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Formerly Utilized Sites Remedial Action Program (FUSRAP)

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# ADMINISTRATIVE RECORD

For the Niagara Falls Site,  
New York

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U.S. Department of Energy



FUSRAP Project  
Job 14501

**012**  
NO.158-96- Rev.0

## FUSRAP TECHNICAL MEMORANDUM

TO: Lacy Baldy  
 FROM: Badri Kapoor  
 DATE: September 03, 1996  
 SUBJECT: Chemical Data Gap Characterization at Niagara Falls Storage Site (NFSS)

Prepared By	Team Lead Approval	Project Engineer Approval	Project Manager Approval
Badri N. Kapoor	EA for LLP 09/03/96	<i>[Signature]</i>	<i>[Signature]</i> 9 Sep 96

### INTRODUCTION

A review of previous chemical characterization data collected at the Niagara Falls Storage Site (NFSS) indicated that there were several potential data gaps which needed to be addressed in order to complete characterization of the site. The NFSS is shown in Figure 1 (Attachment A).

The purpose of this characterization activity was to: (1) define the presence and depth of organic and/or metal contamination in soil and groundwater in the vicinity of Building 401 and former Building 407, (2) complete the sediment and surface water characterization downstream from Building 401 and former Building 407, (3) collect background soil samples, and (4) collect groundwater samples from background wells. The former Building 407, located close to Building 401, was historically used to store solvents and waste oils.

### METHODOLOGY

The sampling was conducted under a field sampling and analysis plan prepared by Science Applications International Corporation (Ref. 1). A work instruction (WI) was issued by Bechtel to implement the sampling plan (Ref. 2) and provide documentation to track and close-out work tasks. Samples were collected from sampling locations identified in Figure 2 (Attachment A) and analyzed for chemical parameters by an off-site independent laboratory.

In order to satisfy purpose #1, soil samples were collected from locations identified in Attachment A. A drill rig was used to collect soil samples; each borehole was continuously sampled to the gray clay geologic unit with a split spoon sampler. The types of soils were identified and recorded in a logbook by a geologist. The geologic logs for these boreholes are provided in Attachment B. Three samples were collected from each borehole; samples were analyzed for tetrachloroethene, 1,2-dichloroethene (total), trichloroethene, and thallium.

Background soil samples were collected from the Lewiston Public School grounds. Hand augers were used to collect soil samples composited from 0 to 1 ft. Samples were analyzed for total metals.

Groundwater samples were also collected from the onsite soil sampling locations. Groundwater samples were collected below the water table using a BAT® direct push groundwater sampler (DPGS). One 35-ml BAT® DPGS vial for each sample interval was analyzed for tetrachloroethene, 1,2-dichloroethene (total), and trichloroethene. Background groundwater samples were collected from wells B02W20S and B02W20D in accordance with the project procedures; Groundwater Sampling Instruction Guide 191-IG-033 (Ref. 3). Purge parameters (pH, temperature, specific conductivity, Eh, dissolved oxygen (DO), and turbidity) were measured in the field for background groundwater samples.

Sediment and surface water samples were collected in accordance with the Surface Water and Sediment Sampling Instruction Guide 191-IG-028 (Ref. 4). Samples were analyzed for tetrachloroethene, 1,2-dichloroethene (total), trichloroethene, and total metals. The field parameters (pH, temperature, and specific conductivity) were measured in the field for surface water samples.

Quality control samples were collected per the requirements identified in the WI (Ref. 2). Drill spoils resulting from sampling were placed back into the boreholes; then the holes were filled with packed granular bentonite and hydrated.

## RESULTS

Analytical results for chemical parameters are provided in Attachment C. This attachment includes analytical results for soil, groundwater, sediment, surface water, groundwater for background wells, background soil, and quality control samples.

NOTE: Contaminants of concern (COCs) identified are metals (cadmium, copper, lead, magnesium, thallium, vanadium, and zinc) and VOCs (Ref. 1). Analytical results are compared to regulatory guidelines, if available. Analytes with qualifiers 'u' and 'uj' are not compared to regulatory guidelines because the analyte was not detected. Additionally, analytes with 'j' qualifier are not compared to regulatory guidelines because concentrations of analytes were estimated.. Soil analytical results are compared to regulatory guidelines or site soil background concentrations for metals. Sediment results are not compared to regulatory standards since there are no New York State Department of Environmental Conservation (NYSDEC) guidelines for sediments (Ref. 5).

Soil sample results are presented in Table 1. VOCs and thallium concentrations did not exceed detection limits. The matrix spike/matrix spike duplicate (MS/MSD) indicated acceptable recovery for trichloroethene.

Groundwater sample results and field parameters are presented in Table 2. VOCs did not exceed detection limits. Most VOC detection limits were estimated (i.e., 'j' qualified) due to the BAT® vials having headspace in the vial.

Tables 3 and 4 provide analytical results for sediment and surface water samples, respectively. In general, VOCs and metals concentrations were at detection limits. Analytes given 'j' qualification had MS/MSD recoveries not within the quality assurance/quality control (QA/QC) limits.

At the west drainage ditch surface water location (DG8), iron was detected at a concentration of 790 ppb which is above the regulatory guideline of 300 ppb. Previous chemical characterization indicated that iron is not a contaminant of concern onsite. There are no potential contributors upstream of this location. The presence of iron may be due to the low flow characteristics of the ditch.

Background groundwater results are presented in Table 5. Background soil sample results are presented in Table 6. Laboratory QA/QC sample results are presented in Table 7.

## SUMMARY

In accordance with controlling documents, analytical results presented in Attachment C fulfill the required objectives to complete the site characterization.

Based on analytical results, one surface water sampling location at the west drainage ditch had concentration of iron above regulatory guideline. Previous characterization indicated that iron is not a contaminant of concern onsite. Since there are no potential contributors upstream, the presence of iron in the west drainage ditch may be due to the low flow characteristics of the ditch.

## REFERENCES

1. Science Applications International Corporation (SAIC) 1995. *Field Sampling Plan for the Niagara Falls Storage Site, Niagara Falls, NY*, CCN 126500 (February).
2. Bechtel National, Inc. (BNI) 1995. *Niagara Falls Storage Site Field Sampling Work Instruction, WI-95-130* (June).
3. BNI 1993. *Instruction Guide for Groundwater Sampling Activities, 191-IG-033, Rev. 0* (September).
4. BNI 1993. *Instruction Guide for Surface Water and Sediment Sampling Activities, 191-IG-028, Rev. 0* (August).
5. BNI 1996. *NFSS Data Gap TM Regulatory Standards Comparison*, CCN 144436 (July).

## ATTACHMENTS

Attachment A - Figure 1 Present Configuration of Niagara Falls Storage Site  
Figure 2 Data Gap Sampling Locations for NFSS

Attachment B - Borehole Logs

Attachment C - Data Gap Analytical Results for NFSS

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ATTACHMENT A

Figure 1 - Present Configuration of Niagara Falls Storage Site

Figure 2 - Data Gap Sampling Locations for NFSS

146000

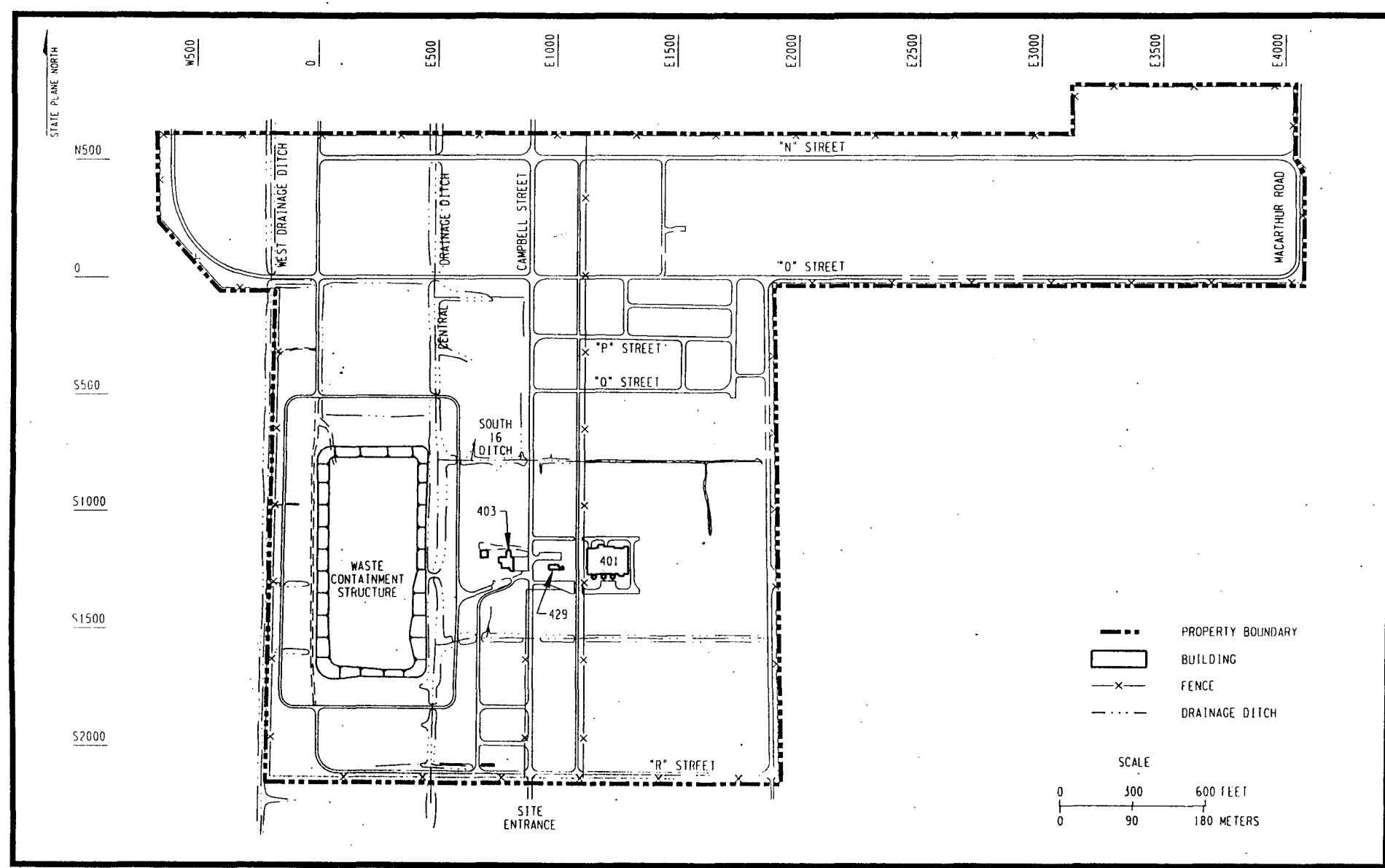
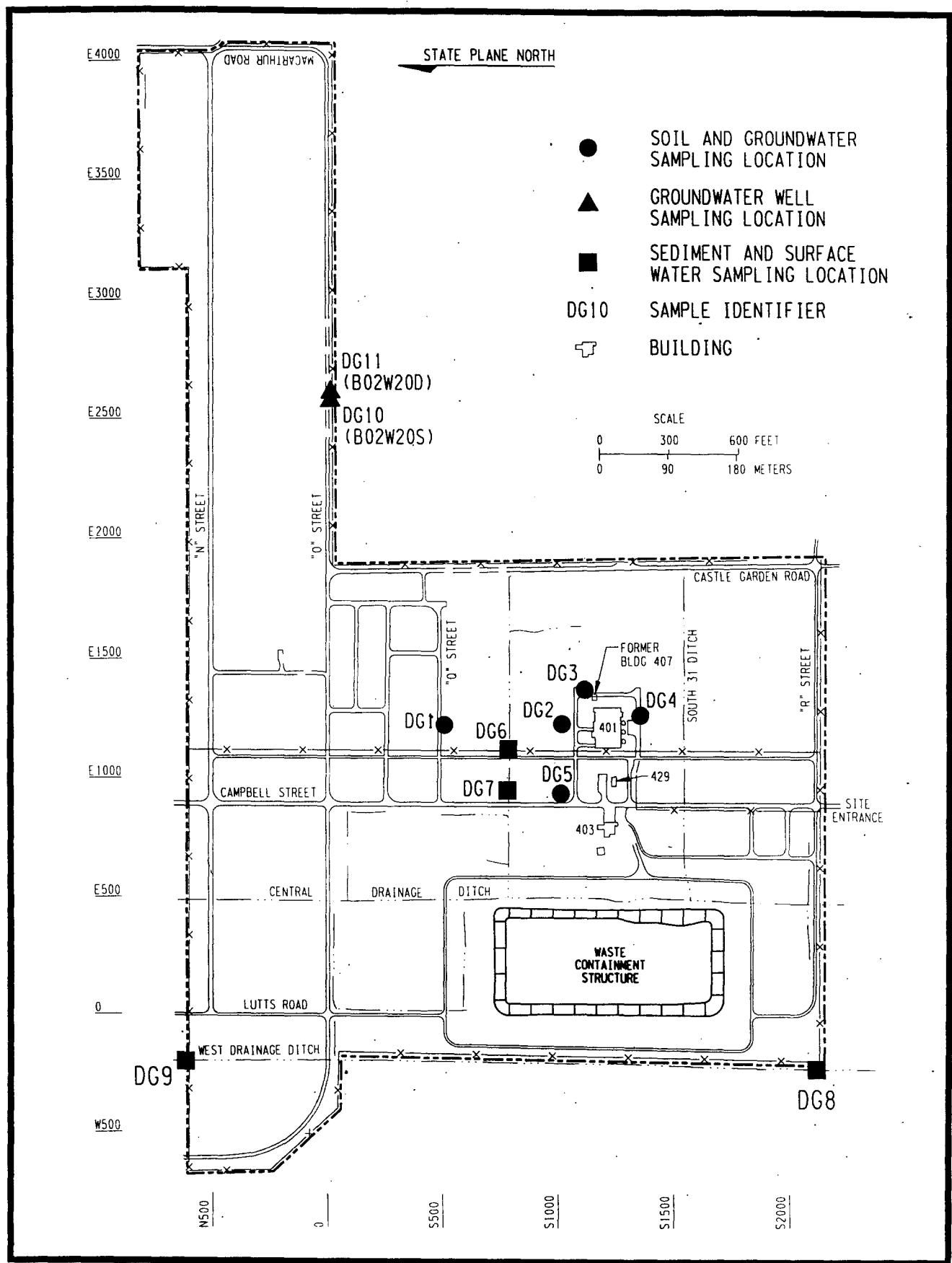


Figure 1  
Present Configuration of NFSS

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Figure 2  
Data Gap Sampling Locations at NFSS

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ATTACHMENT B

Borehole Logs



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GEOLOGIC DRILL LOG						PROJECT			JOB NO.		SHEET NO.	HOLE NO.	
						Niagara Falls Storage Site			14501-202		1 OF 1	DG-1	
SITE				COORDINATES				ANGLE FROM HORIZ BEARING					
Niagara Falls Storage Site				N 1,172,090.6 E 393,496.8				Vertical					
BEGUN 07-05-95	COMPLETED 07-05-95	DRILLER Earth Dimensions		DRILL MAKE AND MODEL Diedrich D-50	SIZE 8.25"	OVERTBURDEN 16.0	ROCK (FT.) N/A	TOTAL DEPTH 16.0					
CHECKED BY (Date) <i>PB</i> 8/20/96		CORE BOXES 0	SAMPLES 8	SAMPLEL. TOP CASING 319.4	GROUND EL. 319.4	DEPTH/EL. GROUND WATER 5.5/313.9	DEPTH/EL. TOP OF ROCK N/A						
SAMPLE HAMMER WEIGHT/FALL 140 lbs/30 in		CASING LEFT IN HOLE: DIA./LENGTH NONE		LOGGED BY: P. Bond <i>PB</i>									
SAMP TYPE SAND	SAMP. DIA. ADV.	LEN. CORE	SAMPLE REC. CORE REC.	DIRECT BOREHOLE READINGS		ELEV.	DEPTH	GRAPHICS	(Template: FUSRAP)				NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
				SAMPLE SPOON	RECOVERY				ORGANIC VAPORS (PPM)	GAMMA (CP)	DESCRIPTION AND CLASSIFICATION		
SS	2.0	2.0	11-42-35 15			319.4			0 - 0.5 Ft: TOPSOIL; Organic silty clay (OL); Dark yellowish brown (10YR 4/2). 0.5 - 2.0 Ft: Gravelly SAND, (SP); Dark yellowish brown (10YR 4/2), small to large gravels, dry, trace very light gray (N8) clay. 1.7 - 2.0 Ft: Olive Black (5Y 2/1).				Borehole advanced using 8.25" hollow stem augers Samples collected using 2" split spoon samplers Organic vapors = 3ppm  Description & classification by visual examination of sample. Colors from "Rock-Color Chart" (GSA, 1991).  Organic vapors = 3ppm  Borehole backfilled with drill cuttings.
SS	2.0	1.5	5-5-8 11			318.9			2.0 - 5.0 Ft: Sandy CLAY, (CL); Brownish black (5Y 2/1), Olive gray (5Y 4/1), Dark yellowish brown (10YR 4/2), moderate plasticity.				
SS	2.0	1.8	6-13-15 10			317.4			5.0 - 6.0 Ft: Clayey SAND, (SC); Dark yellowish brown (10YR 4/2).				
SS	2.0	1.0	11-16-10 3			314.4			6.0 - 7.0 Ft: Clayey GRAVEL, (GC); Medium grey (NS), moist to wet, increase sand content at 6.5 ft. 7.0 - 9.6 Ft: CLAY, (CL); Dark yellowish brown (10YR 4/2), trace gravel and sand, moist to wet.				
SS	2.0	2.0	1-2-11 15			313.4			9.6 - 11.5 Ft: Clayey SAND, (SC); Dark yellowish brown (10YR 4/2), trace gravel, wet.				
SS	2.0	1.3	3-2-3-2			312.4			11.5 - 16.0 Ft: CLAY, (CL); Brownish grey (5YR 4/1) to moderate brown (5YR 4/4), moist, moderate plasticity.				
SS	2.0	2.0	2-4-3-4			309.8			TOTAL DEPTH = 16.0 FT.				
SS	2.0	2.0	2-3-3-3			307.9							
						303.4							
SS = SPLIT SPOON; HA = HAND AUGER												Last Update: 01/19/96	
HOLE LENGTH OF HAMMER = 0 - OTHER												HOLE NO. DG-1	
SITE Niagara Falls Storage Site													



146000

GEOLOGIC DRILL LOG					PROJECT Niagara Falls Storage Site			JOB NO. 14501-202	SHEET NO. 1 OF 1	HOLE NO. DG-2						
SITE Niagara Falls Storage Site			COORDINATES N 1,171,583.5 E 393,503.1				ANGLE FROM HORIZ BEARING Vertical									
BEGUN 06-29-95	COMPLETED 06-29-95	DRILLER Earth Dimensions	DRILL MAKE AND MODEL Diedrich D-50			SIZE 8.25"	OVERBURDEN 18.0	ROCK (FT.) N/A	TOTAL DEPTH 18.0							
CHECKED BY (Date) <i>CRB</i> 8/20/96		CORE BOXES 0	SAMPLES 9	EL. TOP CASING	GROUND EL. 317.9	DEPTH/EL. GROUND WATER 9.0/308.9	DEPTH/EL. TOP OF ROCK N/A									
SAMPLE HAMMER WEIGHT/FALL 140 lbs/30 in			CASING LEFT IN HOLE: DIA./LENGTH NONE			LOGGED BY: P. Bond <i>PB</i>										
SAMPLE TYPE: SAND	DIAM. LEN.	ADY. SAMPLE	REC. CORE	REC. LE	CORE RECOV.	DIRECT BOREHOLE READINGS		ELEV.	DEPTH	GRAPHICS	SAMPLE	(Template: FUSRAP)				NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
						ORGANIC VAPORS (ppm)	GAMMA EQUIP (CP)					DESCRIPTION AND CLASSIFICATION				
SS	2.0	2.0	4-9-15 14					317.9	317.4			0.0 - 0.5 Ft: TOPSOIL, organic silty clay (OL); Dark yellowish brown (10YR 4/2), dry. 0.5 - 3.0 Ft: Clayey SAND, (SC); Dark yellowish brown (10YR 4/2), dry.				Borehole advanced using 8.25" hollow stem augers
SS	2.0	1.5	5-7-10 12					314.9				3.0 - 10.0 Ft: Sandy CLAY, (CL); Dark yellowish brown (10YR 4/2), dry to moist, trace gravel, some mud cracks evident.				Samples collected from 2" split spoon samplers
SS	2.0	2.0	6-10-13 15						5							Description & classification by visual examination of sample.
SS	2.0	0.3	4-12-14 16													Colors from "Rock-Color Chart" (GSA, 1991). Organic vapors = 0ppm
SS	2.0	0.4	5-4-3-3													Volatile organic analysis (VOA) groundwater sample
SS	2.0	0.8	8-14-12 9					307.9	10			10.0 - 13.0 Ft: Clayey SAND, (SC); Dark yellowish brown (10YR 4/2), moist, trace fine to coarse gravel.				
SS	2.0	2.0	2-2-2-2					304.9				13.0 - 18.0 Ft: CLAY, (CL); Olive gray (5Y 4/1), dark yellowish brown (10YR 4/2), moderate brown (5YR 4/4), brownish gray (5YR 4/1), varved, moist.				VOA groundwater sample
SS	2.0	1.1	2-1-2-1						15							
SS	2.0	2.0	2-2-2-1					299.9				TOTAL DEPTH = 18.0 FT.				Borehole backfilled with drill cuttings.
SS = SPLIT SPOON; HA = HAND AUGER					SITE	Last Update: 01/19/96						HOLE NO. DG-2				
Niagara Falls Storage Site																



146000

GEOLOGIC DRILL LOG					PROJECT Niagara Falls Storage Site				JOB NO. 14501-202	SHEET NO. 1 OF 1	HOLE NO. DG-3			
SITE Niagara Falls Storage Site			COORDINATES N 1,171,485.1 E 393,647.8					ANGLE FROM HORIZ BEARING Vertical						
BEGUN 06-30-95	COMPLETED 06-30-95	DRILLER Earth Dimensions	DRILL MAKE AND MODEL Diedrich D-50			SIZE 8.25"	OVERBURDEN 14.0	ROCK (FT.) N/A	TOTAL DEPTH 14.0					
CHECKED BY (Date) R.B 8/20/96		CORE BOXES 0	SAMPLES 7	EL. TOP CASING 319.6	GROUND EL. 319.6	DEPTH/EL. GROUND WATER 11.0/308.6	DEPTH/EL. TOP OF ROCK N/A							
SAMPLE HAMMER WEIGHT/FALL 140 lbs/30 in		CASING LEFT IN HOLE: DIA./LENGTH NONE			LOGGED BY: P. Bond PB									
SAMP. TYPE SAND DIAM. ADV. LEN. LEN. CORE SAMPLE REC. CORE REC.	SAMPLE SPOON CORE REC.	SAMPLE SPOON CORE REC.	DIRECT BOREHOLE READINGS			ELEV. 319.6	DEPTH 317.6	GRAPHICS SAMPLE	(Template: FUSRAP) DESCRIPTION AND CLASSIFICATION			NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.		
			ORGANIC VAPORS	(CPM)	GAMMA LOG									
SS 2.0	2.0	4-12-9 8				313.6	5		0.0 - 2.0 Ft: TOPSOIL, Organic silty clay (OL); Moderate brown (5YR 4/4), trace fine to coarse gravel, dry.			Borehole advanced using 8.25" hollow stem augers		
SS 2.0	1.0	4-2-2-4				308.6	10		2.0 - 6.0 Ft: Sandy CLAY, (CL); Olive black (5Y 2/1), grayish black (N2), rootlets, moist, oily sheen, trace fine gravel.			Samples collected from 2" split spoon samplers Organic vapors = 1ppm		
SS 2.0	1.5	2-4-8 11				305.6	14.0		6.0 - 11.0 Ft: Clayey SAND, (SC); Moderate brown (5YR 4/4), brownish gray (5YR 4/1), dry to moist, trace gravel.			Organic vapors = 0.5ppm Colors from "Rock-Color Chart" (GSA, 1991). Description & classification by visual examination of sample.		
SS 2.0	2.0	5-26-25 19							11.0 - 14.0 Ft: CLAY, (CL), Brownish gray (5YR 4/1), trace fine gravel.			Borehole backfilled with drill cuttings.		
SS 2.0	2.0	17-10-8 10							12.0 - 14.0 Ft: Olive gray (5Y 4/1), moist to wet.			Volatile organic analysis (VOA) groundwater sample		
SS 2.0	2.0	5-2-2-1							TOTAL DEPTH = 14.0 FT.					
SS = SPLIT SPOON; HA = HAND AUGER WH = WEIGHT OF HAMMER; O = OTHER												SITE Niagara Falls Storage Site	Last Update: 01/19/96	HOLE NO. DG-3



146000

GEOLOGIC DRILL LOG						PROJECT			JOB NO.		SHEET NO.	HOLE NO.	
						Niagara Falls Storage Site			14501-202		1 OF 1	DG-4	
SITE			COORDINATES						ANGLE FROM HORIZ			BEARING	
Niagara Falls Storage Site			N 1,171,244.6 E 393,539.3						Vertical			-----	
BEGUN 06-30-95	COMPLETED 06-30-95	DRILLER Earth Dimensions	DRILL MAKE AND MODEL Diedrich D-50			SIZE 8.25"	OVERBURDEN 12.0	ROCK (FT.) N/A	TOTAL DEPTH 12.0				
CHECKED BY (Date) <i>PB 8/20/96</i>		CORE BOXES 0	SAMPLES 6	EL. TOP CASING	GROUND EL. 319.6	DEPTH/EL. GROUND WATER 1/	DEPTH/EL. TOP OF ROCK N/A						
SAMPLE HAMMER WEIGHT/FALL 140 lbs/30 in			CASING LEFT IN HOLE: DIA./LENGTH NONE			LOGGED BY: P. Bond <i>PB</i>							
TYPE SAMP DIA. SS	ADV. LEN CORE 2.0	SAMPLE REC. 2.0	REC. LEN CORE 11-16-10 12	DIRECT BOREHOLE READINGS	ORGANIC VAPORS NO	ELEV. 319.6	DEPTH 318.6	GRAPHICS	SAMPLE NO	(Template: FUSRAP)			NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
										DEPTH 318.6	ELEV. 318.6	DEPTH 315.6	
SS	2.0	2.0	11-16-10 12							0.0 - 1.0 Ft: TOPSOIL, Silty SAND (SM); Grayish brown (SYR 3/2), moderate brown (SYR 4/4), trace fine gravel.			Borehole advanced using 8.25" hollow stem augers
SS	2.0	2.0	4-5-5-8							1.0 - 4.0 Ft: Clayey SAND, (SC); Moderate brown (SYR 4/4), grayish brown (SYR 3/2), organics, trace fine to coarse gravel, mudcracks evident.			Samples collected using 2" split spoon samplers
SS	2.0	2.0	4-6-8 12							4.0 - 6.0 Ft: CLAY, (CL); Moderate brown (SYR 3/4) with medium dark grey (N4), dry.			Description & classification by visual examination of sample.
SS	2.0	2.0	11-17-11 17							6.0 - 9.0 Ft: Clayey SAND, (SC); Moderate brown (SYR 4/4) to moderate reddish brown (10R 4/6), dry, trace fine gravel.			Organic vapors = 3ppm
SS	2.0	2.0	2-2-2-2							9.0 - 12.0 Ft: CLAY, (CL); Brownish gray (SYR 4/1), moist, slight to moderate plasticity.			Organic vapors = 1ppm
SS	2.0	2.0	WH-1-1 1							TOTAL DEPTH = 12.0 FT.			Borehole backfilled with drill cuttings.
SS = SPLIT SPOON; HA = HAND AUGER						SITE	Last Update: 01/19/96			HOLE NO.			
						Niagara Falls Storage Site				DG-4			



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GEOLOGIC DRILL LOG						PROJECT Niagara Falls Storage Site				JOB NO. 14501-202	SHEET NO. 1 OF 1	HOLE NO. DG-5		
SITE Niagara Falls Storage Site			COORDINATES N 1,171,587.8 E 393,211.9						ANGLE FROM HORIZ BEARING Vertical -----					
BEGUN	COMPLETED	DRILLER	DRILL MAKE AND MODEL Diedrich D-50			SIZE 8.25"	OVERBURDEN 20.0	ROCK (FT.) N/A	TOTAL DEPTH 20.0					
Earth Dimensions														
CHECKED BY (Date) RB 8/20/96		CORE BOXES 0	SAMPLES 10	SEL. TOP CASING	GROUND EL. 317.6	DEPTH/EL. GROUND WATER 7.5/310.1	DEPTH/EL. TOP OF ROCK /	N/A						
SAMPLE HAMMER WEIGHT/FALL 140 lbs/30 in			CASING LEFT IN HOLE: DIA./LENGTH NONE			LOGGED BY: P. Bond PB								
SAMPLE TYPE	DIAM.	QTY.	LEN. CORE	SAMPLE REC.	SAMPLE REC.	DIRECT BOREHOLE READINGS		ELEV.	DEPTH	GRAPHICS	(Template: FUSRAP)			NOTES ON: WATER LEVELS, WATER RETURN, CHARACTER OF DRILLING, ETC.
						BLK'S	% RECOVERY				ORGANIC VOC(ppm)	GAMMA LOG (CPM)	DESCRIPTION AND CLASSIFICATION	
SS	2.0	2.0	4-5-7-9					317.6			0.0 - 1.5 Ft TOPSOIL Organic silty clay (OL); Dark yellowish brown (10YR 4/4), dry.			Borehole advanced using 8.25" hollow stem augers Samples collected using 2" split spoon samplers  Borehole backfilled with drill cuttings.  Description & classification by visual examination of sample.  Colors from "Munsell Soil Color Charts" (1994)  Volatile organic analysis (VOA) groundwater sample  VOA groundwater sample  Organic vapors = 0ppm
SS	2.0	1.5	5-5-6-7					316.1			1.5 - 7.5 Ft Clayey SAND (SC) Dark yellowish brown (10YR 4/4), some organics, trace fine gravel, dry to moist.			
SS	2.0	2.0	5-6-7-8					5						
SS	2.0	1.5	3-4-6-7					310.1			7.5 - 10.5 Ft Silty SAND (SM) Dark brown (7.5YR 3/4), fine to medium grain, wet.			
SS	2.0	2.0	5-6-4-5					307.1			10.5 - 11.0 Ft Clayey SAND (SC) Dark yellowish brown (10YR 3/4), wet.			
SS	2.0	2.0	3-5-8 13					306.6			11.0 - 14.5 Ft Silty SAND (SM) Dark brown (10YR 3/3), wet, trace clay.			
SS	2.0	2.0	4-9-13 12					303.1			14.5 - 20.0 Ft CLAY (CL) Brown (10YR 4/3), wet, moderate plasticity.			
SS	2.0	2.0	2-2-2-3					15			16.0-17.0 ft Dark brown (10YR 3/3).			
SS	2.0	2.0	WH-3-4 2					17.0-20.0 ft			Dark gray (10YR 4/1).			
SS	2.0	2.0	4-2-2-3					20			Bottom of borehole at 20.0 Ft.			

SS = SPLIT SPOON; HA = HAND AUGER  
WH = WEIGHT OF HAMMER; O = OTHER

SITE Niagara Falls Storage Site Last Update: 01/19/96

HOLE NO. DG-5

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ATTACHMENT C

Data Gap Analytical Results for NFSS

**TABLE 1**  
**DATA GAP ANALYTICAL RESULTS FOR SOIL AT NFSS**

Sample Location	Sample ID	Date collected	Depth (ft)	Analyte	Conc.	Regulatory Levels <sup>a</sup>	Units
DG1	NFS069	07-10-95	0 - 2	Tetrachloroethene	6 u	1400	ppb
				Trichloroethene	6 u	700	ppb
				1,2-Dichloroethene (total)	6 u	300	ppb
				Thallium	0.26 uj	0.28 u <sup>b</sup>	ppm
				% solids	91.6		%
	NFS071	07-10-95	3 - 4	Tetrachloroethene	6 u	1400	ppb
				Trichloroethene	6 u	700	ppb
				1,2-Dichloroethene (total)	6 u	300	ppb
				Thallium	0.28 uj	0.28 u <sup>b</sup>	ppm
				% solids	85.2		%
DG2	NFS054	07-21-95	0 - 2	Tetrachloroethene	7 u	1400	ppb
				Trichloroethene	7 u	700	ppb
				1,2-Dichloroethene (total)	7 u	300	ppb
				Thallium	0.33 uj	0.28 u <sup>b</sup>	ppm
				% solids	73.5		%
	NFS055	07-21-95	10 - 12	Tetrachloroethene	6 u	1400	ppb
				Trichloroethene	6 u	700	ppb
				1,2-Dichloroethene (total)	6 u	300	ppb
				Thallium	0.28 u	0.28 u <sup>b</sup>	ppm
				% solids	86.2		%
DG3	NFS056	07-21-95	16 - 18	Tetrachloroethene	8 u	1400	ppb
				Trichloroethene	8 u	700	ppb
				1,2-Dichloroethene (total)	8 u	300	ppb
				Thallium	0.32 u	0.28 u <sup>b</sup>	ppm
				% solids	75.1		%
	NFS058	07-10-95	0 - 2	Tetrachloroethene	2 j	1400	ppb
				Trichloroethene	6 u	700	ppb
				1,2-Dichloroethene (total)	6 u	300	ppb
				Thallium	0.28 uj	0.28 u <sup>b</sup>	ppm
				% solids	86.2		%
DG3	NFS060	07-10-95	2 - 4	Tetrachloroethene	6 u	1400	ppb
				Trichloroethene	6 u	700	ppb
				1,2-Dichloroethene (total)	6 u	300	ppb
				Thallium	0.29 uj	0.28 u <sup>b</sup>	ppm
				% solids	83.7		%
	NFS0059	07-10-95	11 - 12	Tetrachloroethene	6 uj	1400	ppb
				Trichloroethene	6 u	700	ppb
				1,2-Dichloroethene (total)	6 u	300	ppb
				Thallium	0.27 uj	0.28 u <sup>b</sup>	ppm
				% solids	88.7		%

**TABLE 1**  
**DATA GAP ANALYTICAL RESULTS FOR SOIL AT NFSS**

Sample Location	Sample ID	Date collectd	Depth (ft)	Analyte	Conc.	Regulatory Levels <sup>a</sup>	Units
DG4	NFS062	07-10-95	0 - 2	Tetrachloroethene	6 u	1400	ppb
				Trichloroethene	6 u	700	ppb
				1,2-Dichloroethene (total)	6 u	300	ppb
				Thallium	0.28 u <sup>b</sup>	0.28 u <sup>b</sup>	ppm
				% solids	86.4		%
NFS064		07-10-95	4 - 6	Tetrachloroethene	7 uj	1400	ppb
				Trichloroethene	7 u	700	ppb
				1,2-Dichloroethene (total)	7 u	300	ppb
				Thallium	0.34 uj	0.28 u <sup>b</sup>	ppm
				% solids	70.6		%
NFS063		07-10-95	8 - 10	Tetrachloroethene	6 u	1400	ppb
				Trichloroethene	6 u	700	ppb
				1,2-Dichloroethene (total)	6 u	300	ppb
				Thallium	0.28 uj	0.28 u <sup>b</sup>	ppm
				% solids	84.5		%
DG5	NFS045	07-21-95	0 - 2	Tetrachloroethene	6 u	1400	ppb
				Trichloroethene	6 u	700	ppb
				1,2-Dichloroethene (total)	6 u	300	ppb
				Thallium	0.29 u	0.28 u <sup>b</sup>	ppm
				% solids	83.2		%
NFS051		07-21-95	6 - 8	Tetrachloroethene	6 u	1400	ppb
				Trichloroethene	6 u	700	ppb
				1,2-Dichloroethene (total)	6 u	300	ppb
				Thallium	0.29 u	0.28 u <sup>b</sup>	ppm
				% solids	84.1		%
NFS047		07-21-95	8 - 10	Tetrachloroethene	6 u	1400	ppb
				Trichloroethene	6 u	700	ppb
				1,2-Dichloroethene (total)	6 u	300	ppb
				Thallium	0.29 u	0.28 u <sup>b</sup>	ppm
				% solids	83.2		%
NFS049 (Duplicate)		07-21-95	8 - 10	Tetrachloroethene	6 u	1400	ppb
				Trichloroethene	6 u	700	ppb
				1,2-Dichloroethene (total)	6 u	300	ppb
				Thallium	0.27 u	0.28 u <sup>b</sup>	ppm
				% solids	88.6		%

<sup>a</sup> New York State Department of Environmental Conservation (NYSDEC), 1994. "Division of Hazardous Waste Remediation, Technical and Administrative Guidance Memorandum: Determination of Soil Cleanup Objectives and Cleanup Levels" (January 24)

<sup>b</sup> Site background concentration for thallium (Table 6)

#### QUALIFIERS

u Analyte was analyzed for but not detected.

uj Estimated value. Analyte was analyzed for and not detected, but must be estimated due to quality control considerations.

**TABLE 2**  
**DATA GAP ANALYTICAL RESULTS FOR GROUNDWATER AT NFSS**

Sample Location	Sample ID	Date collected	Depth (ft)	Analyte	Conc.	Regulatory Levels <sup>a</sup>	Units
DG1	NFS108	07-17-95	6	Tetrachloroethene	5 u	5	ppb
				Trichloroethene	5 u	5	ppb
				1,2-Dichloroethene (total)	5 uj	5	ppb
	NFS109	07-14-95	11	Tetrachloroethene	5 uj	5	ppb
				Trichloroethene	5 uj	5	ppb
				1,2-Dichloroethene (total)	5 uj	5	ppb
				Temp.	19.5		°C
				pH	8.35		
				Sp. cond.	389		mV
DG2	NFS084	07-12-95	14	Tetrachloroethene	5 uj	5	ppb
				Trichloroethene	5 uj	5	ppb
				1,2-Dichloroethene (total)	5 uj	5	ppb
	NFS084 (Duplicate)	07-12-95	14	Tetrachloroethene	5 uj	5	ppb
				Trichloroethene	5 uj	5	ppb
				1,2-Dichloroethene (total)	5 uj	5	ppb
				Temp.	12.8		°C
				pH	8.06		
				Sp. cond.	1658		μmhos/cm
DG3	NFS102	07-10-95	11.5	Tetrachloroethene	10 uj	5	ppb
				Trichloroethene	10 uj	5	ppb
				1,2-Dichloroethene (total)	10 uj	5	ppb
				Temp.	19.8		°C
				pH	7.80		
				Sp. cond.	1960		μmhos/cm
DG4	NFS105	07-12-95	11.5	Tetrachloroethene	5 uj	5	ppb
				Trichloroethene	5 uj	5	ppb
				1,2-Dichloroethene (total)	5 uj	5	ppb
				Temp.	19.6		°C
				pH	7.59		
				Sp. cond.	1179		μmhos/cm
DG5	NFS101	07-11-95	9	Tetrachloroethene	5 uj	5	ppb
				Trichloroethene	5 uj	5	ppb
				1,2-Dichloroethene (total)	5 uj	5	ppb
				Temp.	17.4		°C
				pH	7.54		
				Sp. cond.	1532		μmhos/cm
	NFS085	07-11-95	14	Tetrachloroethene	5 uj	5	ppb
				Trichloroethene	5 uj	5	ppb
				1,2-Dichloroethene (total)	5 uj	5	ppb

<sup>a</sup> New York State Department of Environmental Conservation, 1991. "Water Quality Regulations - Surface Water and Groundwater Classifications and Standards", Title 6, Chapter X, Parts 700-705 (September 1)

#### QUALIFIERS

u Analyte was analyzed for but not detected.

uj Estimated value. Analyte was analyzed for and not detected, but must be estimated due to quality control considerations.

**TABLE 3**  
**DATA GAP ANALYTICAL RESULTS FOR SEDIMENT AT NFSS**

Sample Location	Sample ID	Date collected	Analyte	Conc.	Units
DG6	NFS080	07-10-95	Tetrachloroethene	12 u	ppb
			Trichloroethene	12 u	ppb
			1,2-Dichloroethene (total)	12	ppb
			Thallium	0.53 uj	ppm
			% solids	45.5	%
DG7	NFS082	07-10-95	Tetrachloroethene	10 u	ppb
			Trichloroethene	10 u	ppb
			1,2-Dichloroethene (total)	10 u	ppb
			Thallium	0.44 uj	ppm
			% solids	54.2	%
(Duplicate)	NFS083	07-10-95	Tetrachloroethene	10 u	ppb
			Trichloroethene	10 u	ppb
			1,2-Dichloroethene (total)	10 u	ppb
DG8	NFS075	07-11-95	Silver	0.83 uj	ppm
			Aluminum	13,800 j	ppm
			Arsenic	3.3 j	ppm
			Boron	38.3 j	ppm
			Barium	125 j	ppm
			Beryllium	1.2 j	ppm
			Calcium	42,600 j	ppm
			Cadmium	0.96 uj	ppm
			Cobalt	9.5 j	ppm
			Chromium	25 j	ppm
			Copper	25.4 j	ppm
			Iron	22,100 j	ppm
			Mercury	0.17 uj	ppm
			Potassium	3,020 j	ppm
			Magnesium	7,440 j	ppm
			Manganese	450 j	ppm
			Molybdenum	1.9 uj	ppm
			Sodium	688 j	ppm
			Nickel	21.1 j	ppm
			Lead	8.2 j	ppm
			Antimony	9 uj	ppm
			Selenium	0.5 uj	ppm
			Thallium	0.8 uj	ppm
			Vanadium	25.6 j	ppm
			Zinc	146 j	ppm
			% solids	30.1	%

**TABLE 3**  
**DATA GAP ANALYTICAL RESULTS FOR SEDIMENT AT NFSS**

Sample Location	Sample ID	Date collected	Analyte	Conc.	Units
DG9	NFS073	07-10-95	Silver	0.78 uj	ppm
			Aluminum	19,800 j	ppm
			Arsenic	3.8 j	ppm
			Boron	59.5 j	ppm
			Barium	178 j	ppm
			Beryllium	1 j	ppm
			Calcium	53,000 j	ppm
			Cadmium	0.9 uj	ppm
			Cobalt	16.6 j	ppm
			Chromium	30.8 j	ppm
			Copper	38.1 j	ppm
			Iron	35,100 j	ppm
			Mercury	0.16 uj	ppm
			Potassium	3,960 j	ppm
			Magnesium	13,700 j	ppm
			Manganese	1,210 j	ppm
			Molybdenum	1.8 uj	ppm
			Sodium	678 j	ppm
			Nickel	31.6 j	ppm
			Lead	31.1 j	ppm
			Antimony	8.4 uj	ppm
			Selenium	0.47 uj	ppm
			Thallium	0.75 uj	ppm
			Vanadium	38.9 j	ppm
			Zinc	154 j	ppm
			% solids	32.2	%
(Duplicate)	NFS103	07-10-95	Silver	0.46	ppm
			Aluminum	11,100	ppm
			Arsenic	3.1	ppm
			Boron	26	ppm
			Barium	95.7	ppm
			Beryllium	0.59	ppm
			Calcium	40,000	ppm
			Cadmium	0.47 u	ppm
			Cobalt	10.2	ppm
			Chromium	16.1 j	ppm
			Copper	23.9	ppm
			Iron	20,300	ppm
			Mercury	0.08 u	ppm
			Potassium	1,960	ppm
			Magnesium	9,110 j	ppm
			Manganese	632	ppm
			Molybdenum	0.92 u	ppm
			Sodium	327	ppm
			Nickel	17.6	ppm
			Lead	6.6	ppm
			Antimony	4.4 uj	ppm
			Selenium	0.24 uj	ppm
			Thallium	0.39 u	ppm
			Vanadium	22.4 j	ppm
			Zinc	76.7 j	ppm
			% solids	61.7	%

TABLE 3  
DATA GAP ANALYTICAL RESULTS FOR SEDIMENT AT NFSS

QUALIFIERS

- u Analyte was analyzed for but not detected.
- j Estimated value. Analyte was analyzed for and detected, but must be estimated due to quality control considerations.
- uj Estimated value. Analyte was analyzed for and not detected, but must be estimated due to quality control considerations.

TABLE 4

## DATA GAP ANALYTICAL RESULTS FOR SURFACE WATER AT NFSS

Sample Location	Sample ID	Date collected	Analyte	Conc.	Regulatory Levels <sup>a,b</sup>	Units
DG6	NFS081	07-10-95	Tetrachloroethene	2 j	NA	ppb
			Trichloroethene	1 j	NA	ppb
			1,2-Dichloroethene (total)	8	NA	ppb
			Thallium	1.4	20	ppb
			Temp.	28.9		°C
			pH	7.56		
			Sp. cond.	223		µmhos/cm
DG7	NFS078	07-10-95	Tetrachloroethene	5 u	NA	ppb
			Trichloroethene	5 u	NA	ppb
			1,2-Dichloroethene (total)	5 u	NA	ppb
			Thallium	1.2 u	20	ppb
			Temp.	25.4		°C
			pH	8		
			Sp. cond.	235		µmhos/cm
NFS079 (Duplicate)		07-10-95	Tetrachloroethene	5 u	NA	ppb
			Trichloroethene	5 u	NA	ppb
			1,2-Dichloroethene (total)	5 u	NA	ppb
DG8	NFS076	07-11-95	Silver	2.5 u	33 <sup>c</sup>	ppb
			Aluminum	160	NA	ppb
			Arsenic	2 u	360	ppb
			Boron	206	NA	ppb
			Barium	73.2	NA	ppb
			Beryllium	0.7 u	NA	ppb
			Calcium	84,700 j	NA	ppb
			Cadmium	2.9 u	16 <sup>c</sup>	ppb
			Cobalt	2.9 u	NA	ppb
			Chromium	2.7 u	4,731 <sup>c</sup>	ppb
			Copper	2.2	56 <sup>c</sup>	ppb
			Iron	790	300	ppb
			Mercury	0.1 u	NA	ppb
			Potassium	10,100	NA	ppb
			Magnesium	35,600 j	NA	ppb
			Manganese	456	NA	ppb
			Molybdneum	10.5	NA	ppb
			Sodium	78,500 j	NA	ppb
			Nickel	7.1	4,675 <sup>c</sup>	ppb
			Lead	2.4 u	389 <sup>c</sup>	ppb
			Antimony	27.2 u	NA	ppb
			Selenium	1.5 u	NA	ppb
			Thallium	2.4 uj	20	ppb
			Vanadium	3.9	190	ppb
			Zinc	17.1 u	889 <sup>c</sup>	ppb
			Temp.	32		°C
			pH	8.06		
			Sp. cond.	639		µmhos/cm

**TABLE 4**  
**DATA GAP ANALYTICAL RESULTS FOR SURFACE WATER AT NFSS**

Sample Loc.	Sample ID	Date collected	Analyte	Conc.	Regulatory Levels <sup>a,b</sup>	Units
DG9	NFS074	07-10-95	Silver	2.5 uj	33 <sup>c</sup>	ppb
			Aluminum	178,000 j	NA	ppb
			Arsenic	17.9 j	360	ppb
			Boron	384 j	NA	ppb
			Barium	1,720 j	NA	ppb
			Beryllium	9.5 j	NA	ppb
			Calcium	581,000 j	NA	ppb
			Cadmium	2.9 uj	16 <sup>c</sup>	ppb
			Cobalt	133 j	NA	ppb
			Chromium	247 j	4,731 <sup>c</sup>	ppb
			Copper	342 j	56 <sup>c</sup>	ppb
			Iron	263,000 j	300	ppb
			Mercury	0.23 j	NA	ppb
			Potassium	39,600 j	NA	ppb
			Magnesium	196,000 j	NA	ppb
			Manganese	10,000 j	NA	ppb
			Molybdenum	5.7 uj	NA	ppb
			Sodium	126,000 j	NA	ppb
			Nickel	257 j	4,675 <sup>c</sup>	ppb
			Lead	47.9 j	389 <sup>c</sup>	ppb
			Antimony	27.2 uj	NA	ppb
			Selenium	1.5 u(R)	NA	ppb
			Thallium	2.4 u(R)	20	ppb
			Vanadium	323 j	190	ppb
			Zinc	1,260 j	889 <sup>c</sup>	ppb
DG9	NFS077	07-10-95	Silver	2.5 uj	33 <sup>c</sup>	ppb
			(Duplicate)	60,300 j	NA	ppb
			Aluminum	10.5 j	360	ppb
			Arsenic	200 uj	NA	ppb
			Boron	664 j	NA	ppb
			Beryllium	2.8 j	NA	ppb
			Calcium	254,000 j	NA	ppb
			Cadmium	2.9 uj	16 <sup>c</sup>	ppb
			Cobalt	46.8 j	NA	ppb
			Chromium	82.5 j	4,731 <sup>c</sup>	ppb
			Copper	109 j	56 <sup>c</sup>	ppb
			Iron	91,000 j	300	ppb
			Mercury	0.1 uj	NA	ppb
			Potassium	17,600 j	NA	ppb
			Magnesium	97,800 j	NA	ppb
			Manganese	4,200 j	NA	ppb
			Molybdenum	6.3 j	NA	ppb
			Sodium	88,900 j	NA	ppb
			Nickel	87.7 j	4,675 <sup>c</sup>	ppb
			Lead	27.9 j	389 <sup>c</sup>	ppb
			Antimony	27.2 uj	NA	ppb
			Selenium	1.5 u(R)	NA	ppb
			Thallium	2.4 u(R)	20	ppb
			Vanadium	112 j	190	ppb
			Zinc	419 j	889 <sup>c</sup>	ppb
			Temp.	28.2		°C
			pH	7.96		
			Sp. cond.	555		µmhos/cm

TABLE 4  
DATA GAP ANALYTICAL RESULTS FOR SURFACE WATER AT NFSS

<sup>a</sup> New York State Department of Environmental Conservation, 1991. "Water Quality Regulations - Surface Water and Groundwater Classifications and Standards", Title 6, Chapter X, Parts 700-705 (September 1)

<sup>b</sup> Bechtel National, Inc. (BNI) 1996. NFSS Drainage Ditch Water Classification, CCN 144705 (July).

<sup>c</sup> BNI 1996. Surface Water Standards for Drainage Ditches at NFSS, calc. no. 158-CV-29 (August).

NA - Not available

QUALIFIERS

u Analyte was analyzed for but not detected.

j Estimated value. Analyte was analyzed for and detected, but must be estimated due to quality control considerations.

uj Estimated value. Analyte was analyzed for and not detected, but must be estimated due to quality control considerations.

R Data rejected for selenium and thallium due to < 30% recoveries in the matrix spike and the matrix spike duplicate.

TABLE 5

## DATA GAP ANALYTICAL RESULTS FOR GROUNDWATER (BACKGROUND WELLS) AT NFSS

Sample Location	Sample ID	Date collected	Analyte	Conc.	Units
DG10 (B02W20S)	NFS098	07-07-95	Silver	2.5 u	ppb
			Aluminum	92.4	ppb
			Arsenic	2 u	ppb
			Boron	244	ppb
			Barium	21.2	ppb
			Beryllium	0.7 u	ppb
			Calcium	68,300	ppb
			Cadmium	2.9 u	ppb
			Cobalt	2.9 u	ppb
			Chromium	2.7 u	ppb
			Copper	3.7	ppb
			Iron	162	ppb
			Mercury	0.1 u	ppb
			Potassium	1,570	ppb
			Magnesium	113,000	ppb
			Manganese	15.2	ppb
			Molybdenum	36.7	ppb
			Sodium	47,300	ppb
			Nickel	6.8 u	ppb
			Lead	1 u	ppb
			Antimony	27.2 u	ppb
			Selenium	1.5 u	ppb
			Thallium	2.4 u	ppb
			Vanadium	3.5 u	ppb
			Zinc	145	ppb
			Eh	92	mV
			DO	3.01	mg/l
			Turbidity	55	NTU
			Temp.	11.8	°C
			pH	8.09	
			Sp. cond.	1,890	μmhos/cm

TABLE 5

## DATA GAP ANALYTICAL RESULTS FOR GROUNDWATER (BACKGROUND WELLS) AT NFSS

Sample Location	Sample ID	Date collected	Analyte	Conc.	Units
DG11 (B02W20D)	NFS099	07-07-95	Silver	2.5 u	ppb
			Aluminum	944	ppb
			Arsenic	2 u	ppb
			Boron	938	ppb
			Barium	18.3	ppb
			Beryllium	0.7 u	ppb
			Calcium	190,000	ppb
			Cadmium	2.9 u	ppb
			Cobalt	3 u	ppb
			Chromium	8.6	ppb
			Copper	12.1	ppb
			Iron	1,820	ppb
			Mercury	0.1 u	ppb
			Potassium	12,700	ppb
			Magnesium	56,300	ppb
			Manganese	296	ppb
			Molybdenum	43.5	ppb
			Sodium	213,000	ppb
			Nickel	6.8 u	ppb
			Lead	1 u	ppb
			Antimony	27.2 u	ppb
			Selenium	1.5 u	ppb
			Thallium	2.4 u	ppb
			Vanadium	3.5 u	ppb
			Zinc	173	ppb
			Eh	260	mV
			DO	2.29	mg/l
			Turbidity	6	NTU
			Temp.	13	°C
			pH	7.26	
			Sp. cond.	868	µmhos/cm

## QUALIFIERS

u Analyte was analyzed for but not detected.

**TABLE 6**  
**DATA GAP ANALYTICAL RESULTS FOR SOIL (BACKGROUND LOCATIONS) AT NFSS**

Sample Location	Sample ID	Date collected	Depth (ft)	Analyte	Conc.	Units
DG12	NFS111	08-08-95	0 - 1	Silver	0.28 u	ppm
				Aluminum	12,600	ppm
				Arsenic	3.4 j	ppm
				Boron	16	ppm
				Barium	74.5	ppm
				Beryllium	0.57	ppm
				Calcium	6,290 j	ppm
				Cadmium	0.46	ppm
				Cobalt	5.6	ppm
				Chromium	14.6	ppm
				Copper	16	ppm
				Iron	15,400	ppm
				Mercury	0.06 u	ppm
				Potassium	1,440	ppm
				Magnesium	3,080	ppm
				Manganese	348	ppm
				Molybdenum	1.6	ppm
				Sodium	122	ppm
				Nickel	12.6	ppm
				Lead	23.1	ppm
				Antimony	3.1 uj	ppm
				Selenium	0.23 j	ppm
				Thallium	0.27	ppm
				Vanadium	24.4	ppm
				Zinc	60.8	ppm
				% solids	88.6	%
DG13	NFS112	08-08-95	0 - 1	Silver	0.29 u	ppm
				Aluminum	16,800	ppm
				Arsenic	4.5 j	ppm
				Boron	18.8	ppm
				Barium	125	ppm
				Beryllium	0.88	ppm
				Calcium	7,640 j	ppm
				Cadmium	0.81	ppm
				Cobalt	13.1	ppm
				Chromium	20.1	ppm
				Copper	26.8	ppm
				Iron	23,700	ppm
				Mercury	0.06 u	ppm
				Potassium	2,050	ppm
				Magnesium	4,860	ppm
				Manganese	1,050	ppm
				Molybdenum	0.99	ppm
				Sodium	142	ppm
				Nickel	21.1	ppm
				Lead	20.5	ppm
				Antimony	3.1 uj	ppm
				Selenium	0.4 j	ppm
				Thallium	0.28 u	ppm
				Vanadium	32	ppm
				Zinc	60.9	ppm
				% solids	86.6	%

**TABLE 6**  
**DATA GAP ANALYTICAL RESULTS FOR SOIL (BACKGROUND LOCATIONS) AT NFSS**

Sample Location	Sample ID	Date collected	Depth (ft)	Analyte	Conc.	Units
DG14	NFS113	08-08-95	0 - 1	Silver	0.3 u	ppm
				Aluminum	14,900	ppm
				Arsenic	24.5 j	ppm
				Boron	17.4	ppm
				Barium	82.3	ppm
				Beryllium	0.75	ppm
				Calcium	2,960 j	ppm
				Cadmium	0.34 u	ppm
				Cobalt	7.5	ppm
				Chromium	17.6	ppm
				Copper	28.7	ppm
				Iron	18,900	ppm
				Mercury	0.06 u	ppm
				Potassium	1,630	ppm
				Magnesium	3,380	ppm
				Manganese	397	ppm
				Molybdenum	2	ppm
				Sodium	111	ppm
				Nickel	13.1	ppm
				Lead	85.7	ppm
				Antimony	3.2 uj	ppm
				Selenium	0.46 j	ppm
				Thallium	0.28 u	ppm
				Vanadium	28.1	ppm
				Zinc	57.9	ppm
				% solids	84.3	%

#### QUALIFIERS

- u Analyte was analyzed for but not detected.
- j Estimated value. Analyte was analyzed for and detected, but must be estimated due to quality control considerations.
- uj Estimated value. Analyte was analyzed for and not detected, but must be estimated due to quality control considerations.

**TABLE 7**  
**DATA GAP ANALYTICAL RESULTS FOR QUALITY CONTROL PARAMETERS AT NFSS**

Sample Loc.	Sample ID	Date collected	Analyte	Conc.	Units
Trip Blank	NFS095	07-07-95	Tetrachloroethene	5 u	ppb
			Trichloroethene	5 u	ppb
			1,2-Dichloroethene (total)	5 u	ppb
Rinse Blank	NFS096	07-07-95	Tetrachloroethene	5 u	ppb
			Trichloroethene	5 u	ppb
			1,2-Dichloroethene (total)	5 u	ppb
Trip Blank	NFS100	07-10-95	Tetrachloroethene	5 u	ppb
			Trichloroethene	5 u	ppb
			1,2-Dichloroethene (total)	5 u	ppb
Trip Blank	NFS104	07-11-95	Tetrachloroethene	5 u	ppb
			Trichloroethene	5 u	ppb
			1,2-Dichloroethene (total)	5 u	ppb
Trip Blank	NFS106	07-12-95	Tetrachloroethene	5 u	ppb
			Trichloroethene	5 u	ppb
			1,2-Dichloroethene (total)	5 u	ppb
Trip Blank	NFS107	07-13-95	Tetrachloroethene	5 u	ppb
			Trichloroethene	5 u	ppb
			1,2-Dichloroethene (total)	5 u	ppb
Trip Blank	NFS110	07-14-95	Tetrachloroethene	5 u	ppb
			Trichloroethene	5 u	ppb
			1,2-Dichloroethene (total)	5 u	ppb
Field Blank	NFS111	07-14-95	Tetrachloroethene	5 uj	ppb
			Trichloroethene	5 uj	ppb
			1,2-Dichloroethene (total)	5 uj	ppb
Trip Blank	NFS112	07-17-95	Tetrachloroethene	5 u	ppb
			Trichloroethene	5 u	ppb
			1,2-Dichloroethene (total)	5 u	ppb
Trip Blank	NFS113	07-21-95	Tetrachloroethene	5 u	ppb
			Trichloroethene	5 u	ppb
			1,2-Dichloroethene (total)	5 u	ppb
Rinse Blank	NFS053	07-21-95	Tetrachloroethene	5 u	ppb
			Trichloroethene	5 u	ppb
			1,2-Dichloroethene (total)	5 u	ppb
Rinse Blank	NFS110	08-08-95	Thallium	2.4 u	ppb
			Silver	4.6	ppb
			Aluminum	35	ppb
			Arsenic	25.9 u	ppb
			Boron	167	ppb
			Barium	2.7	ppb
			Beryllium	0.7 u	ppb
			Calcium	61.9	ppb
			Cadmium	2.9 u	ppb
			Cobalt	2.9 u	ppb
			Chromium	2.7 u	ppb
			Copper	1.9 u	ppb
			Iron	23.1	ppb
			Mercury	0.1 u	ppb
			Potassium	389 u	ppb
			Magnesium	81.3	ppb
			Manganese	3.3 u	ppb
			Molybdenum	7.9	ppb
			Sodium	342	ppb
			Nickel	6.8 u	ppb
			Lead	15.2 u	ppb
			Antimony	27.2 u	ppb
			Selenium	54.7 u	ppb
			Thallium	42.9 u	ppb
			Vanadium	3.5 u	ppb
			Zinc	11.4	ppb

**TABLE 7**  
**DATA GAP ANALYTICAL RESULTS FOR QUALITY CONTROL PARAMETERS AT NFSS**

Sample Loc.	Sample ID	Date collected	Analyte	Conc.	Units
Field Blank	NFS097	07-07-95	Silver	2.5 u	ppb
(Potable			Aluminum	256	ppb
water)			Arsenic	2 u	ppb
			Boron	107	ppb
			Barium	23.4	ppb
			Beryllium	0.7 u	ppb
			Calcium	33,600	ppb
			Cadmium	2.9 u	ppb
			Cobalt	2.9 u	ppb
			Chromium	2.7 u	ppb
			Copper	23	ppb
			Iron	50.2	ppb
			Mercury	0.1 u	ppb
			Potassium	1,570	ppb
			Magnesium	7,720	ppb
			Manganese	3.3 u	ppb
			Molybdenum	7.3 u	ppb
			Sodium	9,120	ppb
			Nickel	6.8 u	ppb
			Lead	1.2	ppb
			Antimony	27.2 u	ppb
			Selenium	1.5 u	ppb
			Thallium	2.4 u	ppb
			Vanadium	3.5 u	ppb
			Zinc	51.9 u	ppb
			Tetrachloroethene	5 u	ppb
			Trichloroethene	5 u	ppb
			1,2-Dichloroethene (total)	5 u	ppb
Field Blank	NFS111	07-14-95	Silver	2.5 u	ppb
			Aluminum	617	ppb
			Arsenic	2 u	ppb
			Boron	115 u	ppb
			Barium	28	ppb
			Beryllium	0.7 u	ppb
			Calcium	35,700	ppb
			Cadmium	2.9 u	ppb
			Cobalt	2.9 u	ppb
			Chromium	3.9	ppb
			Copper	20.1	ppb
			Iron	428	ppb
			Mercury	0.1 u	ppb
			Potassium	1,730	ppb
			Magnesium	8,750	ppb
			Manganese	3.3 u	ppb
			Molybdenum	9.4	ppb
			Sodium	10,100	ppb
			Nickel	12.4	ppb
			Lead	9.3	ppb
			Antimony	27.2 u	ppb
			Selenium	1.5 u	ppb
			Thallium	2.4 u	ppb
			Vanadium	3.5 u	ppb
			Zinc	119	ppb

#### QUALIFIERS

u Analyte was analyzed for but not detected.

uj Estimated value. Analyte was analyzed for and not detected, but must be estimated due to quality control considerations.