SUPERFUND CONTRACT SUPPORT TEAM

SAMPLING REPORT

for the

FORT ORANGE PAPER COMPANY SITE

in CASTLETON ON HUDSON, NEW YORK

OCTOBER 04 - 05, 2004

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1.0 BACKGROUND

The Fort Orange site (site) is located at 1900 River Road in Castleton-on-Hudson, Rensselaer County, New York, see figure 1 of Appendix A. The site covers approximately 103 acres and includes eight buildings constructed of brick and wood materials, dating back 146 years. The site is generally rural and is bordered in all directions by residential properties. The facility is located within a valley bordered along the north and south borders by ridges. The Moordener Kill flows through the site and then drains directly into the Hudson River approximately one half mile west of the site. Surface water runoff from the site discharges directly into the Moordener Kill which is a New York State Class C trout stream. An estimated 1283 residents from the Village of Castleton-on-Hudson live within a one-mile radius of the site. Potable water is supplied via municipal water supply and the well field is located twelve miles up gradient of the site.

The facility was a former paper manufacturer which operated from 1858 until plant closure in February 2002. The most recent operations involved manufacturing clay-coated folding box board out of recycled paper for use in cereal boxes and other consumer packaging. A portion of the finished product involved the use of lithograph dyes. According to local press reports, the facility had a daily output of 140 tons per day of paperboard derived from waste paper. The eight on-site buildings housed the following: a paper machine area, a printing department, an electrical shop, a maintenance shop, a stripping department, a glue department, an oil shed, a lube shop, a polymer blending laboratory, an auto shop, a locomotive garage, and a boiler house. Figure 2 of Appendix A is a site layout map.

In addition, facility operations also included the utilization of a 125-foot by 200 foot wastewater treatment lagoon. The lagoon is located along the northern perimeter of the site. According to the Fort Orange Paper Co., Best Management Practices (BMP) document submitted to New York State Department of Environmental Conservation (NYSDEC) on May 25, 2001, waste from facility floor drains and sumps, including sanitary wastes, were treated in an on-site wastewater treatment plant before being discharged into the Moordener Kill. The on-site wastewater treatment plant consists of a primary clarifier that discharges into one of two aerated lagoons to buffer and equalize any releases from the facility. Based on the information from the BMP documents, it appears that Fort Orange Paper Co. had disposed of non-putrescible wastes (strapping, string, broken wooden pallets, etc.) and coal ash solids generated in the boiler house in an on-site landfill. The office and putrescible wastes were hauled off-site and disposed of in a local landfill.

Power to the facility was cut off due to nonpayment of bills causing a cessation of operations at the site on February 28, 2002. John P. Hay was reportedly the President of the Fort Orange Paper Company at the time of closure. Since closure, extensive salvage operations have occurred. These operations, appear to have caused mercury to spill and asbestos-containing materials to be damaged and/or disbursed throughout the building

and main plant area grounds. NYSDEC removed approximately 8000 gallons of hazardous material from the site by contacting manufacturers of the material. In addition, they contracted a waste oil recycler to remove the 75, 55-gallon drums containing waste oil. Approximately 50 containers currently remain at the site. Nine samples were collected by EPA throughout the building and the facility to determine the presence of asbestos. Asbestos was found in eight of the nine samples. Due to civilian presence through salvaging and vandalism at the site, Environmental Remedial and Response Division (ERRD) will be conducting an asbestos abatement in several outdoor areas as well as removing the remainder of the waste containers.

The Division of Environmental Science and Assessment (DESA), Hazardous Waste Support Branch (HWSB), Superfund Contract Support Team (SCST) was requested by ERRD to collect sediment samples from the on-site lagoon and ground water samples from monitoring wells surrounding the landfill.

2.0 SAMPLING PROCEDURES

The sampling procedures were in accordance with the guidelines set forth in the Quality Assurance Project Plan (QAPP) which is attached as Appendix B.

3.0 DESCRIPTION OF EVENTS

On October 04, 2004, two members from the U.S. EPA, DESA, SCST met with the U.S. EPA ERRD's on-scene coordinator (OSC). The sampling began in the on-site lagoon. Four sediment samples and one field duplicate sample were collected from the lagoon. See Figure 3 of Appendix A for an estimated diagram of the sample locations. The samples were submitted to contract laboratory program (CLP) laboratories for target compound list (TCL) volatile organic compound (VOC), base neutral acid (BNA), polychlorinated biphenyls (PCB) and pesticide analyses and target analyte list (TAL) - total metals analysis. The following table describes the sample information in the order that they were collected. The sampling team was only able to collect samples from 0 - 6 inches deep due to a liner at the bottom of the lagoon. For more information about each sample, refer to the Field Data Sheets which can be found in Appendix G. As can be seen from the data sheets, every sediment sample emitted a strong petroleum odor.

Sample #	Date/Time	Location	Sample Description	Depth
FO-SED-01+ duplicate, FO-SED-05	10/04/04 1315	Southwest corner: 12 feet from the south side of the lagoon and 19 feet from the west side.	Soft, silty grey and hard brown/black clay, strong petroleum odor	0-6 inches
FO-SED-02 MS/MSD	10/04/04 1345	Northwest corner: 3 feet into the lagoon from the corner	Soft, silty grey with a strong petroleum odor	0-6 inches
FO-SED-03	10/04/04 1415	Northeast corner: 14 feet from the east side of the lagoon and 3 feet from the north side	Soft, silty grey with a strong petroleum odor	0-6 inches
FO-SED-04	10/04/04 1440	Southeast corner: 6 feet from the south shore and 12 feet from the east	Grey/black soft silt with strong petroleum odor	0-6 inches

The sampling team collected a rinsate blank sample at 1415 by pouring distilled water over a stainless steel bowl, scoop and auger and into sample jars. They labeled all sample jars and stored them inside coolers on wet ice protected with custody seals. A photograph of each sample location can be found in Appendix E.

On October 05, 2004, the same sampling team met at the site to begin the monitoring well sampling. Each well contained a dedicated bailer which the EPA sampling team utilized to purge three well volumes prior to collecting each sample. Ground water parameters: dissolved oxygen, pH, conductivity, temperature and turbidity were collected up to three times, after each volume purged. This information can be found on the data sheets which are located in Appendix G. A photograph of each well can be found in Appendix F. A map of the well locations can be found on Figure 4 of Appendix A.

Sample #	Date/Time	Location	Total Depth	Depth to water	Purge Amount
MW-1 MS/MSD	10/05/04 0915	To the west of the west end of the lagoon	16.1 ft	6.35 ft	19.2 gallons
MW-4	10/05/04 1040	Northeast of the landfill	19.4 ft	5.35 ft	15.5 gallons
MW-5 and duplicate, MW-6	10/05/04 1205	The farthest west along the Moordener Kill, northwest of the landfill	19.5 ft	3.5 ft	17.7 gallons
MW-3	10/05/04 1255	South of MW-5, west of the landfill	15.8 ft	5.15 ft	Ran dry at 13 gallons, sampled after recharge
MW-2	10/05/04 1400	Southwest of the landfill, farthest south along Moordener Kill	15.75 ft	6.5 ft	Ran dry at 8 gallons, sampled after recharge

At the conclusion of the day, the samplers packed the aqueous VOC samples on wet ice

and shipped them to the Contract Laboratory Program (CLP) laboratory at 1830 via Federal Express. On October 06, 2004, the remainder of the samples were shipped to CLP laboratories at 1700. The trip report with shipment and delivery information can be found as Appendix L.

4.0 RESULTS

The rinsate blank and trip blank were taken for Quality Control and to determine if any outside contamination was introduced to the samples. There were no compounds found in the trip blank sample. A rinsate blank sample is only collected when nondedicated equipment is utilized. Only the sediment sampling procedure required a rinsate blank due to the use of a dedicated bailer for the ground water samples. Calcium, iron and zinc were found in the rinsate blank samples and did not, according to the U.S. EPA Region II criteria, adversely affect the rest of the samples. One field duplicate sample was collected per twenty samples for each matrix. The laboratories were unaware of the duplicate samples and the results are therefore used to monitor the laboratories' ability to reproduce data. The duplicate samples are listed in Tables 2 and 3 in a row succeeding the original sample. The Quality Assurance/Quality Control sample data can be found in Table 1 on page 8.

Sediment Samples

Four sediment samples and one field duplicate sample were collected from the four corners of an on-site lagoon. All sediment samples were analyzed for TCL - VOCs, BNAs, PCBs and pesticides according to U.S. EPA CLP *SOW for Organic Analysis, Multi-Media, Multi-Concentration (OLM0 4.2)*. Since the lagoon is lined and therefore not likely to leach, the sample results were compared soil criteria, i.e. the U. S. Environmental Protection Agency *Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, Peer Review Draft, Exhibit A-1: Generic SSLs for Residential Scenario* which can be found in Appendix H and New York State Department of Environmental Conservation (NYSDEC) *Technical and Administrative Guidance Memorandum (TAGM) #4046: Determination of Soil Cleanup Objectives and Cleanup Levels* which can be found as Appendix I.

The following VOCs were found in every sample; carbon disulfide, 2-butanone, 4-methyl-2-pentanone, toluene, ethylbenzene and total xylenes, except toluene was not detected in FO-SED-01. Tetrachloroethene was also found in the sample, FO-SED-02. None of the VOC results, however, exceeded either the EPA or the state criteria. The BNA compound, bis(2-ethylhexyl)phthalate was also found in every sample below the NYSDEC and the EPA criteria for soil samples. Sample location, FO-SED-03 also contained di-n-butylphthalate below the criteria. There were no pesticides nor PCBs detected in any of the sediment samples. These results can be found in Table 2 on page 9 with the compounds above the criteria highlighted in yellow, as well as in the raw data of Appendix C.

The sediment samples were also analyzed for TAL - total metals according to U.S. EPA CLP *SOW for Inorganic Analysis, Multi-Media, Multi-Concentration (ILM0 5.3).* The samples for inorganic analysis were also compared to the TAGM and EPA criteria for soil samples. The following analytes were found in every sample above the TAGM levels: beryllium, chromium, copper, iron and zinc, excluding iron in sample, FO-SED-02. Beryllium also exceeded the EPA criteria in every sample. In addition, nickle was found above the TAGM in sample location, FO-SED-04. These results can be found in Table 2 on page 9 with the analytes above the criteria highlighted in yellow, as well as in the raw data of Appendix D.

Ground Water Samples

The ground water samples were collected from monitoring wells located in the vicinity of the on-site landfill. Once again, the samples were analyzed for TCL - VOCs, BNAs, PCBs and pesticides according to U.S. EPA CLP *SOW for Organic Analysis, Multi-Media, Multi-Concentration (OLM0 4.2)* These samples were compared to U.S. Code of Federal Regulations (CFR), Title 40: Protection of Environment, Part 141: National Primary Drinking Water Regulations, Subpart G: *National Revised Primary Drinking Water Regulations: Maximum Contaminant Levels, Section 61: Maximum Contaminant Levels for Organic Contaminants* which can be found as Appendix J and NYSDEC 6 NYCRR Part 703, *Surface Water and Groundwater Quality Standards and Groundwater Effluent Limitations, Section 703.5: Table 1 Water Quality Standards Surface Water and Groundwater* which can be found as Appendix K. There were no organic contaminants of any kind found in the ground water samples.

The inorganic ground water samples were analyzed according to U.S. EPA CLP *SOW for Inorganic Analysis, Multi-Media, Multi-Concentration (ILM0 5.3)* and were compared to the same standards with the following exception: U.S. CFR, Section 62: *Maximum Contaminant Levels for Inorganic Contaminants*. Iron and manganese were found above the state water criteria in every sample. Aluminum exceeded NYSDEC criteria in three samples and sodium in four samples. In addition, magnesium was above the state criteria in sample, MW-2. Thallium exceeded the federal criteria in MW-6 and both federal and state criteria in monitoring well, MW-2. These results can be found in Table 3 on page 14 with the compounds above the criteria highlighted in yellow, as well as in the raw data of Appendix C

5.0 CONCLUSION:

Sediment samples were collected from an on-site lagoon. Figure 3 of Appendix A

depicts the sampling locations. A number of organic contaminants were consistently found in the samples at low levels, i.e. carbon disulfide, 2-butanone, 4-methyl-2-pentanone, toluene, ethylbenzene, xylene and bis(2-ethylhexyl)phthalate. These contaminants may be the cause of the petroleum odor emanating from the samples during collection procedures. A number of inorganic analytes were also found in each sample as can be seen on Table 2 on page 9.

Five on-site monitoring wells were sampled. Figure 4 of Appendix A presents the location of each well. A number of inorganic analytes were found in these samples and they can be seen on Table 3 on page 14.

TABLE 1 QA/QC SAMPLE DATA					
		Laboratory Quality Control (QC) Samples		Field Quality Control (QC) Samples	
Matrix	**Analysis**	**Matrix Spike (MS)/ Matrix Spike Duplicate (MSD)**	**Field Duplicate**	**Rinsate Blank**	**Trip Blank**
Sediment	Organic	FO-SED-02/B1LN8	FO-SED-05/B1LP1 is a duplicate of FO-SED-01/B1LN7	RB-01/B1LP2	------
	Inorganic	FO-SED-02/MB1LN8	FO-SED-05/MB1LP1 is a duplicate of FO-SED-01/MB1LN7	RB-01/MB1LP2	------
Ground Water	Organic	MW-1/B1LP4	MW-6/B1LS9 is a duplicate of MW-5/B1LP8	--------	TB-01/B1LP3
	Inorganic	MW-1/MB1LP4	MW-6/MB1LS9 is a duplicate of MW-5/MB1LP8	-------	------

TABLE 2
SEDIMENT SAMPLE SUMMARY

Sample Location	Sample Numbers	Analysis	Compounds & Concentrations (mg/kg)			EPA SSL Residential Ingestion (mg/kg)	NYSDEC TAGM SCO (mg/kg)
			Compounds	Conc.	QC		
FO-SED-01	BILN7	VOCs	Carbon disulfide	0.033	J	7800	2.7
			Methyl acetate	0.007	J		
			2-Butanone	0.027	J		0.3
			4-Methyl-2-pentanone	0.013	J		1.0
			Ethylbenzene	0.012	J	7800	5.5
			Xylenes (total)	0.013	J	160,000	1.2
			Isoproylbenzene	0.017	J		
		BNAs	Bis(2-ethylhexyl)phthalate	9.9	J	35	50
		Pesticide	Non-detect				
		PCBs	Non-detect				
	MB1LN7	Total Metals	Aluminum	13,800	J		
			Barium	92.7	J	5500	300
			Beryllium	0.44	J	160	0.16
			Cadmium	0.24	J	70	1.0
			Calcium	11,800	J		
			Chromium	17.9	J	230	10
			Cobalt	5.9	J		30
			Copper	70.5	J		25
			Iron	9450	J		2000
			Lead	15.8	J	400	
			Magnesium	2490	J		
			Manganese	188	J		
			Nickel	11.2	J	1600	13
			Potassium	1510	J		
			Silver	2.2	J	390	
			Sodium	327	J		
			Thallium	2.6	J	6.0	
			Vanadium	25.9	J	550	150
			Zinc	138	J	23,000	20

J - The percent moisture content exceeds the primary criteria and the samples were estimated with a "J".

TABLE 2 - Continued
SEDIMENT SAMPLE SUMMARY

Sample Location	Sample Numbers	Analysis	Compounds & Concentrations (mg/kg)			EPA SSL Residential Ingestion (mg/kg)	NYSDEC TAGM SCO (mg/kg)
			Compounds	Conc.	QC		
FO-SED-05 Duplicate of FO-SED-01	BILP1	VOCs	Carbon disulfide	0.028	J	7800	2.7
			2-Butanone	0.003	J		0.3
			4-Methyl-2-pentanone	0.018	J		1.0
			Toluene	0.022	J	16,000	1.5
			Ethylbenzene	0.011	J	7800	5.5
			Xylenes (total)	0.016	J	160,000	1.2
			Isoproylbenzene	0.016	J		
		BNAs	Bis(2-ethylhexyl)phthalate	2.8	J	35	50
		Pesticide	Non-detect				
		PCBs	Non-detect				
	MB1LP1	Total Metals	Aluminum	11,300	J		
			Barium	76.2	J	5500	300
			Beryllium	0.32	J	160	0.16
			Cadmiun	0.33	J	70	1.0
			Calcium	9750	J		
			Chromium	15.1	J	230	10
			Cobalt	5.0	J		30
			Copper	81.8	J		25
			Iron	6450	J		2000
			Lead	16.9	J	400	
			Magnesium	1730	J		
			Manganese	143	J		
			Nickel	9.0	J	1600	13
			Potassium	1050	J		
			Silver	1.7	J	390	
			Sodium	202	J		
			Vanadium	21.2	J	550	150
			Zinc	128	J	23,000	20

J - The percent moisture content exceeds the primary criteria and the samples were estimated with a "J".

TABLE 2 - Continued
SEDIMENT SAMPLE SUMMARY

Sample Location	Sample Numbers	Analysis	Compounds & Concentrations (mg/kg)			EPA SSL Residential Ingestion (mg/kg)	NYSDEC TAGM SCO (mg/kg)
			Compounds	Conc.	QC		
FO-SED-02	BILN8	VOCs	Carbon disulfide	0.038	J	7800	2.7
			2-Butanone	0.041	J		0.3
MS/MSD			4-Methyl-2-pentanone	0.044	J		1.0
			Tetrachloroethene	0.009	J	12	1.4
			Ethylbenzene	0.011	J	7800	5.5
			Xylenes (total)	0.063	J	160,000	1.2
			Isoproylbenzene	0.009	J		
		BNAs	Bis(2-ethylhexyl)phthalate	8.6	J	35	50
		Pesticide	Non-detect				
		PCBs	Non-detect				
	MB1LN8	Total Metals	Aluminum	11,000	J		
			Barium	58.2	J	5500	300
			Beryllium	0.17	J	160	0.16
			Cadmiun	0.16	J	70	1.0
			Calcium	8930	J		
			Chromium	12.1	J	230	10
			Cobalt	2.5	J		30
			Copper	49.6	J		25
			Iron	1030	J		2000
			Lead	6.9	J	400	
			Magnesium	355	J		
			Manganese	78.4	J		
			Nickel	3.2	J	1600	13
			Potassium	172	J		
			Silver	1.9	J	390	
			Sodium	335	J		
			Vanadium	16.1	J	550	150
			Zinc	87.8	J	23,000	20

J - The percent moisture content exceeds the primary criteria and the samples were estimated with a "J".

TABLE 2 - Continued
SEDIMENT SAMPLE SUMMARY

Sample Location	Sample Numbers	Analysis	Compounds & Concentrations (mg/kg)			EPA SSL Residential Ingestion (mg/kg)	NYSDEC TAGM SCO (mg/kg)
			Compounds	Conc.	QC		
FO-SED-03	BILN9	VOCs	Carbon disulfide	0.01	J	7800	2.7
			Methyl acetate	0.004	J		
			2-Butanone	0.02	J		0.3
			4-Methyl-2-pentanone	0.008	J		1.0
			Toluene	0.15	J	16,000	1.5
			Ethylbenzene	0.003	J	7800	5.5
			Xylenes (total)	0.007	J	160,000	1.2
			Isoproylbenzene	0.008	J		
		BNAs	Di-n-butylphthalate	0.79	J	6100	8.1
			Bis(2-ethylhexyl)phthalate	7.8	J	35	50
		Pesticide	Non-detect				
		PCBs	Non-detect				
	MB1LN9	Total Metals	Aluminum	8660	J		
			Antimony	2.6	J	31	
			Barium	69.2	J	5500	300
			Beryllium	0.22	J	160	0.16
			Cadmiun	0.43	J	70	1.0
			Calcium	4710	J		
			Chromium	16.9	J	230	10
			Cobalt	4.2	J		30
			Copper	128	J		25
			Iron	2170	J		2000
			Lead	29.2	J	400	
			Magnesium	430	J		
			Manganese	76.1	J		
			Nickel	7.5	J	1600	13
			Potassium	220	J		
			Silver	2.9	J	390	
			Vanadium	22.1	J	550	150
			Zinc	186	J	23,000	20

J - The percent moisture content exceeds the primary criteria and the samples were estimated with a "J".

TABLE 2 - Continued
SEDIMENT SAMPLE SUMMARY

Sample Location	Sample Numbers	Analysis	Compounds & Concentrations (mg/kg)			EPA SSL Residential Ingestion (mg/kg)	NYSDEC TAGM SCO (mg/kg)
			Compounds	Conc.	QC		
FO-SED-04	BILP0	VOCs	Carbon disulfide	0.006	J	7800	2.7
			2-Butanone	0.022	J		0.3
			4-Methyl-2-pentanone	0.009	J		1.0
			Toluene	0.02	J	16,000	1.5
			Xylenes (total)	0.007	J	160,000	1.2
			Isoproylbenzene	0.005	J		
		BNAs	Bis(2-ethylhexyl)phthalate	8.3	DLJ	35	50
		Pesticide	Non-detect				
		PCBs	Non-detect				
	MB1LP0	Total Metals	Aluminum	9870	J		
			Barium	80	J	5500	300
			Beryllium	0.41	J	160	0.16
			Cadmiun	0.54	J	70	1.0
			Calcium	5190	J		
			Chromium	23	J	230	10
			Cobalt	6.0	J		30
			Copper	206	J		25
			Iron	3660	J		2000
			Lead	45.2	J	400	
			Magnesium	672	J		
			Manganese	76.9	J		
			Nickel	14	J	1600	13
			Potassium	298	J		
			Silver	3.0	J	390	
			Sodium	162	J		
			Vanadium	33.4	J	550	150
			Zinc	247	J	23,000	20
RB-01 Rinsate Blank	BILP2	VOCs	Non-detect				
		BNAs	Non-detect				
		Pesticide	Non-detect				
		PCBs	Non-detect				
	MB1LP2	Total Metals	Calcium	47.6	J^		
			Iron	5.7	J^		
			Zinc	1.5	J^		

J - The percent moisture content exceeds the primary criteria and the samples were estimated with a "J".
J^ - This qualifier indicates the result is an estimated value.
DL - The result was transferred from a dilution due to a high value.

TABLE 3
GROUND WATER SAMPLE SUMMARY

Sample Location	Sample Numbers	Analysis	Compounds & Concentrations (µg/L)			Federal Drinking Water MCLs (µg/L)	NYS DEC WQS (µg/L)
			Compounds	Conc.	QC		
TB-01	B1LP3	VOCS	Non-detect				
MW-1	BILP4	VOCs	Non-detect				
MS/MSD		BNAs	Non-detect				
		Pesticides	Non-detect				
		PCBs	Non-detect				
	MB1LP4	Total Metals	Aluminum	815			100
			Barium	184	J	2000	1000
			Calcium	54,300			
			Chromium	2.2	J	100	50
			Cobalt	2.2	J		5.0
			Copper	5.2	J	1300	200
			Iron	4510			300
			Lead	7.8	J	15	25
			Magnesium	14,900			35,000
			Manganese	2380			300
			Nickel	2.0	J		100
			Potassium	967	J^1		
			Sodium	17,400			20,000
			Vanadium	1.5	J		14
			Zinc	29.4	J		66

J - This qualifier indicates the result is an estimated value.
J^1 - The ICP serial dilution analysis yielded percent differences greater than 10 but less than 100 when the initial concentration was > or = 50 x MDL.

TABLE 3 - Continued
GROUND WATER SAMPLE SUMMARY

Sample Location	Sample Numbers	Analysis	Compounds & Concentrations (µg/L)			Federal Drinking Water MCLs (µg/L)	NYS DEC WQS (µg/L)
			Compounds	Conc.	QC		
MW-2	BILP5	VOCs	Non-detect				
		BNAs	Non-detect				
		Pesticides	Non-detect				
		PCBs	Non-detect				
	MB1LP5	Total Metals	Aluminum	101	J		100
			Barium	92.6	J	2000	1000
			Calcium	156,000			
			Chromium	4.0	J	100	50
			Copper	1.0	J	1300	200
			Iron	5870			300
			Magnesium	37,900			35,000
			Manganese	10,300			300
			Potassium	652	J^1		
			Silver	1.1	J^2		50
			Sodium	119,000			20,000
			Thallium	15.2	J	2.0	8.0
			Zinc	6.7	J		66
MW-3	BILP6	VOCs	Non-detect				
		BNAs	Non-detect				
		Pesticides	Non-detect				
		PCBs	Non-detect				
	MB1LP6	Total Metals	Aluminum	1490			100
			Barium	290		2000	1000
			Calcium	177,000			
			Chromium	2.2	J	100	50
			Cobalt	1.8	J		5.0
			Copper	4.4	J	1300	200
			Iron	3120			300
			Magnesium	29,800			35,000
			Manganese	1050			300
			Potassium	2710	J^1		
			Sodium	17,000			20,000
			Vanadium	1.7	J		14
			Zinc	11.8	J		66

J - This qualifier indicates the result is an estimated value.
J^1 - The ICP serial dilution analysis yielded percent differences greater than 10 but less than 100 when the initial concentration was > or = 50 x MDL.
J^2 - The matrix spike recovery was outside the control limits when sample concentration was less than 4 x spike concentration for Ag.

TABLE 3 - Continued
GROUND WATER SAMPLE SUMMARY

Sample Location	Sample Numbers	Analysis	Compounds & Concentrations (µg/L)			Federal Drinking Water MCLs (µg/L)	NYS DEC WQS (µg/L)
			Compounds	Conc.	QC		
MW-4	BILP7	VOCs	Non-detect				
		BNAs	Non-detect				
		Pesticides	Non-detect				
		PCBs	Non-detect				
	MB1LP7	Total Metals	Barium	154	J	2000	1000
			Calcium	117,000			
			Chromium	0.94	J	100	50
			Copper	0.52	J	1300	200
			Iron	7470			300
			Magnesium	29,800			35,000
			Manganese	1330			300
			Potassium	2160	J^1		
			Sodium	42,800			20,000
			Zinc	7.3	J		66
MW-5	BILP8	VOCs	Non-detect				
		BNAs	Non-detect				
		Pesticides	Non-detect				
		PCBs	Non-detect				
	MB1LP8	Total Metals	Aluminum	29.2	J		100
			Barium	482		2000	1000
			Calcium	83,600			
			Chromium	1.2	J	100	50
			Copper	0.57	J	1300	200
			Iron	4690			300
			Magnesium	21,800			35,000
			Manganese	1700			300
			Potassium	1030	J^1		
			Sodium	42,200			20,000
			Zinc	5.0	J		66

J - This qualifier indicates the result is an estimated value.
J^1 - The ICP serial dilution analysis yielded percent differences greater than 10 but less than 100 when the initial concentration was > or = 50 x MDL.

TABLE 3 - Continued
GROUND WATER SAMPLE SUMMARY

Sample Location	Sample Numbers	Analysis	Organic Compounds & Concentrations (µg/L)			Federal Drinking Water MCLs (µg/L)	NYS DEC WQS (µg/L)
			Compounds	Conc.	QC		
MW-6 Duplicate of MW-5	BILS9	VOCs	Non-detect				
		BNAs	Non-detect				
		Pesticides	Non-detect				
		PCBs	Non-detect				
	MB1LS9	Total Metals	Aluminum	35.8	J		100
			Barium	476		2000	1000
			Calcium	83,300			
			Chromium	0.95	J	100	50
			Iron	4700			300
			Magnesium	21,800			35,000
			Manganese	1620			300
			Potassium	1030	J^1		
			Sodium	41,800			20,000
			Thallium	4.1	J	2.0	8.0
			Zinc	2.7	J		66

J - This qualifier indicates the result is an estimated value.
J^1 - The ICP serial dilution analysis yielded percent differences greater than 10 but less than 100 when the initial concentration was > or = 50 x MDL.

APPENDIX A

SITE MAPS

APPENDIX B

QUALITY ASSURANCE PROJECT PLAN

FOR THE

FORT ORANGE PAPER COMPANY SITE

APPENDIX C

ORGANIC CLP DATA PACKAGE

APPENDIX D

INORGANIC CLP DATA PACKAGE

APPENDIX E

SEDIMENT SAMPLE PHOTOGRAPHS

APPENDIX F

MONITORING WELL PHOTOGRAPHS

APPENDIX G

FIELD DATA SHEETS

APPENDIX H

U. S. ENVIRONMENTAL PROTECTION AGENCY

SUPPLEMENTAL GUIDANCE FOR DEVELOPING SOIL SCREENING LEVELS FOR SUPERFUND SITES,
PEER REVIEW DRAFT

SUPERFUND SOLID WASTE AND EMERGENCY RESPONSE
OSWER 9355.4-24

MARCH 2001

APPENDIX I

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DIVISION OF ENVIRONMENTAL REMEDIATION - GUIDANCE DOCUMENT

TECHNICAL AND ADMINISTRATIVE GUIDANCE MEMORANDUM #4046
DETERMINATION OF SOIL CLEANUP OBJECTIVES AND CLEANUP LEVELS

JANUARY 1994

APPENDIX J

U.S. CODE OF FEDERAL REGULATIONS (CFR)

TITLE 40: PROTECTION OF ENVIRONMENT
PART 141: NATIONAL PRIMARY DRINKING WATER REGULATIONS
SUBPART G: NATIONAL REVISED PRIMARY DRINKING WATER REGULATIONS
Maximum Contaminant Levels

Section 61: *MAXIMUM CONTAMINANT LEVELS FOR ORGANIC CONTAMINANTS*
AND
Section 62: *MAXIMUM CONTAMINANT LEVELS FOR INORGANIC CONTAMINANTS*

UPDATED JULY 2002

APPENDIX K

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

RULES AND REGULATIONS

6 NYCRR PART 703
SURFACE WATER AND GROUNDWATER QUALITY STANDARDS AND GROUNDWATER EFFLUENT LIMITATIONS

703.5: TABLE 1 WATER QUALITY STANDARDS SURFACE WATER AND **GROUNDWATER**

AUGUST 1999

APPENDIX L

FORT ORANGE PAPER COMPANY TRIP REPORT