

PHW



0848-263-302

**SOUTH BUFFALO REDEVELOPMENT PLAN
STEEL MANUFACTURING SITE**

VOLUNTARY CLEAN-UP SITE ASSESSMENT REPORT

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MAIN LASALLE SOIL CHARACTERIZATION TABLES

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
HIGH BEDROCK AREAS
SOIL**

Sample Location I.D.					TP-02	TP-04	TP-38A	TP-40A	TP-52
Date Sampled					08/05/96	08/05/96	11/06/96	11/06/96	08/12/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Acetone	UG/KG	200	7800000	200000000					
1,1,1-Trichloroethane	UG/KG	800	7000000	180000000					
Trichloroethene	UG/KG	700	58000	520000					
Benzene	UG/KG	60	22000	200000					
Toluene	UG/KG	1500	16000000	410000000					
Xylene (total)	UG/KG	1200	160000000	1000000000					
Benzoic Acid	UG/KG	2700	310000000	1000000000					
Naphthalene	UG/KG	13000	3100000	82000000				510	
2-Methylnaphthalene	UG/KG	38400							
Acenaphthylene	UG/KG	41000							
Acenaphthene	UG/KG	50000	4700000	120000000	1236		82	850	
Dibenzofuran	UG/KG	6200	310000	8200000			50	580	
Fluorene	UG/KG	50000	3100000	82000000		80	99	980	
Phenanthrene	UG/KG	50000			1340	1210	1200	9000	336
Anthracene	UG/KG	50000	23000000	610000000	4360	220	220	1800	85
Carbazole	UG/KG		32000	290000	770		NA	NA	
Di-n-butylphthalate	UG/KG	8100	7800000	200000000		89			
Fluoranthene	UG/KG	50000	3100000	82000000	26800	1710	1200	8100	537
Pyrene	UG/KG	50000	2300000	61000000	19400	1110	1900	14000	508
Butylbenzylphthalate	UG/KG	50000	16000000	410000000		423	150		
Benzo(a)anthracene	UG/KG	224 or MDL	880	7800	14500 a b	1100 a b	970 a b	6900 a b	324 a
Chrysene	UG/KG	400	88000	780000	13700 a	1110 a	1000 a	6900 a	389
bis(2-Ethylhexyl)phthalate	UG/KG	50000	46000	410000		76	80		
Benzo(b)fluoranthene	UG/KG	224 or MDL	880	7800	13600 a b	1240 a b	1000 a b	8600 a b	385 a
Benzo(k)fluoranthene	UG/KG	224 or MDL	8800	78000	14140 a b	1120 a	700 a		315 a
Benzo(a)pyrene	UG/KG	81 or MDL	88	780	14800 a b	1120 a b	910 a b	5800 a b	314 a b
Indeno(1,2,3-cd)pyrene	UG/KG	3200	880	7800	4460 a b	231	800	4300 a b	82
Dibenz(a,h)anthracene	UG/KG	14 or MDL	88	780		340 a b	500 a b	3200 a b	
Benzo(g,h,i)perylene	UG/KG	50000			4000	228	810	4800	76
Dieldrin	UG/KG	44	40	360					
4,4'-DDE	UG/KG	2100	1900	17000		3.7			
4,4'-DDD	UG/KG	2900	2700	24000					

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
HIGH BEDROCK AREAS
SOIL**

Sample Location ID.					TP-02	TP-04	TP-28A	TP-40A	TP-52
Date Sampled					08/06/96	08/06/96	11/06/96	11/06/96	08/12/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
4,4'-DDT	UG/KG	2100	1900	17000				170	
Zinc	MG/KG	20 or SB	23000	610000	101 a	122 a	110 a	680 a	194 a
Lead	MG/KG	SB			85.6	81.7	56	550	166
Cadmium	MG/KG	10 or SB	39	1000	2.9	2.5		1.9	4.5
Cobalt	MG/KG	30 or SB	4700	120000			7.5	8.4	4.7
Nickel	MG/KG	13 or SB	1600	41000	19.4 a	9.2	2.6	35 a	12.1
Barium	MG/KG	300 or SB	5500	140000	48.1	39.1	60	430 a	91.4
Manganese	MG/KG	SB	390	10000	344	603 b	380	510 b	1220 t
Iron	MG/KG	2000 or SB	23000	610000	11300 a	8700 a	11000 a	17000 a	16800 a
Chromium	MG/KG	50 or SB	78000	1000000	19.8	29.6	15	23	85.4 a
Magnesium	MG/KG	SB			33000	21900	9100	5600	4720
Vanadium	MG/KG	150 or SB	550	14000	8.6	9.6	17	32	19.6
Aluminum	MG/KG	SB	78000	1000000	3900	3260	21000	21000	8060
Beryllium	MG/KG	0.16 or SB	0.15	1.3				0.81 a b	
Calcium	MG/KG	SB			100000	89900	73000	22000	24300
Copper	MG/KG	25 or SB	3100	82000	37.7 a	20.7	28 a	110 a	38.1 a
Silver	MG/KG	SB	390	10000					
Potassium	MG/KG	SB			789	513	2200	2200	599
Sodium	MG/KG	SB			412	264	200	310	412
Arsenic	MG/KG	7.5 or SB	0.43	3.8	11 a b	4.3 b	10 a b	15 a b	7.4 t
Antimony	MG/KG	SB	31	820					
Selenium	MG/KG	2 or SB	390	10000	0.54		1.1	2.8 a	0.96
Thallium	MG/KG	SB			0.34	0.33			
Mercury	MG/KG	0.1	23	610	0.171 a	0.13 a	0.12 a	0.35 a	0.194 a
Cyanide	MG/KG		1600	41000	0.133				0.783

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NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
HIGH BEDROCK AREAS
SOIL**

Sample Location I.D.					TP-53	TP-54	TP-55	TP-56	TP-57
Date Sampled					08/13/96	08/13/96	08/13/96	08/13/96	08/13/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Acetone	UG/KG	200	7800000	200000000	26			31	36
1,1,1-Trichloroethene	UG/KG	800	7000000	180000000					
Trichloroethene	UG/KG	700	58000	520000				2	
Benzene	UG/KG	60	22000	200000	1			1	2
Toluene	UG/KG	1500	16000000	410000000					
Xylene (total)	UG/KG	1200	160000000	1000000000					
Benzoic Acid	UG/KG	2700	310000000	1000000000				292	
Naphthalene	UG/KG	13000	3100000	82000000	665	144	87	102	77
2-Methylnaphthalene	UG/KG	36400			1040	201	150	172	122
Acenaphthylene	UG/KG	41000			84			82	
Acenaphthene	UG/KG	50000	4700000	120000000	108				
Dibenzofuran	UG/KG	6200	310000	8200000	429	95		72	
Fluorene	UG/KG	50000	3100000	82000000					
Phenanthrene	UG/KG	50000			1980	904	227	506	203
Anthracene	UG/KG	50000	23000000	610000000	357	179		96	
Carbazole	UG/KG		32000	290000	168	86			
Di-n-butylphthalate	UG/KG	8100	7800000	200000000	176	98	88	97	75
Fluoranthene	UG/KG	50000	3100000	82000000	1480	901	241	1260	180
Pyrene	UG/KG	50000	2300000	61000000	3670	2910	417	1940	159
Butylbenzylphthalate	UG/KG	50000	16000000	410000000					
Benzo(a)anthracene	UG/KG	224 or MDL	880	7800	1390 a b	1190 a b	139	922 a b	75
Chrysene	UG/KG	400	88000	780000	1780 a	1580 a	224	1112 a	121
bis(2-Ethylhexyl)phthalate	UG/KG	50000	46000	410000	177	233	158	167	112
Benzo(b)fluoranthene	UG/KG	224 or MDL	880	7800	1640 a b	1060 a b	222	1150 a b	95
Benzo(k)fluoranthene	UG/KG	224 or MDL	8800	78000	1390 a	1052 a	141	920 a	80
Benzo(a)pyrene	UG/KG	61 or MDL	88	780	1410 a b	1970 a b	182 a b	1080 a b	79 a
Indeno(1,2,3-cd)pyrene	UG/KG	3200	880	7800	1460 b	1500 b	151	672	
Dibenz(a,h)anthracene	UG/KG	14 or MDL	88	780	554 a b	895 a b			
Benzo(g,h,i)perylene	UG/KG	50000			1510	4130	196	724	
Dieldrin	UG/KG	44	40	360					
4,4'-DDE	UG/KG	2100	1900	17000					
4,4'-DDD	UG/KG	2900	2700	24000					

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NA - Not Analyzed.

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CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
HIGH BEDROCK AREAS
SOIL**

Sample Location ID.					TP-53	TP-54	TP-55	TP-56	TP-57
Date Sampled					08/13/96	08/13/96	08/13/96	08/13/96	08/13/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
4,4'-DDT	UG/KG	2100	1900	17000					
Zinc	MG/KG	20 or SB	23000	610000	199 a	196 a	155 a	170 a	78.9 a
Lead	MG/KG	SB			117	95.4	64.8	108	118
Cadmium	MG/KG	10 or SB	39	1000	3.7	3.6	7.7	5.3	4.5
Cobalt	MG/KG	30 or SB	4700	120000	3.6		8.5	4.8	3.7
Nickel	MG/KG	13 or SB	1600	41000	13.8 a	14.5 a	22.1 a	16 a	13.9 a
Barium	MG/KG	300 or SB	5500	140000	90	66.4	67.3	76.6	28.3
Manganese	MG/KG	SB	390	10000	210	274	457 b	383	449 b
Iron	MG/KG	2000 or SB	23000	610000	12400 a	12900 a	37000 a b	22300 a	14900 a
Chromium	MG/KG	50 or SB	78000	1000000	9.2	10.4	12	10.9	4.8
Magnesium	MG/KG	SB			19800	13400	3400	6600	16500
Vanadium	MG/KG	150 or SB	550	14000	9	10	13.9	12.7	5.9
Aluminum	MG/KG	SB	78000	1000000	2660	3420	8190	5400	2000
Beryllium	MG/KG	0.16 or SB	0.15	1.3					
Calcium	MG/KG	SB			96400	61700	15300	29700	86900
Copper	MG/KG	25 or SB	3100	82000	46.3 a	57 a	43.7 a	40.9 a	513 a
Silver	MG/KG	SB	390	10000					
Potassium	MG/KG	SB			429	625	617	415	221
Sodium	MG/KG	SB			393	402	842	570	351
Arsenic	MG/KG	7.5 or SB	0.43	3.8	24 a b	5.8 b	9.8 a b	11 a b	11 a b
Antimony	MG/KG	SB	31	820					1.6
Selenium	MG/KG	2 or SB	390	10000	1.2	1.2	1.2	1.1	
Thallium	MG/KG	SB							
Mercury	MG/KG	0.1	23	610	0.276 a	0.19 a	0.109 a	0.212 a	0.207 a
Cyanide	MG/KG		1600	41000	0.142	0.250	0.458	0.331	0.088

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NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
HIGH BEDROCK AREAS
SOIL**

Sample Location ID.					TP-58	TP-59	TP-60	TP-61	TP-62
Date Sampled					08/13/96	08/13/96	08/13/96	08/13/96	08/12/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Acetone	UG/KG	200	7800000	200000000	82	175	66		
1,1,1-Trichloroethene	UG/KG	800	7000000	180000000					
Trichloroethene	UG/KG	700	58000	520000					1
Benzene	UG/KG	60	22000	200000	2	4	1		
Toluene	UG/KG	1500	16000000	410000000					
Xylene (total)	UG/KG	1200	160000000	1000000000					
Benzoic Acid	UG/KG	2700	310000000	1000000000					
Naphthalene	UG/KG	13000	3100000	82000000		206			
2-Methylnaphthalene	UG/KG	36400				308			
Acenaphthylene	UG/KG	41000				187			
Acenaphthene	UG/KG	50000	4700000	120000000				143	
Dibenzofuran	UG/KG	6200	310000	8200000		186		94	
Fluorene	UG/KG	50000	3100000	82000000					
Phenanthrene	UG/KG	50000			174	1065	337	1200	
Anthracene	UG/KG	50000	23000000	610000000		176	74	336	
Carbazole	UG/KG		32000	290000		103		137	
Di-n-butylphthalate	UG/KG	8100	7800000	200000000	99	84		80	
Fluoranthene	UG/KG	50000	3100000	82000000	170	2110	327	1480	
Pyrene	UG/KG	50000	2300000	61000000	196	3450	1020	3200	77
Butylbenzylphthalate	UG/KG	50000	16000000	410000000					
Benzo(a)anthracene	UG/KG	224 or MDL	880	7800	80	1520 a b	328 a	1110 a b	
Chrysene	UG/KG	400	88000	780000	141	2000 a	405 a	1210 a	
bis(2-Ethylhexyl)phthalate	UG/KG	50000	46000	410000	220	151	157	331	
Benzo(b)fluoranthene	UG/KG	224 or MDL	880	7800	103	2400 a b	354 a	976 a b	
Benzo(k)fluoranthene	UG/KG	224 or MDL	8800	78000	86	1920 a	287 a	974 a	
Benzo(a)pyrene	UG/KG	61 or MDL	88	780	85 a	1740 a b	456 a b	979 a b	
Indeno(1,2,3-cd)pyrene	UG/KG	3200	880	7800		1140 b	507	690	
Dibenz(a,h)anthracene	UG/KG	14 or MDL	88	780		445 a b		256 a b	
Benzo(g,h,i)perylene	UG/KG	50000				1080	758	793	
Dieldrin	UG/KG	44	40	360					
4,4'-DDE	UG/KG	2100	1900	17000			8	27.1	
4,4'-DDD	UG/KG	2900	2700	24000					

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
HIGH BEDROCK AREAS
SOIL**

Sample Location I.D.					TP-58	TP-59	TP-60	TP-61	TP-62
Date Sampled					08/13/96	08/13/96	08/13/96	08/13/96	08/12/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
4,4'-DDT	UG/KG	2100	1900	17000					
Zinc	MG/KG	20 or SB	23000	610000	52.2 a	116 a	61.5 a	53.9 a	21.8 a
Lead	MG/KG	SB			21.1	148	71.4	22.6	28.7
Cadmium	MG/KG	10 or SB	39	1000	4.8	7.9	1.7	1.8	
Cobalt	MG/KG	30 or SB	4700	120000	5	6.1			
Nickel	MG/KG	13 or SB	1600	41000	13.2 a	16.1 a	8.2		
Barium	MG/KG	300 or SB	5500	140000	53.7	92.2	64.3	14.3	500 a
Manganese	MG/KG	SB	390	10000	445 b	365	708 b	202	5250 b
Iron	MG/KG	2000 or SB	23000	610000	15800 a	26700 a b	6100 a	3690 a	2260 a
Chromium	MG/KG	50 or SB	78000	1000000	7.5	10.5	6.7	1.9	82.7 a
Magnesium	MG/KG	SB			10200	5500	14400	16700	4900
Vanadium	MG/KG	150 or SB	550	14000	12.3	10.7	7.4		
Aluminum	MG/KG	SB	78000	1000000	6920	3720	5560	1660	38400
Beryllium	MG/KG	0.16 or SB	0.15	1.3					1.6 a b
Calcium	MG/KG	SB			64400	28900	126000	47700	296000
Copper	MG/KG	25 or SB	3100	82000	25.8 a	129 a	11.6	5	12.5
Silver	MG/KG	SB	390	10000					
Potassium	MG/KG	SB			379	382	450	173	1980
Sodium	MG/KG	SB			387	584	366	138	773
Arsenic	MG/KG	7.5 or SB	0.43	3.8	6.7 b	127 a b	3.4 b	1.3 b	
Antimony	MG/KG	SB	31	820					
Selenium	MG/KG	2 or SB	390	10000	0.59	1.4			4.2 a
Thallium	MG/KG	SB							
Mercury	MG/KG	0.1	23	610	0.177 a	0.082	0.027	0.035	
Cyanide	MG/KG		1600	41000	0.113	0.595	0.169	0.234	53.3

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
HIGH BEDROCK AREAS
SOIL**

Sample Location I.D.					TP-62A	TP-63	TP-64	TP-65	TP-68
Date Sampled					08/15/96	08/12/96	08/12/96	08/15/96	08/15/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Acetone	UG/KG	200	7800000	200000000	NA		350 a	60	
1,1,1-Trichloroethane	UG/KG	800	7000000	180000000	NA		2		
Trichloroethene	UG/KG	700	58000	520000	NA	1	2		
Benzene	UG/KG	60	22000	200000	NA		5		
Toluene	UG/KG	1500	18000000	410000000	NA		1		
Xylene (total)	UG/KG	1200	16000000	100000000	NA		1		
Benzoic Acid	UG/KG	2700	31000000	100000000	NA				
Naphthalene	UG/KG	13000	3100000	82000000	NA		549	99	
2-Methylnaphthalene	UG/KG	38400			NA		1190	149	
Acenaphthylene	UG/KG	41000			NA				
Acenaphthene	UG/KG	50000	4700000	120000000	NA	85	208	459	
Dibenzofuran	UG/KG	6200	310000	8200000	NA		483	219	
Fluorene	UG/KG	50000	3100000	82000000	NA	92		227	
Phenanthrene	UG/KG	50000			NA	942	2310	5700	1120
Anthracene	UG/KG	50000	23000000	810000000	NA	255	536	1630	166
Carbazole	UG/KG		32000	290000	NA	90	183	376	97
Di-n-butylphthalate	UG/KG	8100	7800000	200000000	NA		92	130	72
Fluoranthene	UG/KG	50000	3100000	82000000	NA	2010	1830	4630	1520
Pyrene	UG/KG	50000	2300000	81000000	NA	1380	3610	15900	1180
Butylbenzylphthalate	UG/KG	50000	16000000	410000000	NA				
Benzo(a)anthracene	UG/KG	224 or MDL	880	7800	NA	1050 a b	1600 a b	6360 a b	1030 a b
Chrysene	UG/KG	400	88000	780000	NA	1110 a	1750 a	6310 a	1080 a
bis(2-Ethylhexyl)phthalate	UG/KG	50000	46000	410000	NA	148	276	376	83
Benzo(b)fluoranthene	UG/KG	224 or MDL	880	7800	NA	1360 a b	1390 a b	4270 a b	1150 a b
Benzo(k)fluoranthene	UG/KG	224 or MDL	8800	78000	NA	1360 a	1220 a	4270 a	1010 a
Benzo(a)pyrene	UG/KG	61 or MDL	88	780	NA	1110 a b	1710 a b	574 a b	1050 a b
Indeno(1,2,3-cd)pyrene	UG/KG	3200	880	7800	NA	252	1420 b	3160 b	1400 b
Dibenz(a,h)anthracene	UG/KG	14 or MDL	88	780	NA		553 a b	2290 a b	
Benzo(g,h,i)perylene	UG/KG	50000			NA	204	1750	3360	
Dieldrin	UG/KG	44	40	360	NA			9.4	
4,4'-DDE	UG/KG	2100	1900	17000	NA	29.6		30.2	19.2
4,4'-DDD	UG/KG	2900	2700	24000	NA			34.4	

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
HIGH BEDROCK AREAS
SOIL**

Sample Location I.D.					TP-62A	TP-63	TP-64	TP-65	TP-68
Date Sampled					08/15/96	08/12/96	08/12/96	08/15/96	08/15/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
4,4'-DDT	UG/KG	2100	1900	17000	NA				
Zinc	MG/KG	20 or SB	23000	610000	8.8	99.6 a	39.4 a	114 a	84.4 a
Lead	MG/KG	SB			18.1	73.3	29.3	132	74.4
Cadmium	MG/KG	10 or SB	39	1000		4	3.6	2	
Cobalt	MG/KG	30 or SB	4700	120000		5.8	4.7		
Nickel	MG/KG	13 or SB	1600	41000		16.7 a	15.4 a	13	9.6
Barium	MG/KG	300 or SB	5500	140000	449 a	79.9	34.4	89.8	47.2
Manganese	MG/KG	SB	390	10000	4960 b	600 b	147	263	307
Iron	MG/KG	2000 or SB	23000	610000	1030	14600 a	14000 a	8380 a	8020 a
Chromium	MG/KG	50 or SB	78000	1000000	48.4	15.6	7.4	11.3	11.3
Magnesium	MG/KG	SB			4740	23000	2720	20500	2420
Vanadium	MG/KG	150 or SB	550	14000		15.3	12.2	8	7.1
Aluminum	MG/KG	SB	78000	1000000	36400	9140	1320	2620	4170
Beryllium	MG/KG	0.16 or SB	0.15	1.3	0.77 a b				
Calcium	MG/KG	SB			311000	80600	40000	149000	8170
Copper	MG/KG	25 or SB	3100	82000	6.2	22.7	17.7	41.1 a	23.3
Silver	MG/KG	SB	390	10000	3.2				
Potassium	MG/KG	SB			1255	1190	406	367	300
Sodium	MG/KG	SB			528	492	419	334	216
Arsenic	MG/KG	7.5 or SB	0.43	3.8	5.1 b	5.7 b	16 a b	9.4 a b	6.5
Antimony	MG/KG	SB	31	820					
Selenium	MG/KG	2 or SB	390	10000	0.58	0.92	2.1 a	1.3	0.47
Thallium	MG/KG	SB					0.72		
Mercury	MG/KG	0.1	23	610		0.09	0.275 a	0.339 a	0.201 a
Cyanide	MG/KG		1600	41000	34	0.133	0.126	0.189	0.830

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
HIGH BEDROCK AREAS
SOIL**

Sample Location I.D.					TP-69	TP-69A	TP-70
Date Sampled					08/15/96	11/06/96	02/15/96
Parameter	Units	TAGM #4046 (1)	RBC (2)				
			Residen.	Indust.			
Acetone	UG/KG	200	7800000	200000000			
1,1,1-Trichloroethane	UG/KG	800	7000000	180000000			
Trichloroethene	UG/KG	700	58000	520000			
Benzene	UG/KG	80	22000	200000			
Toluene	UG/KG	1500	16000000	410000000			
Xylene (total)	UG/KG	1200	160000000	1000000000			
Benzoic Acid	UG/KG	2700	310000000	1000000000			
Naphthalene	UG/KG	13000	3100000	82000000			407
2-Methylnaphthalene	UG/KG	38400					255
Acenaphthylene	UG/KG	41000				240	172
Acenaphthene	UG/KG	50000	4700000	120000000			595
Dibenzofuran	UG/KG	6200	310000	8200000			414
Fluorene	UG/KG	50000	3100000	82000000		240	592
Phenanthrene	UG/KG	50000			593	2600	5620
Anthracene	UG/KG	50000	23000000	610000000		590	1640
Carbazole	UG/KG		32000	280000		NA	427
Di-n-butylphthalate	UG/KG	8100	7800000	200000000	62		103
Fluoranthene	UG/KG	50000	3100000	82000000	567	3700	3773
Pyrene	UG/KG	50000	2300000	61000000	223	6600	11900
Butylbenzylphthalate	UG/KG	50000	16000000	410000000			
Benzo(a)anthracene	UG/KG	224 or MDL	880	7800	649 a	3300 a b	4905 a b
Chrysene	UG/KG	400	88000	780000	653 a	3800 a	5180 a
bis(2-Ethylhexyl)phthalate	UG/KG	50000	46000	410000	93		234
Benzo(b)fluoranthene	UG/KG	224 or MDL	880	7800	796 a	4900 a b	3650 a b
Benzo(k)fluoranthene	UG/KG	224 or MDL	8800	78000	707 a		3460 a
Benzo(a)pyrene	UG/KG	61 or MDL	88	780		3200 a b	4760 a b
Indeno(1,2,3-cd)pyrene	UG/KG	3200	880	7800		3000 b	4460 a b
Dibenz(a,h)anthracene	UG/KG	14 or MDL	88	780		2300 a b	1790 a b
Benzo(g,h,i)perylene	UG/KG	50000				3600	5080
Dieldrin	UG/KG	44	40	360			
4,4'-DDE	UG/KG	2100	1900	17000		7	
4,4'-DDD	UG/KG	2900	2700	24000			

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
HIGH BEDROCK AREAS
SOIL**

Sample Location I.D.					TP-69	TP-69A	TP-70
Date Sampled					08/15/96	11/06/96	08/15/96
Parameter	Units	TAGM #4046 (1)	RBC (2)				
			Residen.	Indust.			
4,4'-DDT	UG/KG	2100	1900	17000			
Zinc	MG/KG	20 or SB	23000	610000	52.1 a	360 a	406 a
Lead	MG/KG	SB			28.8	170	565
Cadmium	MG/KG	10 or SB	39	1000	5.5		2.7
Cobalt	MG/KG	30 or SB	4700	120000	4.5	6.1	5.3
Nickel	MG/KG	13 or SB	1600	41000	6.7	12	17.1 a
Barium	MG/KG	300 or SB	5500	140000	129	140	173
Manganese	MG/KG	SB	390	10000	1790 b	110	332
Iron	MG/KG	2000 or SB	23000	610000	47300 a b	12000 a	17800 a
Chromium	MG/KG	50 or SB	78000	1000000	10.4	22	18.5
Magnesium	MG/KG	SB			6570	6800	14000
Vanadium	MG/KG	150 or SB	550	14000	40.4	22	17.7
Aluminum	MG/KG	SB	78000	1000000	28600	20000	6740
Beryllium	MG/KG	0.16 or SB	0.15	1.3	2.2 a b		
Calcium	MG/KG	SB			115000	23000	43100
Copper	MG/KG	25 or SB	3100	82000	11.1	50 a	77.7 a
Silver	MG/KG	SB	390	10000			
Potassium	MG/KG	SB			1530	1900	655
Sodium	MG/KG	SB			1070	180	534
Arsenic	MG/KG	7.5 or SB	0.43	3.8	9.7 a b	12 a b	19 a b
Antimony	MG/KG	SB	31	820			
Selenium	MG/KG	2 or SB	390	10000	2.4 a	2.6 a	0.98
Thallium	MG/KG	SB					
Mercury	MG/KG	0.1	23	610	0.014	0.24 a	0.775 a
Cyanide	MG/KG		1600	41000	6.530		0.317

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
QUARRY AREA
SOIL**

Sample Location I.D.					SS-01	SS-02	SS-03	SS-04	SS-05
Date Sampled					08/14/96	08/14/96	08/14/96	08/14/96	08/14/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Acetone	UG/KG	200	7800000	200000000					
Methyl Ethyl Ketone	UG/KG	300	47000000	1000000000					
Vinyl Acetate	UG/KG		78000000	1000000000					
Trichloroethene	UG/KG	700	58000	520000	2		1		
Toluene	UG/KG	1500	16000000	410000000					
Ethylbenzene	UG/KG	5500	7800000	200000000					
Xylene (total)	UG/KG	1200	180000000	1000000000					
Naphthalene	UG/KG	13000	3100000	82000000	135				
2-Methylnaphthalene	UG/KG	38400			119				
Acenaphthylene	UG/KG	41000							
Acenaphthene	UG/KG	50000	4700000	120000000	427				
Dibenzofuran	UG/KG	6200	310000	8200000	267				
Fluorene	UG/KG	50000	3100000	82000000	189				
Phenanthrene	UG/KG	50000			3890	477		826	657
Anthracene	UG/KG	50000	23000000	610000000	1030			107	
Carbazole	UG/KG		32000	290000	950				
Di-n-butylphthalate	UG/KG	8100	7800000	200000000	160				73
Fluoranthene	UG/KG	50000	3100000	82000000	5220	438		1000	677
Pyrene	UG/KG	50000	2300000	61000000	8530		139	527	259
Butylbenzylphthalate	UG/KG	50000	18000000	410000000	76				
Benzo(a)anthracene	UG/KG	224 or MDL	880	7800	3630 a b	612 a	638 a	791 a	716 a
Chrysene	UG/KG	400	88000	780000	4110 a	614 a	634 a	829 a	725 a
bis(2-Ethylhexyl)phthalate	UG/KG	50000	48000	410000	332		110	95	149
Benzo(b)fluoranthene	UG/KG	224 or MDL	880	7800	3670 a b		810 a	933 a b	896 a b
Benzo(k)fluoranthene	UG/KG	224 or MDL	8800	78000	3630 a		720 a	844 a	780 a
Benzo(a)pyrene	UG/KG	61 or MDL	88	780	3910 a b			796 a b	723 a b
Indeno(1,2,3-cd)pyrene	UG/KG	3200	880	7800	2970 b			208	
Dibenz(a,h)anthracene	UG/KG	14 or MDL	88	780	1140 a b				
Benzo(g,h,i)perylene	UG/KG	50000			3280			226	
Dieldrin	UG/KG	44	40	360	18.1	1.4	4.5	2.1	48.1 a b
4,4'-DDE	UG/KG	2100	1900	17000	23.7	2.2	6.5	4.6	77.8
4,4'-DDD	UG/KG	2900	2700	24000			3.1	7.2	60.9

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
QUARRY AREA
SOIL**

Sample Location I.D.					SS-01	SS-02	SS-03	SS-04	SS-05
Date Sampled					08/14/96	08/14/96	08/14/96	08/14/96	08/14/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
4,4'-DDT	UG/KG	2100	1900	17000			12.8		47.8
Aroclor 1254	UG/KG		1600	41000					
Zinc	MG/KG	20 or SB	23000	610000	NA	NA	NA	NA	NA
Lead	MG/KG	SB			NA	NA	NA	NA	NA
Cadmium	MG/KG	10 or SB	39	1000	NA	NA	NA	NA	NA
Cobalt	MG/KG	30 or SB	4700	120000	NA	NA	NA	NA	NA
Nickel	MG/KG	13 or SB	1600	41000	NA	NA	NA	NA	NA
Barium	MG/KG	300 or SB	5500	140000	NA	NA	NA	NA	NA
Manganese	MG/KG	SB	390	10000	NA	NA	NA	NA	NA
Iron	MG/KG	2000 or SB	23000	610000	NA	NA	NA	NA	NA
Chromium	MG/KG	50 or SB	78000	1000000	NA	NA	NA	NA	NA
Magnesium	MG/KG	SB			NA	NA	NA	NA	NA
Vanadium	MG/KG	150 or SB	550	14000	NA	NA	NA	NA	NA
Aluminum	MG/KG	SB	78000	1000000	NA	NA	NA	NA	NA
Calcium	MG/KG	SB			NA	NA	NA	NA	NA
Copper	MG/KG	25 or SB	3100	82000	NA	NA	NA	NA	NA
Potassium	MG/KG	SB			NA	NA	NA	NA	NA
Sodium	MG/KG	SB			NA	NA	NA	NA	NA
Arsenic	MG/KG	7.5 or SB	0.43	3.8	NA	NA	NA	NA	NA
Selenium	MG/KG	2 or SB	390	10000	NA	NA	NA	NA	NA
Thallium	MG/KG	SB			NA	NA	NA	NA	NA
Mercury	MG/KG	0.1	23	610	NA	NA	NA	NA	NA

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
QUARRY AREA
SOIL**

Sample Location I.D.					SS-06	TP-06	TP-08	TP-10	TP-13
Date Sampled					08/14/96	08/05/96	08/05/96	08/05/96	08/06/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Acetone	UG/KG	200	7800000	200000000		42	73	59	36
Methyl Ethyl Ketone	UG/KG	300	47000000	1000000000					
Vinyl Acetate	UG/KG		78000000	1000000000					
Trichloroethene	UG/KG	700	58000	520000	2				
Toluene	UG/KG	1500	18000000	410000000					
Ethylbenzene	UG/KG	5500	7800000	200000000					
Xylene (total)	UG/KG	1200	180000000	1000000000					
Naphthalene	UG/KG	13000	3100000	82000000				110	103
2-Methylnaphthalene	UG/KG	36400						183	
Acanaphthylene	UG/KG	41000							
Acanaphthene	UG/KG	50000	4700000	120000000		139			165
Dibenzofuran	UG/KG	6200	310000	8200000					134
Fluorene	UG/KG	50000	3100000	82000000		129			225
Phenanthrene	UG/KG	50000			1052	1530	800	559	1990
Anthracene	UG/KG	50000	23000000	610000000	157	365	78		512
Carbazole	UG/KG		32000	290000	86	199			211
Di-n-butylphthalate	UG/KG	8100	7800000	200000000					
Fluoranthene	UG/KG	50000	3100000	82000000	1660	2190	1400	437	2790
Pyrene	UG/KG	50000	2300000	61000000	1050	1660	1030	110	1840
Butylbenzylphthalate	UG/KG	50000	16000000	410000000					
Benzo(a)anthracene	UG/KG	224 or MDL	880	7800	1020 a b	1247 a b	1560 a b	615 a	1580 a b
Chrysene	UG/KG	400	88000	780000	1070 a	1190 a	1790 a	625 a	1500 a
bis(2-Ethylhexyl)phthalate	UG/KG	50000	46000	410000	6274	133			85
Benzo(b)fluoranthene	UG/KG	224 or MDL	880	7800	1200 a b	1160 a b	3460 a b	777 a	1420 a b
Benzo(k)fluoranthene	UG/KG	224 or MDL	8800	78000	1194 a	1140 a	2700 a	687 a	1470 a
Benzo(a)pyrene	UG/KG	61 or MDL	88	780	1110 a b	1250 a b	3060 a b		1400 a b
Indeno(1,2,3-cd)pyrene	UG/KG	3200	880	7800	319	439	1570 b		245
Dibenz(a,h)anthracene	UG/KG	14 or MDL	88	780			829 a b		
Benzo(g,h,i)perylene	UG/KG	50000				427	1590		178
Dieldrin	UG/KG	44	40	360					
4,4'-DDE	UG/KG	2100	1900	17000	31.7	7			4.05
4,4'-DDD	UG/KG	2900	2700	24000		6.7			3.1

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
QUARRY AREA
SOIL**

Sample Location ID.					SS-06	TP-06	TP-06	TP-10	TP-13
Date Sampled					08/14/96	08/06/96	08/05/96	08/05/96	08/06/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
4,4'-DDT	UG/KG	2100	1800	17000					
Aroclor 1254	UG/KG		1800	41000					
Zinc	MG/KG	20 or SB	23000	610000	NA	52.1 a	288 a	69.7 a	NA
Lead	MG/KG	SB			NA	46.1	75	25.6	NA
Cadmium	MG/KG	10 or SB	39	1000	NA	3.1	5	2.5	NA
Cobalt	MG/KG	30 or SB	4700	120000	NA	4.4	3.3		NA
Nickel	MG/KG	13 or SB	1800	41000	NA	14.3 a	11.7	8.1	NA
Barium	MG/KG	300 or SB	5500	140000	NA	27.7	289	65.6	NA
Manganese	MG/KG	SB	390	10000	NA	187	784 b	317	NA
Iron	MG/KG	2000 or SB	23000	610000	NA	10100 a	17100 a	9000 a	NA
Chromium	MG/KG	50 or SB	78000	1000000	NA	9.2	23	13.5	NA
Magnesium	MG/KG	SB			NA	53500	10000	6420	NA
Vanadium	MG/KG	150 or SB	550	14000	NA	7.3	9.5	7.8	NA
Aluminum	MG/KG	SB	78000	1000000	NA	4520	5920	5000	NA
Calcium	MG/KG	SB			NA	106000	20900	24500	NA
Copper	MG/KG	25 or SB	3100	82000	NA	20.2	107 a	24.5	NA
Potassium	MG/KG	SB			NA	934	671	461	NA
Sodium	MG/KG	SB			NA	349	465	281	NA
Arsenic	MG/KG	7.5 or SB	0.43	3.8	NA	6.8 b	7.2 b	4.3 b	NA
Selenium	MG/KG	2 or SB	390	10000	NA		2.2 a	0.92	NA
Thallium	MG/KG	SB			NA		0.35		NA
Mercury	MG/KG	0.1	23	610	NA	0.337 a	0.197 a	0.046	NA

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
QUARRY AREA
SOIL**

Sample Location I.D.					TP-14	TP-15	TP-16	TP-17	TP-29
Data Sampled					08/06/96	08/06/96	08/06/96	08/06/96	11/04/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Acetone	UG/KG	200	7800000	200000000	40	360 a	41		
Methyl Ethyl Ketone	UG/KG	300	47000000	1000000000		58			
Vinyl Acetate	UG/KG		78000000	1000000000	23				
Trichloroethene	UG/KG	700	58000	520000					
Toluene	UG/KG	1500	18000000	410000000		2			
Ethylbenzene	UG/KG	5500	7800000	200000000		6			
Xylene (total)	UG/KG	1200	180000000	1000000000		13			
Naphthalene	UG/KG	13000	3100000	82000000		242			140
2-Methylnaphthalene	UG/KG	36400			88	210			110
Acenaphthylene	UG/KG	41000				92			
Acenaphthene	UG/KG	50000	4700000	120000000	299	238			310
Dibenzofuran	UG/KG	8200	310000	8200000	167	122			180
Fluorene	UG/KG	50000	3100000	82000000	333	226			350
Phenanthrene	UG/KG	50000			3190	1880	449	79	3200
Anthracene	UG/KG	50000	23000000	610000000	620	362			820
Carbazole	UG/KG		32000	290000	385	217			NA
Di-n-butylphthalate	UG/KG	8100	7800000	200000000		83			
Fluoranthene	UG/KG	50000	3100000	82000000	4590	3350	516	139	3700
Pyrene	UG/KG	50000	2300000	61000000	2240	1470	268	113	5300
Butylbenzylphthalate	UG/KG	50000	18000000	410000000					
Benzo(a)anthracene	UG/KG	224 or MDL	880	7800	1730 a b	1580 a b	603 a		3200 a b
Chrysene	UG/KG	400	88000	780000	2000 a	1690 a	608 a	84	2500 a
bis(2-Ethylhexyl)phthalate	UG/KG	50000	48000	410000	439	490	74	121	140
Benzo(b)fluoranthene	UG/KG	224 or MDL	880	7800	1890 a b	2620 a b	753 a		3800 a b
Benzo(k)fluoranthene	UG/KG	224 or MDL	8800	78000	2390 a	2300 a	648 a	73	
Benzo(a)pyrene	UG/KG	61 or MDL	88	780	1570 a b	2070 a b	599 a b		2600 a b
Indeno(1,2,3-cd)pyrene	UG/KG	3200	880	7800	181	548			2100 b
Dibenz(a,h)anthracene	UG/KG	14 or MDL	88	780					1400 a b
Benzo(g,h,i)perylene	UG/KG	50000				500	139		2200
Dieldrin	UG/KG	44	40	380					
4,4'-DDE	UG/KG	2100	1900	17000	30.2	53.5	4.1	7.2	34
4,4'-DDD	UG/KG	2900	2700	24000	253	415	3.5	5.6	

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
QUARRY AREA
SOIL**

Sample Location I.D.					TP-14	TP-15	TP-16	TP-17	TP-29
Date Sampled					08/06/96	08/06/96	08/06/96	08/06/96	11/04/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
4,4'-DDT	UG/KG	2100	1900	17000				5.8	210
Aroclor 1254	UG/KG		1800	41000					1000
Zinc	MG/KG	20 or SB	23000	610000	NA	NA	NA	NA	340 a
Lead	MG/KG	SB			NA	NA	NA	NA	460
Cadmium	MG/KG	10 or SB	39	1000	NA	NA	NA	NA	6.6
Cobalt	MG/KG	30 or SB	4700	120000	NA	NA	NA	NA	7
Nickel	MG/KG	13 or SB	1800	41000	NA	NA	NA	NA	20 a
Barium	MG/KG	300 or SB	5500	140000	NA	NA	NA	NA	180
Manganese	MG/KG	SB	390	10000	NA	NA	NA	NA	280
Iron	MG/KG	2000 or SB	23000	610000	NA	NA	NA	NA	2000
Chromium	MG/KG	50 or SB	78000	1000000	NA	NA	NA	NA	16
Magnesium	MG/KG	SB			NA	NA	NA	NA	7300
Vanadium	MG/KG	150 or SB	550	14000	NA	NA	NA	NA	23
Aluminum	MG/KG	SB	78000	1000000	NA	NA	NA	NA	6300
Calcium	MG/KG	SB			NA	NA	NA	NA	22000
Copper	MG/KG	25 or SB	3100	82000	NA	NA	NA	NA	120 a
Potassium	MG/KG	SB			NA	NA	NA	NA	14000
Sodium	MG/KG	SB			NA	NA	NA	NA	27000
Arsenic	MG/KG	7.5 or SB	0.43	3.8	NA	NA	NA	NA	14 a b
Selenium	MG/KG	2 or SB	390	10000	NA	NA	NA	NA	2
Thallium	MG/KG	SB			NA	NA	NA	NA	
Mercury	MG/KG	0.1	23	610	NA	NA	NA	NA	0.3 a

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
QUARRY AREA
SOIL**

Sample Location I.D.					TP-41	TP-46
Date Sampled					11/04/96	11/04/96
Parameter	Units	TAGM #4046 (1)	RBC (2)			
			Residen.	Indust.		
Acetone	UG/KG	200	7800000	200000000		
Methyl Ethyl Ketone	UG/KG	300	47000000	1000000000		
Vinyl Acetate	UG/KG		78000000	1000000000		
Trichloroethene	UG/KG	700	58000	520000		
Toluene	UG/KG	1500	18000000	410000000		
Ethylbenzene	UG/KG	5500	7800000	200000000		
Xylene (total)	UG/KG	1200	180000000	1000000000		
Naphthalene	UG/KG	13000	3100000	82000000		130
2-Methylnaphthalene	UG/KG	38400				89
Acenaphthylene	UG/KG	41000				
Acenaphthene	UG/KG	50000	4700000	120000000	180	200
Dibenzofuran	UG/KG	6200	310000	8200000	130	180
Fluorene	UG/KG	50000	3100000	82000000	230	280
Phenanthrene	UG/KG	50000			2400	2800
Anthracene	UG/KG	50000	23000000	610000000	520	680
Carbazole	UG/KG		32000	290000	NA	NA
Di-n-butylphthalate	UG/KG	8100	7800000	200000000		
Fluoranthene	UG/KG	50000	3100000	82000000	2800	2800
Pyrene	UG/KG	50000	2300000	61000000	4800	5900
Butylbenzylphthalate	UG/KG	50000	18000000	410000000		
Benzo(a)anthracene	UG/KG	224 or MDL	880	7800	2400 a b	2900 a b
Chrysene	UG/KG	400	88000	780000	2400 a	2800 a
bis(2-Ethylhexyl)phthalate	UG/KG	50000	48000	410000		270
Benzo(b)fluoranthene	UG/KG	224 or MDL	880	7800	2700 a b	3900 a b
Benzo(k)fluoranthene	UG/KG	224 or MDL	8800	78000		
Benzo(a)pyrene	UG/KG	61 or MDL	88	780	2000 a b	2700 a b
Indeno(1,2,3-cd)pyrene	UG/KG	3200	880	7800	1500 b	2000 b
Dibenz(a,h)anthracene	UG/KG	14 or MDL	88	780	1000 a b	1300 a b
Benzo(g,h,i)perylene	UG/KG	50000			1600	2300
Dieldrin	UG/KG	44	40	360		
4,4'-DDE	UG/KG	2100	1900	17000	120	
4,4'-DDD	UG/KG	2900	2700	24000		

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.
NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
QUARRY AREA
SOIL**

Sample Location I.D.					TP-41	TP-86
Date Sampled					11/04/96	11/04/96
Parameter	Units	TAGM #4046 (1)	RBC (2)			
			Residen.	Indust.		
4,4'-DDT	UG/KG	2100	1900	17000	18	35
Aroclor 1254	UG/KG		1600	41000		
Zinc	MG/KG	20 or SB	23000	610000	390 a	790 a
Lead	MG/KG	SB			400	990
Cadmium	MG/KG	10 or SB	39	1000	4.1	4.6
Cobalt	MG/KG	30 or SB	4700	120000	7.9	7.0
Nickel	MG/KG	13 or SB	1600	41000	32 a	21 a
Barium	MG/KG	300 or SB	5500	140000	150	410 a
Manganese	MG/KG	SB	390	10000	500 b	360
Iron	MG/KG	2000 or SB	23000	610000	27000 a b	22000 a
Chromium	MG/KG	50 or SB	78000	1000000	20	21
Magnesium	MG/KG	SB			15000	7700
Vanadium	MG/KG	150 or SB	550	14000	25	22
Aluminum	MG/KG	SB	78000	1000000	8700	8600
Calcium	MG/KG	SB			49000	28000
Copper	MG/KG	25 or SB	3100	82000	160 a	210 a
Potassium	MG/KG	SB			25000	20000
Sodium	MG/KG	SB			2500	2100
Arsenic	MG/KG	7.5 or SB	0.43	3.8	9.5 a b	14 a b
Selenium	MG/KG	2 or SB	390	10000	1.8	1.7
Thallium	MG/KG	SB				
Mercury	MG/KG	0.1	23	610	1.2 a	0.6 a

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
HIGH BEDROCK AREA
SOIL GAS**

Sample Location ID.					TP-01	TP-02	TP-03	TP-04	TP-46
Date Sampled					08/12/96	08/12/96	08/12/96	08/12/96	08/15/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Vinyl Chloride	PPM								

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
HIGH BEDROCK AREA
SOIL GAS**

Sample Location ID.					TP-46A	TP-48	TP-49	TP-5	TP-52
Date Sampled					08/15/96	08/15/96	08/15/96	08/15/96	08/15/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Vinyl Chloride	PPM						4		

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
HIGH BEDROCK AREA
SOIL GAS**

Sample Location I.D.					TP-63	TP-64	TP-62	TP-63	TP-64
Date Sampled					08/15/96	08/15/96	08/15/96	08/15/96	08/15/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Vinyl Chloride	PPM								

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
HIGH BEDROCK AREA
SOIL GAS**

Sample Location I.D.				TP-65	
Date Sampled				06/18/96	
Parameter	Units	TAGM #4046 (1)	RBC (2)		
			Residen.	Indust.	
Vinyl Chloride	PPM				

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
QUARRY AREA
SOIL GAS**

Sample Location ID.					TP-06	TP-07	TP-08	TP-09	TP-10
Date Sampled					08/12/96	08/12/96	08/12/96	08/12/96	08/12/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Toluene	PPM								
Vinyl Chloride	PPM								

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L. Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
QUARRY AREA
SOIL GAS**

Sample Location I.D.					TP-11	TP-12	TP-13	TP-14	TP-15
Date Sampled					08/12/96	08/12/96	08/12/96	08/14/96	08/14/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Toluene	PPM								
Vinyl Chloride	PPM								

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
QUARRY AREA
SOIL GAS**

Sample Location I.D.					TP-16	TP-17	TP-18	TP-19	TP-20
Date Sampled					08/12/96	08/14/96	08/12/96	08/13/96	08/14/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Toluene	PPM								
Vinyl Chloride	PPM								

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
QUARRY AREA
SOIL GAS**

Sample Location LD.					TP-21	TP-22	TP-23	TP-24	TP-25
Date Sampled					08/14/96	08/13/96	08/13/96	08/13/96	08/13/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Toluene	PPM								
Vinyl Chloride	PPM								

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
QUARRY AREA
SOIL GAS**

Sample Location ID.					TP-26	TP-27	TP-28	TP-29	TP-30
Date Sampled					08/13/96	08/13/96	08/13/96	08/13/96	08/13/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Toluene	PPM								
Vinyl Chloride	PPM								

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
QUARRY AREA
SOIL GAS**

Sample Location ID.					TP-31	TP-32	TP-33	TP-34	TP-35
Date Sampled					08/13/96	08/13/96	08/13/96	08/13/96	08/13/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Toluene	PPM								
Vinyl Chloride	PPM					0.96			

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
QUARRY AREA
SOIL GAS**

Sample Location I.D.					TP-36	TP-37	TP-38	TP-39	TP-40
Date Sampled					08/14/96	08/14/96	08/14/96	08/14/96	08/14/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Toluene	PPM								
Vinyl Chloride	PPM					0.82			

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
QUARRY AREA
SOIL GAS**

Sample Location I.D.					TP-41	TP-42	TP-43	TP-44	TP-45
Date Sampled					08/14/96	08/14/96	08/14/96	08/14/96	08/14/96
Parameter	Units	TAGM #4046 (1)	RBC (2)						
			Residen.	Indust.					
Toluene	PPM							1.1	
Vinyl Chloride	PPM					2.1			

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.

NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

**MAIN LASALLE REVITALIZATION PROJECT
CITY OF BUFFALO
ANALYTICAL DATA SUMMARY *
QUARRY AREA
SOIL GAS**

Sample Location I.D.					TP-50	TP-51	TP-55	TP-57
Date Sampled					08/15/95	08/15/95	08/15/95	08/15/95
Parameter	Units	TAGM #4046 (1)	RBC (2)					
			Residen.	Indust.				
Toluene	PPM							
Vinyl Chloride	PPM						2.8	

* - Results are shown only for analytes detected. Only those parameters with detections are included in summary.
NA - Not Analyzed.

(1) Recommended Soil Cleanup Objectives (TAGM #4046, April, 1995 (REVISED))

(2) - EPA Region III Risk-based Concentrations: R.L.Smith (10/04/95)

(a) - Concentration exceeds TAGM #4046 criteria.

(b) - Concentration exceeds Residential RBC criteria.

APPENDIX I

STEEL MANUFACTURING SITE REMEDIAL WORK PLAN

APPENDIX I
STEEL MANUFACTURING SITE REMEDIAL ACTION WORK PLAN

SEPTEMBER 1997

***Prepared For: LTV Steel Company
 and
 Hanna Furnace Corporation***

Prepared By: Malcolm Pirnie, Inc.

MALCOLM PIRNIE, INC.

**P. O. Box 1938
Buffalo, New York 14219**

1.0 INTRODUCTION

1.1 BACKGROUND

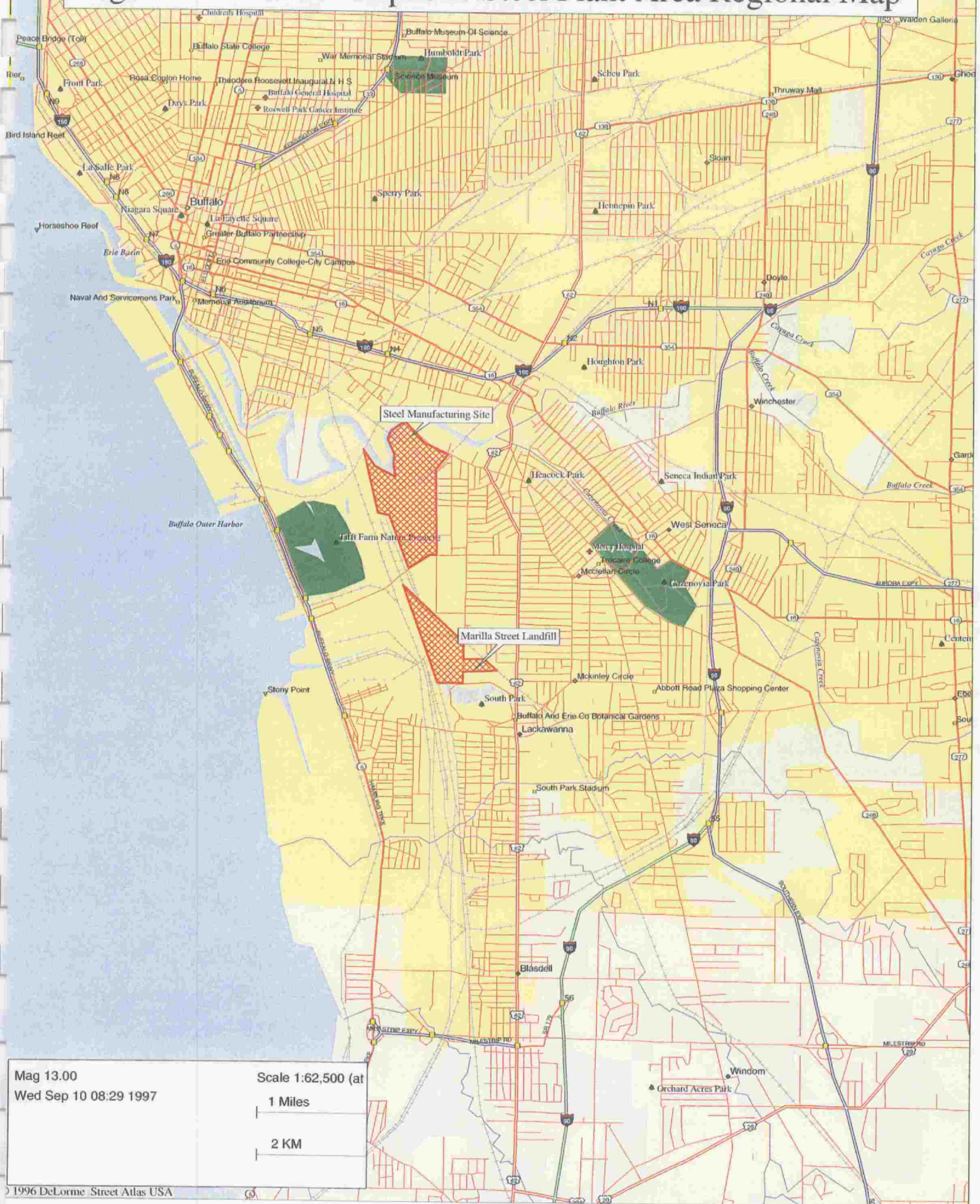
LTV Steel Company (LTV) owns, or co-owns with Hanna Furnace Corporation (HFC) (i.e. Donner-Hanna parcels), the vacant industrial site located in Buffalo, New York (Figures I-1 and I-2) that was formerly used for steel making operations, coke production and storage, and related site operations. The site (referred to as the Steel Manufacturing Site) is also referred to as the Former Republic Steel Plant Area. All production operations ceased and related structures were demolished as part of decommissioning activities that were completed in the early 1990s. The Steel Manufacturing Site is approximately 218 acres in area and is bounded on the north by the Buffalo River and South Park Avenue, on the west by railroad tracks, on the east by Abby Street, and on the south by Tifft Street and Hood Industries. Based on the operational history, the site can be segregated into four parcels (Figure I-3) from north to south as follows:

- Area I - The former Republic (LTV) Steel Plant.
- Area II - The former Donner-Hanna Coke Plant.
- Area III - The former Warehouse.
- Area IV - The former Donner-Hanna Coke Yard.

1.2 PURPOSE

This Remedial Action Work Plan for the Steel Manufacturing Site has been prepared as an Appendix to a Voluntary Cleanup Site Assessment Report to facilitate its incorporation into a Voluntary Cleanup Agreement. This Work Plan describes: the proposed remedial actions which will allow the redevelopment and intended use to proceed at the site, additional investigations/evaluations required to design and implement the remedial actions, and a proposed schedule for implementation.

Figure I-1: Former Republic Steel Plant Area Regional Map



Mag 13.00

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Scale 1:62,500 (at

1 Miles

2 KM

Figure I-2: Steel Manufacturing Site Vicinity Map

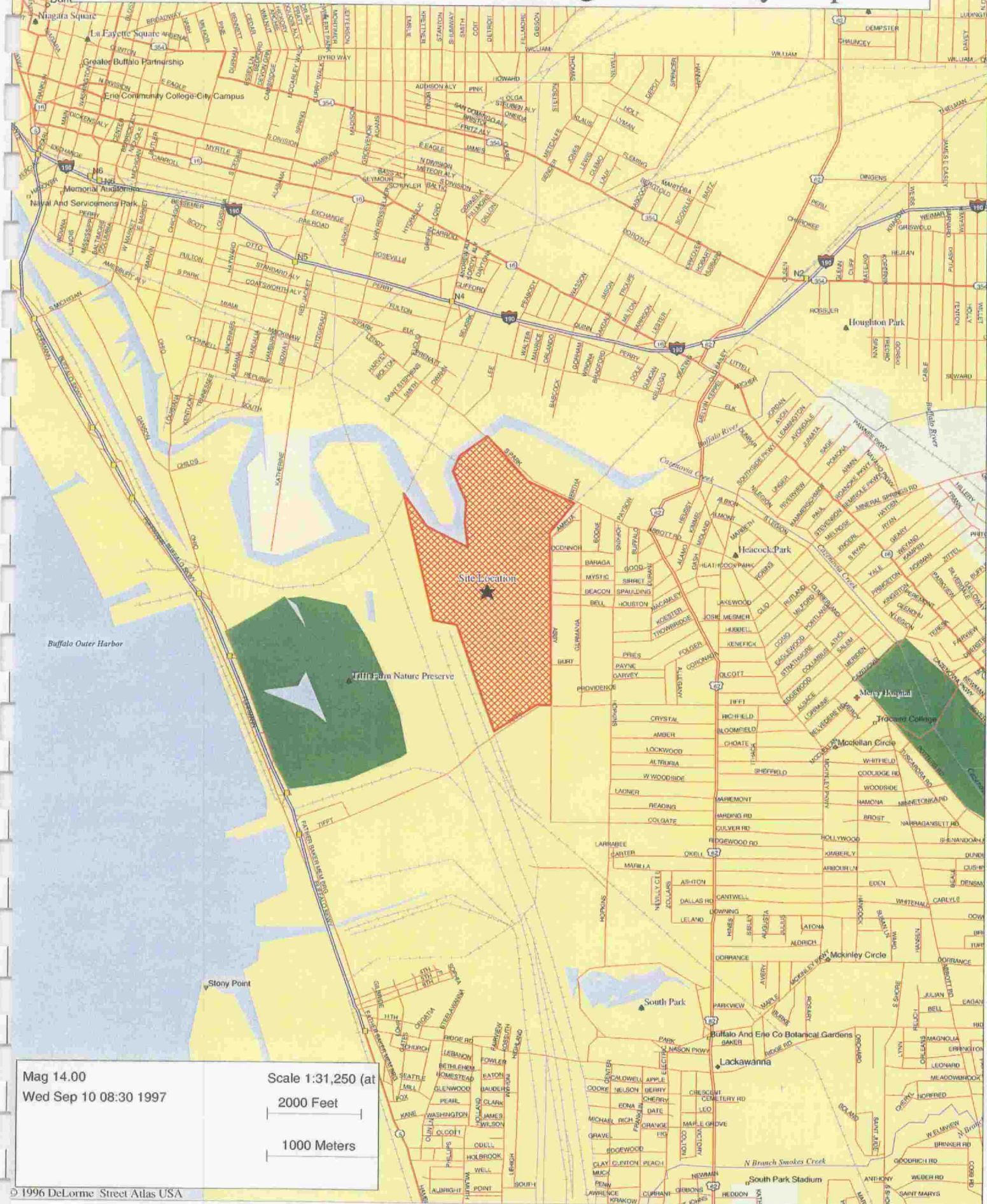
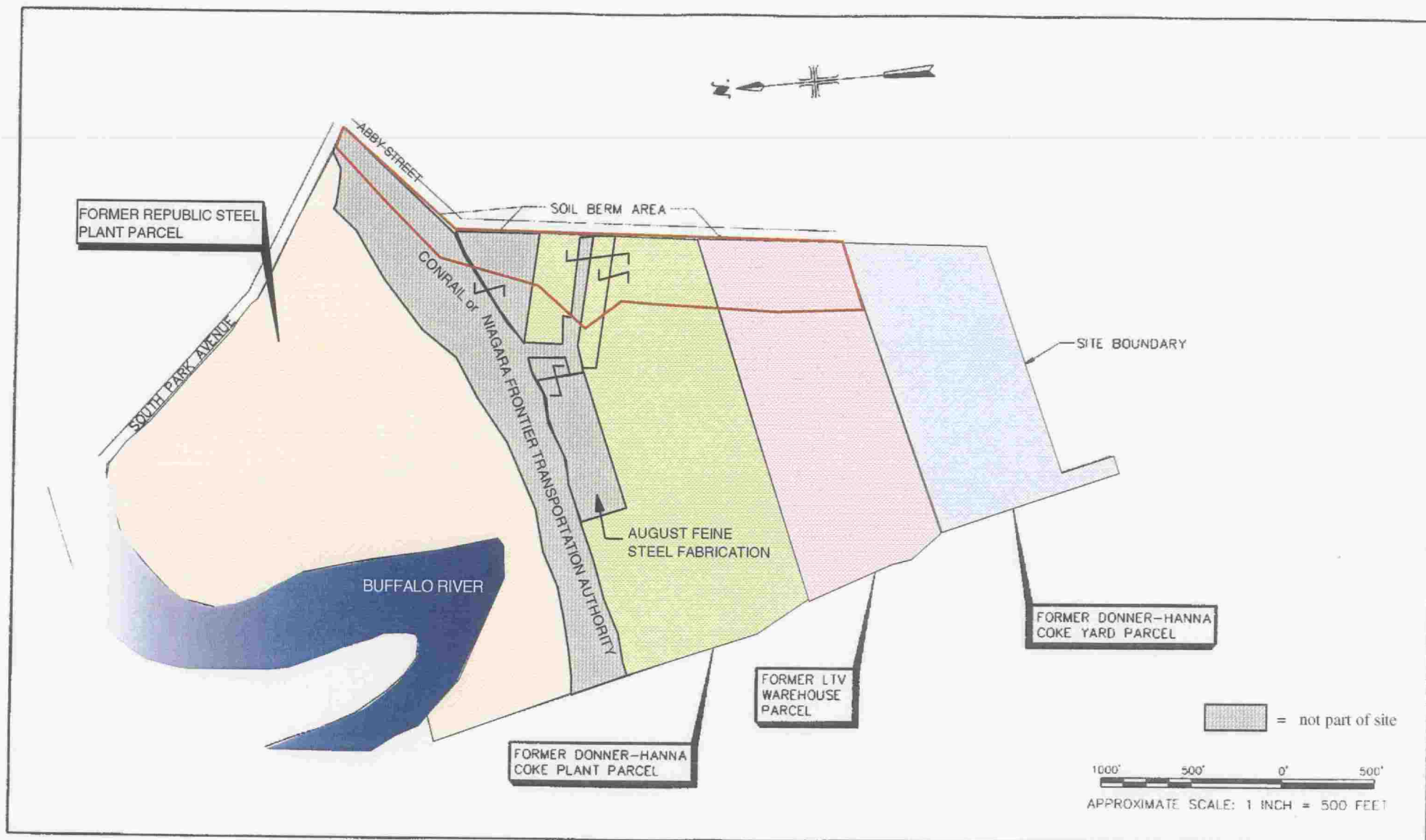


Figure I-3



**MALCOLM
PIRNIE**

LTV-A

FORMER REPUBLIC STEEL PLANT AREA
STEEL MANUFACTURING SITE
SITE MAP

LTV STEEL COMPANY
BUFFALO, NEW YORK

JUNE 1997

2.0 REMEDIAL PLANS

2.1 SITE-WIDE REMEDIAL PLANS

Groundwater contamination on the site is limited to the uppermost saturated zone. Since groundwater is not used for water supply in South Buffalo, since groundwater yields from fine-grained soils present on the site are low, and since there are no sensitive downgradient receptors; selective remediation through source removal and treatment or through containment of highly contaminated soil/fill will mitigate the potential for continued groundwater quality degradation. Groundwater remediation is planned for only a portion of Area II because of the degree of groundwater contamination and the nature and extent of soil contamination in that portion of Area II. No other groundwater remedial action is deemed necessary.

The perimeter berm which runs along Abby Street will be removed and the material will be used as general fill to backfill soil excavations and/or to achieve desired subgrades. Contaminated soil originating as a result of the City of Buffalo Main LaSalle Revitalization Project will also be used as general fill on the site. The City of Buffalo has indicated that approximately 215,000 cubic yards of contaminated soil may be available.

Areas I, III, IV and portions (excluding the portion to be contained) of Area II will be covered with a minimum of 12 inches of "clean soil" or fill prior to redevelopment to minimize the long-term potential for exposure to the low-level contamination which will remain on-site. "Clean soil" is defined as soil of known/documented origin (no soil from or near industrial or inactive hazardous waste sites), free of construction and demolition debris, solid waste or hazardous waste, and free of olfactory or visual evidence of contamination. "Clean soil" shall also include on-site fill/soils which have been remediated or off-site soils which have been tested and found to meet USEPA Region III Risk-Based Concentrations for industrial end use.

Limitations (i.e., notification requirements, health and safety provisions, excavated material handling/disposal and backfill requirements) on all future excavations will be

incorporated into parcel deeds or leases to protect the integrity of the cover system and minimize future exposure/risks to site workers. Since many of the foundations associated with former site structures are massive and remain intact on-site, a site utility plan with utility locations and details will be developed prior to site development. The City of Buffalo will retain ownership and control of all utility corridors. The utilities will be centralized and constructed with select fill. This will minimize redevelopment infrastructure costs and limit the need for excavations of fill material during and after initial site redevelopment.

2.2 AREA-SPECIFIC REMEDIAL PLANS

2.2.1 Area I - Former Steel Plant Parcel

The subareas of concern for Area I are shown on Figure I-4. The proposed remedial action is ex-situ bioremediation. The City of Buffalo and LTV Steel Company recently completed a joint venture clean-up of the Truscon site which is also a former LTV property and part of the Former Republic Steel Plant Area (purchased by the City) located across South Park Avenue from the Steel Plant Parcel. The cleanup of the Truscon site involved excavation of petroleum-contaminated (BTEX and PAH compounds) soil for bioremediation on the Area III - Former Warehouse Parcel. A similar technology/approach will be used to excavate and bioremediate the contaminated subareas (i.e., L, K and E) of the Steel Plant Parcel. Contaminated material will be excavated to the top of the water table until no field evidence (residual oil, visual staining or olfactory) of contamination beyond the limits of the excavations are detected. Water entering the excavations during contaminated soil/fill removal activities will be discharged to the BSA. The contaminated material will be transported to the Area III - Former Warehouse Parcel for storage and/or initiation of bioremediation activities on the existing biopad. The primary contaminants of concern for subareas L, K, and E are BTEX and/or PAH compounds. Once the soils are bioremediated to below USEPA Region III Risk-Based Concentrations for industrial end use, they will be reused on the site as clean soil or general fill for site cover, subgrade fill or excavation backfill.

Two former oil transfer pipelines were located during the Phase I/II Site Investigation. The residual oil, if any, will be removed from these pipelines and they will be abandoned in place.

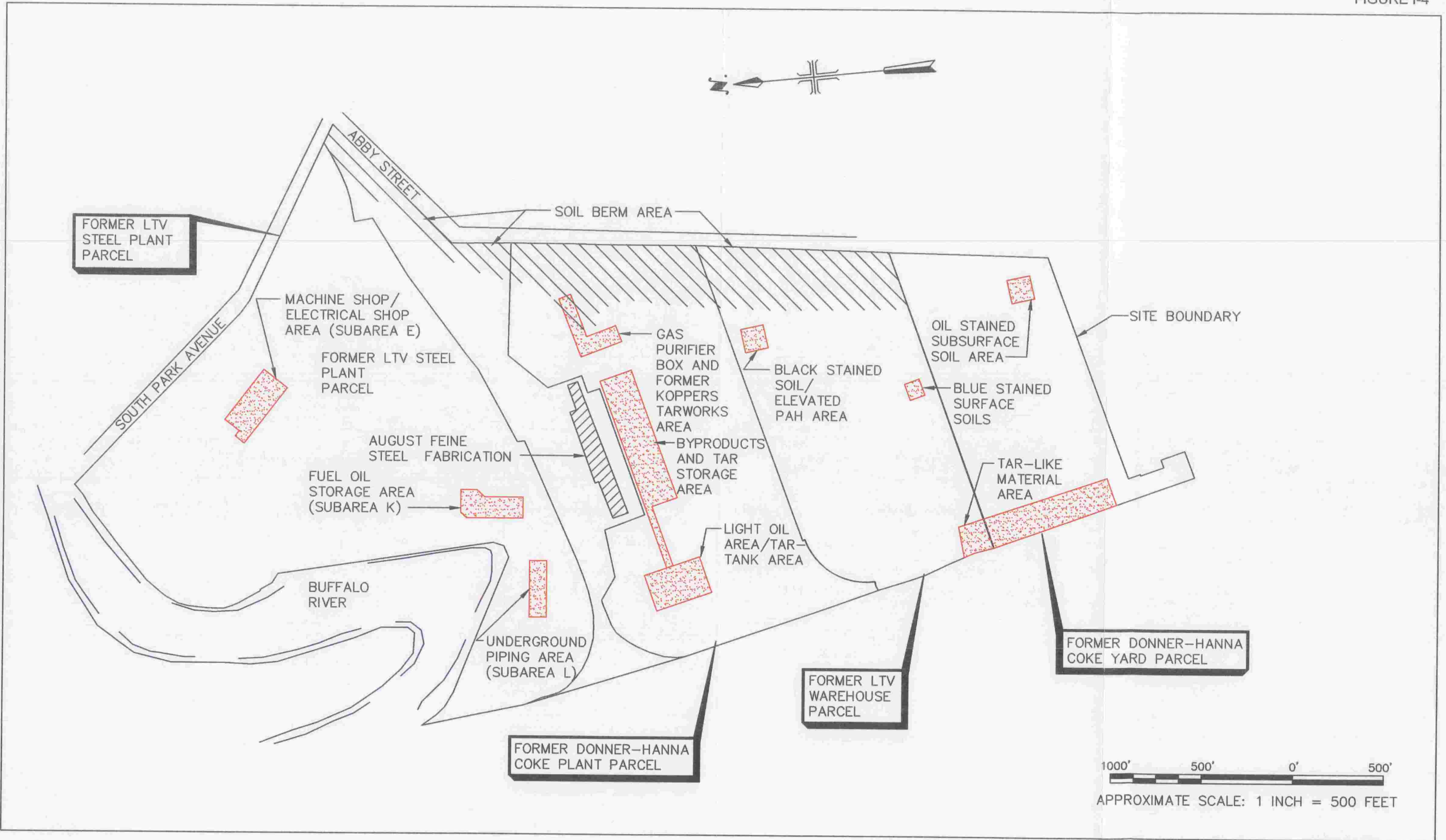
2.2.2 Area II - Former Donner-Hanna Coke Plant Parcel

Due to the wide-spread nature of soil contamination in the central portion of Area II, physical containment in-place is the preferred remedial approach for this portion of the site. Containment will be accomplished by waste/fill consolidation, where determined cost effective, and capping (using asphalt where possible) the three contaminated subareas (i.e., gas purifier box and former coppers tarworks area, by-products and tar storage area, and light oil/tar tank area) to reduce the amount of surface infiltration and, by installing a groundwater collection system in concert with a low-permeability barrier wall. The collected groundwater will be discharged directly to the Buffalo Sewer Authority (BSA) Publicly Owned Treatment Works (POTW). This containment approach will be incorporated into an end use plan for future site development as a permanent "green space" and/or parking lot that would require limited monitoring and landscaping maintenance.

In order to assess hydraulic containment remedial alternatives for the contaminated portions of Area II (see Figure I-4), additional information is required to better understand the groundwater flow direction(s) and hydraulic properties of the uppermost saturated fill. The soil boring program completed in Area II as part of the Phase I/II Site Assessment indicates that the saturated fill materials consist of a wide variety of materials and grain sizes (i.e., slag, sands, bricks, gravel and clay). The heterogeneous nature of the fill material makes it difficult to predict the hydraulic effects of groundwater containment and/or control in the saturated fill. As a result, hydraulic information collected from the installation and aquifer testing of several additional piezometers in the area is necessary to better define the hydraulic properties of the saturated fill. The groundwater level information and hydraulic properties established from aquifer testing will be used as input into a two-dimensional groundwater flow model to better predict the hydrologic effects

FIGURE I-4

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The required additional hydraulic information will be collected from the installation of four piezometers that would be spatially located across the area, supplementing the existing two piezometers previously installed. The new piezometers will be constructed using 4-inch diameter PVC well screen and riser. The well screen will be of sufficient length to fully penetrate the saturated fill to an estimated depth of 10 to 12 feet below grade. The larger surface area of a 4-inch diameter piezometer will allow for a larger area of hydraulic influence during testing. Groundwater elevation data collected from existing and newly installed piezometers will provide groundwater flow direction and hydraulic gradient information for Area II. Aquifer testing, using short-term (i.e., 3 to 4 hours) "mini-rate" pump test methods, will produce information regarding the hydraulic properties of the saturated fill materials. Each of the six piezometers in the area will be tested. The short-term pump test methods will develop a greater area of hydraulic influence and produce more reliable estimates of transmissivity compared to slug testing in heterogeneous media.

The water level data and hydraulic properties established from the aquifer testing will be used as input parameters into a two-dimensional groundwater flow model (i.e., FLOWPATH, PLASM, or equivalent) to simulate the orientation of various configurations of cap (cover system) configurations, groundwater collection trenches or horizontal wells and estimated steady-state flow rates. The use of collection trenches or horizontal wells is anticipated for hydraulic control in this application because of the heterogeneity of the fill material and the anticipated low aquifer yield. A conceptual design of the most cost-effective, waste/fill consolidation, groundwater control and cover system will then be developed for the contaminated portions of Area II as an addendum to this Work Plan. Groundwater samples will also be collected and analyzed from the four new piezometers in order to characterize contaminant loadings which will be anticipated. The concept design will include a plan view, cross-section, basis-of-design flow and contaminant load calculations, and results of aquifer testing and modeling.

2.2.3 Area III - Former Warehouse Parcel

The primary contaminants of concern are BTEX and/or PAH compounds. The subareas of concern (i.e., black stained soil/elevated PAH area and blue stained surface soil area) shown on Figure I-4 will be excavated using the same approach described for the Steel Plant Parcel (Area I). Once the black stained soils are excavated, they will be bioremediated to below USEPA Region III Risk-Based Concentrations for industrial end use, as described for the contaminated subareas of Area I with subsequent reuse on the site as "clean fill" or general backfill. Solidification/stabilization technology will be used to remediate the blue stained surface soils in this area with ultimate containment under the cap for the contaminated portion of Area II.

2.2.4 Area IV - Former Donner-Hanna Coke Yard Parcel

The residual coke will be excavated, screened and recycled. The benzene contaminated area in the southeastern portion of the site will be excavated and bioremediated on-site using the same approach described for the Steel Plant Parcel (Area I). The TCLP characteristic and non-TCLP characteristic tar materials will be disposed of off-site, recycled or remediated on-site using thermal desorption. Once these areas are excavated and replaced with Abby Street berm material, "Main-LaSalle" site soils, bioremediated soils from other parts of the site or "clean off-site fill" to original grade, a delisting petition will be submitted to the NYSDEC to remove the site from the NYSDEC registry of inactive hazardous waste site.

3.0 SCHEDULE

The proposed implementation schedule for voluntary remedial activities associated with the Steel Manufacturing Site is attached as Figure I-5.

Figure I-5
Remedial Action Schedule

