START

ENGINEERING CHANGE NOTICE

Page 1 of 2 ~~57~~

1. ECN 169880

Proj. ECN

2. ECN Category (mark one)	3. Originator's Name, Organization, MSIN, and Telephone No.		4. Date
Supplemental [ ] Direct Revision [X] Change ECN [X] Temporary [ ] Standby [ ] Supersedure [ ] Cancel/Void [ ]	M.J. Hartman, Geosciences, H6-06, 6-9924		12 May 1993
	5. Project Title/No./Work Order No. Borehole Data Packages/R4GD1	6. Bldg./Sys./Fac. No. 1301-N, 1324N/NA	7. Impact Level 4
	8. Document Numbers Changed by this ECN (includes sheet no. and rev.) WHC-SD-EN-DP-056, Rev. 0	9. Related ECN No(s). N/A	10. Related PO No. N/A

11a. Modification Work	11b. Work Package No.	11c. Modification Work Complete	11d. Restored to Original Condition (Temp. or Standby ECN only)
[ ] Yes (fill out Blk. 11b) [X] No (NA Blks. 11b, 11c, 11d)	N/A	N/A Cog. Engineer Signature & Date	N/A Cog. Engineer Signature & Date

12. Description of Change

Results of chemical and radiological analyses of soil samples collected during drilling are now available. The attached text and tables supplement appendix B of the original data package.

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13a. Justification (mark one)							
	Criteria Change	[ ]	Design Improvement	[ ]	Environmental	[ ]
As-Found	[ ]	Facilitate Const.	[ ]	Const. Error/Omission	[ ]	Design Error/Omission	[ ]

13b. Justification Details

The chemical and radiological data were not interpreted in time for inclusion in the original document.

14. Distribution (include name, MSIN, and no. of copies)

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A-7900-013-2 (06/92) GEF095
Engineering Change Notice

A-7900-013-1 (11/88)

ENGINEERING CHANGE NOTICE

1a. ECN (use no. from pg. 1) 169880

15. Design Verification Required	16. Cost Impact				17. Schedule Impact (days)	
	ENGINEERING		CONSTRUCTION			
[] Yes	Additional	[] $	Additional	[] $	Improvement	[]
[X] No	Savings	[] $	Savings	[] $	Delay	[]

18. Change Impact Review: Indicate the related documents (other than the engineering documents identified on Side 1) that will be affected by the change described in Block 12. Enter the affected document number in Block 19.

SDD/DD	[]	Seismic/Stress Analysis	[]	Tank Calibration Manual	[]
Functional Design Criteria	[]	Stress/Design Report	[]	Health Physics Procedure	[]
Operating Specification	[]	Interface Control Drawing	[]	Spares Multiple Unit Listing	[]
Criticality Specification	[]	Calibration Procedure	[]	Test Procedures/Specification	[]
Conceptual Design Report	[]	Installation Procedure	[]	Component Index	[]
Equipment Spec.	[]	Maintenance Procedure	[]	ASME Coded Item	[]
Const. Spec.	[]	Engineering Procedure	[]	Human Factor Consideration	[]
Procurement Spec.	[]	Operating Instruction	[]	Computer Software	[]
Vendor Information	[]	Operating Procedure	[]	Electric Circuit Schedule	[]
OM Manual	[]	Operational Safety Requirement	[]	ICRS Procedure	[]
FSAR/SAR	[]	IEFD Drawing	[]	Process Control Manual/Plan	[]
Safety Equipment List	[]	Cell Arrangement Drawing	[]	Process Flow Chart	[]
Radiation Work Permit	[]	Essential Material Specification	[]	Purchase Requisition	[]
Environmental Impact Statement	[]	Fac. Proc. Samp. Schedule	[]		[]
Environmental Report	[]	Inspection Plan	[]		[]
Environmental Permit	[]	Inventory Adjustment Request	[]		[]

19. Other Affected Documents: (NOTE: Documents listed below will not be revised by this ECN.) Signatures below indicate that the signing organization has been notified of other affected documents listed below.

Document Number/Revision	Document Number/Revision	Document Number Revision

20. Approvals

	Signature	Date		Signature	Date
OPERATIONS AND ENGINEERING			ARCHITECT-ENGINEER		
Cog Engineer	KD Reynolds KDR	5/21/93	PE		
Cog. Mgr.	RL Jackson RBM for RLJ	5/24/93	QA		
QA			Safety		
Safety			Design		
Security			Environ.		
Environ.			Other		
Projects/Programs					
Tank Waste Remediation System					
Facilities Operations			DEPARTMENT OF ENERGY		
Restoration & Remediation			Signature or Letter No.		
Operations & Support Services					
IRM			ADDITIONAL		
Other M. J. Hartman	Mary J. Hartman	24 May 93			
B. A. Williams	[illegible]	5/21/93			

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Date Received: 5/27/93

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Reference: WHC-CM-3-4

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[] Technical Report
[] Thesis or Dissertation
[] Manual
[] Brochure/Flier
[] Software/Database
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ID Number (include revision, volume, etc.) ~~ECN #169880~~/WHC-SD-EN-DP-056, Rev. 0-A

List attachments.

Date Release Required 5/28/93

Title Borehole Completion Data Package for Wells 199-N-75, 199-N-76, and 199-N-77 (supplement)

Unclassified Category UC-

Impact Level 4

New or novel (patentable) subject matter? [X] No [] Yes
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Patent - General Counsel	[]	[]	OGC Memo 2/4/93		5/26/93
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Author/Requestor (Printed/Signature) Date
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BD-7600-062 (08/91) WEF074

Part 1

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SUPPORTING DOCUMENT

1. Total Pages 232

2. Title
Borehole Completion Data Package for Wells 199-N-75, 199-N-76, 199-N-77

3. Number
WHC-SD-EN-DP-056

4. Rev No.
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Chemical and radiological data
Soil samples
Wells 199-N-75, 199-N-76, and 199-N-77

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5/27/93 QS

6. Author
Name: M. J. Hartman
Signature
Organization/Charge Code 81235/R4GD1

7. Abstract
Results of chemical and radiological analyses of soil samples collected during drilling are now available. The attached text and tables supplement Appendix B of the original data package.

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9. Impact Level 4

10. RELEASE STAMP

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DATE SEP 20 1993

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A-6400-073 (11/91) (EF) WEF124

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RECORD OF REVISION	(1) Document Number WHC-SD-EN-DP-056	Page 1

(2) Title
Borehole Completion Data Package for Wells 199-N-75, 199-N-76, and 199-N-77

CHANGE CONTROL RECORD

(3) Revision	(4) Description of Change - Replace, Add, and Delete Pages	Authorized for Release (5) Cog. Engr.	(6) Cog. Mgr. Date
Rev. 0	(7) Initial release via EDT #160827; date released: 18 March 1993.	M.J. Hartman	R.L. Jackson
Rev. 0-A RS	The attached text and tables supplement Appendix B of the original data package.	[illegible] 5/24/93	RLJ 5/24/93
	Per ECN 169880		

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SEDIMENT CHEMISTRY FOR WELLS N-75, N-76, N-77

1.0 INTRODUCTION

Wells N-75, N-76, and N-77 were drilled in 1992 to monitor RCRA sites in the 100-N Area of the Hanford Site (Figure 1). Drilling and construction information was provided by Hartman (1993). This document is an addendum to Hartman (1993) and presents chemical and radiological data from sediment samples collected during drilling of the three wells.

There is evidence of some sediment contamination with radionuclides in wells N-75 and N-76. Metals concentrations are in normal ranges for the Hanford Site at all three wells. No significant concentrations of specific organic compounds were identified in any of the boreholes; however, some volatile and semivolatile organic compounds were tentatively identified.

Table 1 lists the depths in each borehole at which sediment samples were collected, the type of analyses performed, and a summary of the results. Data tables and interpretations are presented in the following sections. Complete data sets including data sheets, lab quality control results, field notebooks documenting sample collection, and chain-of-custody forms are on file with Westinghouse Hanford Company.

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2.0 INORGANIC CONSTITUENTS

Inorganic constituents (metals and cyanide) are listed in Table 2. There is no evidence of significant contamination of the sediments with inorganic constituents. Concentrations of inorganic constituents in wells N-75, N-76, and N-77 are less than the background threshold values for the Hanford Site except for two results for cadmium and one each for nickel and copper (Table 2). The highest concentration of cadmium was from the 63-65 ft sample in well N-77, at 3.1 mg/kg. This value is comparable to the maximum background value for Ringold Formation sediments (2.2 mg/kg; DOE/RL 1993). The highest nickel concentration was reported as 135 mg/kg, in the 70-72 ft sample from well N-77. However, the laboratory flagged the data because spiked sample recovery and duplicate analyses were not within control limits. Copper was slightly higher than the threshold value in the 23-25 ft and 63-65 ft samples from well N-77. The observed values were slightly less than the maximum background values for vadose zone sediments (DOE/RL, 1993).

3.0 ORGANIC CONSTITUENTS

Table 3 lists specific organic species for which the sediment samples were analyzed. Very few of the species were detected in any of the samples, and they were present only at trace levels. Detected organics are listed in Table 4. Most of the constituents in Table 4 are below the contract required quantitation limit (flagged "J"). The only organic constituents detected at greater than the contract required quantitation limit were methylene chloride, acetone, and bis(2-ethylhexyl) phthalate. All values of the latter two constituents were flagged with "B," indicating the presence of the constituents in laboratory blanks. The only unflagged, detected compound was methylene chloride, which is a common laboratory contaminant. No organic contaminants were detected with field screening instruments during drilling.

A number of tentatively identified compounds (TICs) were reported by the laboratory. The TICs represent peaks on the chromatograph that do not correspond with a specific compound. Their concentrations are estimated assuming a dilution factor of 1.0. Their retention times allow classification into broad families of compounds (e.g. alkanes, alcohols). Up to 20 TICs are reported for each sample in accordance with the laboratory contract. TIC data are presented in Appendix A.

Many of the reported TICs were flagged as being related to laboratory blank contamination, so their presence in the soil cannot be proved or disproved. These TICs are not considered in the following discussion. The significance of the unflagged TICs is difficult to determine. The higher their estimated concentration, the more likely that they are actually present.

Estimated concentrations of volatile TICs were relatively low. Figure 2 shows estimated concentrations of volatile TICs vs retention time for wells N-75, and N-76. Figure 3 shows TICs for well N-77. For comparison, the contract required quantitation limit for the target volatile compounds was 10 µg/kg. The highest concentrations of volatile TICs, estimated at up to 41 µg/kg, are from the equipment blank, field blank, and trip blank (Figure 3). An unknown alcohol was detected in the 68-70 ft sample from well N-75 at 35 µg/kg (Figure 2). This concentration is less than the TIC concentrations in the blanks. There is no evidence that the sediment itself was contaminated with volatile compounds.

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Estimated concentrations of semivolatile TICs vs retention time are plotted in Figures 4, 5, and 6. Two of the highest estimated concentrations at wells N-75 and N-76 were at shallow depths (<10 ft) and are identified as "unknown amines" at 30,000 to 40,000 µg/kg. Amines could result from the decomposition of plant material, and probably do not represent contamination.

One of a pair of duplicate samples from well N-76 at 24-25 ft had a tentatively identified unknown alcohol at 42,000 µg/kg, with a retention time of 7.07 min. Results from other samples indicate this result is questionable, however. The other 24-25 ft sample had an unknown hydrocarbon at 43,000 µg/kg with a retention time of 7.47 min; however, that result is flagged as associated with blank contamination. The 55-57 ft and 64.5-66.5 ft samples from well N-76 had unknown alcohols at 32,000 and 34,000 µg/kg, respectively, with retention times of just over 7 min. These results were also flagged as associated with blank contamination.

Most of the semivolatile TICs in well N-77 sediments, including the highest estimated concentrations, were in the 23-25 ft and 38-40 ft samples and were classified as "unknown alkanes" at up to approximately 4000 µg/kg. A filter on an air compressor failed during drilling of well N-77 and the site geologist noted oil on the split-spoon sampler when the 24-26 ft sample was collected. The filter was repaired, equipment was decontaminated, and the hole was cleaned out before drilling resumed. It is possible that the tentatively identified "unknown alkanes" were traces of the compressor oil. The only TICs identified in the 50-52 ft sample were at very low, probably insignificant concentrations (<200 µg/kg), and the two deepest samples had no unflagged TICs. For comparison, the semivolatile target compounds had quantitation limits ranging from 340 to 900 µg/kg.

4.0 RADIONUCLIDES

Sediment samples from wells N-75 and N-76, located near the 1301-N trench, were analyzed for radionuclides. Table 5 lists the results of those analyses and indicates which radionuclides were present in the waste stream to the 1301-N LWDF. The only significant radionuclides detected in the soil were ^{90}Sr (and the associated gross beta activity), ^{60}Co, and ^{40}K. ^{40}K is a naturally-occurring radionuclide and was relatively constant with depth (Figure 7). ^{90}Sr and ^{60}Co were present in the 1301-N waste stream and were detected in the sediment (Figures 8 and 9). The highest activities of both ^{90}Sr and ^{60}Co were at depths between 55 and 70 ft. This agrees with field screening instruments, which detected significant radioactivity in well N-75 between 50 ft and total depth (90 ft), and in well N-76 between 53 and 72 ft. This part of the aquifer was saturated when the 1301-N LWDF was in use.

^{60}Co and ^{40}K were also detected in wells N-75 and N-76 by spectral gamma ray logging (Hartman 1993, Appendix A). ^{40}K was relatively constant with depth (approximately 10 pCi/g). The maximum ^{60}Co activity was at approximately 50-85 ft in well N-75 and 50-60 ft in well N-76. All values were less than 1 pCi/g. ^{90}Sr is not a gamma-ray emitter, and was not detected by the gamma ray log.

Samples from well N-77 were not analyzed for radionuclides because there was no history of radionuclide disposal or contamination in that area. Sediments were screened for radionuclides during drilling and cuttings were analyzed for total activity in a Hanford laboratory; no radiation was detected above background levels.

5.0 CONCLUSIONS

Sediment samples were analyzed for inorganic and organic contaminants in wells N-75, N-76, and N-77. Sediments from wells N-75 and N-76 were also analyzed for radionuclides. The only apparent contamination is with radionuclides (^{90}Sr and ^{60}Co) in wells N-75 and N-76.

REFERENCES

Hartman, M.J., 1993, *Borehole Completion Data Package for Wells 199-N-75, 199-N-76, and 199-N-77*, WHC-SD-EN-DP-056, Westinghouse Hanford Company, Richland, Washington.

DOE/RL, 1993, *Hanford Site Background: Part 1, Soil Background for Nonradioactive Analytes*, DOE/RL-92-24, rev. 1, DRAFT, U.S. Department of Energy, Richland, Washington, January, 1993.

WHC, 1990, *N Reactor Effluent Stream-Specific Report*, WHC-EP-0342, Addendum 3, Westinghouse Hanford Company, Richland, Washington.

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Table 1. Summary of Soil Analyses.

Well	Depth (ft below surface)	Chem.[a]	Rad.[b]	Summary of Interpretation
N-75	2 - 3	X	X	Unknown amine 36,000 µg/kg assumed to be decomposed vegetation. No apparent contamination.
	5 - 6	X	X	Unknown amine 37,000 µg/kg assumed to be decomposed vegetation. No apparent contamination.
	9	X	X	Unknown amine 36,000 µg/kg assumed to be decomposed vegetation. No apparent contamination.
	56 - 58	X	X	Gross beta 430 pCi/L; ^{90}Sr 190 pCi/L; ^{60}Co 0.52 pCi/L.
	68 - 70	X	X	Gross beta 250 pCi/L; ^{90}Sr 120 pCi/L; ^{60}Co 0.28 pCi/L.
N-76	2 - 3	X	X	Unknown amine 33,000 µg/kg assumed to be decomposed vegetation. No apparent contamination.
	5-6	X	X	Unknown amine 33,000 µg/kg assumed to be decomposed vegetation. No apparent contamination.
	24 - 25	X	X	No apparent contamination.
	24 - 25 (duplicate)	X	X	No apparent contamination.
	55 - 57	X	X	Gross beta 650 pCi/L; ^{90}Sr 320 pCi/L; ^{60}Co 1.2 pCi/L.
	64.5 - 66.5	X	X	Gross beta 25 pCi/L; ^{90}Sr 2 pCi/L; ^{60}Co 0.18 pCi/L.
N-77	23 - 25	X		Unknown alkanes up to 3700 µg/kg. Possibly from drill rig.
	38 - 40	X		Unknown alkanes up to 4200 µg/kg. Possibly from drill rig.
	50 - 52	X		No apparent contamination.
	63 - 65	X		No apparent contamination.
	70 - 72	X		No apparent contamination.
	Equipment Blank	X		Low levels of volatile TIC.
	Trip Blank	X[c]		Low levels of volatile TIC.
	Field Blank	X[c]		Low levels of volatile TIC.

[a] Chemical analyses: volatile organics, semivolatile organics, pesticides/PCBs, inorganics.

[b] Radiological analyses: gross alpha, gross beta, ^{90}Sr, ^{99}Tc, isotopic uranium, isotopic plutonium, ^{241}Am, and gamma scan.

[c] Trip and field blanks were analyzed for volatile organics only.

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Table 2. Results of Inorganic Analyses of Sediment Samples (sheet 1 of 3).

CONSTITUENT	HANFORD THRESHOLD[a]	N-75 2-3 FT		N-75 5-6 FT		N-75 9 FT		N-75 56-58 FT		N-75 68-70 FT	
ALUMINUM	15100	6720		6470		5720		6300		4480	
ANTIMONY	(15.7)	3.3	UN	3.2	UN	3.2	UN	3	UN	2.2	UN
ARSENIC	9	2.6		2.3		2.3		1.6	B	0.78	BN
BARIUM	175	59		62.3		60.6		63.9		62	
BERYLLIUM	(1.9)	0.24	B	0.24	B	0.24	B	0.19	U	0.2	U
CADMIUM	(0.66)	0.43	B	0.61	B	0.49	B	0.38	U	0.2	U
CALCIUM	24600	6780		6380		7370		2590		2240	
CHROMIUM	28	8.5		8.7		7.6		14.7		7.8	
COBALT	19	9.8	B	9.3	B	9.4	B	5.7	B	5.2	B
COPPER	30	15.4		14.5		15.8		13.5		9	
IRON	38200	17400		17100		18100		11000		9820	
LEAD	(14.9)	5.1		4.2		4.2		2.7		2.3	
MAGNESIUM	9160	4460		4390		4400		4350		2230	
MANGANESE	580	320	N	296	N	317	N	227		182	
MERCURY	1.3	0.1	U	0.09	U	[illegible]	U	0.1	U*	0.09	U
NICKEL	25	11		9.6		9.2		14.4		8.4	
POTASSIUM	3090	1350		1240		1210		919	B	689	B
SELENIUM	(5)	0.88	UWN	4	UWN	4	UWN	0.77	UW	0.79	U
SILVER	2.1	0.41	UN	0.4	UN	0.4	UN	0.38	U	0.6	U
SODIUM	1390	204	B	171	B	164	B	203	B	246	B
THALLIUM	(3.7)	0.44	U	0.4	U	0.43	B	0.77	U	0.396	U
VANADIUM	107	35.5		36.8		33.9		23.1		23.6	
ZINC	79	41.1		42.8		40.2		29		20.9	
CYANIDE	N/A	0.5	U	0.53	U	0.52	U	0.47	U	0.48	U

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Table 2. Results of Inorganic Analyses of Sediment Samples (sheet 2 of 3).

CONSTITUENT	N-76 2-3 FT		N-76 5-6 FT		N-76 24-25 FT		N-76 24-25 FT		N-76 55-57 FT		N-76 64-66 FT	
ALUMINUM	6440		5750		7020		7670		5740		3920	
ANTIMONY	3.2	UN	3.1	UN	2.4	UN	2.4	UN	3.1	UN	2.3	UN
ARSENIC	2.6		2.2		3.6		3		1.8	B	0.92	BN
BARIUM	51.7		51		61.4		69.7		74.6		52.8	
BERYLLIUM	0.21	B	0.2	B	0.27	B	0.26	B	0.19	U	0.21	U
CADMIUM	0.48	B	0.52	B	0.22	U	0.21	U	0.57	B	0.9	B
CALCIUM	7040		5980		5670		5790		2530		4480	
CHROMIUM	8.2		8.3		10		11.3		11.4		8.9	
COBALT	9.8	B	9.2	B	11	B	11.4		5.8	B	5.3	B
COPPER	18.7		18.4		25.9		20		15.7		9.7	
IRON	18100		18500		21400		21400		10800		9230	
LEAD	4.5		3.4		7.6	*	6.9	*	3.4		2.9	
MAGNESIUM	4460		4220		5460		5410		3610		2100	
MANGANESE	269	N	262	N	328		345		345		206	
MERCURY	0.1	U	0.11		0.1	UN	0.1	UN	0.1	*	0.1	U
NICKEL	10.4		10.2		12		13		14.8		8.6	
POTASSIUM	1040		855	B	1220		1350		831	B	639	B
SELENIUM	0.86	UWN	0.79	UMW	0.85	UWN	4.4	UN	3.9	U	0.83	U-
SILVER	0.4	N	0.39	UN	0.66	UN	0.64	UN	0.39	U	0.62	U
SODIUM	190	B	172	B	282	B	314	B	178	B	198	B
THALLIUM	0.43	B	0.39	U	0.85	U	0.87	U	0.78	U	0.41	U
VANADIUM	34.1		36		43		45.4		22.3		22.9	
ZINC	41.8		40.4		45		46.9		33.8		39.6	
CYANIDE	0.51	U	0.51	U	0.55	U	0.56	U	0.52	U	0.56	U

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Table 2. Results of Inorganic Analyses of Sediment Samples (sheet 3 of 3).

CONSTITUENT	N-77 23-25 FT		EQT. BLANK		N-77 38-40 FT		N-77 50-52 FT		N-77 63-65 FT		N-77 70-72 FT	
ALUMINUM	4520		46.2		3180	*	5070	*	4000	*	2600	*
ANTIMONY	3	U	2.9	U	3.4	U	3.3	U	3.4	U	3.5	U
ARSENIC	1	BW	0.48	B	1.1	BW	1.5	B	0.94	B	0.86	B
BARIUM	55		0.35	B	45.6	E	36.7	BE	41.1	E	35.2	BE
BERYLLIUM	0.27	B	0.06	U	0.29	B	0.08	U	0.12	B	0.08	U
CADMIUM	0.3	U	0.3	U	0.2	U	0.19	U	3.1		0.21	U
CALCIUM	5950		17.5	B	4830		2530		4920		5070	
CHROMIUM	9.3		0.51	U	4.1	*	12.8	*	15.5	*	12.3	*
COBALT	14.9		0.26	U	11.1		6.1	B	4.1	B	9.1	B
COPPER	34.9		8.9		15.2	N	12.5	N	34	N	22.2	N
IRON	27900	*	277	*	23100		12400		8730		7440	
LEAD	3.7		0.41	B	2.2		2.7		6.3		4.4	
MAGNESIUM	4330		9.8	B	3540		3890		2540		3080	
MANGANESE	328		0.32	B	254		183		156		124	
MERCURY	0.05	B	0.05	U	0.05	U	0.04	U	0.05	U	0.05	U
NICKEL	11.1		0.51	U	6.2	BN*	13.9	N*	14.5	N*	135	N*
POTASSIUM	641	B	18.3	B	426	B	569	B	743	B	541	B
SELENIUM	0.58	B	0.97		0.58	UWN	0.62	BN	1.8	SN	0.64	BN
SILVER	1.6	B	0.71	U	1	B	0.48	U	0.5	U	0.52	U
SODIUM	586	B	9.5	B	360	B	231	B	241	B	124	B
THALLIUM	0.33	UW	0.3	UW	0.26	UW	0.25	UW	0.26	U	0.27	U
VANADIUM	73.1		0.5	U	48.8		27.5		16		12.4	
ZINC	43.2		2.4	B	33.7		26		21.9		35.1	
CYANIDE	0.5	U	0.48	U	0.5	U	0.5	U	0.52	U	0.51	U

Units are mg/kg.

Data flags from laboratory:

- U constituent not detected (less than instrument detection limit).
- B reported value less than contract required detection limit but greater than or equal to the instrument detection limit.
- E reported value estimated because of interference.
- M duplicate injection precision not met.
- N spiked sample recovery not within control limits.
- S reported value was determined by method of standard additions.
- W post-digestion spike for furnace AA analysis was out of control limits (85-115%), while sample absorbance was less than 50% of spike absorbance.
- * duplicate analysis not within control limits.
- + correlation coefficient for the MSA was less than 0.995.

[a] Threshold value or limit of detection (in parentheses), whichever is greater, from DOE/RL (1993), Table 6-2.
N/A = not available.

9413223.1938

Table 3. Organic Constituents For Which Sediments Were Analyzed (sheet 1 of 2).

Volatile Organics	Semivolatile Organics
Chloromethane	Phenol
Bromomethane	bis(2-Chloroethyl)Ether
Vinyl Chloride	2-Chlorophenol
Chloromethane	1,3-Dichlorobenzene
Methylene Chloride	1,4-Dichlorobenzene
Acetone	1,2-Dichlorobenzene
Carbon Disulfide	2-Methylphenol
1,1-Dichloroethene	2,2'-oxybis(1-Chloropropane)
1,1-Dichloroethane	4-Methylphenol
1,2-Dichloroethene (total)	N-Nitroso-Di-n-Propylamine
Chloroform	Hexachloroethane
1,2-Dichloroethane	Nitrobenzene
2-Butanone	Isophorone
1,1,1-Trichloroethane	2-Nitrophenol
Carbon Tetrachloride	2,4-Dimethylphenol
Bromodichloromethane	bis(2-Chloroethoxy)Methane
1,2-Dichloropropane	2,4-Dichlorophenol
cis-1,3-Dichloropropene	1,2,4-Trichlorobenzene
Trichloroethene	Naphthalene
Dibromochloromethane	4-Chloroaniline
1,1,2-Trichloroethane	Hexachlorobutadiene
Benzene	4-Chloro-3-Methylphenol
trans-1,3-Dichloropropene	2-Methylnaphthalene
Bromoform	Hexachlorocyclopentadiene
4-Methyl-2-Pentanone	2,4,6-Trichlorophenol
2-Hexanone	2,4,5-Trichlorophenol
Tetrachloroethene	2-Chloronaphthalene
1,1,2,2-Tetrachloroethane	2-Nitroaniline
Toluene	Dimethylphthalate
Chlorobenzene	Acenaphthylene
Ethylbenzene	3-Nitroaniline
Styrene	Acenaphthene
Xylene (total)	2,4-Dinitrophenol
	4-Nitrophenol
	Dibenzofuran
	2,4-Dinitrotoluene
	2,6-Dinitrotoluene
	Diethylphthalate
	4-Chlorophenyl-phenylether
	Fluorene
	4-Nitroaniline
	4,6-Dinitro-2-methylphenol
	N-Nitrosodiphenylamine*
	4-Bromophenyl-phenylether
	Hexachlorobenzene
	Pentachlorophenol

9413223.1959

Table 3. Organic Constituents For Which Sediments Were Analyzed (sheet 2 of 2).

Semi-Volatile Organics (continued)	Pesticides/PCBs
Phenanthrene	alpha-BHC
Anthracene	beta-BHC
Carbazole	delta-BHC
Di-n-Butylphthalate	gamma-BHC (Lindane)
Fluoranthene	Heptachlor
Pyrene	Aldrin
Butylbenzylphthalate	Heptachlor epoxide
3,3'-Dichlorobenzidine	Endosulfan I
Benzo(a)Anthracene	Dieldrin
bis(2-Ethylhexyl)Phthalate	4,4'-DDE
Chrysene	Endrin
Di-n-Octyl Phthalate	Endosulfan II
Benzo(b)Fluoranthene	4,4'-DDD
Benzo(k)Fluoranthene	Endosulfan sulfate
Benzo(a)Pyrene	4,4'-DDT
Indeno(1,2,3-cd)Pyrene	Methoxychlor
Dibenz(a,h)Anthracene	Endrin ketone
Benzo(g,h,i)Perylene	Endrin aldehyde
	alpha-Chlordane
	gamma-Chlordane
	Toxaphene
	Aroclor-1016
	Aroclor-1221
	Aroclor-1232
	Aroclor-1242
	Aroclor-1248
	Aroclor-1254
	Aroclor-1260

*cannot be separated from Diphenylamine.

9413223.1940

Table 4. Detected Organics (Excluding Tentatively Identified Compounds).

Sample	Compound	Concentration (µg/kg)
WELL N-75		
WELL N-75 2-3 FT	Methylene Chloride	4 J
	Acetone	17 B
	Toluene	2 J
	Di-n-Butylphthalate	51 J
WELL N-75 5-6 FT	Methylene Chloride	4 J
	Acetone	8 BJ
	Carbon Disulfide	1 J
	Di-n-butylphthalate	42 J
WELL N-75 9 FT	Methylene Chloride	4 J
	Acetone	22 B
	N-Nitrosodiphenylamine (1)	110 J
WELL N-75 56-58 FT	Methylene Chloride	28
	Acetone	51 B
	Carbon Disulfide	2 J
	Di-n-Butylphthalate	76 BJ
WELL N-75 56-58 FT (LAB RERUN)	Methylene Chloride	11 B
	Acetone	49 B
	Chloroform	3 BJ
WELL N-75 68-70 FT	Methylene Chloride	5 BJ
	Acetone	20 B
	Di-n-Butylphthalate	110 BJ
	bis(2-Ethylhexyl)Phthalate	61 J
WELL N-76		
WELL N-76 2-3 FT	Methylene Chloride	3 J
	Acetone	12 B
	Di-n-Butylphthalate	63 J

9413223.1941

Table 4. Detected Organics (Excluding Tentatively Identified Compounds).

Sample	Compound	Concentration (µg/kg)
WELL N-76 5-6 FT	Acetone	8 BJ
	Di-n-Butylphthalate	56 J
WELL N-76 24-25 FT	Acetone	3 J
	Di-n-Butylphthalate	56 J
	bis(2-Ethylhexyl)Phthalate	530 B
WELL N-76 24-25 FT (DUPLICATE)	Methylene Chloride	4 J
	Acetone	40 B
WELL N-76 55-57 FT	Methylene Chloride	55
	Acetone	120 B
	Di-n-Butylphthalate	100 BJ
WELL N-76 55-57 (LAB RERUN)	Methylene Chloride	10 BJ
	Acetone	55 B
	Chloroform	3 BJ
WELL N-76 64.5-66.5 FT	Methylene Chloride	63
	Acetone	140 B
	Carbon Disulfide	8 J
	4-Methyl-2-Pentanone	7 J
	Toluene	3 J
	Di-n-Butylphthalate	99 BJ
	bis(2-Ethylhexyl)Phthalate	63 J
WELL N-76 TRIP BLANK	Methylene Chloride	31
	Acetone	24 B
WELL N-77		
WELL N-77 23-25 FT	Acetone	11 B
	bis(2-Ethylhexyl)Phthalate	160 J
WELL N-77 38-40 FT	Acetone	7 BJ
	bis(2-Ethylhexyl)Phthalate	180 J
WELL N-77 50-52 FT	Acetone	10 BJ
WELL N-77 63-65 FT	Actone	8 BJ
WELL N-77 70-72 FT	Acetone	26 B

9413223.1942

Table 4. Detected Organics (Excluding Tentatively Identified Compounds).

Sample	Compound	Concentration (µg/kg)
WELL N-77 FIELD BLANK	Acetone	5 BJ
WELL N-77 TRIP BLANK	Acetone	9 BJ
WELL N-77 EQUIPMENT BLANK	Acetone	9 BJ

Data flags from laboratory:

B Analyte was found is associated blank as well as in the sample.
J Estimated value; result less than contract required quantitation limit but greater than zero.

9413223.1943

Table 5. Results of Radionuclide Analyses of Sediment Samples (sheet 1 of 2).

Constituent	Present in Waste Stream[a]	N-75 2-3 FT	N-75 5-6 FT	N-75 9 FT	N-75 56-58 FT	N-75 68-70 FT
ALPHA	Yes	3.1 U	1.9 U	8.5 U	-0.12 U	0.87 U
BETA	Yes	12 J	8.7 J	37	430	250
$^{233/234}U$	No	N/A	N/A	N/A	0.62	0.69
^{235}U	No	0.046 U	0.030 U	0.024 U	-0.026 U	0.11 U
^{238}U	Yes	0.55	0.5	0.73	0.47	0.18 U
$^{239/240}Pu$	Yes	0.007 U	0.003 U	0.002 U	-0.007 U	0.002 U
^{241}Am	Yes	0.003 U	0.016 U	0.006 U	0.006 U	0.002 U
^{90}Sr	Yes	0.11 U	-1.6 U	-0.077 U	190	120
^{99}Tc	N/A	0.44 J	0.74 U	0.19 U	-0.055 U	0.52 U
GAMMA SCAN ANALYTES						
^{40}K	N/A	10	- 11	9.4	13	12
^{59}Fe	N/A	N/A	N/A	N/A	<0.52 U	<0.43 U
^{51}Cr	N/A	<5.9 U	<6.6 U	<6.5 U	<3.8 U	<3.5 U
^{60}Co	Yes	<0.088 U	<0.072 U	<0.12 U	0.52	0.28
^{65}Zn	N/A	<0.29 U	<0.24 U	<0.3 U	<0.15 U	<0.13 U
^{106}Ru	Yes	N/A	N/A	N/A	<0.46 U	<0.39 U
^{134}Cs	Yes	<0.12 U	<0.11 U	<0.13 U	<0.052 U	<0.075 U
^{137}Cs	Yes	<0.095 U	<0.096 U	<0.095 U	<0.046 U	<0.034 U
^{152}Eu	N/A	N/A	N/A	N/A	<0.18 U	<0.015 U
^{154}Eu	N/A	N/A	N/A	N/A	<0.10 U	<0.097 U
^{226}Ra	N/A	<0.08 U	0.35	0.49	0.35	0.35
^{228}Th	N/A	0.55	0.70	0.67	0.47	0.59
^{232}Th	N/A	0.42	0.52	0.72	0.39	0.62

9413223.1944

Table 5. Results of Radionuclide Analyses of Sediment Samples (sheet 2 of 2).

	N-76 2-3 FT		N-76 5-6 FT		N-76 24-25 FT		N-76 24-25 FT (DUPE.)		N-76 55-57 FT	
ALPHA	5.5	J	1.8	U	-0.94	U	5.3	U	-5.9	U
BETA	18		8.6	J	14	J	36		650	
$^{233/234}U$	N/A		N/A		N/A		N/A		1.2	
^{235}U	0.080	U	0.021	U	0.10	U	0.047	U	-0.12	U
^{238}U	0.53		0.46		0.53		0.52		0.49	
$^{239/240}Pu$	0.004	U	-0.003	U	-0.002	U	0.004	U	0.003	U
^{241}Am	-0.004	U	0	U	-0.007	U	-0.004	U	0.011	U
^{90}Sr	0.17	U	0.038	U	0.045	U	0.13		320	
^{99}Tc	1.0		0.10	U	0.43	J	0.24	U	0.13	U
GAMMA SCAN ANALYTES										
^{40}K	9.4		9.3		8.8		7.6		13	
^{59}Fe	N/A		N/A		N/A		N/A		<0.68	U
^{51}Cr	<7.0	U	<4.5	U	<6.0	U	<6.1	U	<6.0	U
^{60}Co	<0.13	U	<0.10	U	<0.13	U	<0.13	U	1.2	
^{65}Zn	<0.33	U	<0.21	U	<0.27	U	<0.30	U	<0.22	U
^{106}Ru	N/A		N/A		N/A		N/A		<0.65	U
^{134}Cs	<0.12	U	<0.095	U	<0.16	U	<0.12	U	<0.077	U
^{137}Cs	<0.10	U	<0.064	U	<0.099	U	<0.10	U	<0.057	U
^{152}Eu	N/A		N/A		N/A		N/A		<0.23	U
^{154}Eu	N/A		N/A		N/A		N/A		<0.15	U
^{226}Ra	0.27		0.26		0.35		0.43		0.43	
^{228}Th	0.62		0.41		0.52		0.59		0.59	
^{232}Th	0.69		0.43		<0.52	U	<0.53		0.41	

U Measured result was less than minimum detectable activity or less than error.
< ## Analyte not detected; ## is minimum detectable activity.
J Measured result less than required detection limit but greater than minimum detectable activity.
Negative results are underlined if less than the negative of its 2 sigma counting error.
N/A Not analyzed.

radionuclides detected in effluent stream to 1325-N in 1989 (DOE/RL, 1990) Waste stream to 1301-N believed to be similar composition.

9413227.1945

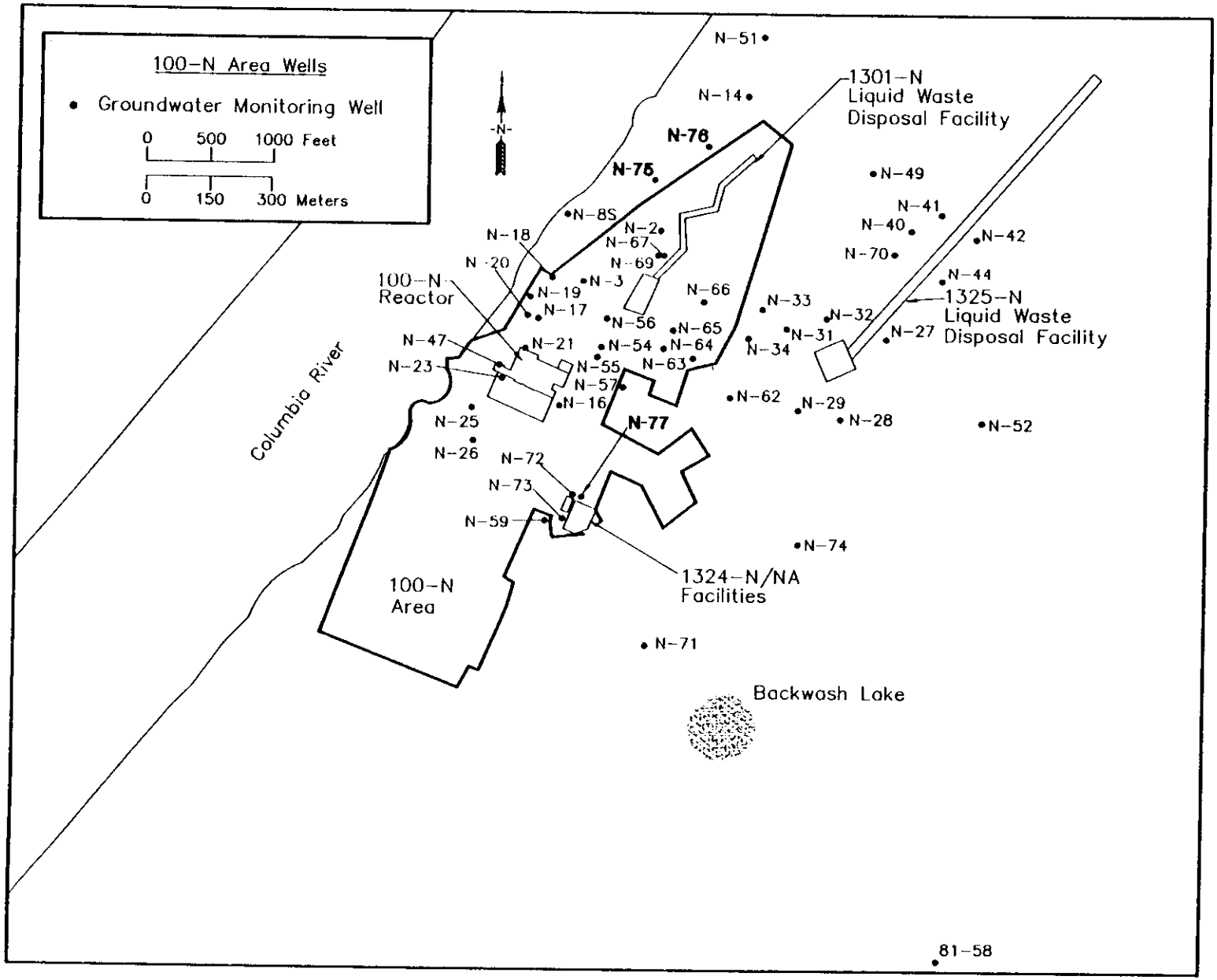
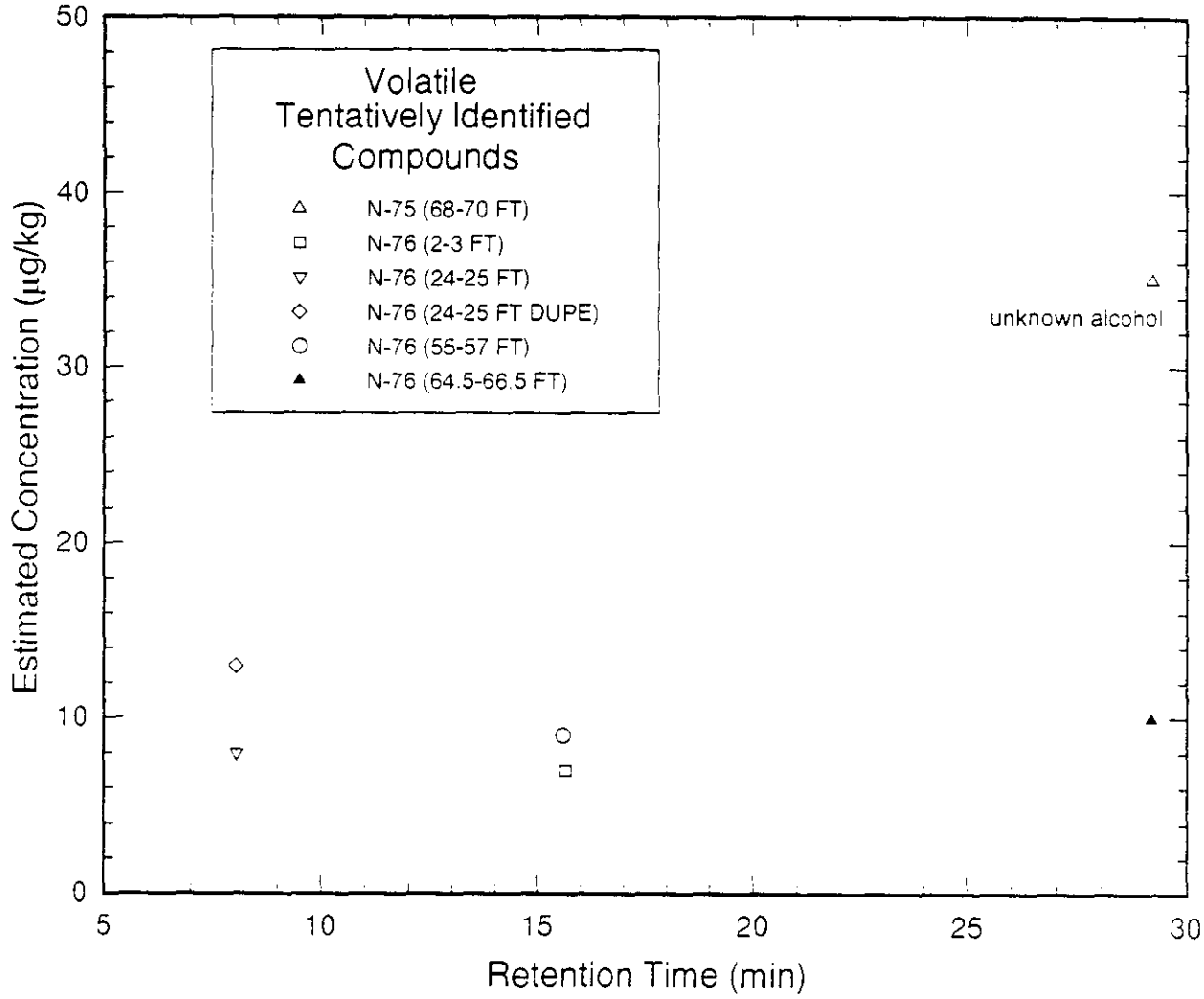


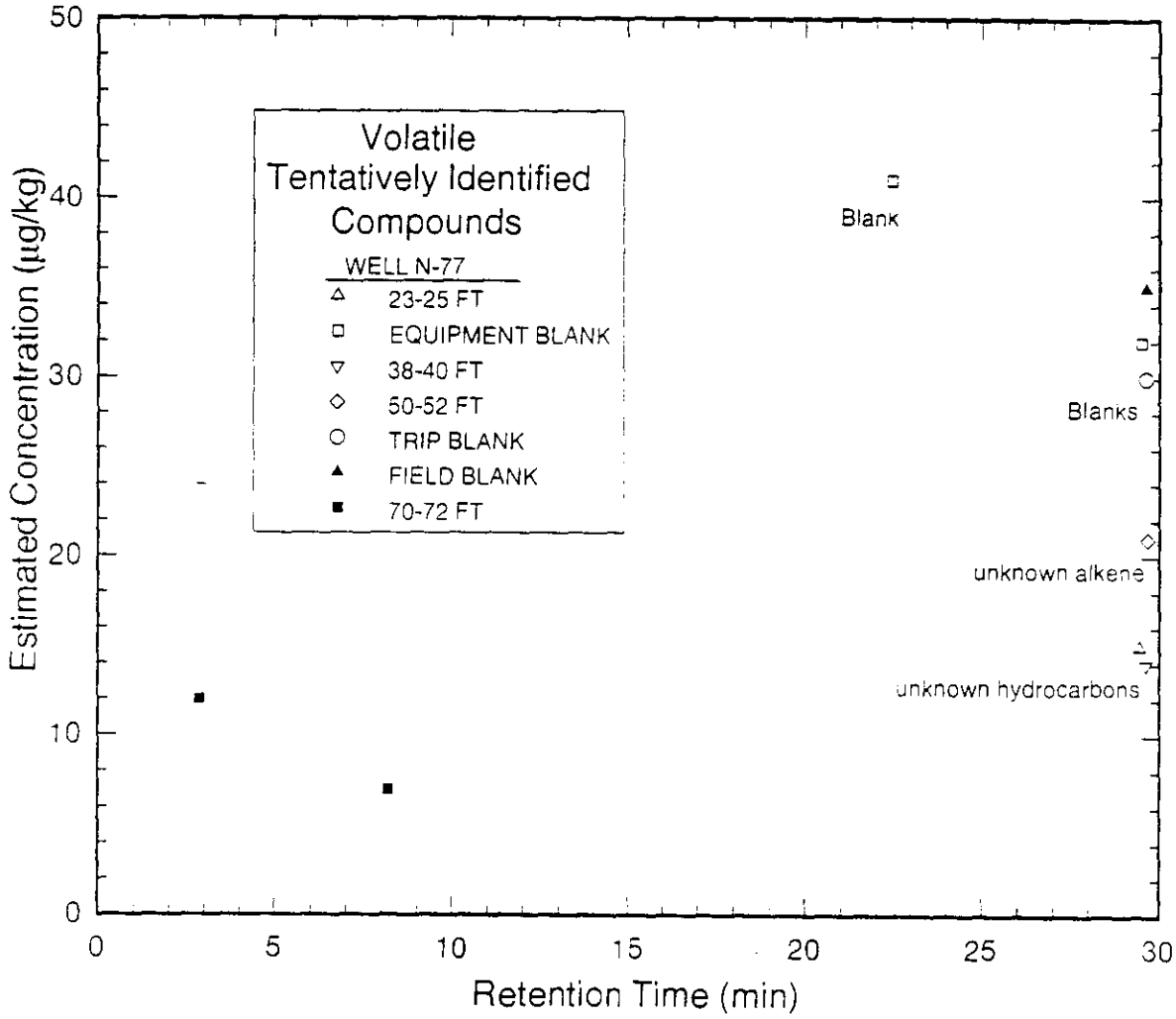
Figure 1. Location of Wells N-75, N-76, and N-77.

Figure 2. Volatile Tentatively Identified Compounds in Sediment Samples from Wells N-75 and N-76.



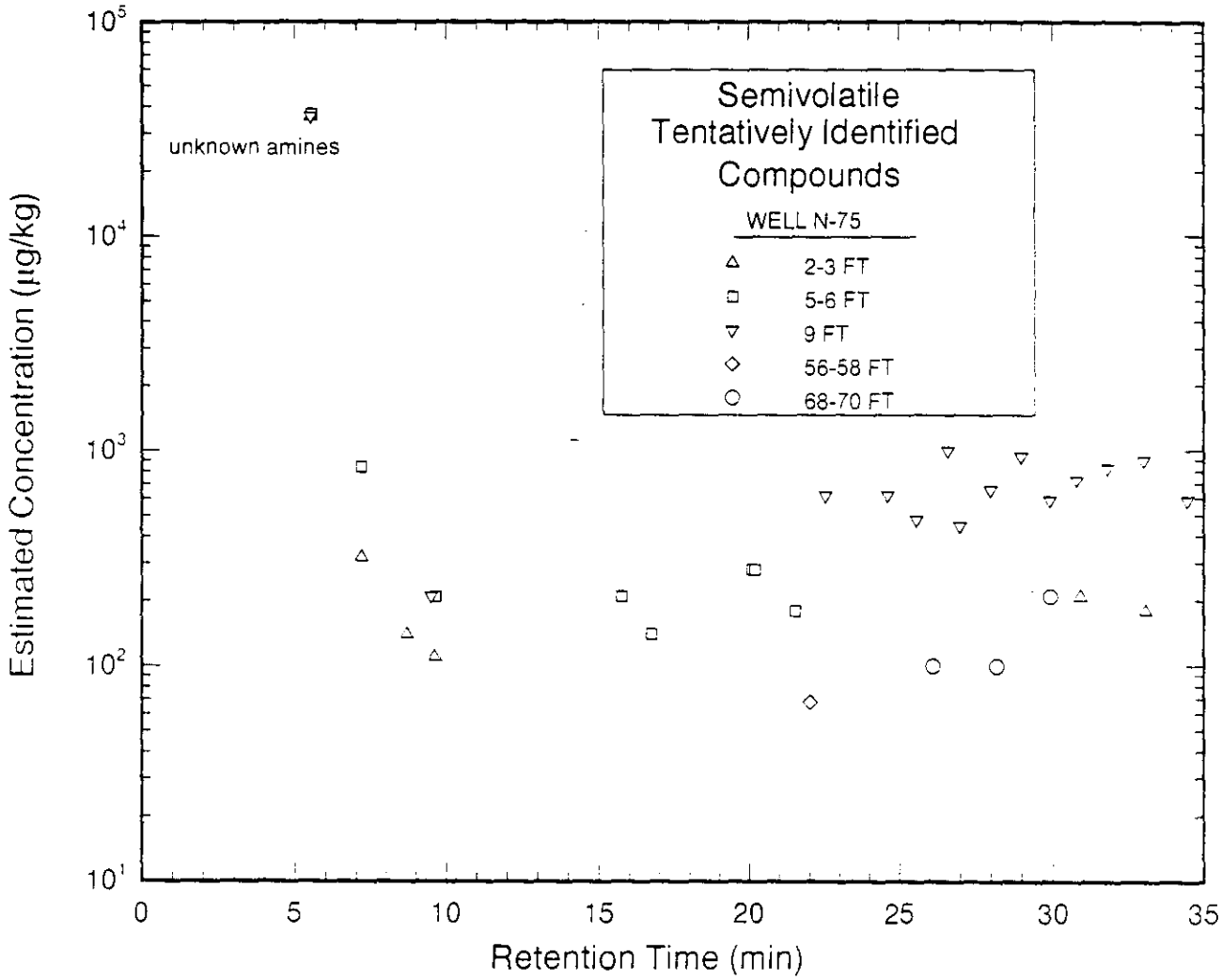
9413223.1947

Figure 3. Volatile Tentatively Identified Compounds in Sediment Samples from Well N-77.



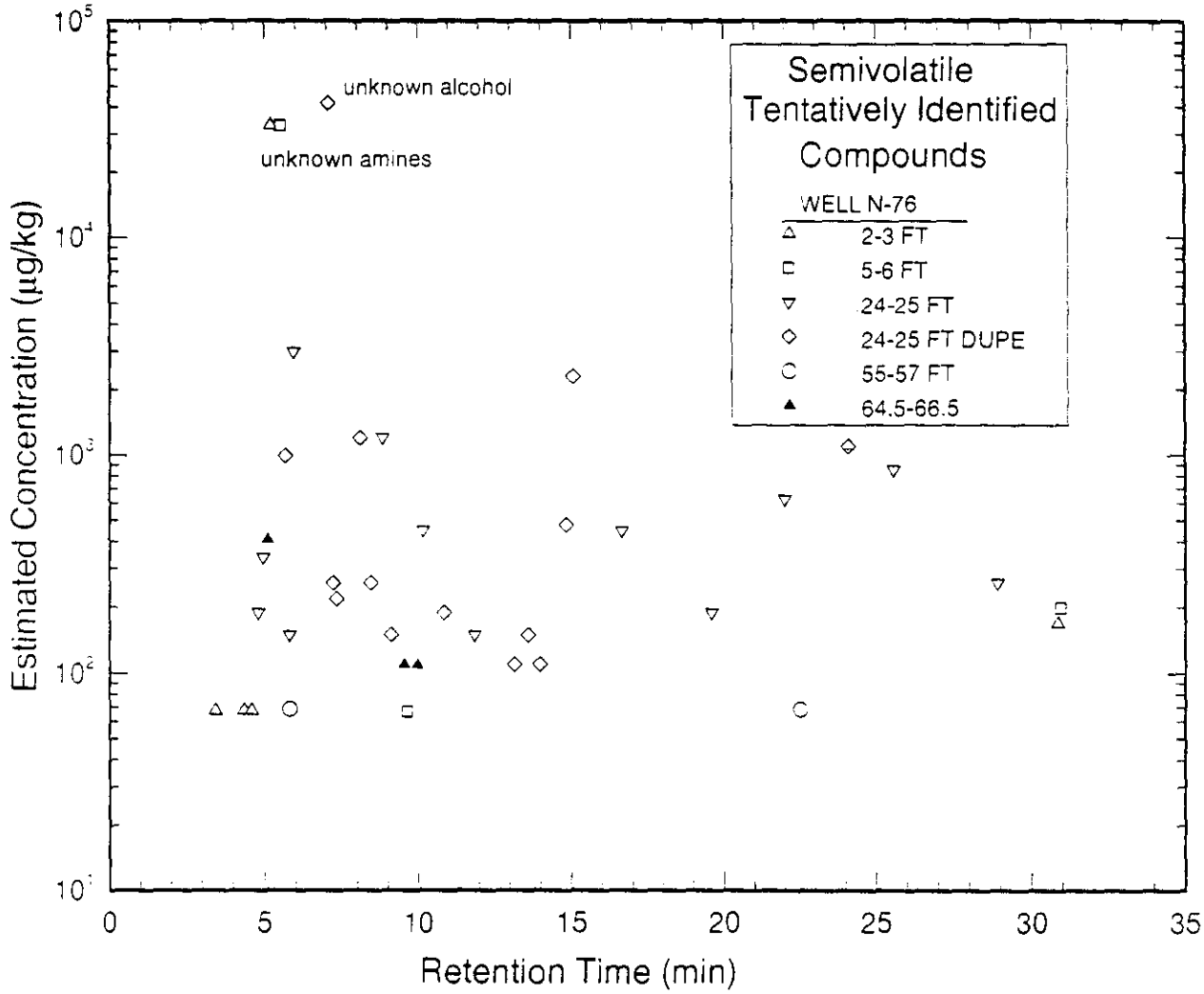
9413227.1948

Figure 4. Semivolatile Tentatively Identified Compounds in Sediment Samples from Well N-75.



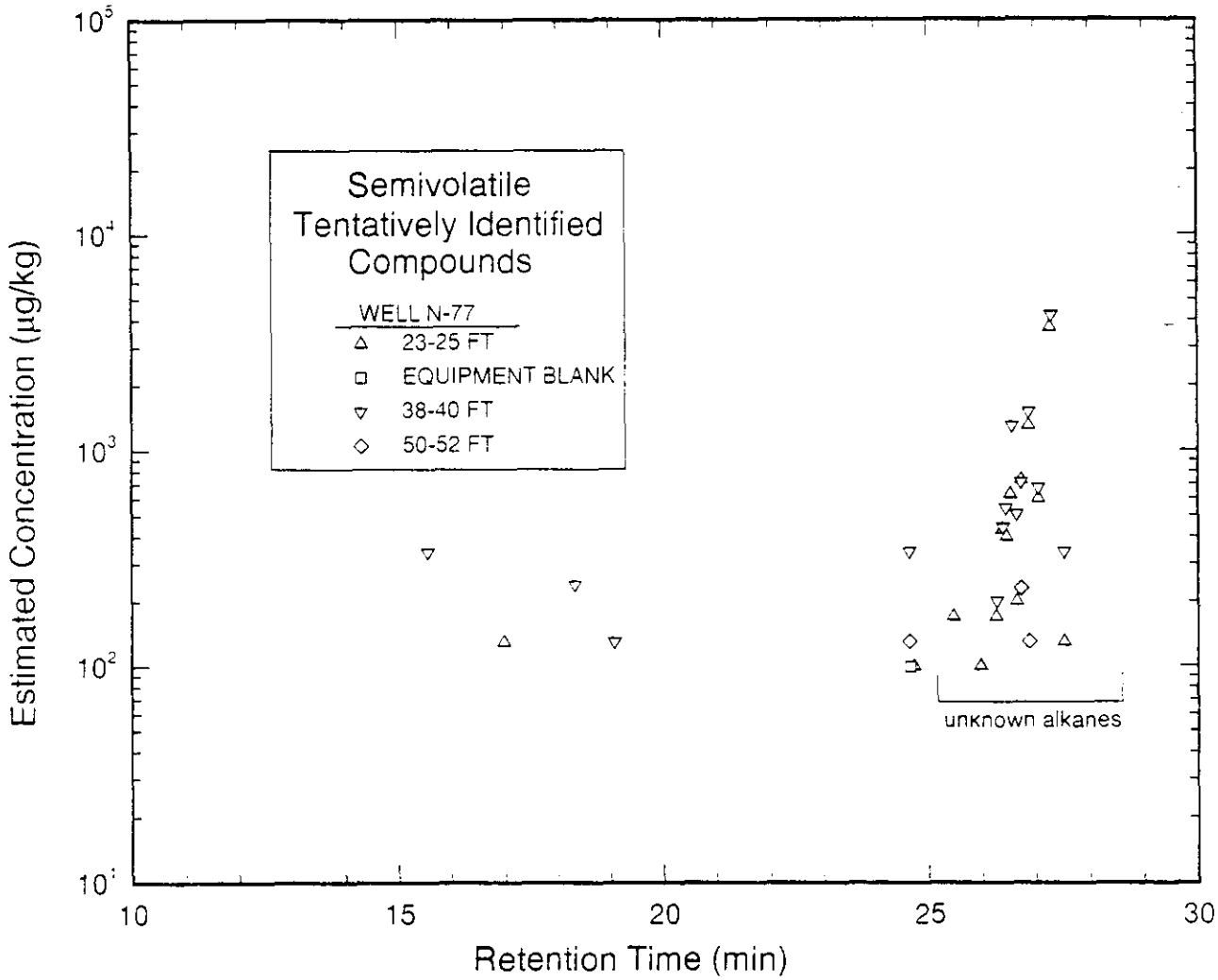
9413223.1949

Figure 5. Semivolatile Tentatively Identified Compounds in Sediment Samples from Well N-76.



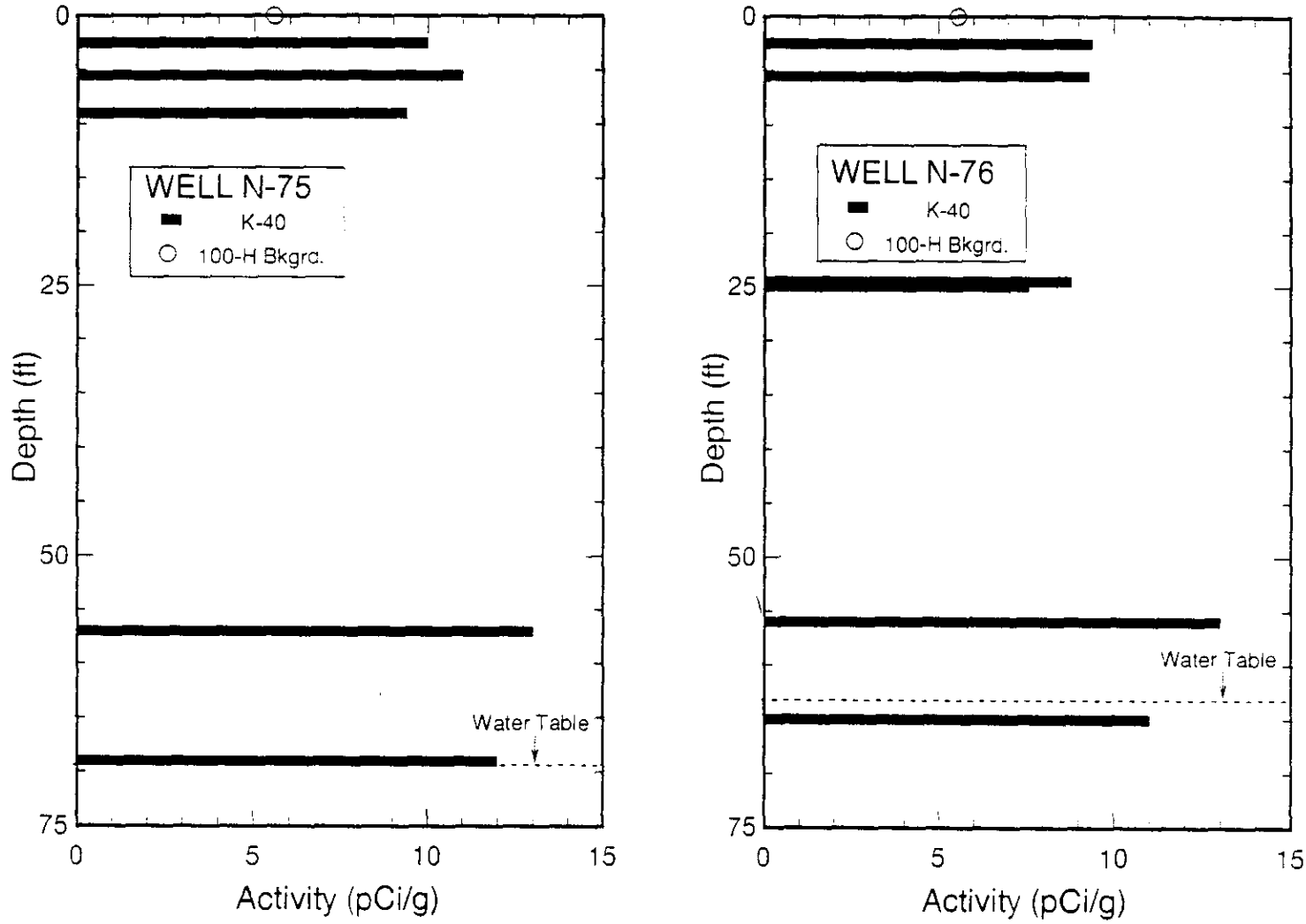
9413223.1950

Figure 6. Semivolatile Tentatively Identified Compounds in Sediment Samples from Well N-77.



9413223.1951

Figure 7. Potassium-40 Activity vs Depth in Wells N-75 and N-76. Background activity is the mean of 9 samples from a borehole in an uncontaminated part of the 100-H Area.



9413223.1952

Figure 8. Gross Beta, Strontium-90, and Cobalt-60 Activity vs Depth in Well N-75.
Background activity is the mean of 9 samples from a borehole in an uncontaminated part of the 100-H Area.

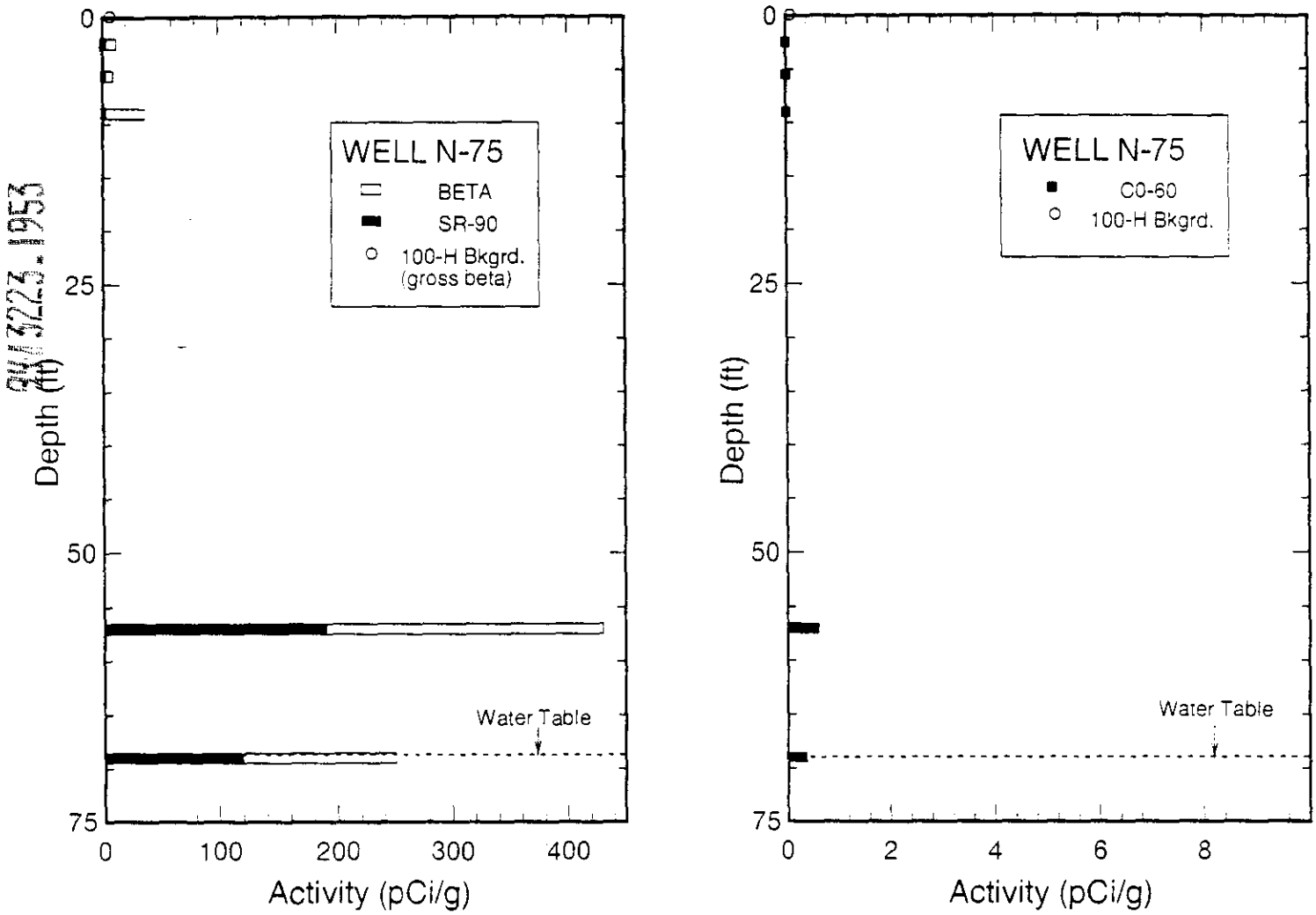
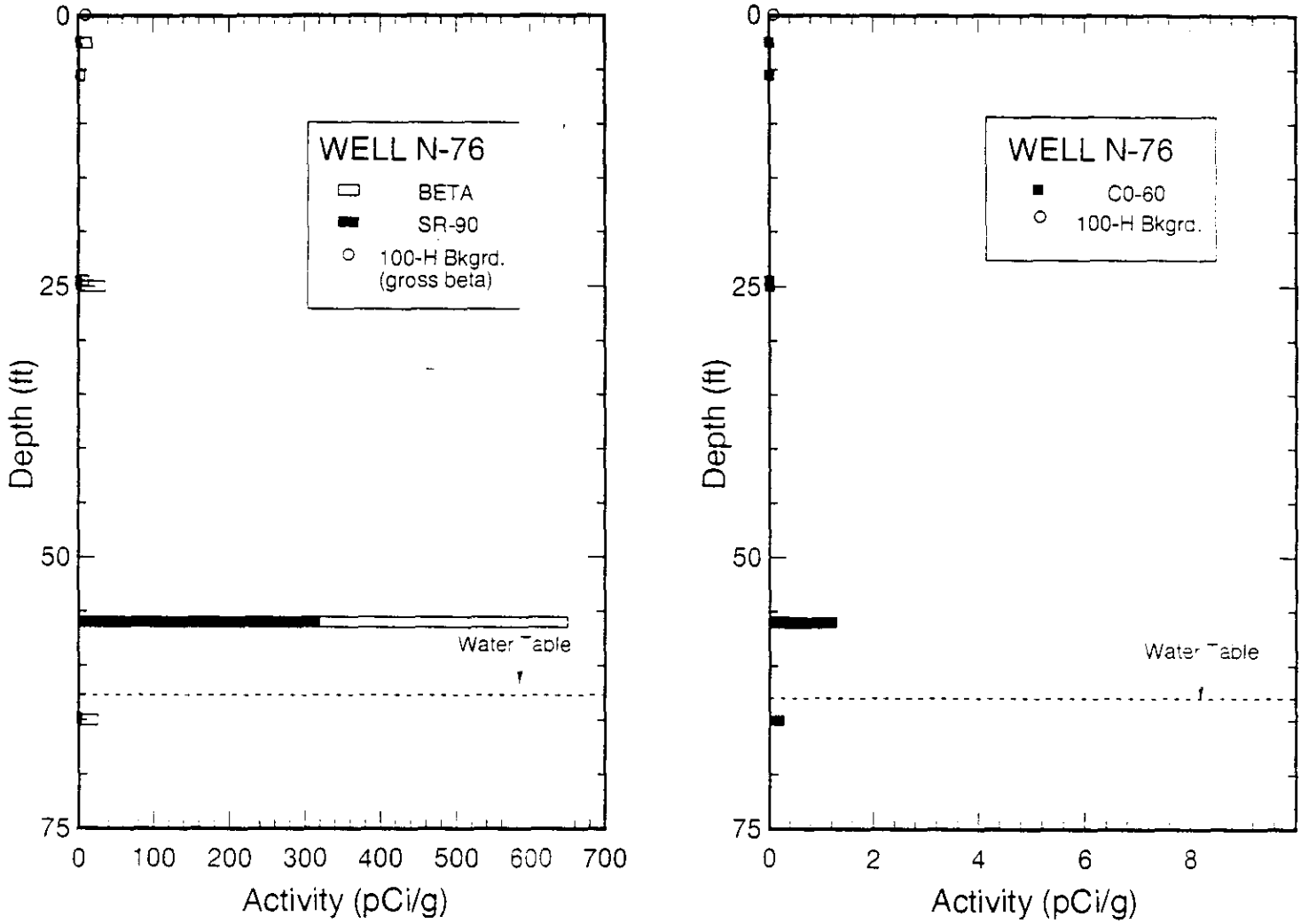


Figure 9. Gross Beta, Strontium-90, and Cobalt-60 Activity vs Depth in Well N-76.
Background activity is the mean of 9 samples from a borehole in an uncontaminated part of the 100-H Area.



9413223.1954

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9413223.1955

APPENDIX A

TENTATIVELY IDENTIFIED COMPOUNDS

This appendix contains copies of the laboratory data sheets for volatile and semivolatile tentatively identified compounds (TICs) from sediment samples from wells N-75, N-76, and N-77. Well number and sample depths are indicated near the sample number in the upper right corner of each sheet. The data tables consist of the CAS number (simply a consecutive number for TICs), the compound name, retention time (RT, in minutes), estimated concentration (in µg/kg, assuming a dilution factor of 1.0), and a data qualifier (Q). Qualifiers include the following:

- J estimated concentration (all TICs have the J flag).
- B the analyte was detected in the associated blank.
- N indicates presumptive evidence of a compound; only used for TICs where the identification is based on a mass spectral library search; not used for generically characterized compounds (e.g. chlorinated hydrocarbon).

9413223.1956

000018 p.52/176

EPA SAMPLE NO.

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

N75 68-70 ft
B06845

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 04078 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A204078-04A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 20507R07

Level: (low/med) LOW Date Received: 04/29/92

% Moisture: not dec. 3 Date Analyzed: 05/07/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown alcohol	29.21	35	J

9117776.1957

EPA SAMPLE NO.

N-75 2-3 ft
B06837

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 04051 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A204051-03B

Sample wt/vol: 30.7 (g/mL) G Lab File ID: 20504N06

Level: (low/med) LOW Date Received: 04/16/92

% Moisture: 8 decanted: (Y/N) N Date Extracted: 04/22/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/04/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.8

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown alkene	3.68	110	BJ
2. 108-88-3	Benzene, methyl-	3.95	1400	BJ
3.	Unknown hydrocarbon	4.17	71	BJ
4.	Unknown alkene	4.33	71	BJ
5.	Unknown ketone	4.52	71	BJ
6.	Unknown hydrocarbon	4.58	110	BJ
7.	Unknown hydrocarbon	4.90	2700	BJ
8.	Unknown amine	5.53	36000	J
9.	Unknown hydrocarbon	5.73	350	BJ
10.	Unknown alkane	5.88	180	BJ
11.	Unknown hydrocarbon	6.87	990	BJ
12.	Unknown hydrocarbon	7.18	320	J
13.	Unknown ketone	7.47	250	BJ
14.	Unknown alkane	8.69	140	J
15.	Unknown hydrocarbon	9.62	110	J
16.	Unknown carboxylic acid	18.72	140	BJ
17.	Unknown phthalate	22.25	670	BJ
18.	Unknown carboxylic acid este	28.04	250	BJ
19.	Unknown alkane	30.91	210	J
20.	Unknown alkane	33.12	180	J

QUALITY DATA

000034 p.32/176

EPA SAMPLE NO.

N-75 5-6ft
B06838

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

b Name: TMA/ARLI Contract: WHC

b Code: TMALA Case No.: 04051 SAS No.: NA SDG No.: NA

trix: (soil/water) SOIL Lab Sample ID: A204051-04B

mple wt/vol: 30.7 (g/mL) G Lab File ID: 20504N09

evel: (low/med) LOW Date Received: 04/16/92

Moisture: 7 decanted: (Y/N) N Date Extracted: 04/22/92

oncentrated Extract Volume: 1000 (uL) Date Analyzed: 05/04/92

njection Volume: 2.0(uL) Dilution Factor: 1.0

PE Cleanup: (Y/N) N pH: 9.0

umber TICs found: 19 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown alkene	3.72	140	BJ
2. 108-88-3	Benzene, methyl-	3.98	1700	BJ
3.	Unknown hydrocarbon	4.20	70	BJ
4.	Unknown hydrocarbon	4.60	140	BJ
5.	Unknown hydrocarbon	4.93	2800	BJ
6.	Unknown amine	5.55	37000	J
7.	Unknown hydrocarbon	5.75	420	BJ
8.	Unknown alkane	5.90	180	BJ
9.	Unknown hydrocarbon	6.88	950	BJ
10.	Unknown hydrocarbon	7.17	840	J
11.	Unknown ketone	7.48	350	BJ
12.	Unknown hydrocarbon	9.65	210	J
13.	Unknown alkane	15.74	210	J
14.	Unknown decane	16.72	140	J
15.	Unknown alkane	20.10	280	J
16.	Unknown alkane	20.20	280	J
17.	Unknown decane	21.54	180	J
18.	Unknown phthalate	22.34	700	BJ
19.	Unknown carboxylic acid este	28.14	250	BJ

DATA
REPORT

1F

EPA SAMPLE NO.

N75 9ft
B06839

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 04051 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A204051-05B

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 20507N02

Level: (low/med) LOW Date Received: 04/16/92

% Moisture: 5 decanted: (Y/N) N Date Extracted: 04/22/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/07/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.8

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 108-88-3	Benzene, methyl-	3.92	1600	BJ
2.	Unknown hydrocarbon	4.87	2400	BJ
3.	Unknown amine	5.52	36000	J
4.	Unknown hydrocarbon	5.70	380	BJ
5.	Unknown hydrocarbon	6.83	940	BJ
6.	Unknown ketone	7.43	380	BJ
7.	Unknown hydrocarbon	9.50	210	J
8.	Unknown phthalate	22.22	830	BJ
9.	Unknown alkane	22.55	620	J
10.	Unknown alkane	24.62	620	J
11.	Unknown alkane	25.57	480	J
12.	Unknown aromatic amine	26.61	1000	J
13.	Unknown alkane	26.99	450	J
14.	Unknown alkane	27.99	660	J
15.	Unknown alkane	28.96	940	J
16.	Unknown alkane	29.89	590	J
17.	Unknown alkane	30.79	730	J
18.	Unknown alkane	31.82	830	J
19.	Unknown alkane	33.04	900	J
20.	Unknown alkane	34.47	590	J

DATA

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EPA SAMPLE NO.

N75 56-58 ft
B06843

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 04078 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A204078-02B

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 20611N05

Level: (low/med) LOW Date Received: 04/27/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 05/04/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/11/92

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.8

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 9

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown hydrocarbon	4.23	470	BJ
2.	Unknown alkene	5.47	470	BJ
3.	Unknown ketone	6.33	470	BJ
4.	Unknown hydrocarbon	6.75	1800	BJ
5.	Unknown alcohol	7.38	35000	BJ
6.	Unknown hydrocarbon	8.74	680	BJ
7.	Unknown alcohol	10.15	100	BJ
8.	Unknown alcohol	10.54	240	BJ
9.	Unknown aromatic	22.04	68	J

EPA SAMPLE NO.

N75 68-70 5
B06845

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 04078 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A204078-04B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 20611N09

Level: (low/med) LOW Date Received: 04/29/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 05/04/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.9

Number TICs found: 11

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown hydrocarbon	5.30	270	BJ
2.	Unknown alkene	5.37	310	BJ
3.	Unknown ketone	6.23	450	BJ
4.	Unknown hydrocarbon	6.63	1800	BJ
5.	Unknown alcohol	7.23	34000	BJ
6.	Unknown hydrocarbon	8.59	620	BJ
7.	Unknown alcohol	9.99	100	BJ
8.	Unknown alcohol	10.35	240	BJ
9.	Unknown alkane	26.10	100	J
10.	Unknown alkane	28.17	100	J
11.	Unknown hydrocarbon	29.92	210	J

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EPA SAMPLE NO.

N-76 2-3 P
B06835

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

b Name: TMA/ARLI Contract: WHC

b Code: TMALA Case No.: 04051 SAS No.: NA SDG No.: NA

trix: (soil/water) SOIL Lab Sample ID: A204051-01A

mple wt/vol: 5.0 (g/mL) G Lab File ID: 20421R08

vel: (low/med) LOW Date Received: 04/16/92

Moisture: not dec. 5 Date Analyzed: 04/21/92

Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

umber TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110-54-3	Hexane	15.64	7	J

SUMMARY DATA
ONLY

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

N-76 24-25ft
B06840

ab Name: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 04062 SAS No.: NA SDG No.: NA

atrix: (soil/water) SOIL Lab Sample ID: A204062-01A

ample wt/vol: 5.0 (g/mL) G Lab File ID: 20428R13

evel: (low/med) LOW Date Received: 04/21/92

Moisture: not dec. 12 Date Analyzed: 04/28/92

C Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

oil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown hydrocarbon	8.08	8	J

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SUMMARY DATA REPORT 3/90

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

N-7624-251 ft
B06841 (dupe)

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 04062 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A204062-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 20428R16

Level: (low/med) LOW Date Received: 04/21/92

% Moisture: not dec. 11 Date Analyzed: 04/28/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown hydrocarbon	8.05	13	J

FORM I VOA-TIC

B-4C

SUMMARY DATA REPORT 3/90

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UUUUU8 p.42/176

EPA SAMPLE NO.

N76 55-57 B06842

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 04078 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A204078-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 20505R05

Level: (low/med) LOW Date Received: 04/27/92

% Moisture: not dec. 4 Date Analyzed: 05/05/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110-54-3	Hexane	15.59	9	J

9413223.1966

SUPPORTING DATA REPORT

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EPA SAMPLE NO.

N76 64½-66½ ft
B06844

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 04078 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A204078-03A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 20505R09

Level: (low/med) LOW Date Received: 04/29/92

% Moisture: not dec. 12 Date Analyzed: 05/05/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown hydrocarbon	29.17	10	J

DATA

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

N-76 2-3 1+
B06835

) Name: TMA/ARLI Contract: WHC

) Code: TMALA Case No.: 04051 SAS No.: NA SDG No.: NA

rix: (soil/water) SOIL Lab Sample ID: A204051-01B

ple wt/vol: 30.8 (g/mL) G Lab File ID: 20504N04

el: (low/med) LOW Date Received: 04/16/92

oisture: 5 decanted: (Y/N) N Date Extracted: 04/22/92

centrated Extract Volume: 1000 (uL) Date Analyzed: 05/04/92

ection Volume: 2.0 (uL) Dilution Factor: 1.0

leanup: (Y/N) N pH: 9.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

ber TICs found: 19

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown ketone	3.42	68	J
2.	Unknown alkene	3.68	140	BJ
3. 108-88-3	Benzene, methyl-	3.95	1400	BJ
4.	Unknown hydrocarbon	4.15	68	BJ
5.	Subst. cycloalkane	4.33	68	J
6.	Unknown ketone	4.50	170	BJ
7.	Unknown alkene	4.57	68	J
8.	Unknown hydrocarbon	4.90	2500	BJ
9.	Unknown amine	5.52	33000	J
0.	Unknown hydrocarbon	5.72	340	BJ
1.	Unknown alkane	5.88	170	BJ
2.	Unknown hydrocarbon	6.85	890	BJ
3.	Unknown ketone	7.18	210	BJ
4.	Unknown ketone	7.47	210	BJ
5.	Unknown alcohol	8.69	140	BJ
6.	Unknown carboxylic acid	18.74	140	BJ
7.	Unknown phthalate	22.25	620	BJ
8.	Unknown carboxylic acid este	28.04	440	BJ
9.	Unknown alkane	30.86	170	J

DATA
REPORT

000025 p.16/17

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

N-76 5-6ft
B06836

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 04051 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A204051-02D

Sample wt/vol: 30.6 (g/mL) G Lab File ID: 20504N05

Level: (low/med) LOW Date Received: 04/16/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 04/22/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 05/04/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 9.4

Number TICs found: 18

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown alkene	3.68	130	BJ
2. 108-88-3	Benzene, methyl-	3.95	1500	BJ
3.	Unknown hydrocarbon	4.17	67	BJ
4.	Unknown alkene	4.33	67	BJ
5.	Unknown ketone	4.52	67	BJ
6.	Unknown hydrocarbon	4.88	2300	BJ
7.	Unknown amine	5.52	33000	J
8.	Unknown hydrocarbon	5.73	370	BJ
9.	Unknown alkane	5.88	170	BJ
10.	Unknown hydrocarbon	6.87	830	BJ
11.	Unknown ketone	7.18	200	BJ
12.	Unknown ketone	7.47	170	BJ
13.	Unknown alcohol	8.70	100	BJ
14.	Unknown hydrocarbon	9.62	67	J
15.	Unknown carboxylic acid	18.74	130	BJ
16.	Unknown phthalate	22.29	600	BJ
17.	Unknown carboxylic acid este	28.07	400	BJ
18.	Subst. alkane	30.94	200	J

PRELIMINARY DATA
REPORT

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

N-76 24-25 ft
B06840

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 04062 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A204062-01D

Sample wt/vol: 30.5 (g/mL) G Lab File ID: 20603N08

Level: (low/med) LOW Date Received: 04/21/92

% Moisture: 12 decanted: (Y/N) N Date Extracted: 04/24/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 06/03/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.0

Number TICs found: 20

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN ALKENE	4.30	34000	BJ
2.	UNKNOWN HYDROCARBON	4.80	190	J
3.	UNKNOWN ALKENE ALCOHOL	4.95	340	J
4.	UNKNOWN ALKENE	5.55	220	BJ
5.	UNKNOWN HYDROCARBON	5.80	150	J
6. 108-88-3	BENZENE, METHYL-	5.92	3000	BJ
7.	UNKNOWN HYDROCARBON	6.20	190	BJ
8.	UNKNOWN ALKENE	6.43	110	BJ
9.	UNKNOWN HYDROCARBON	6.85	3500	BJ
10.	UNKNOWN HYDROCARBON	7.47	43000	BJ
11.	UNKNOWN ALKANE	7.62	560	BJ
12.	UNKNOWN HYDROCARBON	8.82	1200	J
13.	UNKNOWN KETONE	9.24	150	BJ
14.	UNKNOWN KETONE	10.17	450	J
15.	SUBSTITUTED PHENYL	11.85	150	J
16.	UNKNOWN CARBOXYLIC ACID	16.65	450	J
17.	UNKNOWN CARBOXYLIC ACID ESTE	19.60	190	J
18.	UNKNOWN PHTHALATE	22.00	630	J
19.	UNKNOWN HYDROCARBON	25.56	860	J
20.	UNKNOWN ALKANE	28.92	260	J

EPA SAMPLE NO.

N-76 24-25 ft
B06841 (dupe)

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

ab Name: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 04062 SAS No.: NA SDG No.: NA

atrix: (soil/water) SOIL Lab Sample ID: A204062-02B

ample wt/vol: 30.2 (g/mL) G Lab File ID: 20529A14

evel: (low/med) LOW Date Received: 04/21/92

Moisture: 11 decanted: (Y/N) N Date Extracted: 04/24/92

oncentrated Extract Volume: 500.0 (uL) Date Analyzed: 05/30/92

njection Volume: 2.0(uL) Dilution Factor: 1.0

PC Cleanup: (Y/N) Y pH: 9.1

umber TICs found: 20 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN ALKENE	4.22	6100	BJ
2.	UNKNOWN ALKENE	5.68	1000	J
3.	UNKNOWN ALCOHOL	6.47	1900	BJ
4.	UNKNOWN ALCOHOL	7.07	42000	J
5.	UNKNOWN ALKANE	7.22	260	J
6.	UNKNOWN HYDROCARBON	7.32	220	J
7.	UNKNOWN HYDROCARBON	8.08	1200	J
8.	UNKNOWN HYDROCARBON	8.22	820	BJ
9.	UNKNOWN ALKANE	8.45	260	J
10.	UNKNOWN KETONE	8.69	260	BJ
11.	UNKNOWN HYDROCARBON	9.10	150	J
12.	UNKNOWN KETONE	9.42	220	BJ
13.	UNKNOWN ALCOHOL	9.74	300	BJ
14.	UNKNOWN KETONE	10.87	190	J
15.	UNKNOWN HYDROCARBON	13.17	110	J
16.	UNKNOWN KETONE	13.60	150	J
17.	UNKNOWN KETONE	14.00	110	J
18.	UNKNOWN ACID ESTER	14.84	480	J
19.	FLUORO BIPHENYL ISOMER	15.07	2300	J
20.	UNKNOWN HYDROCARBON	24.10	1100	J

QUALITY DATA REPORT

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000023 0.57/176

EPA SAMPLE NO.

N76 55-57 ft
B06842

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

ab Name: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 04078 SAS No.: NA SDG No.: NA

atrix: (soil/water) SOIL Lab Sample ID: A204078-01D

ample wt/vol: 30.3 (g/mL) G Lab File ID: 20611N04

evel: (low/med) LOW Date Received: 04/27/92

Moisture: 4 decanted: (Y/N) N Date Extracted: 05/04/92

oncentrated Extract Volume: 1000 (uL) Date Analyzed: 06/11/92

njection Volume: 2.0 (uL) Dilution Factor: 1.0

PC Cleanup: (Y/N) N pH: 8.4

umber TICs found: 11

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown hydrocarbon	4.25	550	BJ
2.	Unknown hydrocarbon	5.38	270	BJ
3.	Unknown alkene	5.45	240	BJ
4.	Unknown hydrocarbon	5.80	69	J
5.	Unknown ketone	6.33	410	BJ
6.	Unknown hydrocarbon	6.73	1700	BJ
7.	Unknown alcohol	7.33	32000	BJ
8.	Unknown hydrocarbon	8.68	580	BJ
9.	Unknown alcohol	10.10	100	BJ
10.	Unknown alcohol	10.47	240	BJ
11.	Unknown carboxylic acid	22.48	69	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

N76 64½ – 66½ ft
B06844

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 04078 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A204078-03B

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 20611N08

Level: (low/med) LOW Date Received: 04/29/92

% Moisture: 12 decanted: (Y/N) N Date Extracted: 05/04/92

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 06/11/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 8.9

Number TICs found: 9

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown alcohol	5.10	410	J
2.	Unknown alkene	5.35	450	BJ
3.	Unknown ketone	6.22	450	BJ
4.	Unknown hydrocarbon	6.62	1800	BJ
5.	Unknown alcohol	7.22	34000	BJ
6.	Unknown hydrocarbon	8.59	640	BJ
7.	Unknown carboxylic acid	9.54	110	J
8.	Unknown hydrocarbon	9.99	110	J
9.	Unknown alcohol	10.35	260	BJ

000005

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
N-77 23-25 ft
B06848

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09056 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A209056-01A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 20924R03

Level: (low/med) LOW Date Received: 09/21/92

% Moisture: not dec. 2 Date Analyzed: 09/24/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	29.45	15	J

SUMMARY DATA REPORT

FORM I VOA-TIC 3/90

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
N-77 EQUIPMENT BLANK
B06849

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09056 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A209056-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 20924R06

Level: (low/med) LOW Date Received: 09/21/92

% Moisture: not dec. 0 Date Analyzed: 09/24/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	22.45	41	J
2.	UNKNOWN ALKENE	29.50	32	J

9413227.1875

SUPPORTING DATA
PRIVACY ACT

000011

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
N-77 38-40ft

B06850

ab Name: TMA/ARLI Contract: WHC

ab Code: TMALA Case No.: 09085 SAS No.: NA SDG No.: NA

atrix: (soil/water) SOIL Lab Sample ID: A209085-01A

ample wt/vol: 5.0 (g/mL) G Lab File ID: 21007R07

evel: (low/med) LOW Date Received: 09/28/92

Moisture: not dec. 2 Date Analyzed: 10/07/92

C Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

oil Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
	UNKNOWN HYDROCARBON	29.62	14	J

SUPPORTING DATA
FAX COPY

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
N-77 50-52 ft
B06851

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09085 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A209085-02A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21007R10

Level: (low/med) LOW Date Received: 09/28/92

% Moisture: not dec. 2 Date Analyzed: 10/07/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN ALKENE	29.67	21	J

DATA

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
N-77 TRIP BLANK
B06852

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09085 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A209085-03A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21007R11

Level: (low/med) LOW Date Received: 09/28/92

% Moisture: not dec. 0 Date Analyzed: 10/07/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN ALKENE	29.62	30	J

9413223.1979

SUMMARY DATA ONLY

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
N-77 FIELD BLANK
B06853

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 09085 SAS No.: NA SDG No.: NA

rix: (soil/water) SOIL Lab Sample ID: A209085-04A

ple wt/vol: 5.0 (g/mL) G Lab File ID: 21007R12

el: (low/med) LOW Date Received: 09/28/92

oisture: not dec. 0 Date Analyzed: 10/07/92

Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

L Extract Volume: _____ (uL) Soil Aliquot Volume: _____(uL)

aber TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN CARBOXYLIC ACID ESTE	29.62	35	J

SUMMARY DATA REPORT

000021

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
N-77 70-72 ST

B07H52

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09085 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A209085-06A

Sample wt/vol: 5.0 (g/mL) G Lab File ID: 21008R12

Level: (low/med) LOW Date Received: 09/28/92

% Moisture: not dec. 9 Date Analyzed: 10/08/92

GC Column: PACK ID: 2.00 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 593-75-9	METHANE, ISOCYANO-	2.87	12	JN
2.	UNKNOWN HYDROCARBON	8.17	7	J

9413223.1980

000010

EPA SAMPLE NO.
N-77 23-25 ft

B06848

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09056 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A209056-01D

Sample wt/vol: 30.6 (g/mL) G Lab File ID: 21006S13

Level: (low/med) LOW Date Received: 09/21/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 09/24/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 10/06/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.2

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	6.08	62000	BJ
2.	UNKNOWN HYDROCARBON	6.38	300	BJ
3.	UNKNOWN HYDROCARBON	6.85	4900	BJ
4.	UNKNOWN HYDROCARBON	7.03	600	BJ
5.	UNKNOWN HYDROCARBON	7.27	230	BJ
6.	PROPANOIC ACID ISOMER	16.97	130	J
7.	HEXANEDIOIC ACID ISOMER	24.63	230	BJ
8.	UNKNOWN ALKANE	24.72	100	J
9.	UNKNOWN ALKANE	25.45	170	J
10.	UNKNOWN ALKANE	25.97	100	J
11.	UNKNOWN ALKANE	26.27	170	J
12.	UNKNOWN ALKANE	26.37	430	J
13.	UNKNOWN ALKANE	26.45	400	J
14.	UNKNOWN ALKANE	26.53	630	J
15.	UNKNOWN ALKANE	26.65	200	J
16.	UNKNOWN ALKANE	26.73	730	J
17.	UNKNOWN ALKANE	26.88	1300	J
18.	UNKNOWN ALKANE	27.05	600	J
19.	UNKNOWN ALKANE	27.28	3700	J
20.	UNKNOWN ALKANE	27.52	130	J

QUALITY DATA
INSPECT

B-56

000013

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
N-77 EQUIPMENT BLANK
B06849

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09056 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A209056-02B

Sample wt/vol: 30.4 (g/mL) G Lab File ID: 21006S16

Level: (low/med) LOW Date Received: 09/21/92

% Moisture: 0 decanted: (Y/N) N Date Extracted: 09/24/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 10/07/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9

Number TICs found: 11

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	5.92	25000	BJ
2.	UNKNOWN HYDROCARBON	6.12	54000	BJ
3.	UNKNOWN HYDROCARBON	6.42	360	BJ
4.	UNKNOWN HYDROCARBON	6.90	4800	BJ
5.	UNKNOWN HYDROCARBON	6.98	130	BJ
6.	UNKNOWN HYDROCARBON	7.05	430	BJ
7.	UNKNOWN HYDROCARBON	7.30	330	BJ
8.	UNKNOWN KETONE	12.78	130	BJ
9.	UNKNOWN CARBOXYLIC ACID ESTE	20.10	530	BJ
10.	UNKNOWN HYDROCARBON	24.25	99	J
11.	HEXANEDIOIC ACID ISOMER	24.65	160	BJ

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
N-77 38-40 FT.
B06850

Name: TMA/ARLI Contract: WHC

Code: TMALA Case No.: 09085 SAS No.: NA SDG No.: NA

:ix: (soil/water) SOIL Lab Sample ID: A209085-01D

ɔle wt/vol: 30.3 (g/mL) G Lab File ID: 21007S15

ɜl: (low/med) LOW Date Received: 09/28/92

ɔisture: 2 decanted: (Y/N) N Date Extracted: 10/01/92

:entrated Extract Volume: 500.0 (uL) Date Analyzed: 10/07/92

ɜction Volume: 2.0(uL) Dilution Factor: 1.0

Cleanup: (Y/N) Y pH: 9.3

ɔ TICs found: 20 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
.	UNKNOWN HYDROCARBON	6.17	60000	BJ
.	UNKNOWN HYDROCARBON	6.90	5100	BJ
.	UNKNOWN HYDROCARBON	7.07	340	BJ
.	UNKNOWN HYDROCARBON	7.28	400	BJ
.	UNKNOWN HYDROCARBON	15.03	200	BJ
.	UNKNOWN HYDROCARBON	15.55	340	J
.	UNKNOWN HYDROCARBON	18.33	240	J
.	UNKNOWN COMPOUND	19.07	130	J
.	UNKNOWN CARBOXYLIC ACID ESTE	21.27	640	BJ
.	HEXANEDIOIC ACID ISOMER	24.63	340	J
.	UNKNOWN ALKANE	26.28	200	J
.	UNKNOWN ALKANE	26.38	440	J
.	UNKNOWN ALKANE	26.45	540	J
.	UNKNOWN ALKANE	26.57	1300	J
.	UNKNOWN ALKANE	26.65	510	J
.	UNKNOWN ALKANE	26.73	710	J
.	UNKNOWN ALKANE	26.88	1500	J
.	UNKNOWN ALKANE	27.05	670	J
.	UNKNOWN ALKANE	27.30	4200	J
.	UNKNOWN ALKANE	27.52	340	J

000027

EPA SAMPLE NO.

N-77 50-52 ft

B06851

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09085 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A209085-02B

Sample wt/vol: 30.8 (g/mL) G Lab File ID: 21007S18

Level: (low/med) LOW Date Received: 09/28/92

% Moisture: 2 decanted: (Y/N) N Date Extracted: 10/01/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 10/07/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.0

Number TICs found: 10

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	6.13	41000	BJ
2.	UNKNOWN HYDROCARBON	6.42	300	BJ
3.	UNKNOWN HYDROCARBON	6.90	4600	BJ
4.	UNKNOWN HYDROCARBON	7.05	200	BJ
5.	UNKNOWN HYDROCARBON	7.27	300	BJ
6.	UNKNOWN HYDROCARBON	11.45	400	BJ
7.	UNKNOWN CARBOXYLIC ACID ESTE	20.08	630	BJ
8.	HEXANEDIOIC ACID ISOMER	24.63	130	J
9.	UNKNOWN ALKANE	26.73	230	J
10.	UNKNOWN HYDROCARBON	26.87	130	J

DATA REPORT

000030

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
N-77 63-65 ft

B06854

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09085 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A209085-05B

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21008S02

Level: (low/med) LOW Date Received: 09/28/92

% Moisture: 3 decanted: (Y/N) N Date Extracted: 10/01/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 10/08/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.6

Number TICs found: 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	5.90	33000	BJ
2.	UNKNOWN HYDROCARBON	6.12	49000	BJ
3.	UNKNOWN HYDROCARBON	6.88	5200	BJ
4.	UNKNOWN CARBOXYLIC ACID ESTE	20.10	720	BJ

9413223.1985

SUPPORTING DATA
ATTACHMENT

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
N-77 70-72 S
B07H52

Lab Name: TMA/ARLI Contract: WHC

Lab Code: TMALA Case No.: 09085 SAS No.: NA SDG No.: NA

Matrix: (soil/water) SOIL Lab Sample ID: A209085-06B

Sample wt/vol: 30.2 (g/mL) G Lab File ID: 21008S03

Level: (low/med) LOW Date Received: 09/28/92

% Moisture: 9 decanted: (Y/N) N Date Extracted: 10/01/92

Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 10/08/92

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.7

Number TICs found: 7

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	5.90	36000	BJ
2.	UNKNOWN HYDROCARBON	6.10	77000	BJ
3.	UNKNOWN HYDROCARBON	6.40	360	BJ
4.	UNKNOWN HYDROCARBON	6.88	5400	BJ
5.	UNKNOWN HYDROCARBON	7.28	330	BJ
6.	UNKNOWN HYDROCARBON	12.78	110	BJ
7.	UNKNOWN CARBOXYLIC ACID ESTE	20.10	650	BJ

9413225.1986

E-61

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