

APPENDIX A

Table 1
Standard Chlorine Chemical Company - On-Site Soil Contaminants
Data from Chromium Sampling Events Conducted between July 1983 - January 1991

Metals, PCBs and Dioxin	Soil Depth (feet)	Maximum Detected Concentration (mg/kg)	NJ Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) (mg/kg)	Environmental Comparison Value (mg/kg)
Chromium (Total)	0 - 0.5	18,800	6,100*	not available
	0.6 - 7	34,900		
	12 - 19	82		
Chromium (Hexavalent)	0 - 0.5	270	6,100	200 (RMEG [†])
	0.6 - 7	38		

* Criterion based on the ingestion exposure pathway for hexavalent chromium

[†] Reference Media Evaluation Guide

Contaminants of Concern are in boldface

Table 2
Standard Chlorine Chemical Company - On-Site Soil Contaminants
Data from Sampling Events Conducted between May 1985 - October 1998
Soil Depth 0 - 2 feet

Volatile Organic Compounds	Maximum Detected Concentration (mg/kg)	NJ Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) (mg/kg)	Environmental Comparison Value (mg/kg)
Chlorobenzene	99.6	680	800 (EMEG*)
Tetrachloroethylene	2.30	6	500 (RMEG [†])
Methylene Chloride	7.02	210	90 (CREG [‡])
Trichloroethylene	0.866	54	7.2 (RBC [§]) C
1,2-trans-dichloroethene	0.0765	1,000	400 (EMEG)
Semi-Volatile Organic Compounds	Maximum Detected Concentration (mg/kg)	NJ Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) (mg/kg)	Environmental Comparison Value (mg/kg)
1,2-Dichlorobenzene	6,470	10,000	5,000 (RMEG)
1,3-Dichlorobenzene	1550	10,000	31,000 (RBC) N
1,4-Dichlorobenzene	4,840	10,000	120 (RBC) C
1,2,3-Trichlorobenzene	0.0326	not available	not available
1,2,4-Trichlorobenzene	200,000	1,200	500 (RMEG)
Anthracene	46.2	10,000	20,000 (EMEG)
Acenaphthene	219	10,000	1,000 (EMEG)
Benzo(a)anthracene	1.5	4	3.9 (RBC) C
Benzo(b)fluoranthene	65.8	4	3.9 (RBC) C
Benzo(a)pyrene	34.1	0.66	0.1 (CREG)
Benzo(g,h,i)perylene	31.4	not available	not available
Bis (2-Ethylhexyl) phthalate	220	210	50 (CREG)
Di-n-octyl phthalate	190	10,000	800 (EMEG)
Chrysene	41.9	40	390 (RBC) C
Fluorene	213	10,000	800 (EMEG)
Fluoranthene	121	10,000	800 (EMEG)
Indeno(1,2,3-cd)pyrene	35.9	10,000	3.9 (RBC) C
Phenanthrene	428	not available	not available
Pyrene	70.5	10,000	2,000 (RMEG)
Naphthalene	2,370,000	4,200	40 (EMEG)
2,3,7,8-TCDD (Dioxin)	0.0696	not available	1.9 x 10 ⁻⁵ (RBC) C
PCB - Arochlor 1260**	9,300	2	1.4 (RBC) C

* Environmental Media Evaluation Guide

† Reference Media Evaluation Guide

‡ Cancer Risk Evaluation Guide for 1 x 10⁻⁶ excess cancer risk

§ Risk Based Concentration (N: Non carcinogenic effects; C: Carcinogenic effects)

** sample collected is a concrete chip

Contaminants of Concern are in boldface

Table 3
Standard Chlorine Chemical Company - On-Site Soil Contaminants
Data from Sampling Events Conducted between May 1985 - January 1999
Soil Depth > 2 feet

Volatile Organic Compounds	Maximum Detected Concentration (mg/kg)	NJ Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) (mg/kg)	Environmental Comparison Value (mg/kg)
Chlorobenzene	220	680	800 (EMEG*)
Chloromethane	0.180	1,000	not available
Tetrachloroethylene	16	6	500 (RMEG [†])
Semi-Volatile Organic Compounds	Maximum Detected Concentration (mg/kg)	NJ Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) (mg/kg)	Environmental Comparison Value (mg/kg)
1,2-Dichlorobenzene	9,200	10,000	5,000 (RMEG)
1,3-Dichlorobenzene	1,700	10,000	31,000 (RBC [‡]) N
1,4-Dichlorobenzene	1,630	10,000	120 (RBC) C
1,2,3-Trichlorobenzene	2,140	not available	not available
1,2,4-Trichlorobenzene	6,540	1,200	500 (RMEG)
Anthracene	90	10,000	20,000 (EMEG)
Acenaphthene	25	10,000	1,000 (EMEG)
Benzo(a)anthracene	87	4	3.9 (RBC) C
Benzo(b)fluoranthene	58	4	3.9 (RBC) C
Benzo(a)pyrene	82	0.66	0.1 (CREG [§])
Benzo(g,h,i)perylene	53	not available	not available
Bis (2-Ethylhexyl) phthalate	9.92	210	50 (CREG)
Di-n-butyl phthalate	3.06	10,000	800 (EMEG)
Chrysene	79	40	390 (RBC) C
Fluorene	33	10,000	800 (EMEG)
Fluoranthene	200	10,000	800 (EMEG)
Indeno(1,2,3-cd)pyrene	54	10,000	3.9 (RBC) C
Phenanthrene	200	not available	not available
Pyrene	190	10,000	2,000 (RMEG)
Naphthalene	5,750	4,200	40 (EMEG)
2,3,7,8-TCDD (Dioxin)	0.268	not available	1.9 x 10 ⁻⁵ (RBC) C
Metals	Maximum Detected Concentration (mg/kg)	NJ Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) (mg/kg)	Environmental Comparison Value (mg/kg)
Lead	647	600	not available
Arsenic	41.9	20	0.5 (CREG)
Copper	335	600	60 (EMEG)

* Environmental Media Evaluation Guide

[†] Reference Media Evaluation Guide

[‡] Risk Based Concentration (N: Non carcinogenic effects; C: Carcinogenic effects)

[§] Cancer Risk Evaluation Guide for 1 x 10⁻⁶ excess cancer risk

Contaminants of Concern are in boldface

Table 4
Standard Chlorine Chemical Company - On-Site Sediment Contaminants
Data from Sampling Events Conducted between January 1991 - October 2002

Volatile Organic Compounds	Maximum Detected Concentration (mg/kg)	Freshwater Sediment Screening Guidelines (mg/kg)	NJ Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) (mg/kg)	Environmental Comparison Value (mg/kg)
Benzene	23.4	0.34	13	52 (RBC*) C
Chlorobenzene	250	not available	680	800 (EMEG [†])
Toluene	63.1	2.5	1,000	40 (EMEG)
Methylene Chloride	21.5	not available	210	90 (CREG [‡])
Ethylbenzene	43.3	1.40	1,000	5,000 (RMEG [§])
Semi-Volatile Organic Compounds	Maximum Detected Concentration (mg/kg)	Freshwater Sediment Screening Guidelines (mg/kg)	NJ Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) (mg/kg)	Environmental Comparison Value (mg/kg)
1,2-Dichlorobenzene	5,300	0.035	10,000	5,000 (RMEG)
1,3-Dichlorobenzene	3,900	not available	10,000	31,000 (RBC) N
1,4-Dichlorobenzene	6,000	0.11	10,000	120 (RBC) C
1,2,4-Trichlorobenzene	2,900	not available	1,200	500 (RMEG)
2,4-Dimethylphenol	21,900	not available	10,000	1,000 (RMEG)
Anthracene	1,700	0.22	10,000	20,000 (EMEG)
Acenaphthene	6,070	0.02	10,000	1,000 (EMEG)
Benzo(a)anthracene	1.1	0.32	4	3.9 (RBC) C
Benzo(b)fluoranthene	44.6	0.24	4	3.9 (RBC) C
Benzo(a)pyrene	37.7	0.37	0.66	0.1 (CREG)
Benzo(g,h,i)perylene	36.2	0.17	not available	not available
Bis (2-Ethylhexyl) phthalate	188	not available	210	50 (CREG)
Chrysene	33.6	0.34	40	390 (RBC) C
Fluorene	5,150	0.19	10,000	800 (EMEG)
Fluoranthene	903	0.75	10,000	800 (EMEG)
Indeno(1,2,3-cd)pyrene	48.3	0.20	10,000	3.9 (RBC) C
Naphthalene	25,200,000	0.16	4,200	40 (EMEG)
Phenanthrene	5,320	0.56	not available	not available
Pyrene	663	0.49	10,000	2,000 (RMEG)
PCB - Arochlor 1260	5,160	0.005	2	1.9 x 10 ⁻⁵ (RBC) C
2,3,7,8-TCDD (Dioxin)	0.0595	not available	not available	1.4 (RBC) C
Metals	Maximum Detected Concentration (mg/kg)	Freshwater Sediment Screening Guidelines (mg/kg)	NJ Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) (mg/kg)	Environmental Comparison Value (mg/kg)
Chromium (Total)	16,400	26	6,100**	not available
Lead	15,500	31	600	not available
Arsenic	30	6	20	0.5 (CREG)
Copper	401	16	600	60 (EMEG)
Mercury	25	0.2	270	not available
Cyanide	99	not available	21,000	1,000 (RMEG)
Zinc	1,850	120	1,500	600 (EMEG)

* Risk Based Concentration (N: Non carcinogenic effects; C: Carcinogenic effects)

[†] Environmental Media Evaluation Guide

[‡] Cancer Risk Evaluation Guide for 1 x 10⁻⁶ excess cancer risk

[§] Reference Media Evaluation Guide

** Criterion based on the ingestion exposure pathway for hexavalent chromium
Contaminants of Concern are in boldface

Table 5
Standard Chlorine Chemical Company - On-Site Surface Water Contaminants
Data from Sampling Events Conducted between January 1991 - October 2002

Volatile Organic Compounds	Maximum Detected Concentration (µg/L)	NJ Class SE-2 Surface Water Quality Standards (µg/L)	NJ Maximum Contaminant Levels (µg/L)	Environmental Comparison Value (µg/L)
Benzene	40	71	1	0.6 (CREG*)
Chlorobenzene	600	21,000	not available	200 (RMEG [†])
1,2-Trans-Dichloroethene	21	not available	100	120 (RBC) N
Toluene	6	200,000	1000	200 (EMEG [‡])
Semi-Volatile Organic Compounds	Maximum Detected Concentration (µg/L)	NJ Class SE-2 Surface Water Quality Standards (µg/L)	NJ Maximum Contaminant Levels (µg/L)	Environmental Comparison Value (µg/L)
1,2-Dichlorobenzene	2,740	16,500	600	270 (RBC [§]) N
1,3-Dichlorobenzene	2,920	22,200	600	180 (RBC) N
1,4-Dichlorobenzene	4,680	3,159	75	0.47 (RBC) C
1,2,4-Trichlorobenzene	82	113	9	7.2 (RBC) N
2,4-Dimethylphenol	1,000	not available	not available	200 (RMEG)
Acenaphthene	93	not available	not available	370 (RBC) N
2-Chlorophenol	3.9	402	not available	30 (RBC) N
Phenol	241	4,600,000	not available	3,000 (RMEG)
Fluorene	2.8	1,340	not available	240 (RBC) N
Naphthalene	270	not available	300	6.5 (RBC) N
Metals	Maximum Detected Concentration (µg/L)	NJ Class SE-2 Surface Water Quality Standards (µg/L)	NJ Maximum Contaminant Levels (µg/L)	Environmental Comparison Value (µg/L)
Arsenic	10	0.136	10	0.02 (CREG)
Chromium (Total)	1,240,000	3,230	100	not available
Copper	173,000	7.9	1,300	300 (EMEG)
Lead	136,000	210	15	not available
Mercury	19,400	0.146	2	not available
Nickel	982,000	3,900	no MCL monitoring req.	200 (RMEG)
Zinc	487,000	not available	5000	2,000 (EMEG)

* Cancer Risk Evaluation Guide for 1×10^{-6} excess cancer risk

[†] Environmental Media Evaluation Guide

[‡] Reference Media Evaluation Guide

[§] Risk Based Concentration (N: Non carcinogenic effects; C: Carcinogenic effects)

Contaminants of Concern are in boldface

Table 6
Standard Chlorine Chemical Company - Groundwater Contaminants
Data from Sampling Events Conducted between August 1983 - February 1999

Volatile Organic Compounds	Maximum Detected Concentration (µg/L)	NJ Groundwater Quality Standards (µg/L)	NJ Maximum Contaminant Levels (µg/L)	Environmental Comparison Value (µg/L)
Chlorobenzene	93,000	4	not available	200 (RMEG [*])
1,2-Trans-Dichloroethene	244	100	100	120 (RBC [†]) N
1,1,2-Trichloroethane	30	not available	3	0.19 (RBC) C
Trichloroethylene	13,960	1	1	0.026 (RBC) C
Tetrachloroethylene	5,350	1	1	0.53 (RBC) C
Methylene chloride	415	2	3	4.1 (RBC) C
Ethylbenzene	310	0.7	700	1,000 (RMEG)
Vinyl chloride	669	5	2	0.015 (RBC) C
Xylenes	1,550	not available	1,000	210 (RBC) N
Toluene	1,290	1,000	1,000	200 (EMEG [‡])
Semi-Volatile Organic Compounds	Maximum Detected Concentration (µg/L)	NJ Groundwater Quality Standards (µg/L)	NJ Maximum Contaminant Levels (µg/L)	Environmental Comparison Value (µg/L)
1,2-Dichlorobenzene	33,000	600	600	270 (RBC) N
1,3-Dichlorobenzene	26,900	600	600	180 (RBC) N
1,4-Dichlorobenzene	33,000	75	75	0.47 (RBC) C
1,2,4-Trichlorobenzene	26,000	900	9	7.2 (RBC) N
2,4-Dimethylphenol	38,000	100	not available	200 (RMEG)
Acenaphthene	4,300	400	not available	370 (RBC) N
Acenaphthylene	96	10	not available	not available
2-Chlorophenol	63	40	not available	30 (RBC) N
Phenol	360,000	4,000	not available	3,000 (RMEG)
2-Methylphenol	58,000	not available	not available	1,800 (RBC) N
2,4-Dichlorophenol	321	20	not available	30 (EMEG)
4-Methylphenol	200,000	not available	not available	180 (RBC) N
Bis (2-Ethylhexyl) phthalate	11,100	30	6	3 (CREG [§])
Fluorene	303	300	not available	240 (RBC) N
Phenanthrene	216	10	not available	not available
Anthracene	69	2,000	not available	1,800 (RBC) N
Naphthalene	58,200	not available	300	6.5 (RBC) N
Metals	Maximum Detected Concentration (µg/L)	NJ Groundwater Quality Standards (µg/L)	NJ Maximum Contaminant Levels (µg/L)	Environmental Comparison Value (µg/L)
Arsenic	130	0.02	10	0.02 (CREG)
Antimony	390	2	6	4 (RMEG)
Chromium (Total)	101,700	100	100	not available
Chromium (Hexavalent)	97,000	not available	not available	30 (RMEG)
Copper	350	1,000	1,300	300 (EMEG)
Cyanide	197	200	200	200 (RMEG)
Lead	44,900	5	15	not available
Mercury	142	2	2	not available
Nickel	6,740	100	no MCL monitoring req.	200 (RMEG)
Zinc	11,900	5,000	5,000	2,000 (EMEG)

^{*} Reference Media Evaluation Guide

[†] Risk Based Concentration (N: Non carcinogenic effects; C: Carcinogenic effects)

[‡] Environmental Media Evaluation Guide

[§] Cancer Risk Evaluation Guide for 1 x 10⁻⁶ excess cancer risk

Contaminants of Concern are in boldface

Table 7
Standard Chlorine Chemical Company - Off Site Sediment Contaminants
Data from Sampling Events Conducted between January 1991 - October 2002

Volatile Organic Compounds	Maximum Detected Concentration (mg/kg)	Freshwater Sediment Screening Guidelines (mg/kg)	NJ Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) (mg/kg)	Environmental Comparison Value (mg/kg)
Benzene	0.41	0.34	13	52 (RBC*) C
Chlorobenzene	120	not available	680	800 (EMEG [†])
Toluene	0.02	2.5	1,000	40 (EMEG)
Methylene Chloride	0.0087	not available	210	90 (CREG [‡])
Xylenes	0.16	>0.12	1,000	400 (EMEG)
Ethylbenzene	0.73	1.40	1,000	5,000 (RMEG [§])
Semi-Volatile Organic Compounds	Maximum Detected Concentration (mg/kg)	Freshwater Sediment Screening Guidelines (mg/kg)	NJ Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) (mg/kg)	Environmental Comparison Value (mg/kg)
1,2-Dichlorobenzene	280	0.035	10,000	5,000 (RMEG)
1,3-Dichlorobenzene	290	not available	10,000	31,000 (RBC) N
1,4-Dichlorobenzene	360	0.11	10,000	120 (RBC) C
1,2,4-Trichlorobenzene	1,200	not available	1,200	500 (RMEG)
Anthracene	21	0.22	10,000	20,000 (EMEG)
Acenaphthene	7.1	0.02	10,000	1,000 (EMEG)
Benzo(a)anthracene	26	0.32	4	3.9 (RBC) C
Benzo(b)fluoranthene	19	0.24	4	3.9 (RBC) C
Benzo(a)pyrene	17	0.37	0.66	0.1 (CREG)
Benzo(g,h,i)perylene	4.90	0.17	not available	not available
Bis (2-Ethylhexyl) phthalate	15	not available	210	50 (CREG)
Chrysene	8	0.34	40	390 (RBC) C
Fluorene	4.2	0.19	10,000	800 (EMEG)
Fluoranthene	35	0.75	10,000	800 (EMEG)
Indeno(1,2,3-cd)pyrene	56	0.20	10,000	3.9 (RBC) C
Naphthalene	4,570	0.16	4,200	40 (EMEG)
Phenanthrene	43	0.56	not available	not available
Pyrene	46	0.49	10,000	2,000 (RMEG)
PCB - Arochlor 1254	0.21	0.005	2	0.06 (EMEG)
2,3,7,8-TCDD (Dioxin)	0.0000964	not available	not available	1.9 x 10 ⁻⁵ (RBC) C
Metals	Maximum Detected Concentration (mg/kg)	Freshwater Sediment Screening Guidelines (mg/kg)	NJ Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) (mg/kg)	Environmental Comparison Value (mg/kg)
Chromium (Total)	11,700	26	6,100**	not available
Chromium (Hexavalent)	73	not available	6,100	200 (RMEG)
Lead	337	31	600	not available
Arsenic	105	6	20	0.5 (CREG)
Copper	295	16	600	60 (EMEG)
Mercury	0.650	0.2	270	not available
Nickel	308	16	2,400	20,000 (RBC) N

* Risk Based Concentration (N: Non carcinogenic effects; C: Carcinogenic effects)

[†] Environmental Media Evaluation Guide

[‡] Cancer Risk Evaluation Guide for 1 x 10⁻⁶ excess cancer risk

[§] Reference Media Evaluation Guide

** Criterion based on the ingestion exposure pathway for hexavalent chromium

Contaminants of Concern are in boldface

Table 8
Standard Chlorine Chemical Company - Off-Site Surface Water Contaminants
Data from Sampling Events Conducted between August 1996 - October 2002

Volatile Organic Compounds	Maximum Detected Concentration (µg/L)	NJ Class SE-2 Surface Water Quality Standards (µg/L)	NJ Maximum Contaminant Levels (µg/L)	Environmental Comparison Value (µg/L)
Benzene	23	71	1	0.6 (CREG*)
Chlorobenzene	760	21,000	not available	200 (RMEG [†])
Semi-Volatile Organic Compounds	Maximum Detected Concentration (µg/L)	NJ Class SE-2 Surface Water Quality Standards (µg/L)	NJ Maximum Contaminant Levels (µg/L)	Environmental Comparison Value (µg/L)
1,2-Dichlorobenzene	6,130	16,500	600	270 (RBC [§]) N
1,3-Dichlorobenzene	430	22,200	600	180 (RBC) N
1,4-Dichlorobenzene	6,370	3,159	75	0.47 (RBC) C
1,2,4-Trichlorobenzene	200	113	9	7.2 (RBC) N
Naphthalene	45	NA	300	6.5 (RBC) N
Metals	Maximum Detected Concentration (µg/L)	NJ Class SE-2 Surface Water Quality Standards (µg/L)	NJ Maximum Contaminant Levels (µg/L)	Environmental Comparison Value (µg/L)
Chromium (Total)	3,000	3,230	100	not available

* Cancer Risk Evaluation Guide for 1×10^{-6} excess cancer risk

[†] Reference Media Evaluation Guide

[§] Risk Based Concentration (N: Non carcinogenic effects; C: Carcinogenic effects)

Contaminants of Concern are in boldface

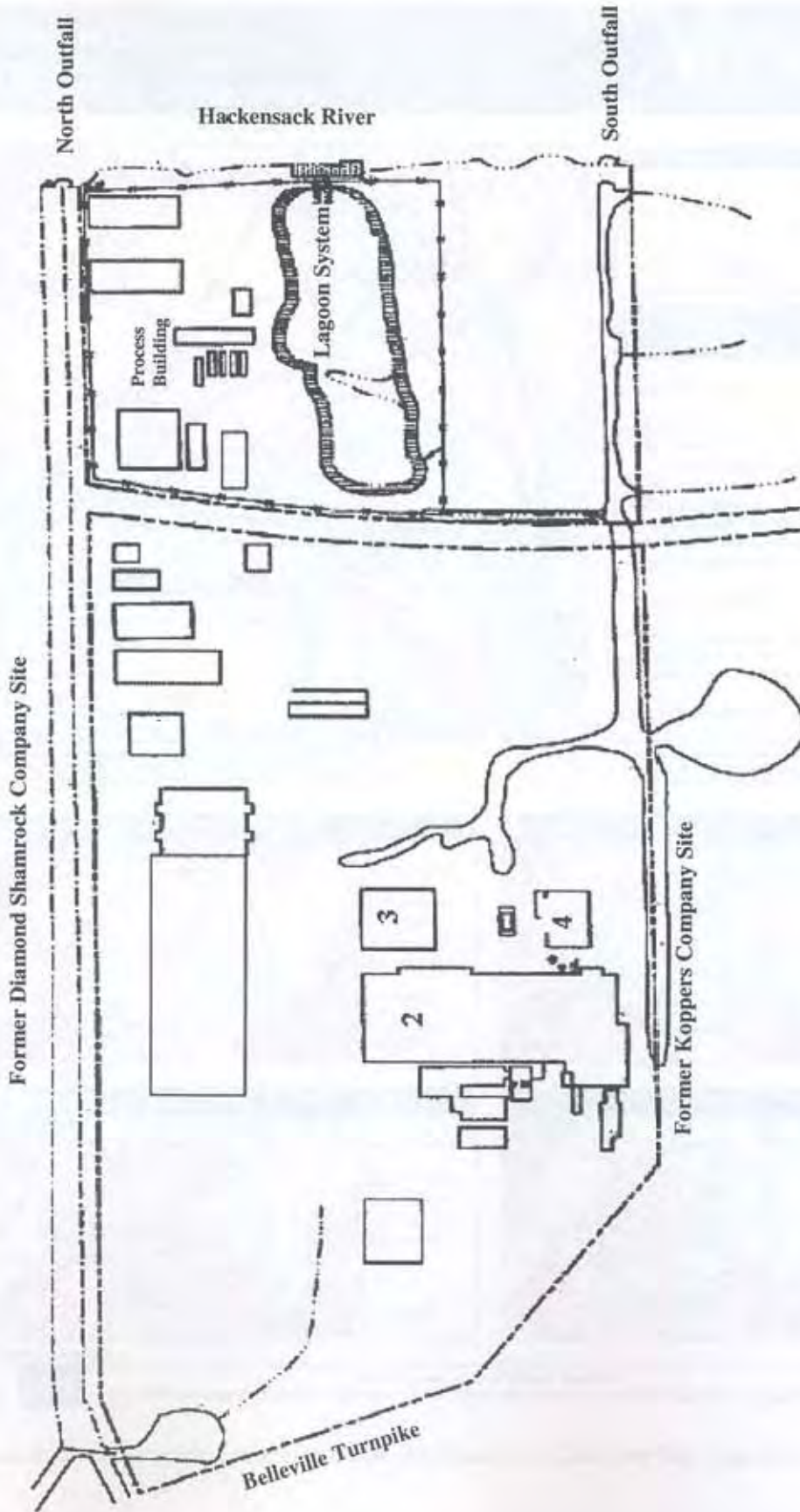
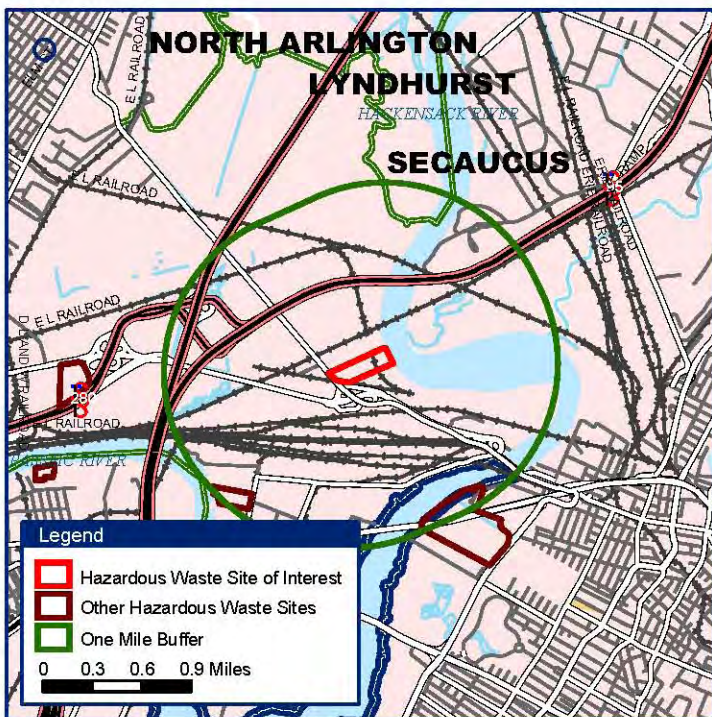


Figure 2: Site Map of the Standard Chlorine Chemical Company

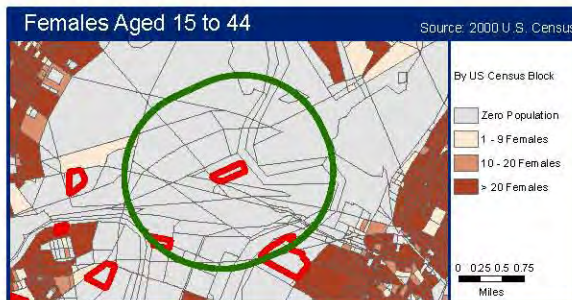
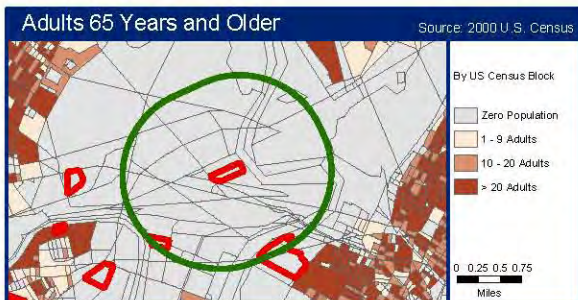
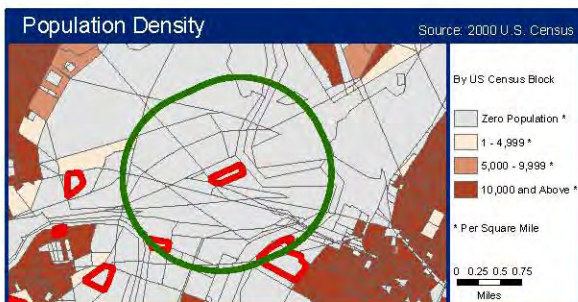


Demographic Statistics
 Within One Mile of Site*

Total Population	0
White Alone	0
Black Alone	0
Am. Indian & Alaska Native Alone	0
Asian Alone	0
Native Hawaiian & Other Pacific Islander Alone	0
Some Other Race Alone	0
Two or More Races	0
Hispanic or Latino**	0
Children Aged 6 and Younger	0
Adults Aged 65 and Older	0
Females Aged 15 to 44	0
Total Housing Units	0

Base Map Source: Geographic Data Technology (DYNAMAP 2000), August 2002
 Site Boundary Data Source: ATSDR Public Health GIS Program, August 2002
 Coordinate System (All Panels): NAD 1983 StatePlane New Jersey FIPS 2900 Feet

Demographics Statistics Source: 2000 U.S. Census
 * Calculated using an area-proportion spatial analysis technique
 ** People who identify their origin as Hispanic or Latino may be of any race.



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Figure 3: Demographic Information of the Standard Chlorine Site based on 2000 U.S. Census

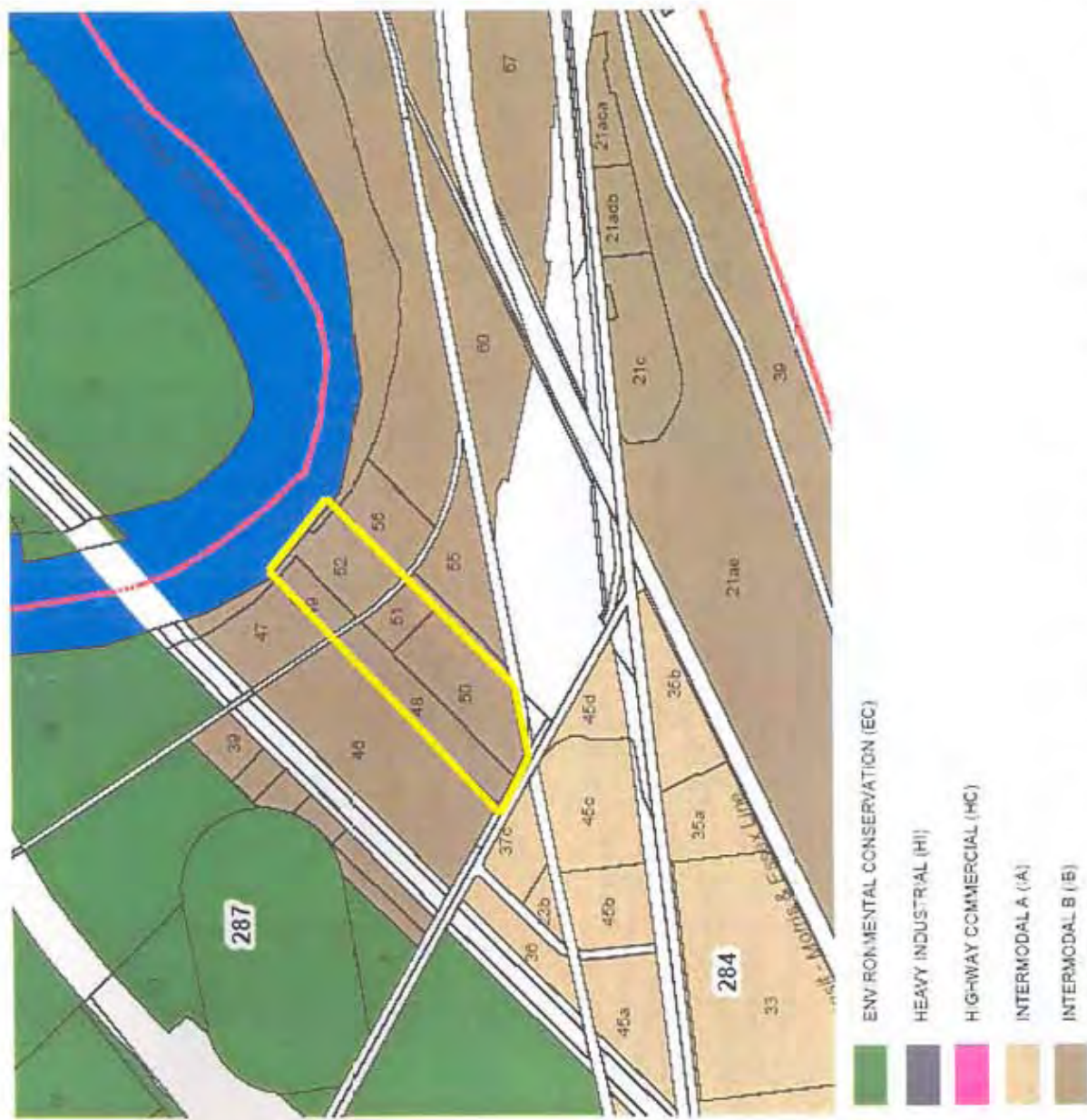


Figure 4: The New Jersey Meadowlands Commission zoning map (yellow represents site boundaries)

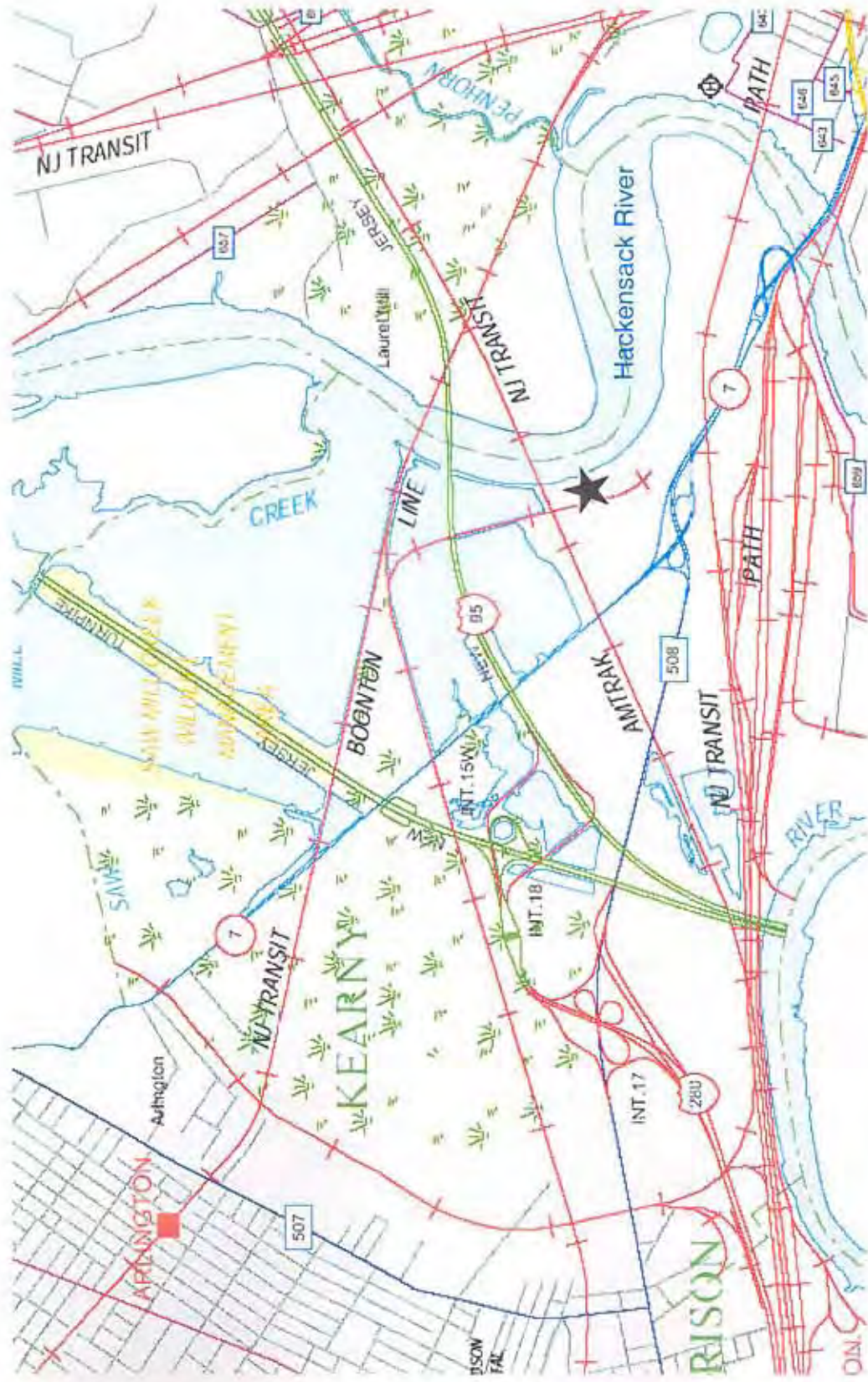


Figure 6: Map depicting the major roadways/railway transit lines near the Standard Chlorine site
 (star represents the site location)