,9-HxCDF 92341-05-4												
2,3,4,6,7,8-HxCDF 60851-34-5				(2.0E-10)	25	21						
Congener Group Average	(1.3E-05)	22.7	20	(2.8E-10)	25	20	(1.1E-05)	20	(7.0)	20		
Heptachlorodibenzofurans (MW = 409.31)												
1,2,3,4,6,7,8-HpCDF 67562-39-4	1.35E-06	22.7	11	(3.5E-11)-1.33E-10 [3.5E-11]	25 [25]	21,33 [21,53]	(1.41E-05)-(5.3E-05) [1.41E-05]	19,53 [53]	7.92-(9.25) [7.4]	10,53 [53]	6.00-(7.90)	53

Table A-1 (continued)

Congener	Water Solubility			Vapor Pressure			Henry's Law Constant		Log K_{oc}		Log K_{ow}	
CAS No.	Value[a,c] (mg/l)	Temp. (°C)	Ref.	Value[a,b] (mm Hg)	Temp. (°C)	Ref.	Value[a] (atm-m³/mol)	Ref.	Value[a]	Ref.	Value[a]	Ref
1,2,3,4,6,7,9-HpCDF 70648-25-8												
1,2,3,4,6,8,9-HpCDF 69698-58-4				(5.8E-11)	25	21						
1,2,3,4,7,8,9-HpCDF 55673-89-7				(4.7E-11)-1.07E-10 [4.7E-11]	25 [25]	21,33 [21,53]					5.00-(6.70)	53
Congener Group Average	(1.4E-06)	22.7	20	(4.7E-11)	25	20	(1.4E-05)	20	(7.4)	20		
Octachlorodibenzofurans (MW = 444.76)												
1,2,3,4,6,7,8,9-OCDF 39001-02-0	(1.16E-06)	25	11	(3.75E-12)	25	21	(1.88E-06)	19	(7.0)-(13) [8.0]	8,26,29,53 [53]	6.00-(7.40)	53
Tetrachloro-PCB (MW = 291.99)												
3,3',4,4'-TCB 32598-13-3	(5.5E-04)-(1.7E-01) [1.03E-03]	25	12,13,17,28,35,38,40,44,56 [56]	1.37E-07-4.47E-07 [4.47E-07]	25	13,18,56 [56]	1.70E-05-(1.0E-04) [1.70E-05]	13,35,39,56 [56]	5.62-6.77 [6.5]	8,15,31,55,56 [56]	(4.41)-(5.75)	56
3,4,4',5-TCB 70362-60-4 (81)	2.92E-03	25	17	(7.85E-07)	25	18	1.28E-04	41	(6.36)	15		
Pentachloro-PCB (MW = 326.44)												
2,3,3',4,4'-PeCB 32598-14-4	(1.9E-03)-(1.1E-02) [1.90E-03]	25	17,35,37,56 [35]	(8.28E-07)	25	18	(6.0E-05)-(9.93E-05) [9.93E-05]	16,35 [35]	(6.3)-(8.6) [6.0]	15,37,55,56 [56]		

Table A-1 (continued)

Congener	Water Solubility			Vapor Pressure			Henry's Law Constant		Log K_{ow}		Log K_{oc}	
CAS No.	Value[a,c] (mg/l)	Temp. (°C)	Ref.	Value[a,b] (mm Hg)	Temp. (°C)	Ref.	Value[a] (atm-m³/mol)	Ref.	Value[a]	Ref.	Value[a]	Ref.
2,3,4,4',5-PeCB 74472-37-0	(2.58E-03)-(1.1E-02) [2.58E-03]	20-25 [20]	17,35,37,41 [41]	(4.18E-07)-(1.43E-04) [4.18E-07]	20-25 [20]	18,41 [41]	6.90E-05-(1.4E-04) [6.90E-05]	16,35,41 [41]	(6.3)-(6.65) [6.65]	15,37 [15]		
2,3',4,4',5-PeCB 31508-00-6	(1.59E-03)-(1.1E-02) [1.59E-03]	20-25 [20]	17,35,37,41 [41]	(3.14E-07)-(1.38E-06) [3.14E-07]	20-25 [20]	18,41 [41]	8.50E-05-4.0E-04 [8.50E-05]	16,35,41,43 [41]	(6.2)-7.12 [7.12]	15,31,37,55 [31]	(5.7)	42
3,3',4,4',5-PeCB 57465-28-8	(1.03E-03)	25	17	(2.19E-07)-(3.72E-07) [2.96E-07]	25	18 [18]	(5.4E-05)-(8.2E-05) [5.40E-05]	16,35 [35]	(6.26)-(6.89) [6.89]	15,37 [15]		
2',3,4,4',5-PeCB 65510-44-3	(1.64E-03)	25	17	(7.62E-07)-(9.95E-07) [8.78E-07]	25	18 [18]	(1.74E-04)-(2.62E-04) [1.74E-04]	16,35 [35]	(6.74)	15		
Hexachloro-PCB (MW = 360.88)												
2,3,3',4,4',5-HxCB 38380-08-4	(4.10E-04)-(2.4E-03) [4.10E-04]	20-25 [20]	17,37,41 [41]	(1.47E-07)	25	18	(2.2E-05)-8.7E-04 [8.70E-04]	16,35,43 [43]	(6.64)-(7.16) [7.16]	14,15,37 [14]		
2,3,3',4,4',5'-HxCB 69782-90-7	(3.61E-04)	25	17	(5.47E-08)-(1.08E-07) [5.47E-08]	25	18	(6.6E-05)-5.8E-04 [5.80E-04]	16,35,43 [43]	7.18-(7.20) [7.19]	14,15 [14]		
2,3',4,4',5,5'-HxCB 52663-72-6	(3.61E-04)-(2.44E-03) [3.61E-04]	25	17,37 [17]	(1.46E-07)-(1.95E-07) [1.95E-07]	25	18	(1.1E-04)-(1.2E-04) [1.10E-04]	16,35 [35]	(6.64)-(7.27) [7.09]	14,15,37 [14]		
3,3',4,4',5,5'-HxCB 32774-16-6	(3.61E-05)-(2.5E-03) [3.61E-05]	25	17,35,37 [17]	(8.1E-09)-(3.5E-07) [1.81E-07][d]	25	56	(1.6E-05)-(6.5E-05) [6.52E-05]	16,35,56 [35]	(6.64)-7.46 [7.46]	14,15,37,56 [14]	(6.60)	56
Heptachloro-PCB (MW = 396.33)												
2,3,3',4,4',5,5'-HpCB 39635-31-9	(4.5E-05)-(5.3E-04) [6.26E-05]	25	17,35,37 [17]	(1.19E-08)-(1.73E-08) [1.31E-08]	25	18	(6.6E-05)	35	(7.0)-(7.71) [7.71]	15,37 [15]		

Table A-1 (continued)

Congener	Water Solubility			Vapor Pressure			Henry's Law Constant		Log K_{ow}		Log K_{oc}	
CAS No.	Value[a,c] (mg/l)	Temp. (°C)	Ref.	Value[a,b] (mm Hg)	Temp. (°C)	Ref.	Value[a] (atm-m³/mol)	Ref.	Value[a]	Ref.	Value[a]	Ref.
2,2',3,3',4,4',5-HpCB 35065-30-6	(1.19E-04)-(5.21E-04) [2.27E-04]	20-25 [20]	17,35,37,41 [41]	(6.46E-09)-8.60E-09 [6.46E-09]	20-25 [25]	18,41 [41]	(1.50E-05)-(8.73E-05) [1.50E-05]	35,41 [41]	(7.03)-(7.27) [7.27]	15,37,42, 56 [15]	5.5-6.8	42,56
2,2',3,4,4',5,5'-HpCB 35069-29-3	(2.25E-04)-(4.40E-04) [4.40E-04]	20-25 [20]	17,35,37,41 [41]	3.39E-08-(2.72E-07) [2.72E-07]	20-25 [25]	18,41 [41]	(3.20E-05)-(1.07E-04) [3.20E-05]	35,41 [41]	(6.70)-(7.36) [7.36]	15,37,42, 56 [15]	5.1-7.4	42,56

Footnote References

[a] Values are presented as they appeared in the referenced article. Values in ( ) are either estimated or are calculated/extrapolated from experimental values.

[b] [R] is the ranking of the value from the cited reference.

[c] For several PCB congeners, subcooled liquid values were converted to solid values using the melting points presented in this table and the conversion methodology presented in Eitzer and Hites (1988) and Mackay et al. (1992).

[d] The selected vapor pressure value for PCB-169 is the midpoint of the range of calculated values.

$$\ln (P_{sc}/P_s) = 6.79\ (T_m - T)/T$$

where: P_{sc} = subcooled value
P_s = solid value
T_m = melting point (°K)
T = ambient temperature (°K)

1. Marple et al. (1986e)
2. USEPA (1990)
3. Podoll et al. (1986)
4. Marple et al. (1986b)
5. Shiu et al. (1988)
6. Friesen et al. (1985)
7. Webster et al. (1985)
8. Burkhard and Kuehl (1986)
9. Rordorf (1987)
10. Sijm et al. (1989)
11. Friesen et al. (1990b)
12. Dickhut et al. (1986)
20. Average of all selected and single values within a congener group
21. Rordorf (1989)
22. Dulin et al. (1986)
23. Choudhry and Webster (1987)
24. Choudhry and Webster (1989)
25. Choudhry et al. (1990)
26. Sarna et al. (1984)
27. Adams and Blaine (1986)
28. Mackay et al. (1980)
29. Doucette and Andren (1988a)
30. Orth et al. (1989)
31. Rapaport and Eisenreich (1984)
39. Dunnivant et al. (1988)
40. Opperhuizen et al. (1988)
41. Murphy et al. (1987)
42. EPRI (1990)
43. Murphy et al. (1983)
44. Yalkowsky et al. (1983)
45. Webster et al. (1986)
46. Doucette and Andren (1988b)
47. Walters and Guiseppi-Elie (1988)
48. Jackson et al. (1986)
49. Puri et al. (1989)
50. Marple et al. (1987)

Table A-1 (continued)

13. Dunnivant and Elzerman (1988)
14. Risby et al. (1990)
15. Hawker and Connell (1988)
16. Sabljic and Gusten (1989)
17. Abramowitz and Yalkowsky (1990)
18. Foreman and Bidleman (1985)
19. Calculated by the VP/WS ratio technique
32. Lodge and Cook (1989)
33. Eitzer and Hites (1988)
34. Rordorf (1985)
35. Dunnivant et al. (1992)
36. Lodge (1989)
37. Patil (1991)
38. Nirmalakhandan and Speece (1989)
51. Santl et al. (1994)
52. Rordorf et al. (1990)
53. Mackay et al. (1992a)
54. Eitzer and Hites (1989)
55. Sacan and Inel (1995)
56. Mackay, et al. (1992b)
57. Walters et al. (1989)

Table A-2. Rankings for the P-Chem Property Literature

Reference Number	Ranking*					
	Water Solubility	Vapor Pressure	Henry's Constant	Log K_{ow}	Log K_{oc}	Photo Quantum Yield
1	2					
3		2	4			
4				1		
5	2		4	1		
6	2					
7	2	2	2	4		
8				4		
9		2 & 4				
10				1 & 2		
11	2					
12	1					
13	1	4	2			
14				3		
15				2 & 5		
16			5			
17	5					
18		2 & 4				
19			5			
20	5	5	5	5	5	
21		2 & 4				
22						2
23						2
24						2
25						2
26				5		
27	2					

Table A-2 (continued)

Reference Number	Ranking*					
	Water Solubility	Vapor Pressure	Henry's Constant	Log K_{ow}	Log K_{oc}	Photo Quantum Yield
1	2					
28	5					
29				5		
30						2
31				4		
32					1	
33		4				
34		4				
35	5		5			
36	2					
37	5			5		
38	5					
39			2			
40	2					
41	2	2	4			
42					4	
43			4			
44	5					
45					2	
46	2					
47					1	
48					1	
49					2	
50	1			1	1	
51	2		2			
52		4				

Table A-2 (continued)

Reference Number	Ranking[a]					
	Water Solubility	Vapor Pressure	Henry's Constant	Log K_{ow}	Log K_{oc}	Photo Quantum Yield
1	2					
54			4			
55				4		
57					1	

Footnote References

[a] P-chem properties with two ranks indicates that some of the values for the chemicals in the reference had been verified by another laboratory, and some values have not been verified yet. It also indicates that more than one methodology may have been used in the reference to determine the p-chem property.

1. Marple et al. (1986a)
3. Podoll et al. (1986)
4. Marple et al. (1986b)
5. Shiu et al. (1988)
6. Friesen et al. (1985)
7. Webster et al. (1985)
8. Burkhard and Kuehl (1986)
9. Rordorf (1987)
10. Sijm et al. (1989)
11. Friesen et al. (1990)
12. Dickhut et al. (1986)
13. Dunnivant and Elzerman (1988)
14. Risby et al. (1990)
15. Hawker and Connell (1988)
16. Sabljic and Gunsten (1989)
17. Abramowitz and Yalkowsky (1990)
18. Foreman and Bidleman (1985)
19. Calculated by the VP/WS ratio technique
20. Average of all literature values (measured and calculated) within a congener group.
21. Rordorf (1989)
22. Dulin et al. (1986)
23. Choudhry and Webster (1987)
24. Choudhry and Webster (1989)
25. Choudhry et al. (1990)
26. Sarna et al. (1984)
27. Adams and Blaine (1986)
28. Mackay et al. (1980)
29. Doucette and Andren (1988)
30. Orth et al. (1989)
31. Rapaport and Eisenreich (1984)
32. Lodge and Cook (1989)
33. Eitzer and Hites (1988)
34. Rordorf (1985)
35. Dunnivant et al. (1992)
36. Lodge (1989)
37. Patil (1991)
38. Nirmalakhandan and Speece (1989)
39. Dunnivant et al. (1988)
40. Opperhuizen et al. (1988)
41. Murphy et al. (1987)
42. EPRI (199)
43. Murphy et al. (1983)
44. Yalkowsky et al. (1983)
45. Webster et al. (1986)
46. Doucette and Andren (1988)
47. Walters and Guiseppi-Elie (1988)
48. Jackson et al. (1986)
49. Puri et al. (1989)
50. Marple et al. (1987)
51. Santl et al. (1994)
52. Rordorf et al. (1990)
53. Mackay et al. (1992a)
54. Eitzer and Hites (1989)
55. Sacan and Inel (1995)
56. Mackay et al. (1992b)
57. Walters et al. (1989)

WTP RISK ASSESSMENT WORK PLAN IDENTIFIED CONSTITUENTS OF POTENTIAL CONCERN (COPC) SUPPORT DATA

Heavy Polycyclic Aromatic Hydrocarbons (molecular weight > 222 g/mole) (HPAH)

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 001321-64-8
Chem Name  : PENTACHLORONAPHTHALENES
Mol Formula: C10H3Cl5
Mol Weight : 300.40
Melting Pt :
Boiling Pt :
Water Solubility:
   Value : 0.0425 mg/L
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM ET AL. (1996)
Log P (octanol-water):
   Value : 6.88
   Type  : EST
   Ref   : CLOGP (1986)
Vapor Pressure:
   Value : 1.49E-005 mm Hg
   Temp  : 25 deg C
   Type  : EST
   Ref   : NEELY,WB & BLAU,GE (1985)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.000118 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 4.01E-013 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : ATKINSON,R (1987)
```

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Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 001321-65-9
Chem Name  : TRICHLORONAPHTHALENES
Mol Formula: C10H5Cl3
Mol Weight : 231.51
Melting Pt :
Boiling Pt :
Water Solubility:
   Value : 0.065 mg/L
   Temp  :
   Type  : EXP
   Ref   : ISNARD,P & LAMBERT,S (1989)
Log P (octanol-water):
   Value : 5.10
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1995)
Vapor Pressure:
   Value : 0.000314 mm Hg
   Temp  : 25 deg C
   Type  : EST
   Ref   : NEELY,WB & BLAU,GE (1985)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.000214 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 1.98E-012 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : ATKINSON,R (1987)
```

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CAS #: 001335-87-1 Name: HEXACHLORONAPHTHALENE

```
**********************************************************************
MELT    HEXACHLORONAPHTHALENE                                CAS#  1335-87-1
  Melting Point   :  118.3       DEG C
  Remarks         :  ESTIMATED BY PCCHEM-PCGEMS, SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  SRC (1988)
**********************************************************************

VP      HEXACHLORONAPHTHALENE                                CAS#  1335-87-1
  Remarks         :  NO APPROPRIATE ESTIMATION METHOD
  Abbrev. Ref.    :  SRC (1988)
**********************************************************************


   SRC (1988)
   SRC.; SYRACUSE RESEARCH CORPORATION CALCULATED VALUES;   1988

End of Search
```

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 001335-87-1
Chem Name  : HEXACHLORONAPTHALENE
Mol Formula: C10H2Cl6
Mol Weight : 334.85
Melting Pt : 118.3 deg C
Boiling Pt : 370 deg C
Water Solubility:
   Value : 0.0015 mg/L
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM ET AL. (1996)
Log P (octanol-water):
   Value : 7.04
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1995)
Vapor Pressure:
   Value : 3.33E-006 mm Hg
   Temp  : 25 deg C
   Type  : EST
   Ref   : NEELY,WB & BLAU,GE (1985)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 8.7E-005 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 1.8E-013 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : ATKINSON,R (1987)
```

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Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here.
References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 001335-88-2
Chem Name  : TETRACHLORONAPHTHALENES
Mol Formula: C10H4Cl4
Mol Weight : 265.96
Melting Pt : 114-198 deg C
Boiling Pt :
Water Solubility:
   Value : 0.0056 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : OPPERHUIZEN,A (1987); average value
Log P (octanol-water):
   Value : 5.86
   Type  : EXP
   Ref   : OPPERHUIZEN,A (1987); average value
Vapor Pressure:
   Value : 1E-006 mm Hg
   Temp  : 25 deg C
   Type  : EST
   Ref   : HL X WSOL
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.000159 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 8.9E-013 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : ATKINSON,R (1988)
```

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CHEMFATE Search Results

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CAS #: 000189-55-9 Name: DIBENZO(A,I)PYRENE

```
**************************************************************************
MELT     DIBENZO(A,I)PYRENE                                    CAS#   189-55-9
  Melting Point   :  281.5-282.5 DEG C
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  BUCKINGHAM,J (1982)
**************************************************************************

VP       DIBENZO(A,I)PYRENE                                    CAS#   189-55-9
  Vapor Pressure :  2.0E-12      MM HG
  Temperature (C):  25
  Remarks         :  ESTIMATED BY (HENL)*(WSOL)=VP, SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  SRC (1988)
**************************************************************************


   BUCKINGHAM,J (1982)
   BUCKINGHAM,J.; DICTIONARY OF ORGANIC COMPOUNDS;  5TH ED VOL1,; NEW YORK,
   CHAPMAN & HALL,:P567; 1982

   SRC (1988)
   SRC.; SYRACUSE RESEARCH CORPORATION CALCULATED VALUES;   1988

End of Search
```

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000189-64-0
Chem Name  : DIBENZO[A,H]PYRENE
Mol Formula: C24H14
Mol Weight : 302.38
Melting Pt : 317 deg C
Boiling Pt :
Water Solubility:
   Value : 3.5E-005 mg/L
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM ET AL. (1996)
Log P (octanol-water):
   Value : 7.28
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1995)
Vapor Pressure:
   Value : 6.41E-012 mm Hg
   Temp  : 25 deg C
   Type  : EST
   Ref   : NEELY,WB & BLAU,GE (1985)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 1.41E-008 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 5E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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CHEMFATE Search Results

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CAS #: 000191-24-2 Name: BENZO(GHI)PERYLENE

```
**********************************************************************
MELT     BENZO(GHI)PERYLENE                                  CAS#   191-24-2
  Melting Point   :  277-279     DEG C
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  ALDRICH (1988)
**********************************************************************

VP       BENZO(GHI)PERYLENE                                  CAS#   191-24-2
  Vapor Pressure :  1.01E-10     MMHG
  Temperature (C):  25
  Remarks         :  EXTRAPOLATED FROM EXPERIMENTAL DATA IN THE RANGE 116-195 D
                     C, SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  MURRAY,JJ ET AL. (1974)
**********************************************************************
```

ALDRICH (1988)
ALDRICH.; CATALOG HANDBOOK OF FINE CHEMICALS 1988-1989; MILWAUKEE, WI:
ALDRICH CHEM CO.; 1988

MURRAY,JJ ET AL. (1974)
MURRAY,J.J.; POTTIE,R.F.; PUPP,C.; VAPOR PRESSURES AND ENTHALPIES OF
SUBLIMATION OF FIVE POLYCYCLIC AROMATIC HYDROCARBONS.; CAN. J. CHEM.;
52:557-63.; 1974

End of Search

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000191-30-0
Chem Name  : DIBENZO[a,l]PYRENE
Mol Formula: C24H14
Mol Weight : 302.38
Melting Pt : 162.4 deg C
Boiling Pt :
Water Solubility:
   Value : 0.00036 mg/L
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM ET AL. (1996)
Log P (octanol-water):
   Value : 7.71
   Type  : EXP
   Ref   : DE VOOGT,P ET AL. (1990)
Vapor Pressure:
   Value : 4.8E-010 mm Hg
   Temp  : 25 deg C
   Type  : EST
   Ref   : NEELY,WB & BLAU,GE (1985)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 1.41E-008 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 5E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000192-65-4
Chem Name  : DIBENZO[a,e]PYRENE
Mol Formula: C24H14
Mol Weight : 302.38
Melting Pt : 233.5 deg C
Boiling Pt :
Water Solubility:
   Value : 8.02E-005 mg/L
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM ET AL. (1996)
Log P (octanol-water):
   Value : 7.28
   Type  : EST
   Ref   : MEYLAM,WM & HOWARD,PH (1995)
Vapor Pressure:
   Value : 7.03E-011 mm Hg
   Temp  : 25 deg C
   Type  : EST
   Ref   : NEELY,WB & BLAU,GE (1985)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 1.41E-008 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 5E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000192-97-2
Chem Name  : BENZO(E)PYRENE
Mol Formula: C20H12
Mol Weight : 252.32
Melting Pt : 177.5 deg C
Boiling Pt : 310-312 deg C  at  1.00E+01 mm Hg
Water Solubility:
   Value : 0.0063 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : PEARLMAN,RS ET AL. (1984)
Log P (octanol-water):
   Value : 6.44
   Type  : EXP
   Ref   : DE VOOGT,P ET AL. (1990)
Vapor Pressure:
   Value : 5.7E-009 mm Hg
   Temp  : 25 deg C
   Type  : EXT
   Ref   : MURRAY,JJ ET AL. (1974)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 3E-007 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : VP/WSOL
Atmospheric OH Rate Constant:
   Value : 1.5E-010 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : ATKINSON,R (1988)
```

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SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Indeno(1,2,3-cd)pyrene
CAS Number: 000193-39-5

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:		mg/kg/day	
Oral Slope:	7.3E-1	(mg/kg/day)^-1	LIVECHEM
Oral Wt-of-Evid:	B2		
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:		mg/kg	
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:		µg/L	
Salt Ecol LC50:		µg/L	

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	2.7E+2	days	THOMAS
Photolysis:	2.5E+2	days	FATERATE
Biodeg:	7.3E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	1.2E+2	days	THOMAS
Photolysis:	2.5E+2	days	FATERATE
Biodeg:	7.3E+2	days	FATERATE
Radio:		days	
Log Kow:	6.6E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	No		
Particulate:	Yes		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	2.8E+2		
Density:		g/mL @	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	1.0E-10	Torr	CHEMFATE
Henry's Law:	1.6E-6	atm-m3/mol	CHEMFATE
Water Solub:	2.2E-5	mg/L	CHEMFATE
Distrib Coef:	5.3E+5	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:			
Salt BCF:			
Log Kow:	6.6E+0		CHEMFATE
Water Solub:	2.2E-5		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	1.6E+2	C
Boiling Point:	5.4E+2	C
Formula:	C22 H12	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000193-39-5 Name: INDENO(1,2,3-CD)PYRENE

```
**********************************************************************
MELT     INDENO(1,2,3-CD)PYRENE                              CAS#   193-39-5
  Melting Point   :  163.6       DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  IARC (1983A)
**********************************************************************

VP       INDENO(1,2,3-CD)PYRENE                              CAS#   193-39-5
  Vapor Pressure :  1.0E-10      MM HG
  Temperature (C):  20
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  SIMS,RC & OVERCASH,MR (1983)
**********************************************************************


   IARC (1983A)
   IARC; MONOGRAPHS ON THE EVALUATION OF THE CARCINOGENIC RISK OF CHEMICALS TO
   HUMANS. VOL.32. POLYNUCLEAR AROMATIC COMPOUNDS. PART I. CHEMICAL
   ENVIRONMENTAL AND EXPERIMENTAL DATA.;  LYON,FRANCE: INTERNATIONAL AGENCY FO
   RESEARCH ON CANCER.; 1983A

   SIMS,RC & OVERCASH,MR (1983)
   SIMS,R.C.; OVERCASH,M.R.; FATE OF POLYNUCLEAR AROMATIC COMPOUNDS (PNAS) IN
   SOIL-PLANT SYSTEMS.; RESIDUE REVIEWS.; 88:1-68.; 1983

End of Search
```

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000205-82-3
Chem Name  : BENZO(J)FLUORANTHENE
Mol Formula: C20H12
Mol Weight : 252.32
Melting Pt : 166 deg C
Boiling Pt :
Water Solubility:
   Value : 0.0025 mg/L
   Temp  :
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 6.11
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1995)
Vapor Pressure:
   Value : 2.62E-008 mm Hg
   Temp  : 25 deg C
   Type  : EST
   Ref   : NEELY,WB & BLAU,GE (1985)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 2.03E-007 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 5.36E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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CHEMFATE Search Results

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CAS #: 000205-99-2 Name: BENZO(B)FLUORANTHENE

```
**************************************************************************
MELT     BENZO(B)FLUORANTHENE                                  CAS#   205-99-2
  Melting Point   :  167-168     DEG C
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  WEAST,RC ET AL. (1985)
**************************************************************************

VP       BENZO(B)FLUORANTHENE                                  CAS#   205-99-2
  Vapor Pressure :  5E-7         MM HG
  Temperature (C):  25
  Remarks        :  MAY BE EXPERIMENTAL OR ESTIMATED, SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  PERWAK,J ET AL. (1982B)
**************************************************************************


   PERWAK,J ET AL. (1982B)
   PERWAK,J.; BYRNE,M.; COONS,S.; GOYER,M.; HARRIS,J.; CRUSE,P.; DEROSIER,R.;
   MOSS,K.; WENDT,S.; EXPOSURE AND RISK ASSESSMENT FOR BENZO(A)PYRENE AND OTHE
   POLYCYCLIC AROMATIC HYDROCARBONS. VOL 4.;  EPA-440/4-85-020-V4. (NTIS PB 85
   222-586). WASHINGTON, DC: USEPA. 215 PP.; 1982B

   WEAST,RC ET AL. (1985)
   WEAST,R.C.; ASTLE,M.J.; BEYER,W.H.; CRC HANDBOOK OF CHEMISTRY AND PHYSICS
   66TH ED;  CRC PRESS; BOCA RATON, FLA; 1985

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Benzo(j,k)fluorene (Fluoranthene) **CAS Number:** 000206-44-0

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	4.0E-2	mg/kg/day	IRIS
Inhal RfD:		mg/kg/day	
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	2.0E+3	mg/kg	RTECS
Dermal LD50:	3.2E+3	mg/kg	RTECS
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	9.0E-1	µg/L	ECOTOX
Salt Ecol LC50:	9.0E-2	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.3E+2	days	THOMAS
Photolysis:	2.6E+0	days	FATERATE
Biodeg:	4.4E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	3.5E+0	days	THOMAS
Photolysis:	2.6E+0	days	FATERATE
Biodeg:	4.4E+2	days	FATERATE
Radio:		days	
Log Kow:	5.0E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	Yes		
Particulate:	Yes		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	2.0E+2		
Density:	1.3E+0	g/mL @ 0.00	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	7.8E-6	Torr	LIVECHEM
Henry's Law:	1.6E-5	atm-m3/mol	CHEMFATE
Water Solub:	2.1E-1	mg/L	CHEMFATE
Distrib Coef:	1.1E+4	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	3.8E+2		VER_BCF
Salt BCF:	5.9E+3		ECOTOX
ENVIRONMENTAL			
Fresh BCF:	3.1E+3		ECOTOX
Salt BCF:	5.9E+3		ECOTOX
Log Kow:	5.0E+0		CHEMFATE
Water Solub:	2.1E-1		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	1.1E+2	C
Boiling Point:	3.8E+2	C
Formula:	C16 H10	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000206-44-0 Name: FLUORANTHENE

```
**************************************************************************
MELT    FLUORANTHENE                                          CAS#   206-44-0
  Melting Point  :  111         DEG C
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  WEAST,RC ET AL. (1985)
**************************************************************************

VP      FLUORANTHENE                                          CAS#   206-44-0
  Vapor Pressure :  1.23E-8     MM HG       CALC
  Temperature (C):  25
  Remarks        :  EXTRAPOLATED FROM EXPERIMENTAL DATA OBTAINED IN THE RANGE
                    56-80 DEG C
  Abbrev. Ref.   :  BOYD,RH ET AL. (1965)
**************************************************************************
```

BOYD,RH ET AL. (1965)
BOYD,R.H.; CHRISTENSEN,R.L.; PUA,R.; THE HEATS OF COMBUSTION OF ACENAPHTHEN ACENAPHTHYLENE, AND FLUORANTHENE. STRAIN AND DELOCALIZATION IN BRIDGED NAPHTHALENES.; J. AM. CHEM. SOC.; 87:3554-9.; 1965

WEAST,RC ET AL. (1985)
WEAST,R.C.; ASTLE,M.J.; BEYER,W.H.; CRC HANDBOOK OF CHEMISTRY AND PHYSICS 66TH ED; CRC PRESS; BOCA RATON, FLA; 1985

End of Search

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Benzo(k)fluoranthene
CAS Number: 000207-08-9

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:		mg/kg/day	
Oral Slope:	7.3E-2	(mg/kg/day)^-1	LIVECHEM
Oral Wt-of-Evid:	B2		
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:		mg/kg	
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:		µg/L	
Salt Ecol LC50:		µg/L	

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.9E+2	days	THOMAS
Photolysis:	2.1E+1	days	FATERATE
Biodeg:	2.1E+3	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	4.8E+1	days	THOMAS
Photolysis:	2.1E+1	days	FATERATE
Biodeg:	2.1E+3	days	FATERATE
Radio:		days	
Log Kow:	6.1E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	Yes		
Particulate:	Yes		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	2.5E+2		
Density:		g/mL @	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	2.0E-9	Torr	CHEMFATE
Henry's Law:	8.3E-7	atm-m3/mol	CHEMFATE
Water Solub:	8.0E-4	mg/L	CHEMFATE
Distrib Coef:	1.9E+5	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:	2.0E+5		ECOTOX
ENVIRONMENTAL			
Fresh BCF:	1.3E+4		ECOTOX
Salt BCF:	2.0E+5		ECOTOX
Log Kow:	6.1E+0		CHEMFATE
Water Solub:	8.0E-4		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	2.2E+2	C
Boiling Point:	4.8E+2	C
Formula:	C20 H12	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000207-08-9 Name: BENZO(K)FLUORANTHENE

```
**************************************************************************
MELT     BENZO(K)FLUORANTHENE                                  CAS#   207-08-9
  Melting Point   :  217          DEG C
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  WEAST,RC ET AL. (1985)
**************************************************************************

VP       BENZO(K)FLUORANTHENE                                  CAS#   207-08-9
  Vapor Pressure :  2.0E-9       MM HG
  Temperature (C):  25
  Remarks         :  EXTRAPOLATED VALUE FROM EXPERIMENTAL DATA IN THE TEMP RANG
                     89-165 DEG C, SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  MURRAY,JJ ET AL. (1974)
**************************************************************************

   MURRAY,JJ ET AL. (1974)
   MURRAY,J.J.; POTTIE,R.F.; PUPP,C.; VAPOR PRESSURES AND ENTHALPIES OF
   SUBLIMATION OF FIVE POLYCYCLIC AROMATIC HYDROCARBONS.; CAN. J. CHEM.;
   52:557-63.; 1974

   WEAST,RC ET AL. (1985)
   WEAST,R.C.; ASTLE,M.J.; BEYER,W.H.; CRC HANDBOOK OF CHEMISTRY AND PHYSICS
   66TH ED;  CRC PRESS; BOCA RATON, FLA; 1985

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Chrysene
CAS Number: 000218-01-9

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:		mg/kg/day	
Oral Slope:	7.3E-3	(mg/kg/day)^-1	LIVECHEM
Oral Wt-of-Evid:	B2		
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:		mg/kg	
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:		µg/L	
Salt Ecol LC50:	1.0E+3	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.4E+2	days	THOMAS
Photolysis:	1.8E-1	days	CHEMFATE
Biodeg:	1.0E+3	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	8.5E+0	days	THOMAS
Photolysis:	1.8E-1	days	CHEMFATE
Biodeg:	1.0E+3	days	FATERATE
Radio:		days	
Log Kow:	5.7E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	Yes	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	2.3E+2	
Density:	1.3E+0	g/mL @ 20.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	6.2E-9	Torr	CHEMFATE
Henry's Law:	9.5E-5	atm-m3/mol	CHEMFATE
Water Solub:	6.3E-3	mg/L	CHEMFATE
Distrib Coef:	6.0E+4	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:	8.2E+0		ECOTOX
ENVIRONMENTAL			
Fresh BCF:	6.1E+3		ECOTOX
Salt BCF:	6.5E+2		ECOTOX
Log Kow:	5.7E+0		CHEMFATE
Water Solub:	6.3E-3		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	2.6E+2	C
Boiling Point:	4.5E+2	C
Formula:	C18 H12	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000218-01-9 Name: CHRYSENE

```
**********************************************************************
MELT    CHRYSENE                                              CAS#   218-01-9
  Melting Point  :  254-255     DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  ALDRICH (1988)
**********************************************************************

VP      CHRYSENE                                              CAS#   218-01-9
  Vapor Pressure :  6.23E-9     MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE, EXTRAPOLATED FROM PUBLISHED DATA,
                    MEASURED OVER THE INTERVAL OF 80 - 145 DEG C
  Abbrev. Ref.   :  HOYER,H & PEPERLE,W (1958)
**********************************************************************


   ALDRICH (1988)
   ALDRICH.; CATALOG HANDBOOK OF FINE CHEMICALS 1988-1989;  MILWAUKEE, WI:
   ALDRICH CHEM CO.; 1988

   HOYER,H & PEPERLE,W (1958)
   HOYER,H.; PEPERLE,W.; DETERMINATION OF THE VAPOR PRESSURE AND HEAT OF
   SUBLIMATION OF ORGANIC COMPOUNDS.; Z. ELEKTROCHEM.; 62:61-6.; 1958

End of Search
```

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CHEMFATE Search Results

Return to EFDB page

CAS #: 002234-13-1 Name: OCTACHLORONAPHTHALENE

```
**********************************************************************
MELT    OCTACHLORONAPHTHALENE                                CAS#  2234-13-1
  Melting Point  :  197-198     DEG C
  Remarks        :  SRC RECOMMEDNED VALUE
  Abbrev. Ref.   :  WEAST,RC ET AL. (1985)
**********************************************************************

VP      OCTACHLORONAPHTHALENE                                CAS#  2234-13-1
  Vapor Pressure :  1.52E-8     MM HG
  Temperature (C):  22
  Remarks        :  EXTRAPOLATED USING CLAUSIUS CLAPEYRON EQUATION USING A HEA
                    OF VAPORIZATION OF 40 CAL/GRAM AND A HEAT OF FUSION = 15
                    CAL/GRAM AND A BOILING POINT = 440-442 AT 7.4 MM HG, SRC
                    RECOMMENDED VALUE
  Abbrev. Ref.   :  WEAST,RC ET AL. (1985)
**********************************************************************


   WEAST,RC ET AL. (1985)
   WEAST,R.C.; ASTLE,M.J.; BEYER,W.H.; CRC HANDBOOK OF CHEMISTRY AND PHYSICS
   66TH ED;  CRC PRESS; BOCA RATON, FLA; 1985

End of Search
```

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000224-42-0
Chem Name  : DIBENZ[a,j]ACRIDINE
Mol Formula: C21H13N
Mol Weight : 279.34
Melting Pt : 216 deg C
Boiling Pt :
Water Solubility:
   Value : 0.018 mg/L
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM ET AL. (1996)
Log P (octanol-water):
   Value : 5.63
   Type  : EXP
   Ref   : HELWEG,C ET AL. (1997A)
Vapor Pressure:
   Value : 1.85E-009 mm Hg
   Temp  : 25 deg C
   Type  : EST
   Ref   : NEELY,WB & BLAU,GE (1985)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 1.9E-009 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HWOARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 2.8E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

Back To PhysProp Demo Page

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000226-36-8
Chem Name  : DIBENZ(A,H)ACRIDINE
Mol Formula: C21H13N
Mol Weight : 279.34
Melting Pt : 226 deg C
Boiling Pt :
Water Solubility:
   Value : 0.159 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : PEARLMAN,RS ET AL. (1984)
Log P (octanol-water):
   Value : 5.73
   Type  : EXP
   Ref   : HELWEG,C ET AL. (1997A)
Vapor Pressure:
   Value : 1.85E-009 mm Hg
   Temp  : 25 deg C
   Type  : EST
   Ref   : NEELY,WB & BLAU,GE (1985)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 1.9E-009 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 5E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 003697-24-3
Chem Name  : 5-METHYLCHRYSENE
Mol Formula: C19H14
Mol Weight : 242.32
Melting Pt : 118 deg C
Boiling Pt :
Water Solubility:
   Value : 0.062 mg/L
   Temp  : 27 deg C
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 6.07
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1995)
Vapor Pressure:
   Value : 2.53E-007 mm Hg
   Temp  : 25 deg C
   Type  : EST
   Ref   : NEELY,WB & BLAU,GE (1985)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 5.53E-006 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 1.31E-010 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Benzo(a)pyrene
CAS Number: 000050-32-8

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:		mg/kg/day	
Oral Slope:	7.3E+0	(mg/kg/day)^-1	IRIS
Oral Wt-of-Evid:	B2		
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:	4.0E-3	mg/kg/day	EPA_ED10
Oral ED10 Wgt:	B2		
Inhal ED10:	4.0E-3	mg/kg/day	EPA_ED10
Inhal ED10 Wgt:	B2		
Oral LD50:		mg/kg	
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	5.0E+0	µg/L	ECOTOX
Salt Ecol LC50:	1.0E+3	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.8E+2	days	THOMAS
Photolysis:	2.3E-2	days	CHEMFATE
Biodeg:	5.3E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	3.6E+1	days	THOMAS
Photolysis:	2.3E-2	days	CHEMFATE
Biodeg:	5.3E+2	days	FATERATE
Radio:		days	
Log Kow:	6.0E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	Yes		
Particulate:	Yes		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	2.5E+2		
Density:		g/mL @	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	5.5E-9	Torr	CHEMFATE
Henry's Law:	1.1E-6	atm-m3/mol	CHEMFATE
Water Solub:	1.6E-3	mg/L	CHEMFATE
Distrib Coef:	1.6E+5	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	2.9E+5		ECOTOX
Salt BCF:	9.6E+5		ECOTOX
ENVIRONMENTAL			
Fresh BCF:	2.9E+5		ECOTOX
Salt BCF:	9.6E+5		ECOTOX
Log Kow:	6.0E+0		CHEMFATE
Water Solub:	1.6E-3		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	1.8E+2	C
Boiling Point:	3.1E+2	C
Formula:	C20 H12	

CLASS INFORMATION

Class	Parent Substance

CHEMFATE Search Results

Return to EFDB page

CAS #: 000050-32-8 Name: BENZO(A)PYRENE

```
**********************************************************************
MELT     BENZO(A)PYRENE                                      CAS#     50-32-8
  Melting Point   :  179-179.3   DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  MERCK INDEX (1983)
**********************************************************************

VP       BENZO(A)PYRENE                                      CAS#     50-32-8
  Vapor Pressure :  5.49E-9     MM HG
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE, EXTRAPOLATED VALUE (SRC,1988)
  Abbrev. Ref.    :  MURRAY,JJ ET AL. (1974)
**********************************************************************


   MERCK INDEX (1983)
   MERCK INDEX.; THE MERCK INDEX. AN ENCYCLOPEDIA OF CHEMICALS AND DRUGS 10TH
   ED.;  WINDHOLZ,M ED. RAHWAY, N.J.: MERCK AND CO., INC.; 1983

   MURRAY,JJ ET AL. (1974)
   MURRAY,J.J.; POTTIE,R.F.; PUPP,C.; VAPOR PRESSURES AND ENTHALPIES OF
   SUBLIMATION OF FIVE POLYCYCLIC AROMATIC HYDROCARBONS.; CAN. J. CHEM.;
   52:557-63.; 1974

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Dibenz(a,h)anthracene
CAS Number: 000053-70-3

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:		mg/kg/day	
Oral Slope:	7.3E+0	(mg/kg/day)^-1	LIVECHEM
Oral Wt-of-Evid:	B2		
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:	2.8E-3	mg/kg/day	SPHEM
Oral ED10 Wgt:	B2		
Inhal ED10:	2.8E-3	mg/kg/day	SPHEM
Inhal ED10 Wgt:	B2		
Oral LD50:		mg/kg	
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:		µg/L	
Salt Ecol LC50:		µg/L	

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	5.1E+2	days	THOMAS
Photolysis:	3.3E+1	days	FATERATE
Biodeg:	9.4E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	3.3E+2	days	THOMAS
Photolysis:	3.3E+1	days	FATERATE
Biodeg:	9.4E+2	days	FATERATE
Radio:		days	
Log Kow:	6.5E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	No		
Particulate:	Yes		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	2.8E+2		
Density:		g/mL @	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	1.0E-10	Torr	CHEMFATE
Henry's Law:	1.5E-8	atm-m3/mol	CHEMFATE
Water Solub:	2.5E-3	mg/L	CHEMFATE
Distrib Coef:	5.8E+5	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:	5.0E+4		ECOTOX
Salt BCF:			
Log Kow:	6.5E+0		CHEMFATE
Water Solub:	2.5E-3		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	2.7E+2	C
Boiling Point:		C
Formula:	C22 H14	

CLASS INFORMATION

Class	Parent Substance

Syracuse Research Corporation
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CHEMFATE Search Results

Return to EFDB page

CAS #: 000053-70-3 Name: DIBENZ(A,H)ANTHRACENE

```
**********************************************************************
MELT    DIBENZ(A,H)ANTHRACENE                                CAS#    53-70-3
  Melting Point  :  269         DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  HASSETT,JJ ET AL. (1980)
**********************************************************************

VP      DIBENZ(A,H)ANTHRACENE                                CAS#    53-70-3
  Vapor Pressure :  1.0E-10     MM HG
  Remarks        :  ESTIMATED VALUE, SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  CALLAHAN,MA ET AL. (1979A)
**********************************************************************


   CALLAHAN,MA ET AL. (1979A)
   CALLAHAN,M.A.; SLIMAK,M.W.; GABEL,N.W.; MAY,I.P.; FOWLER,C.F.; FREED,J.R.;
   JENNINGS,P.; DURFEE,R.L.; WHITMORE,F.C.; MAESTRI,B. ET AL.; WATER-RELATED
   ENVIRONMENTAL FATE OF 129 PRIORITY POLLUTANTS-VOLUME II.;  EPA-440/4-79-029
   WASHINGTON,DC: U.S. EPA.; 1979A

   HASSETT,JJ ET AL. (1980)
   HASSETT,J.J.; MEANS,J.C.; BANWART,W.L.; WOOD,S.G.; SORPTION PROPERTIES OF
   SEDIMENTS AND ENERGY-RELATED POLLUTANTS.;  EPA-600/3-80-041. ATHENS,GA: U.S
   EPA. PP.133.; 1980

End of Search
```

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 005385-75-1
Chem Name  : Dibenzo(a,e)fluoranthene
Mol Formula: C24H14
Mol Weight : 302.38
Melting Pt : 232 deg C
Boiling Pt :
Water Solubility:
   Value : 0.000212 mg/L
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM ET AL. (1996)
Log P (octanol-water):
   Value : 7.28
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1995)
Vapor Pressure:
   Value : 7.33E-011 mm Hg
   Temp  : 25 deg C
   Type  : EST
   Ref   : NEELY,WB & BLAU,GE (1985)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 7.91E-008 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 6.45E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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CHEMFATE Search Results

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CAS #: 000056-49-5 Name: 3-METHYLCHOLANTHRENE

```
**********************************************************************
MELT    3-METHYLCHOLANTHRENE                                  CAS#    56-49-5
  Melting Point  :  179-180     DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  MERCK INDEX (1983)
**********************************************************************

VP      3-METHYLCHOLANTHRENE                                  CAS#    56-49-5
  Vapor Pressure :  7.73E-9     MM HG
  Temperature (C):  25
  Remarks        :  ESTIMATED BY PCCHEM-PCGEMS, SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  SRC (1988)
**********************************************************************


   MERCK INDEX (1983)
   MERCK INDEX.; THE MERCK INDEX. AN ENCYCLOPEDIA OF CHEMICALS AND DRUGS 10TH
   ED.;  WINDHOLZ,M ED. RAHWAY, N.J.: MERCK AND CO., INC.; 1983

   SRC (1988)
   SRC.; SYRACUSE RESEARCH CORPORATION CALCULATED VALUES;   1988

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Benz(a)anthracene
CAS Number: 000056-55-3

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:		mg/kg/day	
Oral Slope:	7.3E-1	(mg/kg/day)^-1	LIVECHEM
Oral Wt-of-Evid:	B2		
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:	4.7E-2	mg/kg/day	EPA_ED10
Oral ED10 Wgt:	B2		
Inhal ED10:	4.7E-2	mg/kg/day	EPA_ED10
Inhal ED10 Wgt:	B2		
Oral LD50:		mg/kg	
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	1.0E+1	µg/L	ECOTOX
Salt Ecol LC50:		µg/L	

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.4E+2	days	THOMAS
Photolysis:	2.5E-2	days	CHEMFATE
Biodeg:	6.8E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	4.5E+0	days	THOMAS
Photolysis:	2.5E-2	days	CHEMFATE
Biodeg:	6.8E+2	days	FATERATE
Radio:		days	
Log Kow:	5.7E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	Yes		
Particulate:	Yes		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	2.3E+2		
Density:		g/mL @	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	1.1E-7	Torr	CHEMFATE
Henry's Law:	3.4E-6	atm-m3/mol	CHEMFATE
Water Solub:	9.4E-3	mg/L	CHEMFATE
Distrib Coef:	6.0E+4	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:	1.0E+4		ECOTOX
Salt BCF:			
Log Kow:	5.7E+0		CHEMFATE
Water Solub:	9.4E-3		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	8.4E+1	C
Boiling Point:		C
Formula:	C18 H12	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000056-55-3 Name: BENZ(A)ANTHRACENE

```
**********************************************************************
MELT     BENZ(A)ANTHRACENE                                    CAS#     56-55-3
  Melting Point   :  160          DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  MACKAY,D & SHIU,WY (1981)
**********************************************************************

VP       BENZ(A)ANTHRACENE                                    CAS#     56-55-3
  Vapor Pressure :  3.05E-8      MM HG
  Temperature (C):  25
  Remarks        :  EXTRAPOLATED VALUE (SRC,1988)
  Abbrev. Ref.   :  PUPP,C ET AL. (1974)
**********************************************************************

VP       BENZ(A)ANTHRACENE                                    CAS#     56-55-3
  Vapor Pressure :  1.05E-7      MM HG
  Temperature (C):  25
  Remarks        :  EXTRAPOLATED VALUE FOR DATA FOR LIQUID, SRC RECOMMENDED
                    VALUE
  Abbrev. Ref.   :  MURRAY,JJ ET AL. (1974)
**********************************************************************


   MACKAY,D & SHIU,WY (1981)
   MACKAY,D.; SHIU,W.Y.; A CRITICAL REVIEW OF HENRY'S LAW CONSTANTS FOR
   CHEMICALS OF ENVIRONMENTAL INTEREST.; J. PHYS. CHEM. REF. DATA.; 19:1175-99
   1981

   MURRAY,JJ ET AL. (1974)
   MURRAY,J.J.; POTTIE,R.F.; PUPP,C.; VAPOR PRESSURES AND ENTHALPIES OF
   SUBLIMATION OF FIVE POLYCYCLIC AROMATIC HYDROCARBONS.; CAN. J. CHEM.;
   52:557-63.; 1974

   PUPP,C ET AL. (1974)
   PUPP,C.; LAO,R.C.; MURRAY,J.J.; POTTIE,R.F.; EQUILIBRIUM VAPOR CONCENTRATIO
   OF SOME POLYCYCLIC AROMATIC HYDROCARBONS, AS4O6 AND SEO2 AND THE COLLECTION
   EFFICIENCIES OF THESE AIR POLLUTANTS.; ATMOS. ENVIRON.; 8:915-25; 1974

End of Search
```

WTP RISK ASSESSMENT WORK PLAN IDENTIFIED CONSTITUENTS OF POTENTIAL CONCERN (COPC) SUPPORT DATA

Herbicides and Organochlorinated Pesticides (PEST)

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000145-73-3
Chem Name  : ENDOTHAL
Mol Formula: C8H10O5
Mol Weight : 186.17
Melting Pt : 144 deg C
Boiling Pt :
Water Solubility:
   Value : 1E+005 mg/L
   Temp  : 20 deg C
   Type  : EXP
   Ref   : WSSA (1983)
Log P (octanol-water):
   Value : 1.91
   Type  : EXP
   Ref   : REINERT,KH (1984)
Vapor Pressure:
   Value : 1.57E-010 mm Hg
   Temp  : 24 deg C
   Type  : EXP
   Ref   : TOMLIN,C (1997)
pKa Dissociation Constant:
   Value : 3.4
   Temp  :
   Type  :
   Ref   : TOMLIN,C (1994)
Henry's Law Constant:
   Value : 3.85E-016 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : VP/WSOL
Atmospheric OH Rate Constant:
   Value : 2.03E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

Back To PhysProp Demo Page

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Hexachlorocyclohexane, alpha- **CAS Number: 000319-84-6**

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:		mg/kg/day	
Oral Slope:	6.3E+0	(mg/kg/day)^-1	IRIS
Oral Wt-of-Evid:	B2		
Inhal Slope:	6.3E+0	(mg/kg/day)^-1	IRIS
Inhal Wt-of-Evid:	B2		
Oral ED10:	1.9E-2	mg/kg/day	EPA_ED10
Oral ED10 Wgt:	B2		
Inhal ED10:	1.9E-2	mg/kg/day	EPA_ED10
Inhal ED10 Wgt:	B2		
Oral LD50:	7.8E+1	mg/kg	RTECS
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	8.2E+2	µg/L	ECOTOX
Salt Ecol LC50:	4.0E+2	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:	2.1E+2	days	FATERATE
Volatility:		days	
Photolysis:		days	
Biodeg:	1.4E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:	2.1E+2	days	FATERATE
Volatility:		days	
Photolysis:		days	
Biodeg:	1.4E+2	days	FATERATE
Radio:		days	
Log Kow:	3.8E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value
Metal Contain:	No
Organic:	Yes
Gas:	Yes
Particulate:	Yes
Radionuclide:	No
Rad. Element:	No
Molecular Weight:	
Density:	g/mL @ C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	4.5E-5	Torr	CHEMFATE
Henry's Law:	1.1E-5	atm-m3/mol	CHEMFATE
Water Solub:	2.0E+0	mg/L	CHEMFATE
Distrib Coef:	2.5E+0	ml/g	SSG_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	2.8E+3		ECOTOX
Salt BCF:	2.5E+5		ECOTOX
ENVIRONMENTAL			
Fresh BCF:	2.8E+3		ECOTOX
Salt BCF:	2.5E+5		ECOTOX
Log Kow:	3.8E+0		CHEMFATE
Water Solub:	2.0E+0		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:		C
Boiling Point:		C
Formula:	C6 H6 Cl6	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000319-84-6 Name: ALPHA-HEXACHLOROCYCLOHEXANE

```
**************************************************************************
MELT     ALPHA-HEXACHLOROCYCLOHEXANE                          CAS#   319-84-6
  Melting Point   :  159-160      DEG C
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  CALLAHAN,MA ET AL. (1979)
**************************************************************************

VP       ALPHA-HEXACHLOROCYCLOHEXANE                          CAS#   319-84-6
  Vapor Pressure :  4.50E-5      MM HG
  Temperature (C):  25
  Remarks         :  EXTRAPOLATED FROM EXPERIMENTAL DATA OBTAINED IN THE T-RANG
                     OF 40-70 DEG C, SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  SCHWABE,K & LEGLER,C (1960)
**************************************************************************


   CALLAHAN,MA ET AL. (1979)
   CALLAHAN,M.A.; SLIMAK,M.W.; GABEL,N.W.; MAY,I.P.; FOWLER,C.F.; FREED,J.R.;
   JENNINGS,P.; DURFEE,R.L.; WHITMORE,F.C.; MAESTRI,B. ET AL.; WATER-RELATED
   ENVIRONMENTAL FATE OF 129 PRIORITY POLLUTANTS.;  EPA-440/4-79-029A.
   WASHINGTON,DC: U.S.EPA.; 1979

   SCHWABE,K & LEGLER,C (1960)
   SCHWABE,K.; LEGLER,C.; VAPOR PRESSURES, HEATS, AND ENTROPIES OF SUBLIMATION
   OF THE HEXACHLOROCYCLOHEXANES.; Z. ELEKTROCHEM.; 64:902-5.; 1960

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Hexachlorocyclohexane, beta-
CAS Number: 000319-85-7

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:		mg/kg/day	
Oral Slope:	1.8E+0	(mg/kg/day)^-1	IRIS
Oral Wt-of-Evid:	C		
Inhal Slope:	1.9E+0	(mg/kg/day)^-1	IRIS
Inhal Wt-of-Evid:	C		
Oral ED10:	9.4E-2	mg/kg/day	EPA_ED10
Oral ED10 Wgt:			
Inhal ED10:	9.4E-2	mg/kg/day	EPA_ED10
Inhal ED10 Wgt:			
Oral LD50:	6.0E+3	mg/kg	RTECS
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	7.7E+2	µg/L	ECOTOX
Salt Ecol LC50:		µg/L	

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:	2.1E+2	days	FATERATE
Volatility:	2.5E+2	days	THOMAS
Photolysis:		days	
Biodeg:	1.2E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:	2.1E+2	days	FATERATE
Volatility:	9.7E+1	days	THOMAS
Photolysis:		days	
Biodeg:	1.2E+2	days	FATERATE
Radio:		days	
Log Kow:	3.8E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	Yes	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	2.9E+2	
Density:	1.9E+0	g/mL @ 19.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	4.7E-7	Torr	CHEMFATE
Henry's Law:	7.4E-7	atm-m3/mol	CHEMFATE
Water Solub:	2.4E-1	mg/L	CHEMFATE
Distrib Coef:	2.5E+0	ml/g	SSG_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	2.9E+2		ECOTOX
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:	1.5E+3		ECOTOX
Salt BCF:			
Log Kow:	3.8E+0		CHEMFATE
Water Solub:	2.4E-1		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:		C
Boiling Point:	6.0E+1	C
Formula:	C6 H6 Cl6	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000319-85-7 Name: BETA-HEXACHLOROCYCLOHEXANE

```
**********************************************************************
MELT    BETA-HEXACHLOROCYCLOHEXANE                          CAS#   319-85-7
  Melting Point   :  314-315     DEG C
  Remarks         :  SUBLIMES, SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  WEAST,RC ET AL. (1985)
**********************************************************************

VP      BETA-HEXACHLOROCYCLOHEXANE                          CAS#   319-85-7
  Vapor Pressure :  4.66E-7     MM HG
  Temperature (C):  25
  Remarks         :  EXTRAPOLATED FROM DATA OBTAINED IN THE T-RANGE OF 40-70 DE
                     C, SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  SCHWABE,K & LEGLER,C (1960)
**********************************************************************

   SCHWABE,K & LEGLER,C (1960)
   SCHWABE,K.; LEGLER,C.; VAPOR PRESSURES, HEATS, AND ENTROPIES OF SUBLIMATION
   OF THE HEXACHLOROCYCLOHEXANES.; Z. ELEKTROCHEM.; 64:902-5.; 1960

   WEAST,RC ET AL. (1985)
   WEAST,R.C.; ASTLE,M.J.; BEYER,W.H.; CRC HANDBOOK OF CHEMISTRY AND PHYSICS
   66TH ED;  CRC PRESS; BOCA RATON, FLA; 1985

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Chlordane
CAS Number: 000057-74-9

TOXICITY

Parameter	Value		Unit	Source
Oral RfD:	5.0E-4		mg/kg/day	IRIS
Inhal RfD:	2.0E-4		mg/kg/day	IRIS
Oral Slope:	3.5E-1		(mg/kg/day)^-1	IRIS
Oral Wt-of-Evid:	B2			
Inhal Slope:	3.5E-1		(mg/kg/day)^-1	IRIS
Inhal Wt-of-Evid:	B2			
Oral ED10:	6.6E-2		mg/kg/day	EPA_ED10
Oral ED10 Wgt:	B2			
Inhal ED10:	6.6E-2		mg/kg/day	EPA_ED10
Inhal ED10 Wgt:	B2			
Oral LD50:	3.0E+2		mg/kg	ACGIH
Dermal LD50:	5.9E+2		mg/kg	ACGIH
Gas Inhal LC50:			ppm	
Dust Inhal LC50:	2.0E+1		mg/L	RTECS
ACUTE				
Fresh CMC:	2.4E+0	G	µg/L	WATCRIT
Salt CMC:	9.0E-2	G	µg/L	WATCRIT
CHRONIC				
Fresh CCC:	4.3E-3	G, aa	µg/L	WATCRIT
Salt CCC:	4.0E-3	G, aa	µg/L	WATCRIT
Fresh Ecol LC50:	8.0E-1		µg/L	ECOTOX
Salt Ecol LC50:	1.8E+0		µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:	6.7E+5	days	CHEMFATE
Volatility:	1.8E+2	days	THOMAS
Photolysis:		days	
Biodeg:	1.4E+3	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:	6.7E+5	days	CHEMFATE
Volatility:	2.9E+0	days	THOMAS
Photolysis:		days	
Biodeg:	1.4E+3	days	FATERATE
Radio:		days	
Log Kow:	5.5E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	Yes	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	4.1E+2	
Density:	1.6E+0	g/mL @ 25.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	9.8E-6	Torr	CHEMFATE
Henry's Law:	4.9E-5	atm-m3/mol	CHEMFATE
Water Solub:	5.6E-2	mg/L	CHEMFATE
Distrib Coef:	2.4E+2	ml/g	SSG_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:	7.3E+3		ECOTOX
ENVIRONMENTAL			
Fresh BCF:	3.8E+4		ECOTOX
Salt BCF:	7.3E+3		ECOTOX
Log Kow:	5.5E+0		CHEMFATE
Water Solub:	5.6E-2		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	1.1E+2	C
Boiling Point:	1.8E+2	C
Formula:	C10 H6 Cl8	

CLASS INFORMATION

Class	Parent Substance

CHEMFATE Search Results

Return to EFDB page

CAS #: 000057-74-9 Name: CHLORDANE

```
**********************************************************************
MELT    CHLORDANE                                          CAS#    57-74-9
  Melting Point   :  104-107     DEGC
  Remarks         :  RANGE FOR ALPHA AND BETA ISOMERS, SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  WORTHING,CR & WALKER,SB (1983)
**********************************************************************

VP      CHLORDANE                                          CAS#    57-74-9
  Vapor Pressure :  9.8E-6       MM HG
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  WORTHING,CR & WALKER,SB (1983)
**********************************************************************


   WORTHING,CR & WALKER,SB (1983)
   WORTHING,C.R.; WALKER,S.B.; PESTICIDE MANUAL 7TH ED; BRITISH CROP PROTECTIO
   COUNCIL. LAVENHAM SUFFOLK, ENGLAND: LAVENHAM PRESS LTD;  1983

End of Search
```

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000058-89-9 Name: GAMMA-HEXACHLOROCYCLOHEXANE

```
**********************************************************************
MELT    GAMMA-HEXACHLOROCYCLOHEXANE                          CAS#    58-89-9
  Melting Point  :  112-113     DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  WEAST,RC ET AL. (1985)
**********************************************************************

VP      GAMMA-HEXACHLOROCYCLOHEXANE                          CAS#    58-89-9
  Vapor Pressure :  4.1E-4      MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  BIDLEMAN,TF (1984)
**********************************************************************


   BIDLEMAN,TF (1984)
   BIDLEMAN,T.F.; ESTIMATION OF VAPOR PRESSURES FOR NONPOLAR ORGANIC COMPOUNDS
   BY CAPILLARY GAS CHROMATOGRAPHY.; ANAL.CHEM.; 56:2490-6.; 1984

   WEAST,RC ET AL. (1985)
   WEAST,R.C.; ASTLE,M.J.; BEYER,W.H.; CRC HANDBOOK OF CHEMISTRY AND PHYSICS
   66TH ED;  CRC PRESS; BOCA RATON, FLA; 1985

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Methoxychlor
CAS Number: 000072-43-5

TOXICITY

Parameter	Value		Unit	Source
Oral RfD:	5.0E-3		mg/kg/day	IRIS
Inhal RfD:			mg/kg/day	
Oral Slope:			(mg/kg/day)^-1	
Oral Wt-of-Evid:				
Inhal Slope:			(mg/kg/day)^-1	
Inhal Wt-of-Evid:				
Oral ED10:			mg/kg/day	
Oral ED10 Wgt:				
Inhal ED10:			mg/kg/day	
Inhal ED10 Wgt:				
Oral LD50:	1.9E+3		mg/kg	ACGIH
Dermal LD50:	6.0E+3		mg/kg	RTECS
Gas Inhal LC50:			ppm	
Dust Inhal LC50:			mg/L	
ACUTE				
Fresh CMC:			µg/L	
Salt CMC:			µg/L	
CHRONIC				
Fresh CCC:	3.0E-2	F2	µg/L	WATCRIT
Salt CCC:	3.0E-2	F2	µg/L	WATCRIT
Fresh Ecol LC50:	8.5E-2		µg/L	ECOTOX
Salt Ecol LC50:	2.1E-1		µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:	3.8E+2	days	FATERATE
Volatility:	1.7E+2	days	THOMAS
Photolysis:	1.4E+2	days	CHEMFATE
Biodeg:	3.7E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:	3.8E+2	days	FATERATE
Volatility:	4.6E+0	days	THOMAS
Photolysis:	1.4E+2	days	CHEMFATE
Biodeg:	3.7E+2	days	FATERATE
Radio:		days	
Log Kow:	4.8E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	Yes	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	3.5E+2	
Density:	1.4E+0	g/mL @ 25.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	6.0E-7	Torr	CHEMFATE
Henry's Law:	1.6E-5	atm-m3/mol	CHEMFATE
Water Solub:	4.5E-2	mg/L	LIVECHEM
Distrib Coef:	1.5E+4	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	3.0E+0		ECOTOX
Salt BCF:	1.2E+4		ECOTOX
ENVIRONMENTAL			
Fresh BCF:	8.6E+3		ECOTOX
Salt BCF:	1.2E+4		ECOTOX
Log Kow:	4.8E+0		CHEMFATE
Water Solub:	4.5E-2		LIVECHEM
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	8.7E+1	C
Boiling Point:		C
Formula:	C16 H15 Cl3 O2	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000072-43-5 Name: METHOXYCHLOR

```
**************************************************************************
MELT    METHOXYCHLOR                                          CAS#    72-43-5
  Melting Point   :  89          DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  WORTHING,CR & WALKER,SB (1983)
**************************************************************************

VP      METHOXYCHLOR                                          CAS#    72-43-5
  Vapor Pressure :  6E-7        MM HG
  Temperature (C):  25
  Remarks        :
              1   :  ESTIMATED BASED ON A MP = 89 DEG C
              2   :   BP ESTIMATED USING METHOD OF LYMAN,WJ (1985)
              3   :   VP ESTIMATION BASED ON BP USING PCCHEM, SRC RECOMMENDED
                  VALUE
  Abbrev. Ref.    :  SRC (1988)
**************************************************************************


   SRC (1988)
   SRC.; SYRACUSE RESEARCH CORPORATION CALCULATED VALUES;   1988

   WORTHING,CR & WALKER,SB (1983)
   WORTHING,C.R.; WALKER,S.B.; PESTICIDE MANUAL 7TH ED; BRITISH CROP PROTECTIO
   COUNCIL. LAVENHAM SUFFOLK, ENGLAND: LAVENHAM PRESS LTD;  1983

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: DDE
CAS Number: 000072-55-9

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:		mg/kg/day	
Oral Slope:	3.4E-1	(mg/kg/day)^-1	IRIS
Oral Wt-of-Evid:	B2		
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:	2.6E-1	mg/kg/day	EPA_ED10
Oral ED10 Wgt:	B2		
Inhal ED10:	2.6E-1	mg/kg/day	EPA_ED10
Inhal ED10 Wgt:	B2		
Oral LD50:	7.0E+2	mg/kg	RTECS
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	1.1E+1	µg/L	ECOTOX
Salt Ecol LC50:	1.8E+0	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.6E+2	days	THOMAS
Photolysis:	1.0E+0	days	CHEMFATE
Biodeg:	5.8E+3	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	3.8E+0	days	THOMAS
Photolysis:	1.0E+0	days	CHEMFATE
Biodeg:	5.8E+3	days	FATERATE
Radio:		days	
Log Kow:	5.7E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	Yes		
Particulate:	Yes		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	3.2E+2		
Density:		g/mL @	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	6.0E-6	Torr	CHEMFATE
Henry's Law:	2.1E-5	atm-m3/mol	CHEMFATE
Water Solub:	1.2E-1	mg/L	LIVECHEM
Distrib Coef:	6.8E+5	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	5.1E+5		ECOTOX
Salt BCF:	9.2E+4		ECOTOX
ENVIRONMENTAL			
Fresh BCF:	5.1E+5		ECOTOX
Salt BCF:	9.2E+4		ECOTOX
Log Kow:	5.7E+0		CHEMFATE
Water Solub:	1.2E-1		LIVECHEM
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	8.9E+1	C
Boiling Point:		C
Formula:	C14 H8 Cl4	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000072-55-9 Name: P,P'-DDE

```
**************************************************************************
MELT    P,P'-DDE                                              CAS#    72-55-9
  Melting Point  :  89          DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  BIDLEMAN,TF & FOREMAN,WT (1987)
**************************************************************************

VP      P,P'-DDE                                              CAS#    72-55-9
  Vapor Pressure :  6.0E-6      MM HG
  Temperature (C):  25
  Remarks        :  EXTRAPOLATED FROM MEASUREMENTS BETWEEN 70-130 DEG C, SRC
                    RECOMMENDED VALUE
  Abbrev. Ref.   :  BIDLEMAN,TF (1984)
**************************************************************************


   BIDLEMAN,TF & FOREMAN,WT (1987)
   BIDLEMAN,T.F.; FOREMAN,W.T.; VAPOR-PARTICLE PARTITIONING OF SEMIVOLATILE
   ORGANIC COMPOUNDS; ADV. CHEM. SER.; 216:27-56; 1987

   BIDLEMAN,TF (1984)
   BIDLEMAN,T.F.; ESTIMATION OF VAPOR PRESSURES FOR NONPOLAR ORGANIC COMPOUNDS
   BY CAPILLARY GAS CHROMATOGRAPHY.; ANAL.CHEM.; 56:2490-6.; 1984

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Heptachlor
CAS Number: 000076-44-8

TOXICITY

Parameter	Value		Unit	Source
Oral RfD:	5.0E-4		mg/kg/day	IRIS
Inhal RfD:			mg/kg/day	
Oral Slope:	4.5E+0		(mg/kg/day)^-1	IRIS
Oral Wt-of-Evid:	B2			
Inhal Slope:	4.5E+0		(mg/kg/day)^-1	IRIS
Inhal Wt-of-Evid:	B2			
Oral ED10:	8.5E-3		mg/kg/day	EPA_ED10
Oral ED10 Wgt:	B2			
Inhal ED10:	8.5E-3		mg/kg/day	EPA_ED10
Inhal ED10 Wgt:	B2			
Oral LD50:	4.0E+1		mg/kg	ACGIH
Dermal LD50:	1.2E+2		mg/kg	ACGIH
Gas Inhal LC50:	9.8E+0		ppm	ACGIH
Dust Inhal LC50:			mg/L	
ACUTE				
Fresh CMC:	5.2E-1	G	µg/L	WATCRIT
Salt CMC:	5.3E-2	G	µg/L	WATCRIT
CHRONIC				
Fresh CCC:	3.8E-3	G, aa	µg/L	WATCRIT
Salt CCC:	3.6E-3	G, aa	µg/L	WATCRIT
Fresh Ecol LC50:	2.0E-1		µg/L	ECOTOX
Salt Ecol LC50:	2.0E-2		µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:	5.4E+0	days	FATERATE
Volatility:	1.7E+2	days	THOMAS
Photolysis:		days	
Biodeg:	6.5E+1	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:	5.4E+0	days	FATERATE
Volatility:	2.0E+0	days	THOMAS
Photolysis:		days	
Biodeg:	6.5E+1	days	FATERATE
Radio:		days	
Log Kow:	4.3E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value			
Metal Contain:	No			
Organic:	Yes			
Gas:	Yes			
Particulate:	Yes			
Radionuclide:	No			
Rad. Element:	No			
Molecular Weight:	3.7E+2			
Density:	1.6E+0	g/mL @	9.00	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	4.0E-4	Torr	CHEMFATE
Henry's Law:	1.5E+0	atm-m3/mol	CHEMFATE
Water Solub:	1.8E-1	mg/L	CHEMFATE
Distrib Coef:	2.1E+5	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:	1.8E+4		ECOTOX
ENVIRONMENTAL			
Fresh BCF:	2.4E+4		ECOTOX
Salt BCF:	3.7E+4		ECOTOX
Log Kow:	4.3E+0		CHEMFATE
Water Solub:	1.8E-1		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	9.6E+1	C
Boiling Point:		C
Formula:	C10 H5 Cl7	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000076-44-8 Name: HEPTACHLOR

```
**********************************************************************
MELT    HEPTACHLOR                                          CAS#    76-44-8
  Melting Point   :  95-96       DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  WORTHING,CR & WALKER,SB (1983)
**********************************************************************

VP      HEPTACHLOR                                          CAS#    76-44-8
  Vapor Pressure :  4.000E-04   MM HG       MEASURED
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  WORTHING,CR & WALKER,SB (1983)
**********************************************************************

   WORTHING,CR & WALKER,SB (1983)
   WORTHING,C.R.; WALKER,S.B.; PESTICIDE MANUAL 7TH ED; BRITISH CROP PROTECTIO
   COUNCIL. LAVENHAM SUFFOLK, ENGLAND: LAVENHAM PRESS LTD;  1983

End of Search
```

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CHEMFATE Search Results

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CAS #: 000094-75-7 Name: 2,4-D

```
**********************************************************************
MELT    2,4-D                                              CAS#    94-75-7
  Melting Point  :  140.5       DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  MARTIN,H & WORTHING,CR (1977)
**********************************************************************

VP      2,4-D                                              CAS#    94-75-7
  Vapor Pressure :  6.0E-7      MM HG
  Temperature (C):  25
  Remarks        :  NOT KNOWN IF MEASURED OR ESTIMATED, SRC SUGGESTED VALUE
  Abbrev. Ref.   :  NEELY,WB (1982)
**********************************************************************
```

MARTIN,H & WORTHING,CR (1977)
MARTIN,H.; WORTHING,C.R.; PESTICIDE MANUAL. FIFTH EDITION, BRITISH CROP PROTECTION COUNCIL. 563 PP.; 1977

NEELY,WB (1982)
NEELY,W.B.; ORGANIZING DATA FOR ENVIRONMENTAL STUDIES.; ENVIRON. TOXICOL. CONTAM.; 1:259-66.; 1982

End of Search

WTP RISK ASSESSMENT WORK PLAN IDENTIFIED CONSTITUENTS OF POTENTIAL CONCERN (COPC) SUPPORT DATA

Light Polycyclic Aromatic Hydrocarbons (molecular weight <200 g/mole) (LPAH)

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Anthracene
CAS Number: 000120-12-7

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	3.0E-1	mg/kg/day	IRIS
Inhal RfD:		mg/kg/day	
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:		mg/kg	
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	1.0E+0	µg/L	ECOTOX
Salt Ecol LC50:	3.6E+0	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.2E+2	days	THOMAS
Photolysis:	3.1E-2	days	CHEMFATE
Biodeg:	6.3E+0	days	CHEMFATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	1.8E+0	days	THOMAS
Photolysis:	3.1E-2	days	CHEMFATE
Biodeg:	6.3E+0	days	CHEMFATE
Radio:		days	
Log Kow:	4.5E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	Yes	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	1.8E+2	
Density:	1.3E+0	g/mL @ 25.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	2.7E-6	Torr	CHEMFATE
Henry's Law:	6.5E-5	atm-m3/mol	CHEMFATE
Water Solub:	4.3E-2	mg/L	CHEMFATE
Distrib Coef:	4.5E+3	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	1.7E+4		ECOTOX
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:	1.7E+4		ECOTOX
Salt BCF:			
Log Kow:	4.5E+0		CHEMFATE
Water Solub:	4.3E-2		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	2.2E+2	C
Boiling Point:	3.4E+2	C
Formula:	C14 H10	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000120-12-7 Name: ANTHRACENE

```
**********************************************************************
MELT    ANTHRACENE                                          CAS#   120-12-7
  Melting Point   :  216.2-216.4 DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  ALDRICH (1988)
**********************************************************************

VP      ANTHRACENE                                          CAS#   120-12-7
  Vapor Pressure :  .765E-05    TORR         MEASURED
  Temperature (C):  20.
  Remarks         :  UNITS CONVERTED, EXTRAP, RANGE OF MEASUREMENTS 50-80 DEGC
  Abbrev. Ref.    :  GRAYSON,BT & FOSBRAEY,LA (1982)
**********************************************************************

VP      ANTHRACENE                                          CAS#   120-12-7
  Vapor Pressure :  2.67E-6     MM HG
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  SCALA,AJ & BANERJEE,S (1982)
**********************************************************************


   ALDRICH (1988)
   ALDRICH.; CATALOG HANDBOOK OF FINE CHEMICALS 1988-1989;  MILWAUKEE, WI:
   ALDRICH CHEM CO.; 1988

   GRAYSON,BT & FOSBRAEY,LA (1982)
   GRAYSON,B.T.; FOSBRAEY,L.A.; DETERMINATION OF THE VAPOUR PRESSURE OF
   PESTICIDES.; PESTIC. SCI.; 13:269-78.; 1982

   SCALA,AJ & BANERJEE,S (1982)
   SCALA,A.J.; BANERJEE,S.; VAPOR PRESSURE INTERLABORATORY REPORT.;
   SYRACUSE,NY: SYRACUSE RESEARCH CORPORATION. FINAL REPORT FOR NATIONAL BUREA
   OF STANDARDS. 8 PP. AND APPENDICES.; 1982

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Pyrene
CAS Number: 000129-00-0

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	3.0E-2	mg/kg/day	IRIS
Inhal RfD:		mg/kg/day	
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:		mg/kg	
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	3.5E+1	µg/L	ECOTOX
Salt Ecol LC50:	8.9E-1	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.3E+2	days	THOMAS
Photolysis:	2.8E-2	days	CHEMFATE
Biodeg:	1.9E+3	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	4.5E+0	days	THOMAS
Photolysis:	2.8E-2	days	CHEMFATE
Biodeg:	1.9E+3	days	FATERATE
Radio:		days	
Log Kow:	4.9E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	Yes	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	2.0E+2	
Density:	1.3E+0	g/mL @ 23.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	4.6E-6	Torr	CHEMFATE
Henry's Law:	1.1E-5	atm-m3/mol	CHEMFATE
Water Solub:	1.4E+0	mg/L	CHEMFATE
Distrib Coef:	9.5E+3	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	8.4E+5		ECOTOX
Salt BCF:	4.4E+3		ECOTOX
ENVIRONMENTAL			
Fresh BCF:	8.4E+5		ECOTOX
Salt BCF:	6.4E+3		ECOTOX
Log Kow:	4.9E+0		CHEMFATE
Water Solub:	1.4E+0		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	1.5E+2	C
Boiling Point:	4.0E+2	C
Formula:	C16 H10	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000129-00-0 Name: PYRENE

```
**************************************************************************
MELT    PYRENE                                                CAS#   129-00-0
  Melting Point  :  149-151     DEG C
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  ALDRICH (1988)
**************************************************************************

VP      PYRENE                                                CAS#   129-00-0
  Vapor Pressure :  2.45E-6     MM HG       CALC
  Temperature (C):  25
  Remarks        :  INTERPOLATED FROM EXPERIMENRAL DATA OBTAINED IN THE RANGE
                    -90 DEG C
  Abbrev. Ref.   :  HOYER,H & PEPERLE,W (1958)
**************************************************************************

VP      PYRENE                                                CAS#   129-00-0
  Vapor Pressure :  4.59E-6     MM HG       CALC
  Temperature (C):  25
  Remarks        :  EXTRAPOLATED FROM DATA FOR THE LIQUID COMPOUND OVER THE
                    RANGE 70-120 DEG C AND CONVERTED TO THE VAPOR PRESSURE OF
                    THE SOLID USING A MEASURED HEAT OF VAPORIZATION ON 20.5
                    CAL/G (DAUBERT & DANNER (1989)
  Abbrev. Ref.   :  BIDLEMAN,TF (1984)
**************************************************************************
```

ALDRICH (1988)
ALDRICH.; CATALOG HANDBOOK OF FINE CHEMICALS 1988-1989; MILWAUKEE, WI:
ALDRICH CHEM CO.; 1988

BIDLEMAN,TF (1984)
BIDLEMAN,T.F.; ESTIMATION OF VAPOR PRESSURES FOR NONPOLAR ORGANIC COMPOUNDS
BY CAPILLARY GAS CHROMATOGRAPHY.; ANAL.CHEM.; 56:2490-6.; 1984

HOYER,H & PEPERLE,W (1958)
HOYER,H.; PEPERLE,W.; DETERMINATION OF THE VAPOR PRESSURE AND HEAT OF
SUBLIMATION OF ORGANIC COMPOUNDS.; Z. ELEKTROCHEM.; 62:61-6.; 1958

End of Search

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CHEMFATE Search Results

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CAS #: 000208-96-8 Name: ACENAPHTHYLENE

```
**********************************************************************
MELT    ACENAPHTHYLENE                                      CAS#   208-96-8
  Melting Point  :  88-91       DEG C
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  ALDRICH (1988)
**********************************************************************

VP      ACENAPHTHYLENE                                      CAS#   208-96-8
  Vapor Pressure :  9.12E-4     MM HG
  Temperature (C):  25
  Remarks        :  EXPERIMENTAL VALUE INTERPOLATED FROM THE T-RANGE OF
                    13.02-45.00 DEG C, SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  BOYD,RH ET AL. (1965)
**********************************************************************


   ALDRICH (1988)
   ALDRICH.; CATALOG HANDBOOK OF FINE CHEMICALS 1988-1989;  MILWAUKEE, WI:
   ALDRICH CHEM CO.; 1988

   BOYD,RH ET AL. (1965)
   BOYD,R.H.; CHRISTENSEN,R.L.; PUA,R.; THE HEATS OF COMBUSTION OF ACENAPHTHEN
   ACENAPHTHYLENE, AND FLUORANTHENE. STRAIN AND DELOCALIZATION IN BRIDGED
   NAPHTHALENES.; J. AM. CHEM. SOC.; 87:3554-9.; 1965

End of Search
```

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000602-87-9
Chem Name  : ACENAPHTHYLENE, 1,2-DIHYDRO-5-NITRO-
Mol Formula: C12H9NO2
Mol Weight : 199.21
Melting Pt : 100.5 deg C
Boiling Pt :
Water Solubility:
   Value : 0.91 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : GANG,Y & XIAOBAI,X (1992)
Log P (octanol-water):
   Value : 3.85
   Type  : EXP
   Ref   : DEBNATH,AK ET AL. (1992)
Vapor Pressure:
   Value : 2.65E-005 mm Hg
   Temp  : 25 deg C
   Type  : EST
   Ref   : NEELY,WB & BLAU,GE (1985)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 1.11E-006 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 8.3E-012 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Acenaphthene
CAS Number: 000083-32-9

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	6.0E-2	mg/kg/day	IRIS
Inhal RfD:		mg/kg/day	
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:		mg/kg	
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	5.0E+1	µg/L	ECOTOX
Salt Ecol LC50:	1.7E+2	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.1E+2	days	THOMAS
Photolysis:	2.5E+0	days	FATERATE
Biodeg:	1.0E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	1.3E+0	days	THOMAS
Photolysis:	2.5E+0	days	FATERATE
Biodeg:	1.0E+2	days	FATERATE
Radio:		days	
Log Kow:	3.9E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	Yes	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	1.5E+2	
Density:	1.2E+0	g/mL @ 20.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	2.5E-3	Torr	CHEMFATE
Henry's Law:	1.6E-4	atm-m3/mol	CHEMFATE
Water Solub:	3.6E+0	mg/L	CHEMFATE
Distrib Coef:	1.1E+3	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	3.9E+2		ECOTOX
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:	3.9E+2		ECOTOX
Salt BCF:			
Log Kow:	3.9E+0		CHEMFATE
Water Solub:	3.6E+0		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	9.3E+1	C
Boiling Point:	2.8E+2	C
Formula:	C12 H10	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000083-32-9 Name: ACENAPHTHENE

```
**********************************************************************
VP      ACENAPHTHENE                                        CAS#    83-32-9
  Vapor Pressure :  0.0025      MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  BOYD,RH ET AL. (1965)
**********************************************************************

   BOYD,RH ET AL. (1965)
   BOYD,R.H.; CHRISTENSEN,R.L.; PUA,R.; THE HEATS OF COMBUSTION OF ACENAPHTHEN
   ACENAPHTHYLENE, AND FLUORANTHENE. STRAIN AND DELOCALIZATION IN BRIDGED
   NAPHTHALENES.; J. AM. CHEM. SOC.; 87:3554-9.; 1965

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Phenanthrene
CAS Number: 000085-01-8

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:		mg/kg/day	
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:		mg/kg	
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	7.0E+1	µg/L	ECOTOX
Salt Ecol LC50:	4.6E+1	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.2E+2	days	THOMAS
Photolysis:	3.5E-1	days	CHEMFATE
Biodeg:	2.0E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	2.7E+0	days	THOMAS
Photolysis:	3.5E-1	days	CHEMFATE
Biodeg:	2.0E+2	days	FATERATE
Radio:		days	
Log Kow:	4.5E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	Yes		
Particulate:	Yes		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	1.8E+2		
Density:	9.8E-1	g/mL @ 4.00	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	1.1E-4	Torr	CHEMFATE
Henry's Law:	2.3E-5	atm-m3/mol	CHEMFATE
Water Solub:	1.1E+0	mg/L	CHEMFATE
Distrib Coef:	3.7E+3	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:	1.2E+3		ECOTOX
ENVIRONMENTAL			
Fresh BCF:	1.1E+4		ECOTOX
Salt BCF:	1.3E+3		ECOTOX
Log Kow:	4.5E+0		CHEMFATE
Water Solub:	1.1E+0		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	9.9E+1	C
Boiling Point:	3.4E+2	C
Formula:	C14 H10	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000085-01-8 Name: PHENANTHRENE

```
**********************************************************************
VP      PHENANTHRENE                                        CAS#    85-01-8
  Vapor Pressure :  1.12E-4     MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  SCALA,AJ & BANERJEE,S (1982)
**********************************************************************

   SCALA,AJ & BANERJEE,S (1982)
   SCALA,A.J.; BANERJEE,S.; VAPOR PRESSURE INTERLABORATORY REPORT.;
   SYRACUSE,NY: SYRACUSE RESEARCH CORPORATION. FINAL REPORT FOR NATIONAL BUREA
   OF STANDARDS. 8 PP. AND APPENDICES.; 1982

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Fluorene

CAS Number: 000086-73-7

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	4.0E-2	mg/kg/day	IRIS
Inhal RfD:		mg/kg/day	
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:		mg/kg	
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	3.7E+2	µg/L	ECOTOX
Salt Ecol LC50:	7.0E+2	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.1E+2	days	THOMAS
Photolysis:		days	
Biodeg:	5.1E+3	days	CHEMFATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	1.7E+0	days	THOMAS
Photolysis:		days	
Biodeg:	5.1E+3	days	CHEMFATE
Radio:		days	
Log Kow:	4.2E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	Yes		
Particulate:	Yes		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	1.7E+2		
Density:	1.2E+0	g/mL @ 0.00	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	6.3E-4	Torr	CHEMFATE
Henry's Law:	6.4E-5	atm-m3/mol	CHEMFATE
Water Solub:	2.0E+0	mg/L	CHEMFATE
Distrib Coef:	2.1E+3	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	7.3E+2		ECOTOX
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:	2.2E+3		ECOTOX
Salt BCF:			
Log Kow:	4.2E+0		CHEMFATE
Water Solub:	2.0E+0		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	1.1E+2	C
Boiling Point:	3.0E+2	C
Formula:	C13 H10	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000086-73-7 Name: FLUORENE

```
**********************************************************************
VP      FLUORENE                                              CAS#    86-73-7
  Vapor Pressure :  .1800E 02   TORR        MEASURED
  Temperature (C):  161.
  Abbrev. Ref.    :  BOUBLIK,T ET AL. (1973)
**********************************************************************

VP      FLUORENE                                              CAS#    86-73-7
  Vapor Pressure :  8.42E-3     MM HG       CALC
  Temperature (C):  25
  Remarks         :  EXTRAPOLATED FROM EXPERIMENTAL DATA RANGING FROM 161-300.4
                     DEG C
  Abbrev. Ref.    :  BOUBLIK,T ET AL. (1984)
**********************************************************************

VP      FLUORENE                                              CAS#    86-73-7
  Vapor Pressure :  6.33E-04    MM HG       CALC
  Temperature (C):  25
  Remarks         :  EXTRAPOLATED FROM EXPERIMENTAL DATA RANGING FROM 115-597 D
                     C, AND CONVERTED TO VAPOR PRESSURE OF THE SOLID BY EQN 5.1
                     IN MABEY,WR ET AL. (1981). SRC RECOMMENDED VALUE.
  Abbrev. Ref.    :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************


   BOUBLIK,T ET AL. (1973)
   BOUBLIK,T.; FRIED,V.; HALA,E.;  THE VAPOUR PRESSURES OF PURE SUBSTANCES.; N
   YORK, NY: ELSEVIER SCIENTIFIC PUB. CO. 626 PP.; 1973

   BOUBLIK,T ET AL. (1984)
   BOUBLIK,T.; FRIED,V.; HALA,E.; THE VAPOR PRESSURES OF PURE SUBSTANCES:
   SELECTED VALUES OF THE TEMPERATURE DEPENDENCE OF THE VAPOUR PRESSURES OF SO
   PURE SUBSTANCES IN THE NORMAL AND LOW PRESSURE REGION. VOL. 17.;  AMSTERDAM
   NETHERLANDS: ELSEVIER SCI. PUBL.; 1984

   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Naphthalene
CAS Number: 000091-20-3

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	4.0E-2	mg/kg/day	LIVECHEM
Inhal RfD:	8.6E-4	mg/kg/day	IRIS
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	1.8E+3	mg/kg	ACGIH
Dermal LD50:	2.5E+3	mg/kg	RTECS
Gas Inhal LC50:		ppm	
Dust Inhal LC50:	2.8E+2	mg/L	RTECS
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	2.4E+2	µg/L	ECOTOX
Salt Ecol LC50:	6.8E+2	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.0E+2	days	THOMAS
Photolysis:	3.0E+0	days	CHEMFATE
Biodeg:	2.3E+1	days	CHEMFATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	1.1E+0	days	THOMAS
Photolysis:	3.0E+0	days	CHEMFATE
Biodeg:	2.3E+1	days	CHEMFATE
Radio:		days	
Log Kow:	3.3E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	Yes	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	1.3E+2	
Density:	1.0E+0	g/mL @ 20.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	8.5E-2	Torr	CHEMFATE
Henry's Law:	4.8E-4	atm-m3/mol	CHEMFATE
Water Solub:	3.1E+1	mg/L	CHEMFATE
Distrib Coef:	3.0E+2	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	1.3E+4		ECOTOX
Salt BCF:	1.2E+3		ECOTOX
ENVIRONMENTAL			
Fresh BCF:	1.3E+4		ECOTOX
Salt BCF:	1.2E+3		ECOTOX
Log Kow:	3.3E+0		CHEMFATE
Water Solub:	3.1E+1		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	8.0E+1	C
Boiling Point:	2.2E+2	C
Formula:	C10 H8	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000091-20-3 Name: NAPHTHALENE

```
**********************************************************************
MELT    NAPHTHALENE                                          CAS#    91-20-3
  Melting Point   :  80.29       DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      NAPHTHALENE                                          CAS#    91-20-3
  Vapor Pressure :  .506E-01    .123E 00    TORR        MEASURED
  Temperature (C):  20.         27.8
  Remarks         :  UNITS CONVERTED, UPPER TEMP MEASURED, LOWER ONE EXTRAP FRO
                     ANTOINE EQN
  Abbrev. Ref.    :  GRAYSON,BT & FOSBRAEY,LA (1982)
**********************************************************************

VP      NAPHTHALENE                                          CAS#    91-20-3
  Vapor Pressure :  .6720E-01   .2336E+00   .6956E+00   TORR        CALCULATED
  Temperature (C):  10.0        25.0        40.0
  Remarks         :  CALC FROM ANTOINE EQN, EXTRAPOLATED FROM 86.6 DEGC (10 MM)
  Abbrev. Ref.    :  ZWOLINSKI,BJ & WILHOIT,RC (1971)
**********************************************************************

VP      NAPHTHALENE                                          CAS#    91-20-3
  Vapor Pressure :  0.085       MM HG
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  AMBROSE,D ET AL. (1975C)
**********************************************************************
```

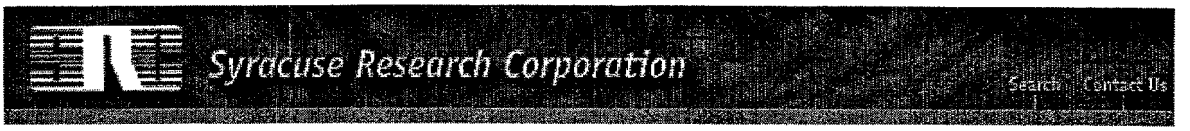
AMBROSE,D ET AL. (1975C)
AMBROSE,D.; ELLENDER,J.H.; SPRAKE,C.H.S.; TOWNSEND,R.; THERMODYNAMIC PROPERTIES OF FLOURINE COMPOUNDS. VAPOR PRESSURE OF THE THREE TETRAFLOUROBENZENES AND 1,3,5,-TRICHLORO-2,4,6-TRIFLUOROBENZENE.; J. CHEM. SOC. FARADAY TRANS. 1.; 71:35-41.; 1975C

GRAYSON,BT & FOSBRAEY,LA (1982)
GRAYSON,B.T.; FOSBRAEY,L.A.; DETERMINATION OF THE VAPOUR PRESSURE OF PESTICIDES.; PESTIC. SCI.; 13:269-78.; 1982

RIDDICK,JA ET AL. (1986)
RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI AND METHODS OF PURIFICATION.; TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY WILEY-INTERSCIENCE. 2:PP.1325; 1986

ZWOLINSKI,BJ & WILHOIT,RC (1971)
ZWOLINSKI,B.J.; WILHOIT,R.C.; HANDBOOK OF VAPOR PRESSURES AND HEATS OF VAPORIZATON OF HYDROCARBONS AND RELATED COMPOUNDS.; API44-TRC101. COLLEGE STATION,TX: THERMODYNAMCS RESEARCH CENTER.; 1971

End of Search



CHEMFATE Search Results

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CAS #: 000091-57-6 Name: 2-METHYLNAPHTHALENE

```
**************************************************************************
MELT    2-METHYLNAPHTHALENE                                    CAS#    91-57-6
  Melting Point  :  34.6        DEG C
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DEAN,JA (1985)
**************************************************************************

VP      2-METHYLNAPHTHALENE                                    CAS#    91-57-6
  Vapor Pressure :  6.81E-02    MM HG
  Temperature (C):  25
  Remarks        :  EXTRAPOLATED USING ANTOINES EQUATION FROM A TEMPERATURE
                    RANGE 139.2 TO 241.8 DEG C, SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  BOUBLIK,T ET AL. (1984)
**************************************************************************

VP      2-METHYLNAPHTHALENE                                    CAS#    91-57-6
  Vapor Pressure :  5.500E-02   MM HG       MEASURED
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  KARYAKIN,NV ET AL. (1968)
**************************************************************************


   BOUBLIK,T ET AL. (1984)
   BOUBLIK,T.; FRIED,V.; HALA,E.; THE VAPOR PRESSURES OF PURE SUBSTANCES:
   SELECTED VALUES OF THE TEMPERATURE DEPENDENCE OF THE VAPOUR PRESSURES OF SO
   PURE SUBSTANCES IN THE NORMAL AND LOW PRESSURE REGION. VOL. 17.;  AMSTERDAM
   NETHERLANDS: ELSEVIER SCI. PUBL.; 1984

   DEAN,JA (1985)
   DEAN,J.A.; LANGE'S HANDBOOK OF CHEMISTRY 13TH ED.;  NY, NY: MCGRAW-HILL BOO
   CO.; 1985

   KARYAKIN,NV ET AL. (1968)
   KARYAKIN,N.V.; RABINOVICH,I.B.; PAKHOMOV,L.G.; HEATS OF SUBLIMATION OF
   NAPHTHALENE AND ITS MONODERIVATIVES.; ZH. FIZ. KHIM.; 42:1814-6.; 1968

End of Search
```

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000091-58-7 Name: 2-CHLORONAPHTHALENE

```
**********************************************************************
MELT    2-CHLORONAPHTHALENE                                  CAS#    91-58-7
  Melting Point  :  59.5        DEG C
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  MERCK INDEX (1983)
**********************************************************************

VP      2-CHLORONAPHTHALENE                                  CAS#    91-58-7
  Vapor Pressure :  .17E-01     TORR        CALCULATED
  Temperature (C):  20.
  Abbrev. Ref.   :  CALLAHAN,MA ET AL. (1979)
**********************************************************************

VP      2-CHLORONAPHTHALENE                                  CAS#    91-58-7
  Vapor Pressure :  7.98E-3     MM HG       CALC
  Temperature (C):  25
  Remarks        :
            1    :  SRC RECOMMENDED VALUE
            2    :   EXTRAPOLATED USING ANTOINES EQN FROM 4 DATA PTS IN THE TE
                    RANGE OF 120 TO 256 DEGC C, MERCK INDEX (1983)
  Abbrev. Ref.   :  SRC (1988)
**********************************************************************

VP      2-CHLORONAPHTHALENE                                  CAS#    91-58-7
  Vapor Pressure :  7.980E-03   MM HG       CALCULATED
  Temperature (C):  20
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  MERCK INDEX (1983)
**********************************************************************


   CALLAHAN,MA ET AL. (1979)
   CALLAHAN,M.A.; SLIMAK,M.W.; GABEL,N.W.; MAY,I.P.; FOWLER,C.F.; FREED,J.R.;
   JENNINGS,P.; DURFEE,R.L.; WHITMORE,F.C.; MAESTRI,B. ET AL.; WATER-RELATED
   ENVIRONMENTAL FATE OF 129 PRIORITY POLLUTANTS.;  EPA-440/4-79-029A.
   WASHINGTON,DC: U.S.EPA.; 1979

   MERCK INDEX (1983)
   MERCK INDEX.; THE MERCK INDEX. AN ENCYCLOPEDIA OF CHEMICALS AND DRUGS 10TH
   ED.;  WINDHOLZ,M ED. RAHWAY, N.J.: MERCK AND CO., INC.; 1983

   SRC (1988)
   SRC.; SYRACUSE RESEARCH CORPORATION CALCULATED VALUES;   1988

End of Search
```

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CHEMFATE Search Results

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CAS #: 000095-13-6 Name: INDENE

```
**********************************************************************
VP      INDENE                                              CAS#    95-13-6
  Vapor Pressure :  .223E 01    TORR        MEASURED
  Temperature (C):  25.
  Abbrev. Ref.    :  DORIGAN,J ET AL. (1976)
**********************************************************************
```

DORIGAN,J ET AL. (1976)
DORIGAN,J.; FULLER,B.; DUFFY,R.; PRELIMINARY SCORING OF SELECTED ORGANIC AI POLLUTANTS. APPENDIX III-CHEMISTRY, PRODUCTION, AND TOXICITY OF CHEMICALS F THROUGH N.; EPA-450/3-77-008D. RESEARCH TRIANGLE PARK,NC: U.S. EPA. PP.303 1976

End of Search

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000095-13-6
Chem Name  : INDENE
Mol Formula: C9H8
Mol Weight : 116.16
Melting Pt : -1.8 deg C
Boiling Pt : 182 deg C
Water Solubility:
   Value : 332 mg/L
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM ET AL. (1996)
Log P (octanol-water):
   Value : 2.92
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 1.1 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : DAUBERT,TE & DANNER,RP (1989)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.00159 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 5.1E-011 cm3/molecule-sec
   Temp  : 22 deg C
   Type  : EXP
   Ref   : ATKINSON,R (1994)
```

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WTP RISK ASSESSMENT WORK PLAN IDENTIFIED CONSTITUENTS OF POTENTIAL CONCERN (COPC) SUPPORT DATA

Light Substituted Benzene Compounds (molecular weight <200 /mole) (LSB)

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000100-00-5
Chem Name  : P-CHLORONITROBENZENE
Mol Formula: C6H4ClNO2
Mol Weight : 157.56
Melting Pt : 83.5 deg C
Boiling Pt : 242 deg C
Water Solubility:
   Value : 225 mg/L
   Temp  : 20 deg C
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 2.39
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 0.0219 mm Hg
   Temp  : 25 deg C
   Type  : EXT
   Ref   : DAUBERT,TE & DANNER,RP (1989)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 4.89E-006 atm-m3/mole
   Temp  : 25 deg C
   Type  : EXP
   Ref   : ALTSCHUH,J ET AL. (1999)
Atmospheric OH Rate Constant:
   Value : 1.71E-013 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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CHEMFATE Search Results

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CAS #: 000100-02-7 Name: 4-NITROPHENOL

```
**********************************************************************
MELT    4-NITROPHENOL                                        CAS#   100-02-7
  Melting Point   :  113-115     DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  ALDRICH (1988)
**********************************************************************

VP      4-NITROPHENOL                                        CAS#   100-02-7
  Vapor Pressure :  4.1E-5       MM HG
  Temperature (C):  25
  Remarks         :  EXTRAPOLATED VALUE CHOSEN DUE TO COMPATABILITY WITH MEASUR
                     HENRY'S LAW CONSTANT, SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  SCHMIDT-BLEEK,F ET AL. (1982)
**********************************************************************


   ALDRICH (1988)
   ALDRICH.; CATALOG HANDBOOK OF FINE CHEMICALS 1988-1989;  MILWAUKEE, WI:
   ALDRICH CHEM CO.; 1988

   SCHMIDT-BLEEK,F ET AL. (1982)
   SCHMIDT-BLEEK,F.; HABERLAND,W.; KLEIN,A.W.; CAROLI,S.; STEPS TOWARDS
   ENVIRONMENTAL HAZARD ASSESSMENT OF NEW CHEMICALS (INCLUDING A HAZARD RANKIN
   SCHEME, BASED UPON DIRECTIVE 79/831/EEC).; CHEMOSPERE.; 11:383-415.; 1982

End of Search
```

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000100-25-4
Chem Name  : P-DINITROBENZENE
Mol Formula: C6H4N2O4
Mol Weight : 168.11
Melting Pt : 174 deg C
Boiling Pt : 297 deg C
Water Solubility:
   Value : 69 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 1.46
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 2.61E-005 mm Hg
   Temp  : 25 deg C
   Type  : EST
   Ref   : HLX WSOL
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 8.39E-008 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 2.13E-014 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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CHEMFATE Search Results

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CAS #: 000100-44-7 Name: BENZYL CHLORIDE

```
**********************************************************************
MELT    BENZYL CHLORIDE                                      CAS#   100-44-7
  Melting Point  :  -39.2       DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  GELFAND,S (1979)
**********************************************************************

VP      BENZYL CHLORIDE                                      CAS#   100-44-7
  Vapor Pressure :  .481E 01    TORR        MEASURED
  Temperature (C):  47.84
  Remarks        :  DETM ANTOINE EQN FROM 48-117 DEGC
  Abbrev. Ref.   :  ASHCROFT,SJ (1976)
**********************************************************************

VP      BENZYL CHLORIDE                                      CAS#   100-44-7
  Vapor Pressure :  .9800E+00   .5000E+01   TORR        MEASURED
  Temperature (C):  22.0        47.8
  Remarks        :  UNITS CONVERTED
  Abbrev. Ref.   :  GELFAND,S (1979)
**********************************************************************

VP      BENZYL CHLORIDE                                      CAS#   100-44-7
  Vapor Pressure :  1.30        MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  MACKAY,D ET AL. (1982)
**********************************************************************

VP      BENZYL CHLORIDE                                      CAS#   100-44-7
  Vapor Pressure :  1.31        MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE, EVALUATED DATABASE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************


   ASHCROFT,SJ (1976)
   ASHCROFT,S.J.; VAPOR PRESSURES AND ENTHALPIES OF VAPORIZATION OF BENZYL
   HALIDES.; J. CHEM. ENGIN. DATA; 21:397-8.; 1976

   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989
```

GELFAND,S (1979)
GELFAND,S.; BENZYLCHLORIDE, BENZALCHLORIDE, AND BENZOTRICHLORIDE.; IN: KIRK-OTHMER ENCYCL. CHEM. TECH. 3RD ED. 5:828-38.; 1979

MACKAY,D ET AL. (1982)
MACKAY,D.; BOBRA,A.; CHAN,D.W.; SHIU,W.Y.; VAPOR PRESSURE CORRELATIONS FOR LOW-VOLATILITY ENVIRONMENTAL CHEMICALS.; ENVIRON. SCI. TECHNOL.; 16:645-9.; 1982

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000103-65-1 Name: N-PROPYLBENZENE

```
**********************************************************************
VP      N-PROPYLBENZENE                                    CAS#   103-65-1
  Vapor Pressure :  3.420E+00   MM HG       MEASURED
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************

   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989

End of Search
```

Data From SRC PhysProp Database:

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References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000103-65-1
Chem Name  : N-PROPYLBENZENE
Mol Formula: C9H12
Mol Weight : 120.20
Melting Pt : -99.5 deg C
Boiling Pt : 159.2 deg C
Water Solubility:
   Value : 52.2 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : TEWARI,YB ET AL (1982A)
Log P (octanol-water):
   Value : 3.69
   Type  : EXP
   Ref   : SANGSTER (1994)
Vapor Pressure:
   Value : 3.42 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : DAUBERT,TE & DANNER,RP (1989)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.0105 atm-m3/mole
   Temp  : 25 deg C
   Type  : EXP
   Ref   : SANEMASA,I ET AL. (1982)
Atmospheric OH Rate Constant:
   Value : 6E-012 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EXP
   Ref   : ATKINSON,R (1989)
```

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Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000104-51-8
Chem Name  : N-BUTYLBENZENE
Mol Formula: C10H14
Mol Weight : 134.22
Melting Pt : -87.9 deg C
Boiling Pt : 183.3 deg C
Water Solubility:
   Value : 11.8 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 4.38
   Type  : EXP
   Ref   : DEBRUIJN,J ET AL. (1989)
Vapor Pressure:
   Value : 1.06 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : CHAO,J ET AL. (1983)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.0159 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : VP/WSOL
Atmospheric OH Rate Constant:
   Value : 8.72E-012 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Dimethyl phenol, 2,4-
CAS Number: 000105-67-9

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	2.0E-2	mg/kg/day	IRIS
Inhal RfD:		mg/kg/day	
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:		mg/kg	
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	1.8E+3	µg/L	ECOTOX
Salt Ecol LC50:	9.4E+2	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.3E+2	days	THOMAS
Photolysis:		days	
Biodeg:	7.0E+0	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	3.0E+1	days	THOMAS
Photolysis:		days	
Biodeg:	7.0E+0	days	FATERATE
Radio:		days	
Log Kow:	2.3E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	Yes		
Particulate:	Yes		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	1.2E+2		
Density:	9.6E-1	g/mL @ 20.00	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	9.8E-2	Torr	CHEMFATE
Henry's Law:	2.0E-6	atm-m3/mol	CHEMFATE
Water Solub:	7.9E+3	mg/L	CHEMFATE
Distrib Coef:	3.2E+1	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	1.5E+2		ECOTOX
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:	1.5E+2		ECOTOX
Salt BCF:			
Log Kow:	2.3E+0		CHEMFATE
Water Solub:	7.9E+3		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	2.5E+1	C
Boiling Point:	2.1E+2	C
Formula:	C8 H10 O	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000105-67-9 Name: 2,4-XYLENOL

```
**************************************************************************
MELT    2,4-XYLENOL                                          CAS#   105-67-9
  Melting Point  :  24.54       DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**************************************************************************

VP      2,4-XYLENOL                                          CAS#   105-67-9
  Vapor Pressure :  .621E-01    TORR        MEASURED
  Temperature (C):  20.
  Remarks        :  SUPERCOOLED LIQUID
  Abbrev. Ref.   :  CALLAHAN,MA ET AL. (1979A)
**************************************************************************

VP      2,4-XYLENOL                                          CAS#   105-67-9
  Vapor Pressure :  0.098       MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  CHAO,J ET AL. (1983)
**************************************************************************


   CALLAHAN,MA ET AL. (1979A)
   CALLAHAN,M.A.; SLIMAK,M.W.; GABEL,N.W.; MAY,I.P.; FOWLER,C.F.; FREED,J.R.;
   JENNINGS,P.; DURFEE,R.L.; WHITMORE,F.C.; MAESTRI,B. ET AL.; WATER-RELATED
   ENVIRONMENTAL FATE OF 129 PRIORITY POLLUTANTS-VOLUME II.;  EPA-440/4-79-029
   WASHINGTON,DC: U.S. EPA.; 1979A

   CHAO,J ET AL. (1983)
   CHAO,J.; LIN,C.T.; CHUNG,T.H.; VAPOR PRESSURE OF COAL CHEMICALS.; J. PHYS.
   CHEM. REF. DATA.; 12:1033-63.; 1983

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

End of Search
```

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CHEMFATE Search Results

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CAS #: 000106-43-4 Name: 4-CHLROTOLUENE

```
**********************************************************************
VP      4-CHLROTOLUENE                                    CAS#   106-43-4
  Vapor Pressure :  2.690E+00   MM HG       MEASURED
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************

   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989

End of Search
```

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000106-43-4
Chem Name  : P-CHLOROTOLUENE
Mol Formula: C7H7Cl
Mol Weight : 126.59
Melting Pt : 7.5 deg C
Boiling Pt : 162.4 deg C
Water Solubility:
   Value : 106 mg/L
   Temp  : 20 deg C
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 3.33
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 2.69 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : DAUBERT,TE & DANNER,RP (1989)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.00438 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : VP/WSOL
Atmospheric OH Rate Constant:
   Value : 1.82E-012 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Methyl phenol, 4-
CAS Number: 000106-44-5

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	5.0E-3	mg/kg/day	HEAST
Inhal RfD:		mg/kg/day	
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	1.8E+3	mg/kg	ACGIH
Dermal LD50:	3.0E+2	mg/kg	RTECS
Gas Inhal LC50:		ppm	
Dust Inhal LC50:	5.9E+2	mg/L	RTECS
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	1.4E+3	µg/L	ECOTOX
Salt Ecol LC50:		µg/L	

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.2E+2	days	THOMAS
Photolysis:	8.1E-4	days	CHEMFATE
Biodeg:	6.7E-1	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	2.6E+1	days	THOMAS
Photolysis:	8.1E-4	days	CHEMFATE
Biodeg:	6.7E-1	days	FATERATE
Radio:		days	
Log Kow:	1.9E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	Yes		
Particulate:	No		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	1.1E+2		
Density:	1.0E+0	g/mL @ 40.00	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	1.1E-1	Torr	CHEMFATE
Henry's Law:	7.9E-7	atm-m3/mol	CHEMFATE
Water Solub:	2.2E+4	mg/L	CHEMFATE
Distrib Coef:	1.2E+1	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:			
Salt BCF:			
Log Kow:	1.9E+0		CHEMFATE
Water Solub:	2.2E+4		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	3.6E+1	C
Boiling Point:	2.0E+2	C
Formula:	C7 H8 O	

CLASS INFORMATION

Class	Parent Substance

CHEMFATE Search Results

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CAS #: 000106-44-5 Name: P-CRESOL

```
**********************************************************************
MELT    P-CRESOL                                          CAS#   106-44-5
  Melting Point  :  34.739      DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      P-CRESOL                                          CAS#   106-44-5
  Vapor Pressure :  0.11        MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  CHAO,J ET AL. (1983)
**********************************************************************


   CHAO,J ET AL. (1983)
   CHAO,J.; LIN,C.T.; CHUNG,T.H.; VAPOR PRESSURE OF COAL CHEMICALS.; J. PHYS.
   CHEM. REF. DATA.; 12:1033-63.; 1983

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Dichlorobenzene, 1,4-
CAS Number: 000106-46-7

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:	2.3E-1	mg/kg/day	IRIS
Oral Slope:	2.4E-2	(mg/kg/day)^-1	HEAST
Oral Wt-of-Evid:	C		
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	1.6E+3	mg/kg	ACGIH
Dermal LD50:	5.0E+3	mg/kg	ACGIH
Gas Inhal LC50:		ppm	
Dust Inhal LC50:	3.1E+1	mg/L	RTECS
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	8.8E+2	µg/L	ECOTOX
Salt Ecol LC50:	2.0E+3	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:	3.2E+3	days	CHEMFATE
Volatility:	1.1E+2	days	THOMAS
Photolysis:		days	
Biodeg:	1.8E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:	3.2E+3	days	CHEMFATE
Volatility:	1.2E+0	days	THOMAS
Photolysis:		days	
Biodeg:	1.8E+2	days	FATERATE
Radio:		days	
Log Kow:	3.5E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	No	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	1.5E+2	
Density:	1.2E+0	g/mL @ 55.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	1.0E+0	Torr	CHEMFATE
Henry's Law:	2.4E-3	atm-m3/mol	CHEMFATE
Water Solub:	7.9E+1	mg/L	CHEMFATE
Distrib Coef:	1.2E+0	ml/g	SSG_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	1.4E+3		ECOTOX
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:	1.8E+3		ECOTOX
Salt BCF:			
Log Kow:	3.5E+0		CHEMFATE
Water Solub:	7.9E+1		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	5.3E+1	C
Boiling Point:	1.7E+2	C
Formula:	C6 H4 Cl2	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000106-46-7 Name: P-DICHLOROBENZENE

```
**********************************************************************
MELT    P-DICHLOROBENZENE                                    CAS#   106-46-7
  Melting Point  :  53.13       DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      P-DICHLOROBENZENE                                    CAS#   106-46-7
  Vapor Pressure :  .1759E 01   TORR        CALCULATED
  Temperature (C):  25.
  Abbrev. Ref.   :  DREISBACH,RR (1955)
**********************************************************************

VP      P-DICHLOROBENZENE                                    CAS#   106-46-7
  Vapor Pressure :  .10E 01     TORR        MEASURED
  Temperature (C):  25.
  Abbrev. Ref.   :  MARTIN,H & WORTHING,CR (1977)
**********************************************************************

VP      P-DICHLOROBENZENE                                    CAS#   106-46-7
  Vapor Pressure :  1.0         MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  WALSH,PN & SMITH,NO (1961)
**********************************************************************


   DREISBACH,RR (1955)
   DREISBACH,R.R.; PHYSICAL PROPERTIES OF CHEMICAL COMPOUNDS. I.; ADVANCES IN
   CHEMISTRY SERIES NO. 15.; WASHINGTON, DC: AMERICAN CHEMICAL SOCIETY.; 1955

   MARTIN,H & WORTHING,CR (1977)
   MARTIN,H.; WORTHING,C.R.;   PESTICIDE MANUAL. FIFTH EDITION, BRITISH CROP
   PROTECTION COUNCIL. 563 PP.; 1977

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

   WALSH,PN & SMITH,NO (1961)
   WALSH,P.N.; SMITH,N.O.; SUBLIMATION PRESSURE OF ALPHA-P-DICHLORO-,
   BETA-P-DICHLORO-, P-DIBROMO-, AND P-BROMOCHLOROBENZENE.; CHEM. ENG. DATA.;
   6:33-5.; 1961
```

End of Search

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000106-47-8 Name: P-CHLOROANILINE

```
**********************************************************************
VP      P-CHLOROANILINE                                    CAS#   106-47-8
  Vapor Pressure :  .11E-01     .25E-01     TORR        MEASURED
  Temperature (C):  20.         25.
  Remarks         :  FROM VERSCHUEREN,K. (1977)
  Abbrev. Ref.    :  KILZER,L ET AL. (1979)
**********************************************************************

VP      P-CHLOROANILINE                                    CAS#   106-47-8
  Vapor Pressure :  .15E-01     .5E-01      TORR        MEASURED
  Temperature (C):  20.         30.
  Abbrev. Ref.    :  VERSCHUEREN,K (1977)
**********************************************************************

VP      P-CHLOROANILINE                                    CAS#   106-47-8
  Vapor Pressure :  .0123       MM HG       M
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  PIACENTE,V ET AL. (1985)
**********************************************************************


   KILZER,L ET AL. (1979)
   KILZER,L.; SCHEUNERT,I.; GEYER,H.; KLEIN,W.; KORTE,F.; LABORATORY SCREENING
   OF THE VOLATILIZATION RATES OF ORGANIC CHEMICALS FROM WATER AND SOIL.;
   CHEMOSPHERE.; 8:751-61.; 1979

   PIACENTE,V ET AL. (1985)
   PIACENTE,V.; SCARDALA,P.; FERRO,C.; GIGLI,R.; VAPORIZATION STUDY OF O-, M-,
   AND P-CHLOROANILENE BY TORSION-WEIGHING EFFUSION VAPOR PRESSURE MEASUREMENT
    J. CHEM. ENG. DATA; 30:372-6; 1985

   VERSCHUEREN,K (1977)
   VERSCHUEREN,K.; HANDBOOK OF ENVIRONMENTAL DATA ON ORGANIC CHEMICALS.;  NEW
   YORK, NY: VAN NOSTRAND REINHOLD COMPANY.; 1977

End of Search
```

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000106-47-8
Chem Name  : 4-CHLOROANILINE
Mol Formula: C6H6ClN
Mol Weight : 127.57
Melting Pt : 72.5 deg C
Boiling Pt : 232 deg C
Water Solubility:
   Value : 3900 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : KILZER,L ET AL. (1979)  @2ND
Log P (octanol-water):
   Value : 1.83
   Type  : EXP
   Ref   : SANGSTER (1994)
Vapor Pressure:
   Value : 0.027 mm Hg
   Temp  : 26 deg C
   Type  : EXP
   Ref   : PIACENTE,V ET AL. (1985)
pKa Dissociation Constant:
   Value : 3.98
   Temp  : 25 deg C
   Type  : EXP
   Ref   : PERRIN,DD (1972)
Henry's Law Constant:
   Value : 1.16E-006 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : VP/WSOL
Atmospheric OH Rate Constant:
   Value : 4.3E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EXP
   Ref   : ATKINSON,R (1989)
```

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Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000106-49-0
Chem Name  : P-TOLUIDINE
Mol Formula: C7H9N
Mol Weight : 107.16
Melting Pt : 43.7 deg C
Boiling Pt : 200.4 deg C
Water Solubility:
   Value : 6500 mg/L
   Temp  : 15 deg C
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 1.39
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 0.286 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : CHAO,J ET AL. (1983)
pKa Dissociation Constant:
   Value : 5.1
   Temp  : 25 deg C
   Type  : EXP
   Ref   : PERRIN,DD (1965)
Henry's Law Constant:
   Value : 2.02E-006 atm-m3/mole
   Temp  : 25 deg C
   Type  : EXP
   Ref   : JAYASINGHE,DS ET AL. (1992)
Atmospheric OH Rate Constant:
   Value : 1.32E-010 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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CHEMFATE Search Results

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CAS #: 000108-39-4 Name: M-CRESOL

```
**********************************************************************
MELT    M-CRESOL                                          CAS#   108-39-4
  Melting Point   :  12.22       DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      M-CRESOL                                          CAS#   108-39-4
  Vapor Pressure :  0.138       MM HG
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  CHAO,J ET AL. (1983)
**********************************************************************


   CHAO,J ET AL. (1983)
   CHAO,J.; LIN,C.T.; CHUNG,T.H.; VAPOR PRESSURE OF COAL CHEMICALS.; J. PHYS.
   CHEM. REF. DATA.; 12:1033-63.; 1983

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

End of Search
```

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000108-67-8
Chem Name  : 1,3,5-TRIMETHYLBENZENE
Mol Formula: C9H12
Mol Weight : 120.20
Melting Pt : -44.7 deg C
Boiling Pt : 164.7 deg C
Water Solubility:
   Value : 48.2 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 3.42
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 2.48 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : DAUBERT,TE & DANNER,RP (1989)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.00877 atm-m3/mole
   Temp  : 25 deg C
   Type  : EXP
   Ref   : SANEMASA,I ET AL. (1982)
Atmospheric OH Rate Constant:
   Value : 5.75E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EXP
   Ref   : ATKINSON,R (1989)
```

Back To PhysProp Demo Page

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000108-86-1
Chem Name  : BROMOBENZENE
Mol Formula: C6H5Br
Mol Weight : 157.01
Melting Pt : -30.6 deg C
Boiling Pt : 156 deg C
Water Solubility:
   Value : 446 mg/L
   Temp  : 30 deg C
   Type  : EXP
   Ref   : CHIOU,CT ET AL. (1977)
Log P (octanol-water):
   Value : 2.99
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 4.18 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : RIDDICK,JA ET AL. (1986)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.00247 atm-m3/mole
   Temp  : 25 deg C
   Type  : EXP
   Ref   : SHIU,WY & MACKAY,D (1997)
Atmospheric OH Rate Constant:
   Value : 7.7E-013 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EXP
   Ref   : ATKINSON,R (1989)
```

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SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Chlorobenzene
CAS Number: 000108-90-7

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	2.0E-2	mg/kg/day	IRIS
Inhal RfD:	5.7E-3	mg/kg/day	HEAST
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	4.0E+2	mg/kg	ACGIH
Dermal LD50:	1.1E+4	mg/kg	RTECS
Gas Inhal LC50:	3.0E+3	ppm	RTECS
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	2.0E+1	µg/L	ECOTOX
Salt Ecol LC50:	6.9E+3	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:	3.2E+3	days	CHEMFATE
Volatility:	9.3E+1	days	THOMAS
Photolysis:	4.9E-2	days	CHEMFATE
Biodeg:	1.5E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:	3.2E+3	days	CHEMFATE
Volatility:	1.0E+0	days	THOMAS
Photolysis:	4.9E-2	days	CHEMFATE
Biodeg:	1.5E+2	days	FATERATE
Radio:		days	
Log Kow:	2.8E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	No	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	1.1E+2	
Density:	1.1E+0	g/mL @ 20.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	1.2E+1	Torr	CHEMFATE
Henry's Law:	3.7E-3	atm-m3/mol	CHEMFATE
Water Solub:	4.7E+2	mg/L	CHEMFATE
Distrib Coef:	4.4E-1	ml/g	SSG_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:	4.2E+3		ECOTOX
Salt BCF:			
Log Kow:	2.8E+0		CHEMFATE
Water Solub:	4.7E+2		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	-4.5E+1	C
Boiling Point:	1.3E+2	C
Formula:	C6 H5 Cl	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000108-90-7 Name: CHLOROBENZENE

```
**********************************************************************
MELT    CHLOROBENZENE                                        CAS#   108-90-7
  Melting Point  :  -45.58      DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      CHLOROBENZENE                                        CAS#   108-90-7
  Vapor Pressure :  11.97       MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1985)
**********************************************************************


   DAUBERT,TE & DANNER,RP (1985)
   DAUBERT,T.E.; DANNER,R.P.; DATA COMPILATION TABLES OF PROPERTIES OF PURE
   COMPOUNDS.;  AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. PP.450; 1985

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Phenol
CAS Number: 000108-95-2

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	3.0E-1	mg/kg/day	IRIS
Inhal RfD:		mg/kg/day	
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	5.3E+2	mg/kg	ACGIH
Dermal LD50:	6.3E+2	mg/kg	RTECS
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	1.8E+0	µg/L	ECOTOX
Salt Ecol LC50:	1.0E+2	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.6E+2	days	THOMAS
Photolysis:	7.2E+0	days	FATERATE
Biodeg:	1.3E-1	days	CHEMFATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	7.2E+1	days	THOMAS
Photolysis:	7.2E+0	days	FATERATE
Biodeg:	1.3E-1	days	CHEMFATE
Radio:		days	
Log Kow:	1.5E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	No	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	9.4E+1	
Density:	1.1E+0	g/mL @ 45.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	2.8E-1	Torr	CHEMFATE
Henry's Law:	4.0E-7	atm-m3/mol	CHEMFATE
Water Solub:	8.3E+4	mg/L	CHEMFATE
Distrib Coef:	4.4E+0	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	3.9E+1		ECOTOX
Salt BCF:	8.8E+0		ECOTOX
ENVIRONMENTAL			
Fresh BCF:	5.3E+4		ECOTOX
Salt BCF:	8.8E+0		ECOTOX
Log Kow:	1.5E+0		CHEMFATE
Water Solub:	8.3E+4		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	4.1E+1	C
Boiling Point:	1.8E+2	C
Formula:	C6 H6 O	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000108-95-2 Name: PHENOL

```
**********************************************************************
MELT    PHENOL                                              CAS#   108-95-2
  Melting Point  :  40.90       DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      PHENOL                                              CAS#   108-95-2
  Vapor Pressure :  0.35        MM HG       MEAS
  Temperature (C):  25
  Abbrev. Ref.   :  JONES,AH (1960)
**********************************************************************

VP      PHENOL                                              CAS#   108-95-2
  Vapor Pressure :  0.276       MM HG       CALC
  Temperature (C):  25
  Remarks        :  EXTRAPOLATED FROM DATA OBTAINED FROM THE SUPERCOOLED LIQUI
                    IN THE RANGE 107-181 DEG C AND CONVERTED TO THE VAPOR
                    PRESSURE FOR THE SOLID MATERIAL. SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  OHE,S (1976)
**********************************************************************


   JONES,AH (1960)
   JONES,A.H.; SUBLIMATION-PRESSURE DATA FOR ORGANIC COMPOUNDS.; J. CHEM. ENG.
   DATA.; 5:196-200.; 1960

   OHE,S (1976)
   OHE,S.; COMPUTER AIDED DATA BOOK OF VAPOR PRESSURE.;  DATA BOOK PUBL. CO.,
   TOKYO, JAPAN.; 1976

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Trichlorobenzene, 1,2,4-
CAS Number: 000120-82-1

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	1.0E-2	mg/kg/day	IRIS
Inhal RfD:	5.7E-2	mg/kg/day	HEAST
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	3.0E+2	mg/kg	ACGIH
Dermal LD50:	6.1E+3	mg/kg	ACGIH
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	7.6E+2	µg/L	ECOTOX
Salt Ecol LC50:	8.0E+1	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:	1.2E+3	days	CHEMFATE
Volatility:	1.2E+2	days	THOMAS
Photolysis:		days	
Biodeg:	1.8E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:	1.2E+3	days	CHEMFATE
Volatility:	1.3E+0	days	THOMAS
Photolysis:		days	
Biodeg:	1.8E+2	days	FATERATE
Radio:		days	
Log Kow:	4.0E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	No	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	1.8E+2	
Density:	1.5E+0	g/mL @ 25.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	4.3E-1	Torr	CHEMFATE
Henry's Law:	1.4E-3	atm-m3/mol	CHEMFATE
Water Solub:	3.5E+1	mg/L	LIVECHEM
Distrib Coef:	3.6E+0	ml/g	SSG_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	5.6E+3		ECOTOX
Salt BCF:	2.6E+2		ECOTOX
ENVIRONMENTAL			
Fresh BCF:	5.6E+3		ECOTOX
Salt BCF:	2.6E+2		ECOTOX
Log Kow:	4.0E+0		CHEMFATE
Water Solub:	3.5E+1		LIVECHEM
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	1.7E+1	C
Boiling Point:	2.1E+2	C
Formula:	C6 H3 Cl3	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000120-82-1 Name: 1,2,4-TRICHLOROBENZENE

```
**********************************************************************
MELT    1,2,4-TRICHLOROBENZENE                              CAS#   120-82-1
  Melting Point  :  17          DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  MERCK INDEX (1983)
**********************************************************************

VP      1,2,4-TRICHLOROBENZENE                              CAS#   120-82-1
  Vapor Pressure :  .42E 00     TORR        MEASURED
  Temperature (C):  25.
  Abbrev. Ref.   :  US EPA (1981)
**********************************************************************

VP      1,2,4-TRICHLOROBENZENE                              CAS#   120-82-1
  Vapor Pressure :  0.29        MM HG       MEAS
  Temperature (C):  25
  Abbrev. Ref.   :  SEARS,GW & HOPKE,ER (1949A)
**********************************************************************

VP      1,2,4-TRICHLOROBENZENE                              CAS#   120-82-1
  Vapor Pressure :  0.4305      MM HG       MEAS
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************


   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989

   MERCK INDEX (1983)
   MERCK INDEX.; THE MERCK INDEX. AN ENCYCLOPEDIA OF CHEMICALS AND DRUGS 10TH
   ED.;  WINDHOLZ,M ED. RAHWAY, N.J.: MERCK AND CO., INC.; 1983

   SEARS,GW & HOPKE,ER (1949A)
   SEARS,G.W.; HOPKE,E.R.; VAPOR PRESSURE OF THE ISOMERIC TRICHLOROBENZENES IN
   THE LOW-PRESSURE REGION.; J. AM. CHEM. SOC.; 71:2575-6; 1949A

   US EPA (1981)
   U.S. EPA; TREATABILITY MANUAL I. TREATABILITY DATA.;  EPA-600/2-82-001A.
   WASHINGTON,DC: U.S. EPA.; 1981
```

End of Search

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Dichlorophenol, 2,4-
CAS Number: 000120-83-2

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	3.0E-3	mg/kg/day	IRIS
Inhal RfD:		mg/kg/day	
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	1.3E+3	mg/kg	RTECS
Dermal LD50:	3.2E+3	mg/kg	RTECS
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	2.6E+0	µg/L	ECOTOX
Salt Ecol LC50:	5.1E+3	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.2E+2	days	THOMAS
Photolysis:	1.3E-1	days	FATERATE
Biodeg:	6.0E+0	days	CHEMFATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	6.9E+0	days	THOMAS
Photolysis:	1.3E-1	days	FATERATE
Biodeg:	6.0E+0	days	CHEMFATE
Radio:		days	
Log Kow:	2.9E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	Yes		
Particulate:	Yes		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	1.6E+2		
Density:		g/mL @	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	6.7E-2	Torr	CHEMFATE
Henry's Law:	3.2E-6	atm-m3/mol	CHEMFATE
Water Solub:	4.5E+3	mg/L	CHEMFATE
Distrib Coef:	2.9E-1	ml/g	RTI_ION
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:	9.8E+2		ECOTOX
Salt BCF:			
Log Kow:	2.9E+0		CHEMFATE
Water Solub:	4.5E+3		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	4.5E+1	C
Boiling Point:	2.1E+2	C
Formula:	C6 H4 Cl2 O	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000120-83-2 Name: 2,4-DICHLOROPHENOL

```
**************************************************************************
MELT    2,4-DICHLOROPHENOL                                    CAS#   120-83-2
  Melting Point  :  42-43       DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  ALDRICH (1988)
**************************************************************************

VP      2,4-DICHLOROPHENOL                                    CAS#   120-83-2
  Vapor Pressure :  .12E 00     TORR        CALCULATED
  Temperature (C):  20.
  Abbrev. Ref.   :  US EPA (1981)
**************************************************************************

VP      2,4-DICHLOROPHENOL                                    CAS#   120-83-2
  Vapor Pressure :  0.067       MM HG
  Temperature (C):  25
  Remarks        :  THIS VALUE IS FOR THE SOLID WHICH HAS CONVERTED FROM THE
                    MEASURED SUPERCOOLED LIQUID-PHASE OF 15.4 PA @ 25 DEG C, S
                    RSCOMMENDED VALUE
  Abbrev. Ref.   :  BIDLEMAN,TF & RENBERG,L (1985)
**************************************************************************


   ALDRICH (1988)
   ALDRICH.; CATALOG HANDBOOK OF FINE CHEMICALS 1988-1989;  MILWAUKEE, WI:
   ALDRICH CHEM CO.; 1988

   BIDLEMAN,TF & RENBERG,L (1985)
   BIDLEMAN,T.F.; RENBERG,L.; DETERMINATION OF VAPOR PRESSURES FOR
   CHLOROGUAIACOLS, CHLOROVERATROLES, AND NONYLPHENOL BY GAS CHROMATOGRAPHY.;
   CHEMOSPHERE; 14:1475-81; 1985

   US EPA (1981)
   U.S. EPA; TREATABILITY MANUAL I. TREATABILITY DATA.;  EPA-600/2-82-001A.
   WASHINGTON,DC: U.S. EPA.; 1981

End of Search
```

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CHEMFATE Search Results

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CAS #: 000121-14-2 Name: 2,4-DINITROTOLUENE

```
**********************************************************************
MELT    2,4-DINITROTOLUENE                                  CAS#   121-14-2
  Melting Point   :  67-70       DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  ALDRICH (1988)
**********************************************************************

VP      2,4-DINITROTOLUENE                                  CAS#   121-14-2
  Vapor Pressure :  .1298E-02   TORR        MEASURED
  Temperature (C):  58.8
  Remarks         :  KNUDSEN EFFUSION METHOD
  Abbrev. Ref.    :  LENCHITZ,C & VELICKY,RW (1970)
**********************************************************************

VP      2,4-DINITROTOLUENE                                  CAS#   121-14-2
  Vapor Pressure :  1.47E-4     MM HG
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  PELLA,PA (1977)
**********************************************************************
```

ALDRICH (1988)
ALDRICH.; CATALOG HANDBOOK OF FINE CHEMICALS 1988-1989; MILWAUKEE, WI:
ALDRICH CHEM CO.; 1988

LENCHITZ,C & VELICKY,RW (1970)
LENCHITZ,C.; VELICKY,R.W.; VAPOR PRESSURE AND HEAT OF SUBLIMATION OF THREE
NITROTOLUENES.; J. CHEM. ENG. DATA.; 15:401-3.; 1970

PELLA,PA (1977)
PELLA,P.A.; MEASUREMENT OF THE VAPOR PRESSURES OF TNT, 2,4-DNT, AND EGDN.;
CHEM. THERMODYN.; 9:301-5.; 1977

End of Search

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000135-98-8
Chem Name  : SEC-BUTYLBENZENE
Mol Formula: C10H14
Mol Weight : 134.22
Melting Pt : -82.7 deg C
Boiling Pt : 173.5 deg C
Water Solubility:
   Value : 17.6 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 4.57
   Type  : EXP
   Ref   : SHERBLOM,PM & EGANHOUSE,RP (1988)
Vapor Pressure:
   Value : 1.75 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : YAWS,CL (1994B)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.0176 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : VP/WSOL
Atmospheric OH Rate Constant:
   Value : 8.5E-012 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 025551-13-7
Chem Name  : TRIMETHYLBENZENES
Mol Formula: C27H36
Mol Weight : 360.59
Melting Pt :
Boiling Pt :
Water Solubility:
   Value : 75 mg/L
   Temp  : 25 deg C
   Type  : EXT
   Ref   : MACKAY,D & SHIU,WY (1981); isomer avg
Log P (octanol-water):
   Value : 3.63
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1995)
Vapor Pressure:
   Value : 2.1 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : BANERJEE,S ET AL. (1990)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.00724 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 3.51E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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CHEMFATE Search Results

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CAS #: 000051-28-5 Name: 2,4-DINITROPHENOL

```
**************************************************************************
MELT    2,4-DINITROPHENOL                                       CAS#    51-28-5
  Melting Point   :  112-114     DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  MERCK INDEX (1983)
**************************************************************************

VP      2,4-DINITROPHENOL                                       CAS#    51-28-5
  Vapor Pressure :  5.1E-3       MM HG
  Temperature (C):  20
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  SCHWARZENBACH,RP ET AL. (1988)
**************************************************************************
```

MERCK INDEX (1983)
MERCK INDEX.; THE MERCK INDEX. AN ENCYCLOPEDIA OF CHEMICALS AND DRUGS 10TH ED.; WINDHOLZ,M ED. RAHWAY, N.J.: MERCK AND CO., INC.; 1983

SCHWARZENBACH,RP ET AL. (1988)
SCHWARZENBACH,R.P.; STIERLI,R.; FOLSOM,B.R.; ZEYER,J.; COMPOUND PROPERTIES RELEVANT FOR ASSESSING THE ENVIRONMENTAL PARTITIONING OF NITROPHENOLS.; ENVIRON. SCI. TECHNOL.; 22:83-92; 1988

End of Search

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000528-29-0
Chem Name  : O-DINITROBENZENE
Mol Formula: C6H4N2O4
Mol Weight : 168.11
Melting Pt : 118.5 deg C
Boiling Pt : 318 deg C
Water Solubility:
   Value : 133 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 1.69
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 4.55E-005 mm Hg
   Temp  : 25 deg C
   Type  : EXT
   Ref   : YAWS,CL (1994A)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 5.33E-008 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : VP/WSOL
Atmospheric OH Rate Constant:
   Value : 2.13E-014 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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CHEMFATE Search Results

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CAS #: 000534-52-1 Name: 4,6-DINITRO-0-CRESOL

```
**********************************************************************
MELT    4,6-DINITRO-0-CRESOL                                  CAS#   534-52-1
  Melting Point   :  84-86       DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  SCHWARZENBACH,RP ET AL. (1988)
**********************************************************************

VP      4,6-DINITRO-0-CRESOL                                  CAS#   534-52-1
  Vapor Pressure :  3.24E-4     MM HG
  Temperature (C):  20
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  SCHWARZENBACH,RP ET AL. (1988)
**********************************************************************
```

SCHWARZENBACH,RP ET AL. (1988)
SCHWARZENBACH,R.P.; STIERLI,R.; FOLSOM,B.R.; ZEYER,J.; COMPOUND PROPERTIES RELEVANT FOR ASSESSING THE ENVIRONMENTAL PARTITIONING OF NITROPHENOLS.; ENVIRON. SCI. TECHNOL.; 22:83-92; 1988

End of Search

CHEMFATE Search Results

Return to EFDB page

CAS #: 000541-73-1 Name: 1,3-DICHLOROBENZENE

```
**********************************************************************
MELT    1,3-DICHLOROBENZENE                                  CAS#   541-73-1
  Melting Point  :  -24.76      DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      1,3-DICHLOROBENZENE                                  CAS#   541-73-1
  Vapor Pressure :  2.15        MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1985)
**********************************************************************


   DAUBERT,TE & DANNER,RP (1985)
   DAUBERT,T.E.; DANNER,R.P.; DATA COMPILATION TABLES OF PROPERTIES OF PURE
   COMPOUNDS.;  AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. PP.450; 1985

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

End of Search
```

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CHEMFATE Search Results

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CAS #: 000606-20-2 Name: 2,6-DINITROTOLUENE

```
**********************************************************************
MELT    2,6-DINITROTOLUENE                                  CAS#   606-20-2
  Melting Point  :  71          DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  WEAST,RC ET AL. (1985)
**********************************************************************

VP      2,6-DINITROTOLUENE                                  CAS#   606-20-2
  Vapor Pressure :  .35E-03     TORR        MEASURED
  Temperature (C):  20.
  Abbrev. Ref.   :  SPANGGORD,RJ ET AL. (1980)
**********************************************************************

VP      2,6-DINITROTOLUENE                                  CAS#   606-20-2
  Vapor Pressure :  5.67E-4     MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  PELLA,PA (1977)
**********************************************************************


   PELLA,PA (1977)
   PELLA,P.A.; MEASUREMENT OF THE VAPOR PRESSURES OF TNT, 2,4-DNT, AND EGDN.;
   CHEM. THERMODYN.; 9:301-5.; 1977

   SPANGGORD,RJ ET AL. (1980)
   SPANGGORD,R.J.; MILL,T.; CHOU,T.W.; MABEY,W.R.; SMITH,J.H.; LEE,S.;
   ENVIRONMENTAL FATE STUDIES ON CERTAIN MUNITIONS WASTEWATER CONSTITUENTS.
   FINAL REPORT, PHASE I - LITERATURE REVIEW.;  SRI PROJECT NO. LSU-7934.
   CONTRACT NO. DAMD 17-78-C-8081. FORT DETRICK,MD: U.S. ARMY MEDICAL RES. &
   DEVELOP. COMMAND.; 1980

   WEAST,RC ET AL. (1985)
   WEAST,R.C.; ASTLE,M.J.; BEYER,W.H.; CRC HANDBOOK OF CHEMISTRY AND PHYSICS
   66TH ED;  CRC PRESS; BOCA RATON, FLA; 1985

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Aniline
CAS Number: 000062-53-3

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:	2.9E-4	mg/kg/day	IRIS
Oral Slope:	5.7E-3	(mg/kg/day)^-1	IRIS
Oral Wt-of-Evid:	B2		
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	4.4E+2	mg/kg	ACGIH
Dermal LD50:	8.4E+2	mg/kg	RTECS
Gas Inhal LC50:	1.8E+2	ppm	RTECS
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	2.5E+1	µg/L	ECOTOX
Salt Ecol LC50:	2.9E+4	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	9.7E+1	days	THOMAS
Photolysis:	2.6E+0	days	CHEMFATE
Biodeg:		days	
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	1.3E+1	days	THOMAS
Photolysis:	2.6E+0	days	CHEMFATE
Biodeg:		days	
Radio:		days	
Log Kow:	9.0E-1		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	Yes		
Particulate:	No		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	9.3E+1		
Density:	1.0E+0	g/mL @ 20.00	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	4.9E-1	Torr	CHEMFATE
Henry's Law:	1.9E-6	atm-m3/mol	CHEMFATE
Water Solub:	3.6E+4	mg/L	CHEMFATE
Distrib Coef:	1.2E+0	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	2.0E+1		ECOTOX
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:	2.8E+2		ECOTOX
Salt BCF:			
Log Kow:	9.0E-1		CHEMFATE
Water Solub:	3.6E+4		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	-6.0E+0	C
Boiling Point:	1.8E+2	C
Formula:	C6H7N	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000062-53-3 Name: ANILINE

```
**********************************************************************
MELT    ANILINE                                              CAS#    62-53-3
  Melting Point  :  -5.98       DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      ANILINE                                              CAS#    62-53-3
  Vapor Pressure :  0.49        MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1985)
**********************************************************************
```

DAUBERT,TE & DANNER,RP (1985)
DAUBERT,T.E.; DANNER,R.P.; DATA COMPILATION TABLES OF PROPERTIES OF PURE COMPOUNDS.; AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. PP.450; 1985

RIDDICK,JA ET AL. (1986)
RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI AND METHODS OF PURIFICATION.; TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY WILEY-INTERSCIENCE. 2:PP.1325; 1986

End of Search

CHEMFATE Search Results

Return to EFDB page

CAS #: 000823-40-5 Name: 2,6-DIAMINOTOLUENE

```
**********************************************************************
MELT    2,6-DIAMINOTOLUENE                                  CAS#   823-40-5
  Melting Point   :  105          DEG C
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  MILLIGAN,B & GILBERT,KE (1978)
**********************************************************************

VP      2,6-DIAMINOTOLUENE                                  CAS#   823-40-5
  Vapor Pressure :  2.46E-3      MM HG
  Temperature (C):  25
  Remarks         :  EXTRAPOLATED BY ANTOINES EQUATION WITH 3 DATA POINTS BETWE
                     150 AND 180 DEG C, SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  MILLIGAN,B & GILBERT,KE (1978)
**********************************************************************


   MILLIGAN,B & GILBERT,KE (1978)
   MILLIGAN,B.; GILBERT,K.E.; DIAMINOTOLUENES;  IN:KIRK-OTHMER ENCYCLO CHEM TE
   3RD ED NY,NY: WILEY INTERSCI 2:321-9; 1978

End of Search
```

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CHEMFATE Search Results

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CAS #: 000087-61-6 Name: 1,2,3-TRICHLOROBENZENE

```
**********************************************************************
MELT    1,2,3-TRICHLOROBENZENE                              CAS#    87-61-6
  Melting Point   :  52.6        DEG C
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  MERCK INDEX (1983)
**********************************************************************

VP      1,2,3-TRICHLOROBENZENE                              CAS#    87-61-6
  Vapor Pressure :  0.210       MM HG
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  MACKAY,D ET AL. (1982)
**********************************************************************
```

MACKAY,D ET AL. (1982)
MACKAY,D.; BOBRA,A.; CHAN,D.W.; SHIU,W.Y.; VAPOR PRESSURE CORRELATIONS FOR LOW-VOLATILITY ENVIRONMENTAL CHEMICALS.; ENVIRON. SCI. TECHNOL.; 16:645-9.; 1982

MERCK INDEX (1983)
MERCK INDEX.; THE MERCK INDEX. AN ENCYCLOPEDIA OF CHEMICALS AND DRUGS 10TH ED.; WINDHOLZ,M ED. RAHWAY, N.J.: MERCK AND CO., INC.; 1983

End of Search

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Trichlorophenol, 2,4,6-
CAS Number: 000088-06-2

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:		mg/kg/day	
Oral Slope:	1.1E-2	(mg/kg/day)^-1	IRIS
Oral Wt-of-Evid:	B2		
Inhal Slope:	1.1E-2	(mg/kg/day)^-1	IRIS
Inhal Wt-of-Evid:	B2		
Oral ED10:	1.3E+1	mg/kg/day	EPA_ED10
Oral ED10 Wgt:	B2		
Inhal ED10:	1.3E+1	mg/kg/day	EPA_ED10
Inhal ED10 Wgt:	B2		
Oral LD50:	8.2E+2	mg/kg	RTECS
Dermal LD50:		mg/kg	
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	1.0E+2	µg/L	ECOTOX
Salt Ecol LC50:	1.1E+3	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:	1.5E+4	days	CHEMFATE
Volatility:	1.4E+2	days	THOMAS
Photolysis:	4.0E+0	days	FATERATE
Biodeg:	7.0E+1	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:	1.5E+4	days	CHEMFATE
Volatility:	1.5E+1	days	THOMAS
Photolysis:	4.0E+0	days	FATERATE
Biodeg:	7.0E+1	days	FATERATE
Radio:		days	
Log Kow:	3.7E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	Yes	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	2.0E+2	
Density:	1.5E+0	g/mL @ 75.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	2.4E-2	Torr	CHEMFATE
Henry's Law:	7.8E-6	atm-m3/mol	CHEMFATE
Water Solub:	8.0E+2	mg/L	CHEMFATE
Distrib Coef:	7.6E-1	ml/g	RTI_ION
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	1.1E+3		ECOTOX
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:	1.2E+4		ECOTOX
Salt BCF:			
Log Kow:	3.7E+0		CHEMFATE
Water Solub:	8.0E+2		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	6.9E+1	C
Boiling Point:	2.5E+2	C
Formula:	C6 H3 Cl3 O	

CLASS INFORMATION

Class	Parent Substance

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CAS #: 000088-06-2 Name: 2,4,6-TRICHLOROPHENOL

```
**********************************************************************
VP      2,4,6-TRICHLOROPHENOL                                CAS#    88-06-2
  Vapor Pressure :  .3E-01      TORR        MEASURED
  Temperature (C):  25.
  Remarks        :  FROM JORDAN,T.E. (1954)
  Abbrev. Ref.   :  KILZER,L ET AL. (1979)
**********************************************************************

VP      2,4,6-TRICHLOROPHENOL                                CAS#    88-06-2
  Vapor Pressure :  0.024       MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  BIDLEMAN,TF & RENBERG,L (1985)
**********************************************************************


   BIDLEMAN,TF & RENBERG,L (1985)
   BIDLEMAN,T.F.; RENBERG,L.; DETERMINATION OF VAPOR PRESSURES FOR
   CHLOROGUAIACOLS, CHLOROVERATROLES, AND NONYLPHENOL BY GAS CHROMATOGRAPHY.;
   CHEMOSPHERE; 14:1475-81; 1985

   KILZER,L ET AL. (1979)
   KILZER,L.; SCHEUNERT,I.; GEYER,H.; KLEIN,W.; KORTE,F.; LABORATORY SCREENING
   OF THE VOLATILIZATION RATES OF ORGANIC CHEMICALS FROM WATER AND SOIL.;
   CHEMOSPHERE.; 8:751-61.; 1979

End of Search
```

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000088-74-4
Chem Name  : 2-NITROANILINE
Mol Formula: C6H6N2O2
Mol Weight : 138.13
Melting Pt : 71.2 deg C
Boiling Pt : 284 deg C
Water Solubility:
   Value : 1470 mg/L
   Temp  : 30 deg C
   Type  : EXP
   Ref   : GROSS,PM ET AL. (1933)
Log P (octanol-water):
   Value : 1.85
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 0.00277 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : DAUBERT,TE & DANNER,RP (1989)
pKa Dissociation Constant:
   Value : -0.28
   Temp  : 25 deg C
   Type  : EXP
   Ref   : DEAN,JA (1985)
Henry's Law Constant:
   Value : 5.9E-008 atm-m3/mole
   Temp  : 25 deg C
   Type  : EXP
   Ref   : ALTSCHUH,J ET AL. (1999)
Atmospheric OH Rate Constant:
   Value : 1.35E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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CAS #: 000088-74-4 Name: 2-NITROANILINE

```
**********************************************************************
VP      2-NITROANILINE                                    CAS#    88-74-4
  Vapor Pressure :  8.78E-4     MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  FERRO,D & PIACENTE,V (1985)
**********************************************************************


   FERRO,D & PIACENTE,V (1985)
   FERRO,D.; PIACENTE,V.; HEAT OF VAPORIZATION OF 0-, M-, P-NITROANILINE.;
   THERMOCHIM. ACTA; 90:387-9; 1985

End of Search
```

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000088-75-5
Chem Name  : 2-NITROPHENOL
Mol Formula: C6H5NO3
Mol Weight : 139.11
Melting Pt : 44.8 deg C
Boiling Pt : 216 deg C
Water Solubility:
   Value : 2500 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 1.79
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 0.113 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : SCALA,AJ & BANERJEE,S (1982)
pKa Dissociation Constant:
   Value : 7.23
   Temp  : 25 deg C
   Type  : EXP
   Ref   : SERJEANT,EP & DEMPSEY,B (1979)
Henry's Law Constant:
   Value : 1.28E-005 atm-m3/mole
   Temp  : 20 deg C
   Type  : EXP
   Ref   : TREMP,J ET AL. (1993)
Atmospheric OH Rate Constant:
   Value : 9E-013 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EXP
   Ref   : ATKINSON,R (1989)
```

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CAS #: 000088-75-5 Name: 2-NITROPHENOL

```
**********************************************************************
VP      2-NITROPHENOL                                        CAS#    88-75-5
  Vapor Pressure :  .1E 01      TORR        MEASURED
  Temperature (C):  49.3
  Abbrev. Ref.    :  HOWARD,PH ET AL. (1976)
**********************************************************************

VP      2-NITROPHENOL                                        CAS#    88-75-5
  Vapor Pressure :  0.113       MM HG
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  SCALA,AJ & BANERJEE,S (1982)
**********************************************************************


   HOWARD,PH ET AL. (1976)
   HOWARD,P.H.; SANTODONATO,J.; SAXENA,J.; MALLING,J.; GRENINGER,D.;
   INVESTIGATION OF SELECTED POTENTIAL ENVIRONMENTAL CONTAMINANTS:
   NITROAROMATICS (DRAFT).;  EPA-560/2-76-010. RESEARCH TRIANGLE PARK,NC: U.S.
   EPA. PP.600.; 1976

   SCALA,AJ & BANERJEE,S (1982)
   SCALA,A.J.; BANERJEE,S.; VAPOR PRESSURE INTERLABORATORY REPORT.;
   SYRACUSE,NY: SYRACUSE RESEARCH CORPORATION. FINAL REPORT FOR NATIONAL BUREA
   OF STANDARDS. 8 PP. AND APPENDICES.; 1982

End of Search
```

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000095-48-7 Name: O-CRESOL

```
**************************************************************************
MELT    O-CRESOL                                              CAS#    95-48-7
  Melting Point  :  30.944      DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**************************************************************************

VP      O-CRESOL                                              CAS#    95-48-7
  Vapor Pressure :  0.299       MM HG
  Temperature (C):  25
  Remarks        :  EXTRAPOLATED FROM DATA BEGINNING AT 31 DEG C, SRC
                    RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1985)
**************************************************************************


   DAUBERT,TE & DANNER,RP (1985)
   DAUBERT,T.E.; DANNER,R.P.; DATA COMPILATION TABLES OF PROPERTIES OF PURE
   COMPOUNDS.;  AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. PP.450; 1985

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

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```

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CHEMFATE Search Results

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CAS #: 000095-49-8 Name: O-CHLOROTOLUENE

```
**********************************************************************
MELT     O-CHLOROTOLUENE                                    CAS#     95-49-8
  Melting Point   :  -35.59       DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  MERCK INDEX (1983)
**********************************************************************

VP       O-CHLOROTOLUENE                                    CAS#     95-49-8
  Vapor Pressure :  3.43         MM HG
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  DAUBERT,TE & DANNER,RP (1985)
**********************************************************************


   DAUBERT,TE & DANNER,RP (1985)
   DAUBERT,T.E.; DANNER,R.P.; DATA COMPILATION TABLES OF PROPERTIES OF PURE
   COMPOUNDS.;  AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. PP.450; 1985

   MERCK INDEX (1983)
   MERCK INDEX.; THE MERCK INDEX. AN ENCYCLOPEDIA OF CHEMICALS AND DRUGS 10TH
   ED.;  WINDHOLZ,M ED. RAHWAY, N.J.: MERCK AND CO., INC.; 1983

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```

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CHEMFATE Search Results

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CAS #: 000095-50-1 Name: O-DICHLOROBENZENE

```
**********************************************************************
MELT    O-DICHLOROBENZENE                                    CAS#    95-50-1
  Melting Point  :  -17.01      DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      O-DICHLOROBENZENE                                    CAS#    95-50-1
  Vapor Pressure :  1.47        MM HG       MEAS
  Temperature (C):  25
  Abbrev. Ref.   :  MACKAY,D ET AL. (1982)
**********************************************************************

VP      O-DICHLOROBENZENE                                    CAS#    95-50-1
  Vapor Pressure :  1.360E+00   MM HG       MEASURED
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************


   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989

   MACKAY,D ET AL. (1982)
   MACKAY,D.; BOBRA,A.; CHAN,D.W.; SHIU,W.Y.; VAPOR PRESSURE CORRELATIONS FOR
   LOW-VOLATILITY ENVIRONMENTAL CHEMICALS.; ENVIRON. SCI. TECHNOL.; 16:645-9.;
   1982

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

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```

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CHEMFATE Search Results

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CAS #: 000095-53-4 Name: O-TOLUIDINE

```
**********************************************************************
MELT    O-TOLUIDINE                                          CAS#    95-53-4
  Melting Point  :  -16.10      DEGC
  Remarks        :  STABLE VALUE, SRC RECOMMENDED VALUE, METASTABLE VALUE IS
                    -24.5 DEG C
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      O-TOLUIDINE                                          CAS#    95-53-4
  Vapor Pressure :  .5704E 02   .12376E 03  .76000E 03  TORR        MEASURED
  Temperature (C):  118.460     139.000     200.300
  Abbrev. Ref.   :  BOUBLIK,T ET AL. (1973)
**********************************************************************

VP      O-TOLUIDINE                                          CAS#    95-53-4
  Vapor Pressure :  .31703E 00  TORR        MEASURED
  Temperature (C):  25.
  Abbrev. Ref.   :  DREISBACH,RR (1955)
**********************************************************************

VP      O-TOLUIDINE                                          CAS#    95-53-4
  Vapor Pressure :  0.32        MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  CHAO,J ET AL. (1983)
**********************************************************************

VP      O-TOLUIDINE                                          CAS#    95-53-4
  Vapor Pressure :  2.600E-01   MM HG       MEASURED
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************


   BOUBLIK,T ET AL. (1973)
   BOUBLIK,T.; FRIED,V.; HALA,E.;  THE VAPOUR PRESSURES OF PURE SUBSTANCES.; N
   YORK, NY: ELSEVIER SCIENTIFIC PUB. CO. 626 PP.; 1973

   CHAO,J ET AL. (1983)
   CHAO,J.; LIN,C.T.; CHUNG,T.H.; VAPOR PRESSURE OF COAL CHEMICALS.; J. PHYS.
   CHEM. REF. DATA.; 12:1033-63.; 1983

   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
```

CHEMICALS: DATA COMPILATION.; DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA, AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK, NY., 4 VOL.; 1989

DREISBACH,RR (1955)
DREISBACH,R.R.; PHYSICAL PROPERTIES OF CHEMICAL COMPOUNDS. I.; ADVANCES IN CHEMISTRY SERIES NO. 15.; WASHINGTON, DC: AMERICAN CHEMICAL SOCIETY.; 1955

RIDDICK,JA ET AL. (1986)
RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI AND METHODS OF PURIFICATION.; TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY WILEY-INTERSCIENCE. 2:PP.1325; 1986

End of Search

Data From SRC PhysProp Database:

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References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000095-57-8
Chem Name  : 2-CHLOROPHENOL
Mol Formula: C6H5ClO
Mol Weight : 128.56
Melting Pt : 9.8 deg C
Boiling Pt : 174.9 deg C
Water Solubility:
   Value : 1.13E+004 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : BANERJEE,S ET AL. (1980)
Log P (octanol-water):
   Value : 2.15
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 2.53 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : DAUBERT,TE & DANNER,RP (1991)
pKa Dissociation Constant:
   Value : 8.56
   Temp  :
   Type  : EXP
   Ref   : SERJEANT,EP & DEMPSEY,B (1979)
Henry's Law Constant:
   Value : 1.12E-005 atm-m3/mole
   Temp  : 25 deg C
   Type  : EXP
   Ref   : ABRAHAM,MH ET AL. (1994)
Atmospheric OH Rate Constant:
   Value : 9.87E-012 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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CAS #: 000095-57-8 Name: 2-CHLOROPHENOL

```
**********************************************************************
VP      2-CHLOROPHENOL                                    CAS#    95-57-8
  Vapor Pressure :  .2340E+01   TORR        MEASURED
  Temperature (C):  25.
  Abbrev. Ref.    :  ISHOW (NA--)
**********************************************************************


   ISHOW (NA--)
   ISHOW.; INFORMATION SYSTEM FOR HAZARDOUS ORGANICS IN WATER.;  DULUTH, MN:
   DEPT. OF CHEM., UNIV. OF MINNESOTA.; NA--

End of Search
```

CHEMFATE Search Results

Return to EFDB page

CAS #: 000095-63-6 Name: 1,2,4-TRIMETHYLBENZENE

```
**********************************************************************
MELT    1,2,4-TRIMETHYLBENZENE                              CAS#    95-63-6
  Melting Point   :  -43.78      DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  MERCK INDEX (1983)
**********************************************************************

VP      1,2,4-TRIMETHYLBENZENE                              CAS#    95-63-6
  Vapor Pressure :  2.10        MM HG
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  CHAO,J ET AL. (1983)
**********************************************************************


   CHAO,J ET AL. (1983)
   CHAO,J.; LIN,C.T.; CHUNG,T.H.; VAPOR PRESSURE OF COAL CHEMICALS.; J. PHYS.
   CHEM. REF. DATA.; 12:1033-63.; 1983

   MERCK INDEX (1983)
   MERCK INDEX.; THE MERCK INDEX. AN ENCYCLOPEDIA OF CHEMICALS AND DRUGS 10TH
   ED.;  WINDHOLZ,M ED. RAHWAY, N.J.: MERCK AND CO., INC.; 1983

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```

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CAS #: 000095-95-4 Name: 2,4,5-TRICHLOROPHENOL

```
**********************************************************************
MELT    2,4,5-TRICHLOROPHENOL                                CAS#    95-95-4
  Melting Point   :  68          DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  FREITER,ER (1978A)
**********************************************************************

VP      2,4,5-TRICHLOROPHENOL                                CAS#    95-95-4
  Vapor Pressure :  0.02        MM HG
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  BIDLEMAN,TF & RENBERG,L (1985)
**********************************************************************


   BIDLEMAN,TF & RENBERG,L (1985)
   BIDLEMAN,T.F.; RENBERG,L.; DETERMINATION OF VAPOR PRESSURES FOR
   CHLOROGUAIACOLS, CHLOROVERATROLES, AND NONYLPHENOL BY GAS CHROMATOGRAPHY.;
   CHEMOSPHERE; 14:1475-81; 1985

   FREITER,ER (1978A)
   FREITER,E.R.; CHLOROPHENOLS.;  IN: KIRK-OTHMER ENCYCL. CHEM. TECH. 3RD NEW
   YORK,NY; WILEY INTERSCIENCE. 5:864-72; 1978A

End of Search
```

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000098-06-6
Chem Name  : T-BUTYLBENZENE
Mol Formula: C10H14
Mol Weight : 134.22
Melting Pt : -57.8 deg C
Boiling Pt : 169.1 deg C
Water Solubility:
   Value : 29.5 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 4.11
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 2.2 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : CHAO,J ET AL. (1983)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.0132 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : VP/WSOL
Atmospheric OH Rate Constant:
   Value : 4.6E-012 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EXP
   Ref   : ATKINSON,R (1989)
```

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CAS #: 000098-07-7 Name: BENZOTRICHLORIDE

```
**********************************************************************
MELT    BENZOTRICHLORIDE                                    CAS#    98-07-7
  Melting Point  :  -4.75       DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  GELFAND,S (1979)
**********************************************************************

VP      BENZOTRICHLORIDE                                    CAS#    98-07-7
  Vapor Pressure :  .98E 00     TORR        MEASURED
  Temperature (C):  45.8
  Abbrev. Ref.   :  GELFAND,S (1979)
**********************************************************************

VP      BENZOTRICHLORIDE                                    CAS#    98-07-7
  Vapor Pressure :  0.20        MM HG
  Temperature (C):  25
  Remarks        :  EXTRAPOLATED FROM DATA BEGINNING AT 45.8 DEG C
  Abbrev. Ref.   :  PERRY,RH & GREEN,D (1984)
**********************************************************************

VP      BENZOTRICHLORIDE                                    CAS#    98-07-7
  Vapor Pressure :  0.470       MM HG
  Remarks        :  EVALUATED DATABASE - SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************


   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989

   GELFAND,S (1979)
   GELFAND,S.; BENZYLCHLORIDE, BENZALCHLORIDE, AND BENZOTRICHLORIDE.;  IN:
   KIRK-OTHMER ENCYCL. CHEM. TECH. 3RD ED. 5:828-38.; 1979

   PERRY,RH & GREEN,D (1984)
   PERRY,R.H.; GREEN,D.; PERRY'S CHEMICAL HANDBOOK. PHYSICAL AND CHEMICAL DATA
    NEW YORK,NY: MCGRAW HILL. 6TH ED.; 1984

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Cumene
CAS Number: 000098-82-8

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	1.0E-1	mg/kg/day	IRIS
Inhal RfD:	1.1E-1	mg/kg/day	IRIS
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	1.4E+3	mg/kg	ACGIH
Dermal LD50:	3.2E+3	mg/kg	ACGIH
Gas Inhal LC50:	2.0E+3	ppm	ACGIH
Dust Inhal LC50:	8.3E+0	mg/L	RTECS
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	2.7E+3	µg/L	ECOTOX
Salt Ecol LC50:	1.1E+5	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	9.6E+1	days	THOMAS
Photolysis:		days	
Biodeg:	1.9E+1	days	CHEMFATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	1.0E+0	days	THOMAS
Photolysis:		days	
Biodeg:	1.9E+1	days	CHEMFATE
Radio:		days	
Log Kow:	3.7E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	No	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	1.2E+2	
Density:	8.6E-1	g/mL @ 20.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	4.5E+0	Torr	CHEMFATE
Henry's Law:	1.2E+0	atm-m3/mol	CHEMFATE
Water Solub:	6.1E+1	mg/L	CHEMFATE
Distrib Coef:	6.0E+2	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:			
Salt BCF:			
Log Kow:	3.7E+0		CHEMFATE
Water Solub:	6.1E+1		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	-9.6E+1	C
Boiling Point:	1.5E+2	C
Formula:	C9 H12	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000098-82-8 Name: CUMENE

```
**********************************************************************
MELT    CUMENE                                              CAS#    98-82-8
  Melting Point  :  -96.033     DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      CUMENE                                              CAS#    98-82-8
  Vapor Pressure :  .1694E+01   .4583E+01   .1099E+02   TORR        CALCULATED
  Temperature (C):  10.0        25.0        40.0
  Remarks        :  CALC FROM ANTOINE EQN
  Abbrev. Ref.   :  ZWOLINSKI,BJ & WILHOIT,RC (1971)
**********************************************************************

VP      CUMENE                                              CAS#    98-82-8
  Vapor Pressure :  4.50        MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1985)
**********************************************************************


   DAUBERT,TE & DANNER,RP (1985)
   DAUBERT,T.E.; DANNER,R.P.; DATA COMPILATION TABLES OF PROPERTIES OF PURE
   COMPOUNDS.;  AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. PP.450; 1985

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

   ZWOLINSKI,BJ & WILHOIT,RC (1971)
   ZWOLINSKI,B.J.; WILHOIT,R.C.; HANDBOOK OF VAPOR PRESSURES AND HEATS OF
   VAPORIZATON OF HYDROCARBONS AND RELATED COMPOUNDS.;  API44-TRC101. COLLEGE
   STATION,TX: THERMODYNAMCS RESEARCH CENTER.; 1971

End of Search
```

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 000098-83-9
Chem Name  : ALPHA-METHYLSTYRENE
Mol Formula: C9H10
Mol Weight : 118.18
Melting Pt : -23.2 deg C
Boiling Pt : 165.4 deg C
Water Solubility:
   Value : 116 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : YALKOWSKY,SH & DANNENFELSER,RM (1992)
Log P (octanol-water):
   Value : 3.48
   Type  : EXP
   Ref   : HANSCH,C ET AL. (1995)
Vapor Pressure:
   Value : 1.9 mm Hg
   Temp  : 25 deg C
   Type  : EXT
   Ref   : BOUBLIK,T ET AL. (1984)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.00255 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : VP/WSOL
Atmospheric OH Rate Constant:
   Value : 5.2E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EXP
   Ref   : ATKINSON,R (1989)
```

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CHEMFATE Search Results

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CAS #: 000098-83-9 Name: ALPHA-METHYLSTYRENE

```
**********************************************************************
VP      ALPHA-METHYLSTYRENE                                  CAS#    98-83-9
  Vapor Pressure :  .2500E 01   TORR        MEASURED
  Temperature (C):  25.
  Abbrev. Ref.   :  DREISBACH,RR (1955)
**********************************************************************

VP      ALPHA-METHYLSTYRENE                                  CAS#    98-83-9
  Vapor Pressure :  .290E 01    .2335E 02   .13275E 03  TORR        MEASURED
  Temperature (C):  32.010      70.200      112.350
  Abbrev. Ref.   :  BOUBLIK,T ET AL. (1973)
**********************************************************************

VP      ALPHA-METHYLSTYRENE                                  CAS#    98-83-9
  Vapor Pressure :  .1E 01      TORR        MEASURED
  Temperature (C):  7.4
  Abbrev. Ref.   :  DORIGAN,J ET AL. (1976)
**********************************************************************
```

BOUBLIK,T ET AL. (1973)
BOUBLIK,T.; FRIED,V.; HALA,E.; THE VAPOUR PRESSURES OF PURE SUBSTANCES.; N YORK, NY: ELSEVIER SCIENTIFIC PUB. CO. 626 PP.; 1973

DORIGAN,J ET AL. (1976)
DORIGAN,J.; FULLER,B.; DUFFY,R.; PRELIMINARY SCORING OF SELECTED ORGANIC AI POLLUTANTS. APPENDIX III-CHEMISTRY, PRODUCTION, AND TOXICITY OF CHEMICALS F THROUGH N.; EPA-450/3-77-008D. RESEARCH TRIANGLE PARK,NC: U.S. EPA. PP.303 1976

DREISBACH,RR (1955)
DREISBACH,R.R.; PHYSICAL PROPERTIES OF CHEMICAL COMPOUNDS. I.; ADVANCES IN CHEMISTRY SERIES NO. 15.; WASHINGTON, DC: AMERICAN CHEMICAL SOCIETY.; 1955

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000098-95-3 Name: NITROBENZENE

```
**********************************************************************
MELT    NITROBENZENE                                          CAS#    98-95-3
  Melting Point  :  5.76        DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      NITROBENZENE                                          CAS#    98-95-3
  Vapor Pressure :  0.245       MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1985)
**********************************************************************


   DAUBERT,TE & DANNER,RP (1985)
   DAUBERT,T.E.; DANNER,R.P.; DATA COMPILATION TABLES OF PROPERTIES OF PURE
   COMPOUNDS.;  AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. PP.450; 1985

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Dinitrobenzene, 1,3-
CAS Number: 000099-65-0

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	1.0E-4	mg/kg/day	IRIS
Inhal RfD:		mg/kg/day	
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	5.0E+0	mg/kg	ACGIH
Dermal LD50:	1.9E+3	mg/kg	RTECS
Gas Inhal LC50:		ppm	
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	1.2E+3	µg/L	ECOTOX
Salt Ecol LC50:		µg/L	

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	2.6E+2	days	THOMAS
Photolysis:	2.3E+1	days	CHEMFATE
Biodeg:	1.8E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	1.4E+2	days	THOMAS
Photolysis:	2.3E+1	days	CHEMFATE
Biodeg:	1.8E+2	days	FATERATE
Radio:		days	
Log Kow:	1.5E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	Yes	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	1.7E+2	
Density:	1.6E+0	g/mL @ 18.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	9.0E-4	Torr	CHEMFATE
Henry's Law:	2.3E-7	atm-m3/mol	CHEMFATE
Water Solub:	8.6E+2	mg/L	CHEMFATE
Distrib Coef:	4.4E+0	ml/g	DITOR_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:			
Salt BCF:			
Log Kow:	1.5E+0		CHEMFATE
Water Solub:	8.6E+2		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	9.0E+1	C
Boiling Point:	2.9E+2	C
Formula:	C6 H4 N2 O4	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000099-65-0 Name: 1,3-DINITROBENZENE

```
**********************************************************************************
MELT    1,3-DINITROBENZENE                                          CAS#    99-65-0
  Melting Point  :  89-90       DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  MERCK INDEX (1983)
**********************************************************************************

VP      1,3-DINITROBENZENE                                          CAS#    99-65-0
  Vapor Pressure :  9.0E-4      MM HG
  Temperature (C):  25
  Remarks        :  EXTRAPOLATED FROM EXPERIMENTAL DATA BETWEEN 252 - 294 DEG
                    AND CONVERTED TO THE SOLID PHASE (SRC,1988), SRC RECOMMEND
                    VALUE
  Abbrev. Ref.   :  MAKSIMOV,YY (1968)
**********************************************************************************


   MAKSIMOV,YY (1968)
   MAKSIMOV,Y.Y.; VAPOR PRESSURES OF AROMATIC NITRO COMPOUNDS AT VARIOUS
   TEMPERATURES.; ZH. FIZ. KHIM.; 42:2921-5.; 1968

   MERCK INDEX (1983)
   MERCK INDEX.; THE MERCK INDEX. AN ENCYCLOPEDIA OF CHEMICALS AND DRUGS 10TH
   ED.;  WINDHOLZ,M ED. RAHWAY, N.J.: MERCK AND CO., INC.; 1983

End of Search
```

WTP RISK ASSESSMENT WORK PLAN IDENTIFIED CONSTITUENTS OF POTENTIAL CONCERN (COPC) SUPPORT DATA

Metals (Metal)

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 007723-14-0
Chem Name  : PHOSPHORUS
Mol Formula: H3P
Mol Weight : 34.00
Melting Pt : 44.1 deg C
Boiling Pt : 280 deg C
Water Solubility:
   Value : 2.05E+005 mg/L
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM ET AL. (1996)
Log P (octanol-water):
   Value : -0.27
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1995)
Vapor Pressure:
   Value : 6.78E-009 mm Hg
   Temp  : 25 deg C
   Type  : EST
   Ref   : NEELY,WB & BLAU,GE (1985)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.0244 atm-m3/mole
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1991)
Atmospheric OH Rate Constant:
   Value : 0 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EST
   Ref   : MEYLAN,WM & HOWARD,PH (1993)
```

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WTP RISK ASSESSMENT WORK PLAN IDENTIFIED CONSTITUENTS OF POTENTIAL CONCERN (COPC) SUPPORT DATA

Non-aromatic Halogenated Hydrocarbons (NAHH)

Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 010061-01-5
Chem Name  : 1,3-DICHLOROPROPENE, (Z)
Mol Formula: C3H4Cl2
Mol Weight : 110.97
Melting Pt : -50 deg C
Boiling Pt : 104.3 deg C
Water Solubility:
   Value : 2180 mg/L
   Temp  : 20 deg C
   Type  : EXP
   Ref   : TOMLIN,C (1997)
Log P (octanol-water):
   Value : 2.06
   Type  : EXP
   Ref   : TOMLIN,C (1997)
Vapor Pressure:
   Value : 26.3 mm Hg
   Temp  : 20 deg C
   Type  : EXP
   Ref   : TOMLIN,C (1997)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.00271 atm-m3/mole
   Temp  : 20 deg C
   Type  : EXP
   Ref   : LEISTRA,M (1970)
Atmospheric OH Rate Constant:
   Value : 8.4E-012 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EXP
   Ref   : KWOK,ESC & ATKINSON,R (1994)
```

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Data From SRC PhysProp Database:

Abbreviations in the 'Type' field: EXP = Experimental Data, EST = Estimated Data, EXT = Extrapolated Data. Extrapolated data is based upon experimental measurement outside the temperature range of the reported value.
References below are abbreviated citations ... the full reference citations are NOT available here. References for Estimated data generally refer to the method used to make the estimate ... most estimates were made using SRC software.

```
CAS Number : 010061-02-6
Chem Name  : 1,3-DICHLOROPROPENE (TRANS)
Mol Formula: C3H4Cl2
Mol Weight : 110.97
Melting Pt :
Boiling Pt : 112 deg C
Water Solubility:
   Value : 2800 mg/L
   Temp  : 25 deg C
   Type  : EXP
   Ref   : VERSCHUEREN,K (2001)
Log P (octanol-water):
   Value : 2.03
   Type  : EXP
   Ref   : TOMLIN,C (1997)
Vapor Pressure:
   Value : 34 mm Hg
   Temp  : 25 deg C
   Type  : EXP
   Ref   : VERSCHUEREN,K (2001)
pKa Dissociation Constant:
   Value :
   Temp  :
   Type  :
   Ref   :
Henry's Law Constant:
   Value : 0.000871 atm-m3/mole
   Temp  : 20 deg C
   Type  : EXP
   Ref   : LEISTRA,M (1970)
Atmospheric OH Rate Constant:
   Value : 1.4E-011 cm3/molecule-sec
   Temp  : 25 deg C
   Type  : EXP
   Ref   : KWOK,ESC & ATKINSON,R (1994)
```

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CHEMFATE Search Results

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CAS #: 000107-05-1 Name: 3-CHLOROPROPENE

```
**************************************************************************
MELT    3-CHLOROPROPENE                                        CAS#   107-05-1
  Melting Point  :  -134.5      DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**************************************************************************

VP      3-CHLOROPROPENE                                        CAS#   107-05-1
  Vapor Pressure :  367.9       MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  BOUBLIK,T ET AL. (1984)
**************************************************************************
```

BOUBLIK,T ET AL. (1984)
BOUBLIK,T.; FRIED,V.; HALA,E.; THE VAPOR PRESSURES OF PURE SUBSTANCES: SELECTED VALUES OF THE TEMPERATURE DEPENDENCE OF THE VAPOUR PRESSURES OF SO PURE SUBSTANCES IN THE NORMAL AND LOW PRESSURE REGION. VOL. 17.; AMSTERDAM NETHERLANDS: ELSEVIER SCI. PUBL.; 1984

RIDDICK,JA ET AL. (1986)
RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI AND METHODS OF PURIFICATION.; TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY WILEY-INTERSCIENCE. 2:PP.1325; 1986

End of Search

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CHEMFATE Search Results

Return to EFDB page

CAS #: 000124-48-1 Name: CHLORODIBROMOMETHANE

```
**********************************************************************
MELT    CHLORODIBROMOMETHANE                                CAS#   124-48-1
  Melting Point  :  -22         DEG C
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  ALDRICH (1988)
**********************************************************************

VP      CHLORODIBROMOMETHANE                                CAS#   124-48-1
  Vapor Pressure :  8.99        MM HG
  Temperature (C):  25
  Remarks        :  ESTIMATED BY PCCHEM-PCGEMS
  Abbrev. Ref.   :  SRC (1988)
**********************************************************************

VP      CHLORODIBROMOMETHANE                                CAS#   124-48-1
  Vapor Pressure :  4.9         MM HG
  Remarks        :  CALCULATED BY HENL X WSOL. SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  SRC (NA--)
**********************************************************************


   ALDRICH (1988)
   ALDRICH.; CATALOG HANDBOOK OF FINE CHEMICALS 1988-1989;  MILWAUKEE, WI:
   ALDRICH CHEM CO.; 1988

   SRC (1988)
   SRC.; SYRACUSE RESEARCH CORPORATION CALCULATED VALUES;   1988

   SRC (NA--)
   SRC; SYRACUSE RESEARCH CORPORATION CALCULATED VALUES.;   NA--

End of Search
```

SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Dichloroethane, 1,2-
CAS Number: 000107-06-2

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:		mg/kg/day	
Inhal RfD:		mg/kg/day	
Oral Slope:	9.1E-2	(mg/kg/day)^-1	IRIS
Oral Wt-of-Evid:	B2		
Inhal Slope:	9.1E-2	(mg/kg/day)^-1	IRIS
Inhal Wt-of-Evid:	B2		
Oral ED10:	7.7E+0	mg/kg/day	EPA_ED10
Oral ED10 Wgt:	B2		
Inhal ED10:	7.7E+0	mg/kg/day	EPA_ED10
Inhal ED10 Wgt:	B2		
Oral LD50:	7.7E+2	mg/kg	ACGIH
Dermal LD50:	2.8E+3	mg/kg	RTECS
Gas Inhal LC50:	1.0E+3	ppm	RTECS
Dust Inhal LC50:	5.0E+0	mg/L	RTECS
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	1.0E+5	µg/L	ECOTOX
Salt Ecol LC50:	1.1E+5	µg/L	ECOTOX

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:	1.8E+7	days	CHEMFATE
Volatility:	8.7E+1	days	THOMAS
Photolysis:		days	
Biodeg:	1.8E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:	1.8E+7	days	CHEMFATE
Volatility:	9.6E-1	days	THOMAS
Photolysis:		days	
Biodeg:	1.8E+2	days	FATERATE
Radio:		days	
Log Kow:	1.5E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	No	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	9.9E+1	
Density:	1.2E+0	g/mL @ 25.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	7.9E+1	Torr	CHEMFATE
Henry's Law:	9.8E-4	atm-m3/mol	CHEMFATE
Water Solub:	8.5E+3	mg/L	CHEMFATE
Distrib Coef:	3.5E-2	ml/g	SSG_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	2.0E+0		ECOTOX
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:	2.0E+0		ECOTOX
Salt BCF:			
Log Kow:	1.5E+0		CHEMFATE
Water Solub:	8.5E+3		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	-3.6E+1	C
Boiling Point:	8.4E+1	C
Formula:	C2 H4 Cl2	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000107-06-2 Name: 1,2-DICHLOROETHANE

```
**********************************************************************
MELT    1,2-DICHLOROETHANE                                  CAS#   107-06-2
  Melting Point  :  -35.66      DEGC
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      1,2-DICHLOROETHANE                                  CAS#   107-06-2
  Vapor Pressure :  .3900E+02   .8200E+02   .1550E+03   TORR        MEASURED
  Temperature (C):  10.0        25.0        40.0
  Remarks        :  UNITS CONVERTED
  Abbrev. Ref.   :  GALLANT,RW (1966A)
**********************************************************************

VP      1,2-DICHLOROETHANE                                  CAS#   107-06-2
  Vapor Pressure :  78.9        MM HG
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1985)
**********************************************************************


   DAUBERT,TE & DANNER,RP (1985)
   DAUBERT,T.E.; DANNER,R.P.; DATA COMPILATION TABLES OF PROPERTIES OF PURE
   COMPOUNDS.;  AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. PP.450; 1985

   GALLANT,RW (1966A)
   GALLANT,R.W.; PHYSICAL PROPERTIES OF HYDROCARBONS. VII.CHLORINATED
   ALIPHATICS.; HYDROCARBON PROCESS.; 45:111-18.; 1966A

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

End of Search
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SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Tetrachloroethylene
CAS Number: 000127-18-4

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	1.0E-2	mg/kg/day	IRIS
Inhal RfD:		mg/kg/day	
Oral Slope:	5.2E-2	(mg/kg/day)^-1	LIVECHEM
Oral Wt-of-Evid:	B2		
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:	3.4E+0	mg/kg/day	EPA_ED10
Oral ED10 Wgt:	B2		
Inhal ED10:	3.4E+0	mg/kg/day	EPA_ED10
Inhal ED10 Wgt:	B2		
Oral LD50:	3.0E+3	mg/kg	ACGIH
Dermal LD50:	3.2E+3	mg/kg	RTECS
Gas Inhal LC50:	4.0E+3	ppm	ACGIH
Dust Inhal LC50:	3.4E+1	mg/L	RTECS
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:		µg/L	
Salt Ecol LC50:		µg/L	

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	1.1E+2	days	THOMAS
Photolysis:	8.4E+1	days	CHEMFATE
Biodeg:	3.6E+2	days	FATERATE
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	1.2E+0	days	THOMAS
Photolysis:	8.4E+1	days	CHEMFATE
Biodeg:	3.6E+2	days	FATERATE
Radio:		days	
Log Kow:	3.4E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value
Metal Contain:	No
Organic:	Yes
Gas:	Yes
Particulate:	No
Radionuclide:	No
Rad. Element:	No
Molecular Weight:	1.7E+2
Density:	1.6E+0 g/mL @ 20.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	1.9E+1	Torr	CHEMFATE
Henry's Law:	1.8E-2	atm-m3/mol	CHEMFATE
Water Solub:	2.0E+2	mg/L	CHEMFATE
Distrib Coef:	3.1E-1	ml/g	SSG_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:	4.9E+1		VER_BCF
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:	4.9E+1		VER_BCF
Salt BCF:			
Log Kow:	3.4E+0		CHEMFATE
Water Solub:	2.0E+2		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	-2.2E+1	C
Boiling Point:	1.2E+2	C
Formula:	C2 Cl4	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000127-18-4 Name: TETRACHLOROETHYLENE

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**********************************************************************
MELT    TETRACHLOROETHYLENE                                  CAS#   127-18-4
  Melting Point   :  -22.35      DEGC
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  RIDDICK,JA ET AL. (1986)
**********************************************************************

VP      TETRACHLOROETHYLENE                                  CAS#   127-18-4
  Vapor Pressure :  .8100E+01   .1860E+02   .4000E+02   TORR        MEASURED
  Temperature (C):  10.0        25.0        40.0
  Remarks         :  UNITS CONVERTED
  Abbrev. Ref.    :  GALLANT,RW (1966)
**********************************************************************

VP      TETRACHLOROETHYLENE                                  CAS#   127-18-4
  Vapor Pressure :  18.55       MM HG
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  DAUBERT,TE & DANNER,RP (1985)
**********************************************************************


   DAUBERT,TE & DANNER,RP (1985)
   DAUBERT,T.E.; DANNER,R.P.; DATA COMPILATION TABLES OF PROPERTIES OF PURE
   COMPOUNDS.;  AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. PP.450; 1985

   GALLANT,RW (1966)
   GALLANT,R.W.; PHYSICAL PROPERTIES OF HYDROCARBONS. VI. CHLORINATED ETHYLENE
    HYDROCARBON PROCESS.; 45:153-60.; 1966

   RIDDICK,JA ET AL. (1986)
   RIDDICK,J.A.; BUNGER,W.B.; SAKANO,T.K.; ORGANIC SOLVENTS: PHYSICAL PROPERTI
   AND METHODS OF PURIFICATION.;  TECHNIQUES OF CHEMISTRY. 4TH ED. NEW YORK,NY
   WILEY-INTERSCIENCE. 2:PP.1325; 1986

End of Search
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SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Dichloroethylene, cis-1,2-
CAS Number: 000156-59-2

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	1.0E-2	mg/kg/day	HEAST
Inhal RfD:		mg/kg/day	
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:		mg/kg	
Dermal LD50:		mg/kg	
Gas Inhal LC50:	1.4E+4	ppm	RTECS
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:		µg/L	
Salt Ecol LC50:		µg/L	

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	8.7E+1	days	THOMAS
Photolysis:		days	
Biodeg:		days	
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	9.4E-1	days	THOMAS
Photolysis:		days	
Biodeg:		days	
Radio:		days	
Log Kow:	1.9E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value	
Metal Contain:	No	
Organic:	Yes	
Gas:	Yes	
Particulate:	No	
Radionuclide:	No	
Rad. Element:	No	
Molecular Weight:	9.7E+1	
Density:	1.3E+0	g/mL @ 20.00 C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	2.0E+2	Torr	CHEMFATE
Henry's Law:	4.1E-3	atm-m3/mol	CHEMFATE
Water Solub:	3.5E+3	mg/L	CHEMFATE
Distrib Coef:	7.1E-2	ml/g	SSG_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:			
Salt BCF:			
Log Kow:	1.9E+0		CHEMFATE
Water Solub:	3.5E+3		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	-8.0E+1	C
Boiling Point:	6.0E+1	C
Formula:	C2 H2 Cl2	

CLASS INFORMATION

Class	Parent Substance

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CHEMFATE Search Results

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CAS #: 000156-59-2 Name: 1,2-DICHLOROETHYLENE (CIS)

```
**********************************************************************
MELT    1,2-DICHLOROETHYLENE (CIS)                          CAS#   156-59-2
  Melting Point   :  -80.1       DEG C
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  DEAN,JA (1985)
**********************************************************************

VP      1,2-DICHLOROETHYLENE (CIS)                          CAS#   156-59-2
  Vapor Pressure :  201          MM HG
  Temperature (C):  25
  Remarks         :  EXTRAPOLATED FROM THE TEMPERATURE RANGE 19.2 TO 62 DEG C,
                     SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  BOUBLIK,T ET AL. (1984)
**********************************************************************

VP      1,2-DICHLOROETHYLENE (CIS)                          CAS#   156-59-2
  Vapor Pressure :  202.886      MM HG        MEAS
  Temperature (C):  25
  Remarks         :  SRC RECOMMENDED VALUE
  Abbrev. Ref.    :  DAUBERT,TE & DANNER,RP (1989)
**********************************************************************


   BOUBLIK,T ET AL. (1984)
   BOUBLIK,T.; FRIED,V.; HALA,E.; THE VAPOR PRESSURES OF PURE SUBSTANCES:
   SELECTED VALUES OF THE TEMPERATURE DEPENDENCE OF THE VAPOUR PRESSURES OF SO
   PURE SUBSTANCES IN THE NORMAL AND LOW PRESSURE REGION. VOL. 17.;  AMSTERDAM
   NETHERLANDS: ELSEVIER SCI. PUBL.; 1984

   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989

   DEAN,JA (1985)
   DEAN,J.A.; LANGE'S HANDBOOK OF CHEMISTRY 13TH ED.;  NY, NY: MCGRAW-HILL BOO
   CO.; 1985

End of Search
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SUPERFUND CHEMICAL DATA MATRIX

Date: 1/28/2004
Chemical: Dichloroethylene, trans-1,2-
CAS Number: 000156-60-5

TOXICITY

Parameter	Value	Unit	Source
Oral RfD:	2.0E-2	mg/kg/day	IRIS
Inhal RfD:		mg/kg/day	
Oral Slope:		(mg/kg/day)^-1	
Oral Wt-of-Evid:			
Inhal Slope:		(mg/kg/day)^-1	
Inhal Wt-of-Evid:			
Oral ED10:		mg/kg/day	
Oral ED10 Wgt:			
Inhal ED10:		mg/kg/day	
Inhal ED10 Wgt:			
Oral LD50:	1.3E+3	mg/kg	ACGIH
Dermal LD50:	5.0E+3	mg/kg	RTECS
Gas Inhal LC50:	2.2E+4	ppm	ACGIH
Dust Inhal LC50:		mg/L	
ACUTE			
Fresh CMC:		µg/L	
Salt CMC:		µg/L	
CHRONIC			
Fresh CCC:		µg/L	
Salt CCC:		µg/L	
Fresh Ecol LC50:	1.7E+5	µg/L	ECOTOX
Salt Ecol LC50:		µg/L	

PERSISTENCE

Parameter	Value	Unit	Source
LAKE - Halflives			
Hydrolysis:		days	
Volatility:	8.7E+1	days	THOMAS
Photolysis:		days	
Biodeg:		days	
Radio:		days	
RIVER - Halflives			
Hydrolysis:		days	
Volatility:	9.3E-1	days	THOMAS
Photolysis:		days	
Biodeg:		days	
Radio:		days	
Log Kow:	2.1E+0		CHEMFATE

PHYSICAL CHARACTERISTICS

Parameter	Value		
Metal Contain:	No		
Organic:	Yes		
Gas:	Yes		
Particulate:	No		
Radionuclide:	No		
Rad. Element:	No		
Molecular Weight:	9.7E+1		
Density:	1.3E+0	g/mL @ 20.00	C

MOBILITY

Parameter	Value	Unit	Source
Vapor Press:	3.3E+2	Torr	CHEMFATE
Henry's Law:	9.4E-3	atm-m3/mol	CHEMFATE
Water Solub:	6.3E+3	mg/L	CHEMFATE
Distrib Coef:	1.0E-1	ml/g	SSG_KD
Geo Mean Sol:		mg/L	

BIOACCUMULATION

Parameter	Value	Unit	Source
FOOD CHAIN			
Fresh BCF:			
Salt BCF:			
ENVIRONMENTAL			
Fresh BCF:			
Salt BCF:			
Log Kow:	2.1E+0		CHEMFATE
Water Solub:	6.3E+3		CHEMFATE
Geo Mean Sol:		mg/L	

OTHER DATA

Melting Point:	-5.0E+1	C
Boiling Point:	4.9E+1	C
Formula:	C2 H2 Cl2	

CLASS INFORMATION

Class	Parent Substance

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CAS #: 000156-60-5 Name: 1,2-DICHLOROETHYLENE (TRANS)

```
**************************************************************************
MELT    1,2-DICHLOROETHYLENE (TRANS)                        CAS#   156-60-5
  Melting Point  :  -49.8       DEG C
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DEAN,JA (1985)
**************************************************************************

VP      1,2-DICHLOROETHYLENE (TRANS)                        CAS#   156-60-5
  Vapor Pressure :  331         MM HG
  Temperature (C):  25
  Remarks        :  EXTRAPOLATED FROM TEMP RANGE 0.7 TO 46.7 DEG C, SRC
                    RECOMMENDED VALUE
  Abbrev. Ref.   :  BOUBLIK,T ET AL. (1984)
**************************************************************************

VP      1,2-DICHLOROETHYLENE (TRANS)                        CAS#   156-60-5
  Vapor Pressure :  333.24      MM HG       MEAS
  Temperature (C):  25
  Remarks        :  SRC RECOMMENDED VALUE
  Abbrev. Ref.   :  DAUBERT,TE & DANNER,RP (1989)
**************************************************************************


   BOUBLIK,T ET AL. (1984)
   BOUBLIK,T.; FRIED,V.; HALA,E.; THE VAPOR PRESSURES OF PURE SUBSTANCES:
   SELECTED VALUES OF THE TEMPERATURE DEPENDENCE OF THE VAPOUR PRESSURES OF SO
   PURE SUBSTANCES IN THE NORMAL AND LOW PRESSURE REGION. VOL. 17.;  AMSTERDAM
   NETHERLANDS: ELSEVIER SCI. PUBL.; 1984

   DAUBERT,TE & DANNER,RP (1989)
   DAUBERT,T.E.; DANNER, R.P.; PHYSICAL AND THERMODYNAMIC PROPERTIES OF PURE
   CHEMICALS: DATA COMPILATION.;  DESIGN INSTITUTE FOR PHYSICAL PROPERTY DATA,
   AMERICAN INSTITUTE OF CHEMICAL ENGINEERS. HEMISPHERE PUB. CORP., NEW YORK,
   NY., 4 VOL.; 1989

   DEAN,JA (1985)
   DEAN,J.A.; LANGE'S HANDBOOK OF CHEMISTRY 13TH ED.;  NY, NY: MCGRAW-HILL BOO
   CO.; 1985

End of Search
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