8/30/89 letter of concurrance from Edward (Ned) D. Sullivan.

POST-DECISION DOCUMENT OF SAMPLE RESULTS AND SELECTED REMEDY

VOLNEY LANDFILL SITE
SOURCE CONTROL OPERABLE UNIT

Volney, New York

August 1989

Prepared by:

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region II
New York

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VOLNEY LANDFILL SITE
SOURCE CONTROL OPERABLE UNIT

Post-Decision Document of Sample Results and Selected Remedy

I. BACKGROUND

A Remedial Investigation and Feasibility Study (RI/FS) for the Volney Landfill site was completed by New York State Department of Environmental Conservation's (DEC's) contractor, URS Company, Inc. (URS), in May 1987. Following the signing of a Record of Decision (ROD) for the source control operable unit by the U.S. Environmental Protection Agency (EPA) on July 31, 1987, it was learned that a quality assurance/quality control (QA/QC) review of the analytical data from the RI/FS had not been performed. Following a QA/QC review of the data, it was concluded that the data were invalid. Since a remedy was selected in the ROD based on these invalid data, the status of the remedy was in question.

To rectify the situation discussed above, EPA tasked its contractor, Ebasco Services, Inc. (Ebasco), to resample the groundwater monitoring wells, surface water, sediments and leachate as the most expedient and justifiable means of collecting the necessary data so that the remedy selected in the ROD could be re-evaluated.

The purpose of this document is to present EPA's sample results, to summarize what health and environmental risks are posed by the site, and to determine whether the remedy selected in the ROD is protective of human health and the environment. Additionally, since the ROD was signed, information was made available to EPA by the public regarding the selected remedy and its associated costs. This additional information has been considered by EPA in arriving at a final decision on the remedy for the source control operable unit.

II. SAMPLING LOCATIONS

In May 1988, Ebasco sampled 18 of the 25 groundwater monitoring wells that were previously sampled during the RI/FS. Seven wells were not sampled by EPA due to either the inability to collect representative samples or an insufficient volume of water available for sampling in the well. The wells that were not sampled are VBW1, VBW2, VBW4S, VBW10BR, VBW12, VBW16, and VBW17A.[1]

Surface water and sediment samples were obtained as close to the same locations as URS' sampling locations as possible.[2] EPA also

[1] See Figure 1 for the location of the on-site monitoring wells.

[2] See Figure 2 for the surface water and sediment sampling locations.

sampled leachate from the leachate storage tank (as did URS); however, a leachate breakout sample was not obtained due to dry conditions.

All EPA sampling and analytical methods presented in this evaluation are consistent with EPA contract laboratory program QA/QC requirements.

III. ANALYTICAL RESULTS SUMMARY

All samples were analyzed for the full target compound list (formally the hazardous substance list). Tables 1 through 9 present the results of EPA's quality-assured sample results. The evaluation of these sample results are as follows:

GROUNDWATER

Volatiles - The volatile compounds detected in groundwater along with their maximum concentrations are acetone (260 ug/l (ppb)[3]), 2-butanone (MEK) (85 ppb), chloroethane (4 ppb), 1,1-dichloroethane (2 ppb), methylene chloride (1.0 ppb) and vinyl chloride and carbon disulfide (less than 1.0 ppb).

Semi-volatiles and Pesticides - Semi-volatile compounds detected in groundwater along with their maximum concentrations are benzoic acid (2 ppb), bis(2-ethylhexyl) phthalate (27 ppb) and di-n-octyl phthalate (3 ppb). Two pesticides, 4,4'-DDD and 4,4'-DDT were detected at less than 1.0 ppb.

Inorganics - Approximately half of the inorganics detected in groundwater were found exceeding their applicable or relevant and appropriate federal and state requirements (ARARs). Those compounds exceeding ARARs along with their maximum concentration are arsenic (85 ppb), barium (2,530 ppb), cadmium (24 ppb), chromium (2,920 ppb) and mercury (2.2 ppb). The lifetime health advisory for nickel (maximum concentration of 176 ppb) was also exceeded.

SURFACE WATER AND LEACHATE

Volatiles - No volatile compounds were detected in the surface water samples and leachate sample.

Semi-volatiles and Pesticides - Bis(2-ethylhexyl) phthalate was detected in surface water at a maximum concentration of 15 ppb. The pesticide heptachlor was detected in the leachate sample (VLCH-1) at a concentration of less than 1.0 ppb.

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[3] Compounds detected in the groundwater, surface water and leachate are reported in units of micrograms per liter (ug/l). This is the same as parts per billion (ppb).

Inorganics - Copper, silver and zinc were detected in surface water at maximum concentrations of 7.0 ppb, 3.1 ppb and 34 ppb, respectively. The leachate sample detected inorganics that were also detected in the groundwater monitoring wells. Those compounds detected in leachate along with their maximum concentration are arsenic (15 ppb), cadmium (3.8 ppb), chromium (21 ppb), copper (9.7 ppb), lead (66 ppb), nickel (184 ppb), thallium (100 ppb) and zinc (151 ppb).

SEDIMENTS

Volatiles - Volatile compounds detected in sediments along with their maximum concentrations include chloroform (22 ug/kg (ppb)[4]), ethyl benzene (104 ppb) and methylene chloride (10,710 ppb).

Semi-volatiles - The eight semi-volatile compounds detected in sediments along with their maximum concentrations are benzoic acid (322 ppb), benzyl alcohol (10 ppb), bis(2-ethylhexyl) phthalate (5,020 ppb), di-n-octyl phthalate (347 ppb), fluoranthene (50 ppb), phenanthrene (40 ppb), 4-Methyl phenol (60 ppb) and pyrene (40 ppb).

Inorganics - Inorganic compounds detected in sediments along with their maximum concentrations include arsenic (26,250 ppb), barium (270,000 ppb), chromium (11,000 ppb), copper (30,000 ppb), lead (27,000 ppb), mercury (200 ppb), nickel (12,000 ppb), selenium (16,000 ppb), thallium (1,200 ppb) and zinc (96,000 ppb).

IV. SUMMARY OF SITE RISKS

Table 10 summarizes the maximum and mean concentrations of toxic and carcinogenic substances for groundwater samples. As indicated by this table, cadmium, chromium and nickel also exhibit potential carcinogenic effects.

Table 11 summarizes the carcinogenic risk associated with groundwater ingestion using data from the monitoring wells sampled. As indicated by this table, the mean theoretical cumulative carcinogenic risk, which is driven by arsenic[5], is 4.55E-04.[6] If the maximum contaminant concentrations are used,

[4] Compounds detected in the sediments are reported in units of micrograms per kilogram (ug/kg), which is also the same as ppb.

[5] These risks reflect the new oral cancer potency factor for arsenic of 1.8 (mg/kg/d)-1. This factor was recently lowered from 15 (mg/kg/d)-1.

[6] For a theoretical carcinogenic risk of 4.55E-04, one may expect 4.55 cases of cancer for every 10,000 people.

then an even greater cumulative carcinogenic risk could be posed (4.39E-03).

The chronic hazard index associated with groundwater ingestion using data from the monitoring wells sampled is presented in Table 12. This index assesses the overall potential for non-carcinogenic (toxic) effects resulting from long-term ingestion of the groundwater. If the index exceeds unity (one), health impacts may be possible. As indicated in Table 12, the index exceeds unity for barium, cadmium and chromium based on the maximum concentration detected in the monitoring wells sampled.

Table 13 presents compounds detected in groundwater that exceed ARARs and other criteria considered. As indicated by this table, arsenic, barium, cadmium, chromium and mercury exceed either federal maximum contaminant levels or New York State water quality standards. In addition, vinyl chloride and nickel exceed their federal maximum contaminant level goal and lifetime health advisory, respectively.

IV. CONCLUSIONS

Since several compounds detected in groundwater at the site exceed ARARs (see Table 13); and the theoretical cumulative carcinogenic risk at the site is sufficiently similar in the EPA and RI/FS sampling events (4.39E-03 for the EPA data as compared to 3.70E-02 for the invalid RI/FS data[7]) (see Table 11); and the hazard index indicates non-carcinogenic health impacts may be possible due to long-term groundwater ingestion, the conclusion from the ROD that the site poses a threat to human health and the environment is still valid.

The RI/FS (pages 6-40 to 6-41) presents a detailed discussion of arguments for and against attributing the arsenic observed in the groundwater to the site. After weighing all factors, EPA conservatively concluded that arsenic is attributable to the site. Even if it was assumed that the site is not a source of the arsenic, thereby resulting in a reduction of the cumulative carcinogenic risk, both federal and State groundwater ARARs are still being violated and non-carcinogenic health impacts may be possible due to long-term ingestion of the groundwater. As a result, the site still poses a threat to human health and the environment.

Since the site still poses a threat to human health and the environment, and since the objective of the ROD (which is to address the source of the contamination) has not changed, the detailed evaluation of the remedial alternatives as presented in

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[7] In the RI/FS, the oral cancer potency factor for arsenic of 15 (mg/kg/d)-1 was used in determining the carcinogenic risk.

the ROD is used. As a result of this evaluation, which analyzes the alternatives in terms of protection of human health and the environment, attaining ARARs, cost-effectiveness, and use of permanent solutions to the maximum extent practicable, the remedy selected in the ROD is still valid (Based on information received ~~by EPA~~ regarding the cost-effectiveness of the slurry walls, during the ~~remedial~~ design, leachate generation ~~studies as well as~~ and treatability studies ~~which include long-term leachate treatment and cost determinations,~~ will be conducted~~.~~ These studies will evaluate the cost-effectiveness of the slurry walls and on-and off site leachate treatment. Since the ROD was signed, information in addition to the analytical data presented herein from EPA's resampling event was made available to EPA by the public regarding the selected remedy and its associated costs. This additional information has been considered by EPA in arriving at a final decision on the remedy for the first operable unit.

As stated in the ROD, the subsequent (and final) contamination pathway (CP) RI/FS operable unit will include an evaluation of potential shallow and bedrock contamination by assessing the extent of groundwater contamination from the landfill in both horizontal and vertical directions. An expanded residential well survey, as well as an assessment of the site's impact upon the stream/wetland systems adjacent to and downstream from the landfill will also be conducted during the CP RI/FS.

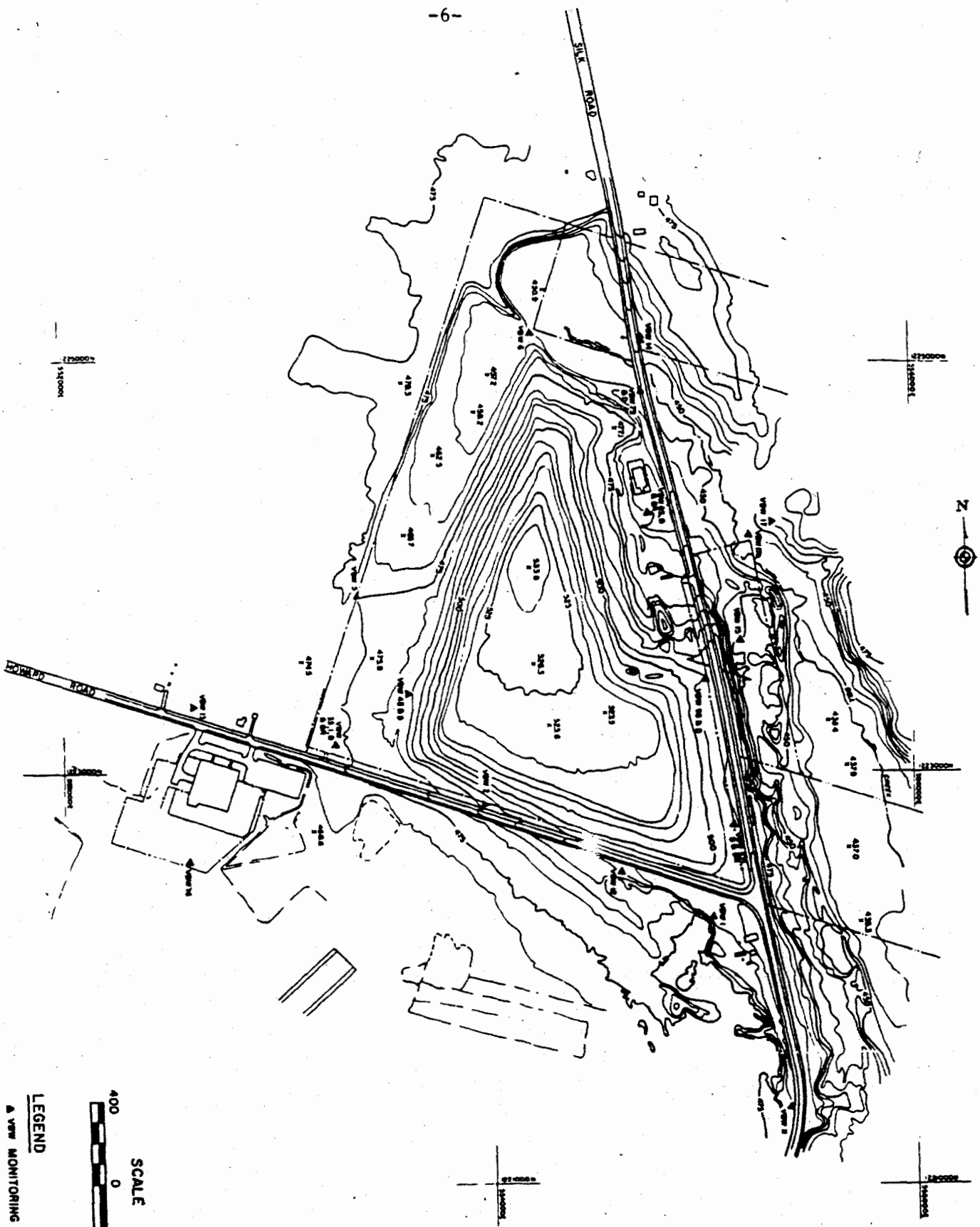
Based upon the findings presented above, the public's comments, and the additional information provided since the ROD was signed, EPA determines that the remedy selected in the ROD which involves containing the source of contamination at the landfill to prevent future contaminant migration, is still justified.

The State of New York has been consulted, and agrees with the determinations presented in the PDD (see attached concurrence letter).

Since the remedy selected in the ROD is not fundamentally altered with respect to scope, performance, or cost, no significant changes to the selected remedy have occurred.

_____ _____

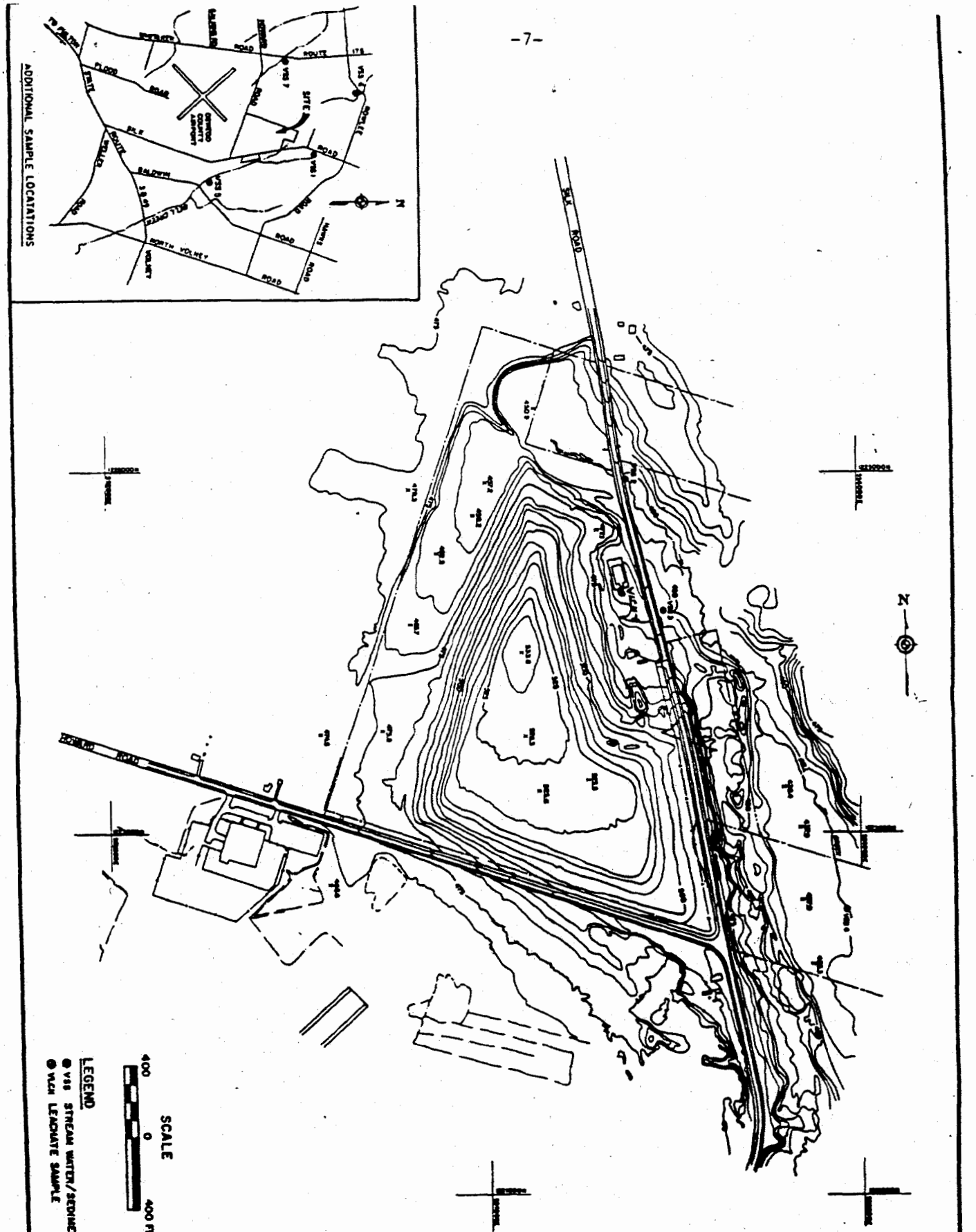
Stephen D. Luftig, Director Date
Emergency and Remedial Response Division



URS Company, Inc. CONSULTING ENGINEERS NEW YORK NEW JERSEY

MONITORING WELL LOCATIONS

FIGURE 1



URS Company, Inc. CONSULTING ENGINEERS | SURFACE WATER/SEDIMENT SAMPLING LOCATIONS | FIGURE 2

TABLE 1 - GROUNDWATER ANALYTICAL SUMMARY
VOLATILE COMPOUNDS

VOLATILE COMPOUNDS	VBW-3S	VBW-3I	VBW-3D	VBW-3BR	VBW-4D	VBW-5	VBW-6	VBW-7S	VBW-7D
Vinyl Chloride								0.3J	
Carbon Disulfide									
Chloroethane									
Methylene Chloride					0.5J	0.2J	1.0J		
Acetone	11.0		43	35	260	25			140J
1,1-Dichloro-ethane								2.0	
2-Butanone (MEK)									
Total HSL Volatiles	11.0	0	43	35	261	25.2	1.0	2.3	140
Total Add'l Peaks	1	1	0	0	0	0	0	3.0	0

Notes:

(1) All values in ug/1 (ppb).

(2) Tables 1 through 9 list only the compounds dectected.

(3) J= estimated value.

TABLE 1 - (cont'd) GROUNDWATER ANALYTICAL SUMMARY
VOLATILE COMPOUNDS

VOLATILE COMPOUNDS	VBW-8S	VBW-8D	VBW-8BR	VBW-10D	VBW-11	VBW-13	VBW-14	VBW-15	VBW-17
Vinyl Chloride									
Carbon Disulfide						0.4J			
Chloroethane	4.0J								
Methylene Chloride				0.2J					
Acetone	44	85	61	40					22
1,1-Dichloro-ethane	2.0J								
2-Butanone (MEK)		85J							
Total HSL Volatiles	50	170	61	40.2	0	0.4	0	0	22
Total Add'l Peaks	3	0	0	4	0	0	0	0	1.0

Notes:

(1) All values in ug/l (ppb).

(2) J= estimated value.

TABLE 2 - GROUNDWATER ANALYTICAL SUMMARY
SEMI-VOLATILE COMPOUNDS AND PESTICIDES

SEMI-VOLATILE COMPOUNDS	VBW-3S	VBW-3I	VBW-3D	VBW-3BR	VBW-4D	VBW-5	VBW-6	VBW-7S	VBW-7D
Benzoic Acid									
bis(2-ethylhexyl) Phthalate					3.0J		2.0J	4.0J	
Di-n-octyl Phthalate									
Total HSL Semi-Volatiles	0	0	0	0	3.0	0	2.0	4.0	0
Total Add'l. Peaks	1	0	1	3	4	2	6	15	8
PESTICIDES									
4,4'-DDD		0.30	0.11						
4,4'-DDT		0.13							

Notes:

(1) All values in ug/l (ppb).

(2) J= estimated value.

TABLE 2 - (cont'd) GROUNDWATER ANALYTICAL SUMMARY
SEMI-VOLATILE COMPOUNDS AND PESTICIDES

SEMI-VOLATILE COMPOUNDS	VBW-8S	VBW-8D	VBW-8BR	VBW-10D	VBW-11	VBW-13	VBW-14	VBW-15	VBW-17
Benzoic Acid		46J	49J	2.0J					
bis(2-ethylhexyl) Phthalate							27		
Di-n-octyl Phthalate				3.0					2.0J
Total HSL Semi-Volatiles	0	46	49	5.0	0	0	27	0	2.0
Total Add'l. Peaks	0	16	11	19	6	7	4	0	6

Notes:

(1) All values in ug/l (ppb).

(2) J= estimated value.

TABLE 3 - GROUNDWATER ANALYTICAL SUMMARY
INORGANIC COMPOUNDS

INORGANIC COMPOUNDS	VBW-3S	VBW-3I	VBW-3D	VBW-3BR	VBW-4D	VBW-5	VBW-6	VBW-7S	VBW-7D
Antimony									
Arsenic				85					
Barium	77	95	188	96	542	230	1200	574	660
Cadmium	2.9					7.0	9.0	5.8	18
Chromium	28	10	28	17	22	88		85	128
Cooper	25	11		13	11	54		13	116
Lead	13				5.4	5.5		9.9	27
Mercury									
Nickel	16		16	11	35	60	44	54	101
Selenium							5.0		
Zinc	45	19	6.0	30	25	64		104	171
Total Metals	206.9	135	238	252	640.4	508.5	1258	845.7	1221

Notes:

(1) All values in ug/l (ppb).

TABLE 3 - (cont'd) GROUNDWATER ANALYTICAL SUMMARY
INORGANIC COMPOUNDS

INORGANIC COMPOUNDS	VBW-8S	VBW-8D	VBW-8BR	VBW-10D	VBW-11	VBW-13	VBW-14	VBW-15	VBW-17
Antimony	28						38		
Arsenic			39	11					24
Barium	1630	2230	196	2530	290	244	203	572	564
Cadmium	24	6.4		6.9	10	9.0	5.8	7.1	9.9
Chromium	41	40	9.1	106	96	43	2,920	59	164
Cooper	47	47		17	55	14	22	21	41
Lead	6.3	14		10J	15J	13J	12J	14J	16J
Mercury			2.2						
Nickel	26	29		71	52	35	176	71	112
Selenium									
Zinc	83	61	6.0	64	87	68	78	96	125
Total Metals	1885.3	2427.4	252.3	2815.9	605	426	3454.8	840.1	1055.9

Notes:

(1) All values in ug/l (ppb).

(2) J= estimated value.

TABLE 4 - SURFACE WATER ANALYTICAL SUMMARY
VOLATILE COMPOUNDS

VOLATILE COMPOUNDS	VSS-1	VSS-2	VSS-3	VSS-4	VSS-5	VSS-6	VSS-7	VLCH-1
NO VOLATILE COMPOUNDS DETECTED								

TABLE 5 - SURFACE WATER ANALYTICAL SUMMARY
SEMI-VOLATILE COMPOUNDS

SEMI-VOLATILE COMPOUNDS	VSS-1	VSS-2	VSS-3	VSS-4	VSS-5	VSS-6	VSS-7	VLCH-1
bis (2-ethylhexyl) Phthalate			15	3.0J			2.0J	
Total HSL Semi-volatile	0	0	15	3.0	0	0	2.0	
Total Add'l Peaks	4	1	0	1	0	0	2	
PESTICIDES								
Heptachlor								0.11

Notes:

(1) All values in ug/l (ppb).

(2) J= estimated value.

TABLE 6 - SURFACE WATER ANALYTICAL SUMMARY
INORGANIC COMPOUNDS

INORGANIC COMPOUNDS	VSS-1	VSS-2	VSS-3	VSS-4	VSS-5	VSS-6	VSS-7	VLCH-1
Arsenic								15J
Cadmium								3.8J
Chromium								21J
Copper	7.6							9.7J
Lead								66J
Nickel								184J
Silver				3.1				
Thallium								
Zinc	34	6.0	16	5.0	5.0	6.2	6.0	151J
Total Metals	41.6	6.0	16	8.1	5.0	6.2	6.0	450.5

Notes:

(1) All values in ug/l (ppb).

(2) J= estimated value.

TABLE 7 - SEDIMENT ANALYTICAL SUMMARY
VOLATILE COMPOUNDS

VOLATILE COMPOUNDS	VSS-1	VSS-2	VSS-3	VSS-4	VSS-5	VSS-6	VSS-7
Chloroform	22M						
Ethyl Benzene	92M	62M	104M	34M	78M	26M	
Methylene Chloride			10,710				
Xylene	34M		88M				

Notes:

(1) All values in ug/kg (ppb)

(2) M = Presence of material verified but not quantified.
Considered an estimated value.

TABLE 8 - SEDIMENT ANALYTICAL SUMMARY
SEMI-VOLATILE COMPOUNDS

SEMI-VOLATILE	VSS-1	VSS-2	VSS-3	VSS-4	VSS-5	VSS-6	VSS-7
Benzoic Acid	200M	280M	322M	180M	150M	240M	280M
Benzyl Alcohol	10M		9.8M				10M
Bis(2-ethlyhexyl) Phthalate			5,020				
Di-n-Octyl Phthalate			347M				
Fluoranthene	9.5M		20M				50M
Phenanthrene	29M	40M	39M	28M		38M	
4-Methyl Phenol		50M					60M
Pyrene							40M

Notes:

(1) All values in ug/kg (ppb).

(2) M = Presence of material verified but not quantified. Considered an estimated value.

TABLE 9 - SEDIMENT ANALYTICAL SUMMARY
INORGANIC COMPOUNDS

INORGANIC COMPOUNDS	VSS-1	VSS-2	VSS-3	VSS-4	VSS-5	VSS-6	VSS-7
Arsenic	6,630	25,530	26,250	6,220	10,400		16,000M
Barium	35,000	170,000	64,000	46,000	56,000	270,000	160,000
Cadmium						1,200M	500M
Chromium	4,800	11,000	8,800	3,700	4,100	10,000	7,300
Copper	2,500	17,000	13,000	2,700	2,300	30,000	14,000
Lead	4,000M	14,000	10,000	3,000M	6,000M	21,000	27,000
Mercury						200M	
Nickel	4,000M	12,000	9,500	4,000M	3,000M	7,800	5,700
Selenium	4,200M	8,000	13,900	16,000M	4,800M	3,900M	14,000M
Thallium	560	1,200	1,000M	660	500M		1,100
Zinc	17,000	55,000	71,000	19,000	28,000	96,000	90,000
Total Metals	78,690	313,730	217,450	101,280	115,100	440,100	335,600

Notes:

(1) All values in ug/kg (ppb).

(2) M = Presence of material verified but not quantified. Considered an estimated value.

TABLE 10

MAXIMUM AND MEAN CONCENTRATIONS OF CONTAMINANTS EVALUATED IN RISK ASSESSMENT OF MONITORING WELLS

A. TOXINS

Volatiles	Max. Concent. (ppb)	Mean Concent.[1] (ppb)
Carbon disulfide	0.4	0.02
1,1-Dichloroethane	2.0	0.22
2-Butanone (MEK)	85.0	4.72
Inorganics		
Barium	2,530.0	673.0
Cadmium[2]	24.0	9.37
Chromium[2]	2,920.0	228.5
Lead	27.0	8.95
Mercury	2.2	0.12
Nickel[2]	176.0	50.5
Selenium	5.0	0.28
Zinc	171.0	62.9

B. Carcinogens

Volatiles		
Vinyl chloride	0.3	0.02
Inorganics		
Arsenic	85.0	8.83

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[1] The mean concentration is based on the total number of samples analyzed for a particular compound (N=18). If a compound was not detected in a sample, a score of zero was assigned when determining the mean.

[2] These compounds also exhibit potential carcinogenic effects.

TABLE 11 - CARCINOGENIC RISK FOR MONITORING WELLS (ORAL ROUTE)
RI/FS AND EPA DATA

Carcinogen	CDI(1) (EPA) Max	CDI(1) (EPA) Mean	Potency Factor(2) (mg/kg/d)-1	Carcinogenic Risk(3) (EPA) Max	Carcinogenic Risk(3) (EPA) Mean	Carcinogenic Risk(3) (RI/FS) Max	Carcinogenic Risk(3) (RI/FS) Mean
Benzene	0	0	0.052	0	0	1.51E-06	4.52E-08
Vinyl Chloride	8.57E-06	5.71E-07	2.3	1.97E-05	1.31E-06	5.34E-04	2.60E-05
Arsenic	2.43E-03	2.52E-04	1.8 (15.0)*	4.37E-03	4.54E-04	(3.65E-02)	(4.22E-03)
Total Cumulative Carcinogenic Risk				4.39E-03	4.55E-04	(3.70E-02)	(4.25E-03)

Notes:

(1) CDI = Chronic Daily Intake = (Max or Mean Concentration in mg/l x 2 liters of water ingested per day)/(70 kg average body weight).

(2) Oral Potency Factor taken from Exhibit C-4 of the Superfund Public Health Evaluation Manual (October 1986).
* The Oral Potency Factor for arsenic, which was recently changed to 1.8, is not yet reflected in Exhibit C-4. The values in parentheses represent the risks using the arsenic potency factor used in the RI/FS.

(3) Carcinogenic Risk = CDI x Potency Factor

TABLE 12
NON-CARCINOGENIC
CHRONIC HAZARD INDEX FOR MONITORING WELLS (ORAL ROUTE)

Compound	CDI[1] Max. (mg/kg/d)	CDI[1] Mean (mg/kg/d)	AIC[2] (mg/kg/d)	Hazard Index[3] Max.	Hazard Index[3] Mean
Barium	7.23E-02	1.923E-02	5.10E-02	1.42E+00	3.76E-01
Cadmium	6.86E-04	2.68E-04	2.90E-04	2.37E+00	9.24E-01
Chromium	8.34E-02	6.53E-03	5.00E-03	1.67E+01	1.31E+00
Lead	7.71E-04	2.56E-04	1.40E-03	5.51E-01	1.83E-01
Mercury	6.29E-05	3.43E-06	2.00E-03	3.15E-02	1.72E-03
Nickel	5.03E-03	1.44E-03	1.00E-02	5.03E-01	1.44E-01
Selenium	1.43E-04	8.00E-06	3.00E-03	4.77E-02	2.67E-03
Zinc	4.89E-03	1.80E-03	2.10E-01	2.33E-02	8.57E-03

Notes:

(1) CDI = Max. or mean concentration in mg/1 x 2 liters of water ingested per day/70 kg average body weight.

(2) AIC = Acceptable Intake (oral route) for Chronic Exposures. Taken from Exhibit C-6 of the Superfund Public Health Evaluation Manual (October 1986).

(3) Hazard Index = CDI/AIC

TABLE 13

GROUNDWATER COMPOUNDS EXCEEDING ARARS AND OTHER CRITERIA CONSIDERED

Compound	Max. Concent. (ppb)	ARARS and Criteria Standard(ppb)	Source*
Vinyl Chloride	0.3	2, 0	MCL, MCLG
Arsenic	85.0	25	703.5
Barium	2,530.0	1,000(4,700)	MCL
Cadmium	24.0	10(5)	MCL
Chromium	2,920.0	50(100)	MCL
Mercury	2.2	2	MCL
Nickel	176.0	150	H

Notes:

*1) Sources for the ARARs are as follows:
- 703.5- 6NYCRR Water Quality Regulations, Part 703.5- New York State Ambient Water Quality Standards and Guidance Values (revised 4/1/87).
- MCL- 40 CFR Part 141 EPA National Primary Drinking Water Regulations Subpart B, Maximum contaminant levels (MCLs) for organic and inorganic chemicals.
Proposed MCLs are noted in parentheses.

2) Sources for criteria considered are as follows:
- MCLG- 40 CFR Part 141 Maximum contaminant levels goals.
- H- Lifetime health advisory