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APPENDIX F

DATA OBTAINED FROM PREVIOUS SITE INVESTIGATIONS

(SECTION 6.0 OF NUS WORK PLAN
PREVIOUSLY SUBMITTED IN NOVEMBER 1983)

6.0 ENVIRONMENTAL CONCENTRATIONS

6.1 Air

An air sampling program was conducted at the site on November 16 and 17, 1982 by the Environmental Response Team (ERT) from EPA Region III. Ten onsite locations and two background locations were sampled using calibrated portable air pumps with different capturing media for various chemical groups. These media were analyzed for total organics, organic solvents, aromatic amines, inorganic acids, PCBs, and metal particulates. No airborne vapor/gas contaminants were present above the detection limits.

Air samples were collected in the crawl spaces of houses adjacent to the landfill using similar collection equipment as the onsite air survey. Grab samples were collected and analyzed using a Photovac 10A10 portable gas chromatograph (GC). The samples that gave a response were sampled with the pumping system for a longer period of time. Table 6-1 presents the analytical results, which indicate that some form of hydrocarbons were present in all samples. Since there were compounds present at or slightly above the GC's detection limit, but not in sufficient concentration to be identified on a GC/MS, all compounds detected in a sample were totalled and reported as total hydrocarbons (as if it were toluene). The offsite sampling did not show the presence of compounds in sufficient concentrations to be identified on a GC/MS with the exception of carbon tetrachloride in one sample (<20 µg) in a 600 mg charcoal tube (ERT, 1983b).

6.2 Soil

Table 6-2 lists the locations and descriptions of soil samples collected at or near the site by various agencies. PADER collected three soil samples from on site and four samples from adjacent, offsite property. ERT collected soil samples from 23 locations on site, some of which were sampled at various depths. ERT sampling locations are shown on Figure 6-1. The analytical results are presented in Tables 6-3, 6-4, 6-5, and 6-6.

TABLE 6-1

MILLCREEK SITE
OFFSITE AIR ANALYSES

Sampling Location	Total Hydrocarbons (mg/m^3 air)	Total Hydrocarbons as Toluene (ppm)	Aromatic Amines	Carbon Tetrachloride	Chlorinated Hydrocarbons
Knost 3123 W. 13th St.	0.49	0.13	N/A	N/A	N/A
Oros 1322 Harper Dr.	0.27	0.07	N/A	N/A	N/A
Fedorchak 3269 W. 14th St.	0.18	0.05	N/A	N/A	BDL
Root 1332 Harper Dr.	0.1	0.0003	BDL	N/A	N/A
Hetrick 1326 Harper Dr.	0.11	0.03	BDL	<20 µg	BDL

<: Less than
BDL: Below detection limit
N/A: Not available
mg/m^3: milligrams per cubic meter
ppm: parts per million
µg: micrograms

Source: Turpin, R., February 22, 1983.

TABLE 6-2

MILLCREEK SITE
SOIL SAMPLE LOCATIONS

Sample Code	Sample Location or Number	Description	Date	Sampler
SMC01	Middle of site	Oily waste	3/23/82	PADER
SMC02	Composite of site		7/28/82	PADER
SMC03	50 yd south-Well 1	Sample at 6-in intervals (18 in. to 24 in.)	7/29/82	PADER
SMC04	Sample #1	Samples at surface, 1 ft, 4 ft	11/82	ERT
SMC05	Sample #2	Samples at surface, 1 ft, 4 ft	11/82	ERT
SMC06	Sample #3	Surface - saturated silt muck 1 ft - saturated gray clay muck 4 ft - saturated gray clay, sand	11/82	ERT
SMC07	Sample #4	Surface - black loam 1 ft - black silt fill 4 ft - black silt fill	11/82	ERT
SMC08	Sample #5	Surface - black silt fill 1 ft - black silt fill	11/82	ERT
SMC09	Sample #6	Surface - black muck 1 ft - light brown clay, silt 4 ft - saturated fine brown sand	11/82	ERT
SMC10	Sample #7	Surface - black clay, silt 1 ft - brown clay, silt 4 ft - saturated sand	11/82	ERT
SMC11	Sample #8	Surface - black muck 1 ft - clay 4 ft - brown sand	11/82	ERT
SMC12	Sample #9	Surface - black muck, peat 1 ft - brown clay, silt 4 ft - saturated brown muck	11/82	ERT
SMC13	Sample #10	Surface - black clay 3 ft - brown saturated 6 ft - brown sand, loam	11/82	ERT
SMC14	Sample #11	Surface - black clay, sand 1 ft - saturated brown sand 4 ft - brown gravel, loam	11/82	ERT

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TABLE 6-2
MILLCREEK SITE
SOIL SAMPLE LOCATIONS
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Sample Code	Sample Location or Number	Description	Date	Sampler
SMC15	Sample #12	Surface - saturated black sand 1 ft - saturated brown clay 4 ft - gray sand, silt	11/82	ERT
SMC16	Sample #13	Surface - saturated brown sand, silt 3 ft - saturated brown clay, sand 6 ft - saturated gray gravel, sand	11/82	ERT
SMC17	Sample #14	Surface - brown silt loam 3 ft - light brown clay 6 ft - saturated brown clay	11/82	ERT
SMC18	Sample #15	Surface - brown loam 1 ft - saturated black muck 4 ft - saturated gray gravel, sand	11/82	ERT
SMC19	Sample #16	Surface - black loam 6 ft - saturated brown sand, silt	11/82	ERT
SMC20	Soil Sample #17	Surface - brown loam 6 ft - saturated gray sand, clay	11/82	ERT
SMC21	Soil Sample #18	Surface - black fill, sand, gravel	11/82	ERT
SMC22	Sample #19	Surface - black loam	11/82	ERT
SMC23	Sample #20	Surface - black fill	11/82	ERT
SMC24	Sample #21	Surface - black fill	11/82	ERT
SMC25	Sample #22	Surface - black fill	11/82	ERT
SMC26	Sample #23	Surface - black loam	11/82	ERT
SMC27	Oros backyard	Composite	10/26/82	PADER
SMC28	George backyard	Composite	10/26/82	PADER
SMC29	Hetrick backyard	Composite	10/26/82	PADER
SMC30	Front yards	Composite	10/26/82	PADER

Sources: PADER, March 23, 1982; PADER, July 28, 1982; PADER, July 29, 1982; PADER, October 26, 1982; ERT, April 1983.

ERT: Environmental Response Team
PADER: Pennsylvania Department of Environmental Resources

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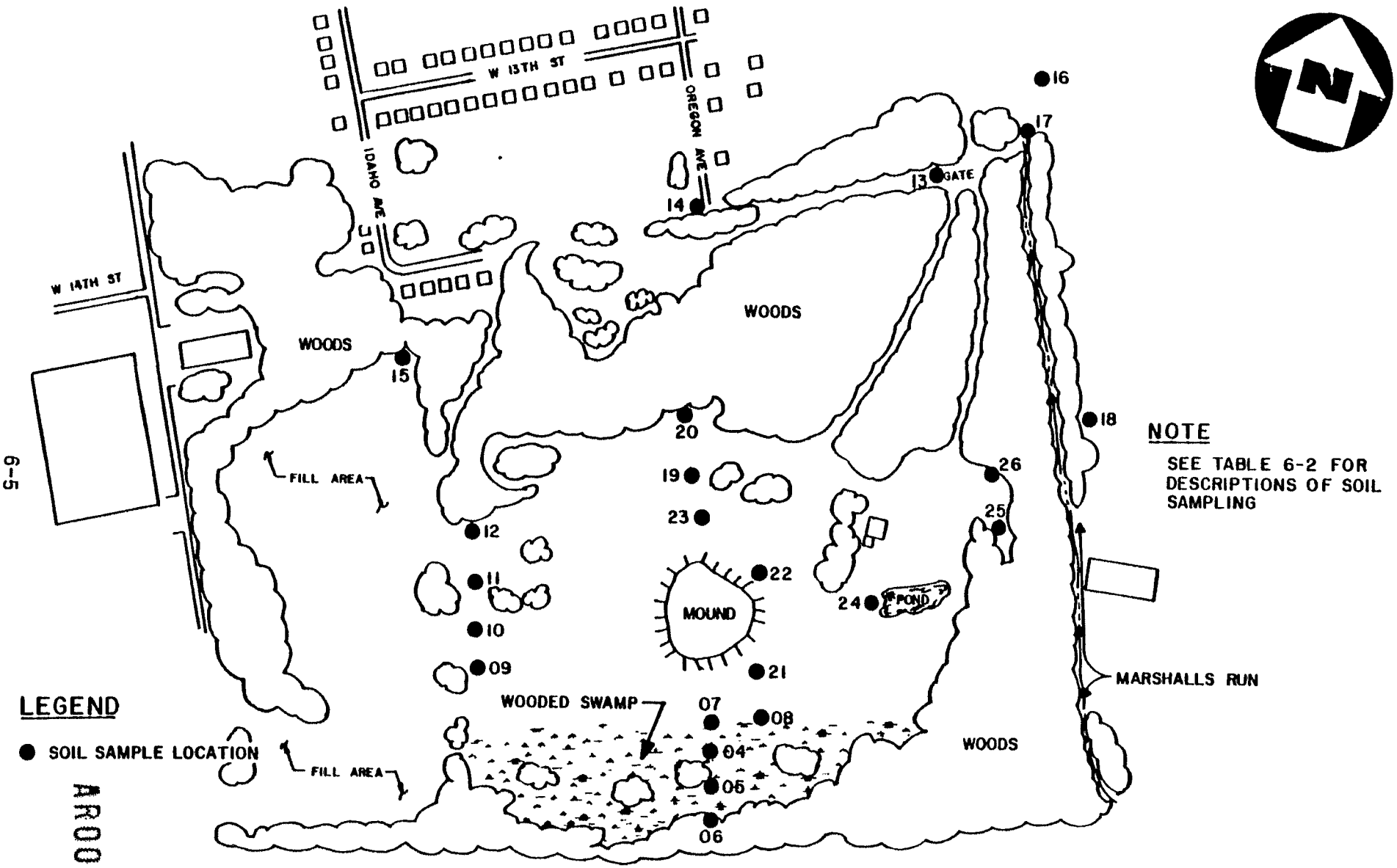

FIGURE 6-1

SOIL SAMPLING LOCATIONS (SMC)
MILLCREEK SITE, MILLCREEK TOWNSHIP, PA
NOT TO SCALE

NUS CORPORATION
A Halliburton Company

TABLE 6-3

MILLCREEK SITE
SOIL ANALYSES - METALS, INORGANICS

Parameter	Sample Number[1] SMC01 (mg/kg)	SMC02 (mg/kg)	SMC03 (mg/kg)
Oil	--	0.266	35,712
pH	--	8.0	--
Total Organic Carbon	--	8	--
Chemical Oxygen Demand	--	<5	--
Cyanide (total)	<0.1	0.3	--
Cyanide (free)	--	<0.1	--
Phenols	--	<0.1	--
Ammonia (as N)	--	12	--
Arsenic	--	13	--
Cadmium	2.8	6	--
Chromium	103	82	--
Copper	--	11,944	--
Lead	140	1,331	--
Mercury	--	103	--
Nickel	--	956	--
Selenium	--	<0.2	--
Silver	--	4	--
Zinc	--	6,639	--
Barium	--	62	--
Iron	--	24,777	--
Molybdenum	--	0.66	--

--: Not analyzed
<: Less than
mg/kg: milligrams per kilogram

[1]See Table 6-2 and Figure 6-1 for sample locations

Sources: PADER, March 23, 1982; PADER, July 28, 1982; PADER, July 2[illegible]

TABLE 6-4

MILLCREEK SITE
SOIL ANALYSES - EP TOXICITY RESULTS

	Sample Number[1]			
	SMC01		SMC02	
Parameter	Soil (mg/l)	EP Leachate (mg/l)	Soil (mg/kg)	EP Leachate (mg/l)
Arsenic	--	--	13	0.005
Barium	--	--	62	0.05
Cadmium	2.8	<0.01	6	<0.01
Chromium	103	0.02	82	<0.01
Copper	--	--	11,944	8.22
Lead	140	0.07	1,331	0.20
Mercury	--	--	103	<0.002
Nickel	--	--	956	<0.02
Selenium	--	--	<0.2	<0.01
Silver	--	--	4	<0.01
Zinc	--	--	6,639	12.73

mg/l: milligrams per liter
mg/kg: milligrams per kilogram
<: Less than
--: Not analyzed

[1]See Table 6-2 and Figure 6-1 for sample locations

Sources: PADER, March 23, 1982; PADER, July 28, 1982

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TABLE 6-5

MILLCREEK SITE
SOIL ANALYSES - PCBs, PESTICIDES, VOLATILE ORGANICS

Parameter	Sample Number[1]								
	SMCO3 6 in.	SMC 13 Surface	SMC 13 3 ft	SMC 13 6 ft	SMC 16 3 ft	SMC 17 6 ft	SMC 21 Surface	SMC 23 Surface	SMC 2 Surfac
PCB-1248	12	--	--	--	--	--	165	269*	390*
Chloroform	NA	88	73	--	--	--	--	--	--
1,1-Dichloroethane	NA	--	--	--	--	--	--	--	4.7
Toluene	NA	--	--	--	1	--	--	--	--
1,2-trans-dichloroethylene	NA	--	7	438	8	689	--	--	--
1,1,1-Trichloroethane	NA	--	--	--	1	--	--	--	27
Trichloroethylene	NA	28	122	713	33	--	--	--	--

All analyses in micrograms per kilogram (µg/kg)

PCB: Polychlorinated biphenyl
NA: Not Analyzed
-- Not detected, detection limit unknown
* Not confirmed by GC/MS

[1] See Table 6-2 and Figure 6-1 for sample locations

Sources: PADER, July 29, 1982; ERT, April 1983

TABLE 6-6

MILLCREEK SITE
SOIL ANALYSES - ACID AND BASE/NEUTRAL EXTRACTABLE ORGANICS

Parameter	Sample Number[1]							
		SMC8*						
	SMC09	Surface	1 ft	SMC19	SMC20	SMC21	SMC22	SMC23
Phenol	400	--	--	--	--	--	--	560
4-Methyl phenol	800	--	--	--	--	--	--	--
Acenaphtylene	--	--	--	--	--	--	--	--
Anthracene	--	--	--	--	--	--	--	--
Benzo(a)anthracene	--	--	--	--	920	1,500	1,000	--
Benzo(a)pyrene	--	--	--	--	--	1,600	1,900	--
Benzo(g,h,i)perylene	--	--	--	--	--	2,600	2,200	--
Benzo(k)fluoranthene	--	--	--	--	--	7,700	1,500	--
Bis(2-ethylhexyl)phthalate	400	--	--	--	--	--	--	--
Butyl benzyl phthalate	--	--	--	--	--	--	--	--
Chrysene	--	--	--	--	1,100	1,200	1,800	--
1,4-Dichlorobenzene	--	--	--	--	--	--	--	--
Diethyl phthalate	--	--	--	--	--	--	--	--
Dimethyl phthalate	--	--	--	--	--	--	--	--
Di-n-butyl phthalate	--	--	--	--	--	--	--	--
Di-n-octyl phthalate	--	--	--	1,200	--	--	--	--
Fluoranthene	1,500	480	560	--	960	1,200	1,400	--
Fluorene	--	--	--	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	--	--	--	--	--	2,900	--	--
Naphthalene	400	--	--	--	--	--	--	--
Phenanthrene	2,200	--	--	--	--	1,200	900	--
Pyrene	1,500	440	--	--	920	1,200	1,100	--
Benzo(b)fluoranthene	--	--	--	--	960	2,400	2,000	--
Dibenzofuran	--	--	--	--	--	--	--	--

TABLE 6-6
MILLCREEK SITE
SOIL ANALYSES - ACID AND BASE/NEUTRAL EXTRACTABLE ORGANICS
PAGE TWO

Parameter	Sample Number[1]						
	SMC24	SMC25	SMC26	SMC27	SMC28	SMC29	SMC30
Phenol	--	--	6,800	--	--	--	--
4-Methyl phenol	--	--	--	--	--	--	--
Acenaphtylene	--	--	--	2	20	<1	7(E)
Anthracene	560	760	--	4	10(E)	<1	10(E)
Benzo(a)anthracene	--	--	1,800	20	100	4	50
Benzo(a)pyrene	--	520	3,000	15	100	2	40
Benzo(g,h,i)perylene	--	--	--	10	90	2	110
Benzo(k)fluoranthene	800	1,200	--	40	200	9	60
Bis(2-ethylhexyl)phthalate	--	--	--	--	300	90	240
Butyl benzyl phthalate	440	--	--	20	40	4	--
Chrysene	--	--	--	10	20	2	30
1,4-Dichlorobenzene	--	--	--	--	--	1	--
Diethyl phthalate	--	--	--	240	220	320	80
Dimethyl phthalate	--	--	--	4	--	3	--
Di-n-butyl phthalate	--	--	--	420	680	260	540
Di-n-octyl phthalate	--	--	--	--	--	--	--
Fluoranthene	--	--	--	40	--	6	70
Fluorene	920	2,700	--	--	--	--	--
Indeno(1,2,3-cd)pyrene	--	--	--	--	100	2	90
Naphthalene	440	600	1,200	40	30	6	40
Phenanthrene	--	--	--	--	90	8	130
Pyrene	--	1,900	1,100	30	100	4	60
Benzo(b)fluoranthene	1,600	920	--	--	--	--	--
Dibenzofuran	480	520	--	--	--	--	--

All analyses in micrograms per kilogram (µg/kg).
* Surface samples except where noted.
--: Not Detected, detection limit unknown
E: Estimated
[1]See Table 6-2 and Figure 6-1 for sample locations

Sources: PADER, October 26, 1982; ERT, April 1983.

Of the three onsite samples collected by PADER, SMCO1 and SMCO2 were analyzed for metals and were leached using the RCRA extraction procedure and analyzed. SMCO2 was also analyzed for other inorganic compounds. SMCO3 was analyzed for oil and PCB. SMCO1 and SMCO2 contained metals at various concentrations. SMCO3 contained 12 µg/kg of PCB (as Aroclor 1248) and 35,712 mg/kg of oil.

The samples that PADER collected off site (SMC 27 through SMC 30) were analyzed by GC/MS for priority pollutant organics. No acid extractables, volatiles, PCBs, or pesticides were detected in the four samples. All four samples contained numerous base/neutral extractables. The concentrations ranged from <1 µg/kg for acenaphtylene to 680 µg/kg for di-n-butyl phthalate.

Samples SMCO4 through SMCO8, collected by ERT, had water extracts from them analyzed using the Microtox System. The Microtox is intended for use in determining the acute toxicity of aqueous samples. The system uses a special strain of bioluminescent bacteria. A photomultiplier tube measures the relative light output of these organisms before and after exposure to serial dilutions of a sample. Toxicity is indicated by a percent decrease in light output. The results from duplicate samples are averaged to calculate a normalized percent light decrease (NPLD) corresponding to each dilution. Marginal toxicity is sometimes indicated by an increase in light output due to biostimulation of the bacteria (ERT, 1983b). The results of the Microtox System analysis are shown in Table 6-7.

Samples SMCO9 through SMC26, collected by ERT, were analyzed for organic priority pollutants. Base/neutral extractable compounds were detected in SMCO9 and SMC20 through SMC26. Volatile organics were detected in SMC13, SMC16, SMC17, and SMC26. PCB was detected in SMC21, SMC23, and SMC26. The volatile organics appeared to penetrate further into the ground and to accumulate in the saturated zone, in contrast to the base/neutral extractable compounds.

Especially evident were 1,2-trans-dichloroethylene and trichloroethylene, which appeared in deeper soils while absent from the surface soils. The base/neutral extractable compounds were generally confined to the top foot of soil.

TABLE 6-7

MILLCREEK SITE
MICROTOX RESULTS
(NORMALIZED PERCENT LIGHT DECREASE)

Soil Water Extract Dilutions (%)	Sample Number[1]									
		SMCO4			SMCO5			SMCO6		
	Blank	Surface	1 ft	4 ft	Surface	1 ft	4 ft	Surface	1 ft	4 ft
5.7	2.8	12.1	+5.5	5.2	0.4	4.7	4.9	8.8	+0.9	5.1
11.3	5.6	16.2	0.4	3.8	1.3	3.0	5.8	1.7	+2.8	4.3
22.5	6.1	22.2	0.0	8.2	8.6	9.0	7.5	7.4	13.5	3.7
45.0	16.2	35.9	8.2	17.6	18.5	16.7	18.1	20.9	16.3	15.5

Soil Water Extract Dilutions (%)	Sample Number[1]								
	SMCO7			SMCO8 (surface)			SMCO8 (1 ft)		
	Surface	1 ft	4 ft	REP 1	REP 2	REP 3	REP 1	REP 2	REP 3
5.7	4.5	0.0	0.4	8.1	21.4	10.3	4.4	3.6	+2.1
11.3	3.4	9.3	+6.8	11.3	21.1	3.2	+3.2	5.8	1.0
22.5	+4.1	6.5	3.8	14.3	38.6	29.3	3.6	11.1	9.1
45.0	9.8	23.6	3.9	24.0	42.8	34.1	17.7	27.6	18.8

+: Light increase
REP: Replicate

[1] See Table 6-2 and Figure 6-1 for sample locations

Source: ERT, April 1983.

6.3 Groundwater

Table 6-8 lists the locations of groundwater samples collected by various agencies. PADER collected 14 groundwater samples at or near the Millcreek Site, ERT and TAT collected 12 onsite groundwater samples, and a Technical Advisory Team (TAT) collected 3 groundwater samples off the site. Analytical results are presented in Tables 6-9, 6-10 and 6-11.

Millcreek Township had installed 5 monitoring wells on its portion of the site. Nine additional wells were installed around the site for the ERT investigation. Three public drinking water wells (Yoder Wells) and two private wells were also sampled.

PADER sampled the township monitoring wells in July 1982. These samples (GWMC01, GWMC03, GWMC04, GWMC08, and GWMC09) were analyzed for all priority pollutants and other inorganic parameters. Some metals and volatile organics were detected in the five wells at varying concentrations. PADER resampled two of the wells (GWMC04 and GWMC07) in January 1983. Metals and volatile organics were detected again, in addition to low concentrations (23 ug/l) of isophorone and bis(2-ethylhexyl)phthalate, base/neutral extractables, in GWMC04.

PADER sampled all five township monitoring wells (GWMC26 through GWMC30) in April 1983 and analyzed them for gross alpha and gross beta radioactivity. The very low levels measured were below drinking water standards and do not indicate a radioactivity hazard.

ERT and TAT sampled three of the five wells installed by the township and the nine additional onsite wells (No. 6-14) in December 1982. These samples (GWMC02, GWMC06, and GWMC10 through GWMC19) were analyzed for metals, volatile organics, and polynuclear aromatic hydrocarbons (PAH's). No PAH's were detected. Volatile organics were detected in GWMC02, GWMC06, and GWMC11 through GWMC16. Metals were detected in every sample.

TAT sampled the Yoder public drinking water supply wells in February 1983. These samples (GWMC20 through GWMC22) were analyzed for priority pollutant organic

TABLE 6-8

MILLCREEK SITE
GROUNDWATER SAMPLE LOCATIONS

Sample Code	Sample Location or Number	Description	Date	Sampler
GWMC01	Twp. Well #1	Black iron casing	7/21/82	PADER
GWMC02	Twp. Well #1	Black iron casing	12/5/82	ERT, TAT
GWMC03	Twp. Well #2	Black iron casing	7/21/82	PADER
GWMC04	Twp. Well #2	Black iron casing (not purged)	1/12/83	PADER
GWMC05	Twp. Well #3	Black iron casing	7/21/82	PADER
GWMC06	Twp. Well #3	Black iron casing	12/5/82	ERT, TAT
GWMC07	Twp. Well #3	Black iron casing	1/12/83	PADER
GWMC08	Twp. Well #4	Black iron casing	7/21/82	PADER
GWMC09	Twp. Well #5	Black iron casing	7/21/82	PADER
GWMC10	Twp. Well #5	Black iron casing	12/5/82	ERT, TAT
GWMC11	Well #6	PVC	12/5/82	ERT, TAT
GWMC12	Well #7	PVC	12/5/82	ERT, TAT
GWMC13	Well #8	PVC	12/5/82	ERT, TAT
GWMC14	Well #9	PVC	12/5/82	ERT, TAT
GWMC15	Well #10	PVC	12/5/82	ERT, TAT
GWMC16	Well #11	PVC	12/5/82	ERT, TAT
GWMC17	Well #12	PVC	12/5/82	ERT, TAT
GWMC18	Well #13	PVC	12/5/82	ERT, TAT
GWMC19	Well #14	PVC	12/5/82	ERT, TAT
GWMC20	Yoder Well #1	Public water supply	2/83	TAT
GWMC21	Yoder Well #2	Public water supply	2/83	TAT
GWMC22	Yoder Well #3	Public water supply	2/83	TAT
GWMC23	Knost 3133 W. 12th Street	Private well	12/14/82	PADER

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TABLE 6-8
MILLCREEK SITE
GROUNDWATER SAMPLE LOCATIONS
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Sample Code	Sample Location or Number	Description	Date	Sampler
GWMC24	Kraschneske	Kitchen faucet	7/1/82	PADER
GWMC25	Kraschneske	Private well	11/18/80	ECHD
GWMC26	Twp. Well #1	Black iron casing	4/11/83	PADER
GWMC27	Twp. Well #2	Black iron casing	4/11/83	PADER
GWMC28	Twp. Well #3	Black iron casing	4/11/83	PADER
GWMC29	Twp. Well #4	Black iron casing	4/11/82	PADER
GWMC30	Twp. Well #5	Black iron casing	4/11/83	PADER

PADER: Pennsylvania Department of Environmental Resources
ECHD: Erie County Health Department
TAT: Technical Advisory Team
ERT: Environmental Response Team

Sources: Vrenna, C., January 12, 1981; PADER, July 1, 1982; PADER, July 21, 1982; PADER, December 14, 1982; PADER, January 12, 1983; Dreisch, R., February 1, 1983; Austin, J., February 2, 1983; Kayser, S., February 16, 1983; Sammons, B., February 18, 1983; ERT, April 1983; PADER, April 11, 1983.

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TABLE 6-9

MILLCREEK SITE
GROUNDWATER ANALYSES - INORGANICS

Parameter	Sample Number[1]								
	GWMC01	GWMC03	GWMC04	GWMC05	GWMC07	GWMC08	GWMC09	GWMC23	GWMC25
pH (units)	7.0	6.9	6.9	7.2	7.0	7.2	7.0	6.7	7.9
Specific conductance (µmho/cm)	860	1,150	1,096	775	721	810	1,320	532	--
Color	--	--	--	--	--	--	--	--	0
Turbidity (LTU)	--	--	--	--	--	--	--	--	0.1
Alkalinity	395	525	503	327	250	336	601	117	129
Hardness	--	--	--	--	--	--	--	--	112
Sulfate	70	150	70	70	50	80	170	100	19
Chloride	50	70	40	50	41	71	80	11	44
Chemical oxygen demand	36	75	131	25	38	44	69	--	--
Biochemical oxygen demand	--	--	--	--	--	--	--	69	--
Oil	0.8	1.0	--	1.0	--	1.4	1.0	--	--
Total solids	--	--	--	--	--	--	--	--	152
Total dissolved solids	--	--	604	--	392	--	--	444	--
Fluoride	--	--	--	--	--	--	--	--	0.1
Nitrate	--	--	--	--	--	--	--	--	0.01

All analyses in milligrams per liter (mg/l) except where noted.
--: Not detected, detection limit unknown.
µmho/cm: micro mho per centimeter
[1]See Table 6-8 for sample locations.

Sources: Vrenna, C., January 12, 1981; PADER, July 21, 1982; PADER, December 14, 1982; PADER, January 12, 1983.

TABLE 6-10

MILLCREEK SITE
GROUNDWATER ANALYSES - METALS, CYANIDE, PHENOLS

	Sample Number[1]								
Parameter	GWMC01	GWMC02	GWMC03	GWMC04	GWMC05	GWMC06	GWMC07	GWMC08	GWMC09
Antimony	NA	0.25	NA	NA	NA	--	NA	NA	NA
Arsenic	<0.01	--	<0.01	0.05	0.022	--	0.01	0.017	0.02
Beryllium	NA	--	NA	NA	NA	--	NA	NA	NA
Cadmium	0.008	--	0.007	0.003	<0.001	--	0.003	0.001	0.002
Chromium	0.01	--	0.01	0.05	0.01	--	0.01	0.02	0.04
Copper	0.09	0.05	0.35	1.21	0.27	0.04	0.16	0.46	0.16
Lead	0.026	0.07	0.19	0.5	0.091	0.05	0.1	0.19	0.056
Mercury	<0.001	--	<0.001	<0.001	<0.001	--	<0.001	<0.001	<0.001
Nickel	0.01	--	0.06	0.15	0.07	--	0.03	0.09	0.09
Selenium	<0.01	NA	<0.01	<0.01	<0.01	NA	<0.01	<0.01	<0.01
Silver	<0.01	--	<0.01	<0.01	<0.01	--	<0.01	<0.01	<0.01
Zinc	0.11	0.08	0.24	1.01	0.33	0.04	0.2	0.54	0.24
Cyanide	<0.01	NA	<0.01	<0.01	<0.01	NA	<0.01	<0.01	<0.01
Phenols	0.002	NA	0.002	0.004	0.002	NA	0.003	0.002	0.002
Aluminum	3.4	NA	9.2	21.1	12.26	NA	6.06	5.26	11.8
Barium	0.64	NA	0.77	2.31	0.56	NA	0.8	0.57	0.81
Iron	19.1	NA	37.8	93.5	49	NA	41.2	23.7	55.6
Manganese	0.89	NA	1.81	4.34	1.55	NA	1.24	0.77	1.96
Tellurium	NA	--	NA	NA	NA	--	NA	NA	NA

TABLE 6-10
MILLCREEK SITE
GROUNDWATER ANALYSES - METALS, CYANIDE, PHENOLS
PAGE TWO

Parameter	Sample Number[1]								
	GWMC10	GWMC11	GWMC12	GWMC13	GWMC14	GWMC15	GWMC16	GWMC17	GWMC18
Antimony	--	0.31	--	0.32	0.25	0.25	0.25	0.38	0.25
Arsenic	--	--	--	0.09	--	--	--	--	--
Beryllium	--	--	--	--	--	--	--	--	--
Cadmium	--	--	--	0.013	--	--	--	--	0.013
Chromium	0.025	0.04	0.025	0.04	0.025	0.05	0.17	0.025	0.19
Copper	0.16	0.09	0.08	0.10	0.09	0.19	0.16	0.10	0.09
Lead	0.08	0.07	0.07	0.13	0.08	0.12	0.10	0.08	0.50
Mercury	--	--	--	0.50	--	--	--	--	--
Nickel	0.08	0.08	0.05	0.05	0.08	0.15	0.18	0.05	0.10
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	--	--	--	--	--	--	--	--	--
Zinc	0.15	0.14	0.12	0.16	0.43	0.28	0.11	0.21	0.21
Cyanide	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenols	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tellurium	--	--	--	0.31	--	--	--	--	--

TABLE 6-10
MILLCREEK SITE
GROUNDWATER ANALYSES - METALS, CYANIDE, PHENOLS
PAGE THREE

	Sample Number[1]					
Parameter	GWMC19	GWMC20	GWMC21	GWMC22	GWMC23	GWMC25
Antimony	0.50	NA	NA	NA	NA	NA
Arsenic	--	<0.002	<0.002	<0.002	<0.01	NA
Beryllium	--	NA	NA	NA	NA	NA
Cadmium	0.04	<0.001	<0.001	<0.001	<0.001	NA
Chromium	1.12	<0.002	<0.002	<0.002	0.01	0.01
Copper	0.10	NA	NA	NA	0.12	<0.01
Lead	0.44	<0.002	<0.002	<0.002	<0.01	<0.01
Mercury	--	<0.0002	0.0003	<0.0002	<0.001	NA
Nickel	0.65	NA	NA	NA	<0.01	<0.01
Selenium	NA	<0.002	<0.002	<0.002	<0.01	NA
Silver	--	<0.001	<0.001	<0.001	<0.01	NA
Zinc	1.45	NA	NA	NA	0.07	0.025
Cyanide	NA	NA	NA	NA	<0.01	NA
Phenols	NA	NA	NA	NA	0.005	NA
Aluminum	NA	NA	NA	NA	0.33	NA
Barium	NA	0.46	0.267	0.57	0.35	NA
Iron	NA	NA	NA	NA	2.48	NA
Manganese	NA	NA	NA	NA	0.55	NA
Tellurium	--	NA	NA	NA	NA	NA

All analyses in milligrams per liter (mg/l).
NA: Not Analyzed.
--: Not detected, detection limit unknown.
<: Less than.
>: Greater than.
[1]See Table 6-8 for sample locations.

Sources: Vrenna, C., January 12, 1981; PADER, July 21, 1982; PADER, December 14, 1982; PADER, January 12, 1983; Dreisch, R., February 1, 1983; Austin, J., February 2, 1983; Kayser, S., February 16, 1983; Sammons, B., February 18, 1983; ERT, April 1983.

TABLE 6-11

MILLCREEK SITE
GROUNDWATER ANALYSES - VOLATILE ORGANICS

Parameter	Sample Number[1]							
	GWMC01	GWMC02	GWMC03	GWMC04	GWMC05	GWMC06	GWMC07	GWMC08
Chloroethane	--	--	10	>350*	--	--	--	--
Chloroethylene	>200*	--	>200*	28	80	--	13	13
Chloroform	--	--	--	--	--	--	--	--
1,1-Dichloroethane	98	29	>1,000*	>2,000*	41	60	21	--
1,2-Dichloroethane	10	--	30	14	3	--	--	--
1,1-Dichloroethylene	--	--	60	50	--	--	--	--
1,2-Dichloroethylene	>400*	--	>200*	41	61	--	49	37
Dichloromethane	PT	--	--	--	PT	--	--	PT
Ethyl benzene	11	12	--	--	--	--	--	--
Methylene chloride	--	--	--	--	--	--	--	--
Tetrachloroethylene	1*	--	1*	--	--	--	--	--
Toluene	--	--	80	18	--	--	--	--
trans-1,2-Dichloroethylene	--	180	--	--	--	93	--	--
1,1,1-Trichloroethane	>700*	100	>5,000*	>4,000*	29	47	22	--
1,1,2-Trichloroethane	--	--	13	13	--	--	--	--
Trichloroethylene	--	--	--	--	--	--	--	--
Trichlorofluoromethane	--	--	--	--	--	--	--	--
Vinyl chloride	--	110	--	--	--	61	--	--

TABLE 6-11
MILLCREEK SITE
GROUNDWATER ANALYSES - VOLATILE ORGANICS
PAGE TWO

Parameter	Sample Number[1]							
	GWMC09	GWMC11	GWMC12	GWMC14	GWMC15	GWMC16	GWMC21	GWMC22
Chloroethane	--	--	--	--	--	--	--	--
Chloroethylene	>500*	--	--	--	--	--	--	--
Chloroform	--	400	--	--	--	--	--	--
1,1-Dichloroethane	>200*	--	--	68	--	--	--	--
1,2-Dichloroethane	42	--	--	--	--	--	--	--
1,1-Dichloroethylene	--	--	--	--	--	--	--	--
1,2-Dichloroethylene	>600*	--	--	--	--	--	--	--
Dichloromethane	PT	--	--	--	--	--	--	--
Ethyl benzene	--	--	--	--	--	--	--	--
Methylene chloride	--	470	--	22	--	--	--	--
Tetrachloroethylene	--	--	--	--	--	--	--	--
Toluene	--	--	--	54	--	--	--	--
trans-1,2-Dichloroethylene	--	--	26,000	150	11,000	280	--	--
1,1,1-Trichloroethane	>500*	--	--	36	--	--	--	0.2*
1,1,2-Trichloroethane	1*	--	--	--	--	--	--	--
Trichloroethylene	--	--	--	--	--	--	--	--
Trichlorofluoromethane	--	--	--	--	--	--	1-10*	--
Vinyl chloride	--	--	--	110	--	--	--	--

All analyses in micrograms per liter (µg/l).
* Estimated
--: Not detected, detection limit unknown.
PT: Possible Trace
<: Less than.
>: Greater than.
See Table 6-8 for sample locations.

Sources: PADER, July 21, 1982; PADER, January 12, 1983; Dreisch, R., February 1, 1983; ERT, April 1983.

compounds and some metals. Barium was detected in all three samples. Mercury was detected near the detection limit in GWMC21. No organics were detected in GWMC20. Trichlorofluoromethane was detected in GWMC21 at a concentration between 1 ug/l and 10 ug/l. 1,1,1-Trichloroethane was estimated at a concentration of 0.2 ug/l in GWMC22.

PADER sampled private wells owned by Knost (GWMC23) in December 1982 and Kraschneske (GWMC24) in July 1982. The Kraschneske well (GWMC25) was sampled by Erie County in November 1980. GWMC23 was analyzed for inorganics and priority pollutants. No organics were detected. GWMC24 was analyzed for organic priority pollutants; the results were negative. GWMC25 was analyzed only for inorganics.

6.4 Surface Waters

Table 6-12 lists locations where surface water and sediment samples were collected by various agencies. PADER collected six surface water samples at or near the site. The EPA collected two surface water samples on site, while Ecology and Environment, Inc. (E & E) collected two sediment samples. The ERT and TAT collected four surface water samples. The Erie County Health Department (ECHD) collected six samples from Marshalls Run and one sample from the swamp. The analytical results from all samplings are presented in Table 6-13 through 6-16.

The onsite pond was sampled once by PADER (SWMC01) and once by EPA (SWMC02). SWMC01 was analyzed for inorganics and priority pollutants while SWMC02 was analyzed for priority pollutants. Small quantities of various metals were detected in both samples. Trace quantities of organics were detected in both samples.

The drainage ditch (SWMC03) north of the site was sampled by ERT and TAT and analyzed for metals, volatile organics, and polynuclear aromatic hydrocarbons (PAHs). All of the PAHs tested for were base/neutral extractable compounds. No volatiles or PAHs were detected, but some metals were.

TABLE 6-12

MILLCREEK SITE
SURFACE WATER AND SEDIMENT SAMPLE LOCATIONS

Sample Number	Location	Description	Date	Sampler
SWMC01	Pond		7/21/82	PADER
SWMC02	On-site pond		8/82	EPA
SWMC03	Ditch-north	60 ft west of well #12	12/5/82	ERT, TAT
SWMC04	Ditch	15 ft west of well #14	12/14/82	PADER
SWMC05	South swamp		8/82	EPA
SWMC06	South swamp	Sediment sample	8/26/82	E&E
SWMC07	South swamp	Next to slag drums	8/25/80	ECHD
SWMC08	South swamp	North edge	12/5/82	ERT, TAT
SWMC09	Stream	Sediment sample	8/26/82	E&E
SWMC10	Marshalls Run	Upstream	10/26/82	PADER
SWMC11	Marshalls Run	Downstream	10/26/82	PADER
SWMC12	Marshalls Run	Upstream	7/21/82	PADER
SWMC13	Marshalls Run	Upstream, 15th St. Ext.	12/5/82	ERT, TAT
SWMC14	Marshalls Run	Downstream	7/21/82	PADER
SWMC15	Marshalls Run	Downstream	12/5/82	ERT, TAT
SWMC16	Creek	Below drum site	8/25/80	ECHD
SWMC17	Marshalls Run	Below railroad tracks, south of site	6/3/82	ECHD
SWMC18	Marshalls Run	Above Michigan Avenue	6/3/82	ECHD
SWMC19	Marshalls Run	Below storm drain	6/3/82	ECHD
SWMC20	Marshalls Run	Below cemetery	6/3/82	ECHD
SWMC21	Marshalls Run	Near Lake Erie	6/3/82	ECHD

Sources: PADER, August 25, 1980; PADER, July 21, 1982; Wellington, R., September 1, 1982; Jerpe, J., September 8, 1982; Preston, H., September 10, 1982; Austin, J., September 11, 1982; Dreisch, September 14, 1982; Princeton Testing Laboratory, October 25, 1982; PADER, October 26, 1982; PADER, December 14, 1982; ERT, April 1983.

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TABLE 6-13

MILLCREEK SITE
SURFACE WATER ANALYSES - INORGANICS

Parameter	Sample Number[1]							
	SWMC01	SWMC04	SWMC07	SWMC12	SWMC14	SWMC16	SWMC17	SWMC18
pH (units)	8.2	7.1	8.5	7.5	7.5	7.8	7.7	7.6
Specific conductance (μmho/cm)	430	886	NA	650	710	NA	650	700
Alkalinity	162	350	NA	220	278	NA	224	281
Hardness	NA	NA	NA	NA	NA	NA	312	354
Chemical oxygen demand	47	45	NA	10	23	NA	30	30
Dissolved oxygen	NA	NA	NA	NA	NA	NA	NA	5.7
Temperature (°C)	NA	NA	NA	NA	NA	NA	NA	12.9
Sulfate	20	90	NA	50	50	NA	56	54
Chloride	35	26	NA	50	64	NA	81	76
Nitrate (as N)	NA	NA	NA	NA	NA	NA	0.20	0.06
Ammonia (as N)	NA	NA	NA	NA	NA	NA	0.13	0.31
Phosphate (as P)	NA	NA	NA	NA	NA	NA	0.05	0.05
Total dissolved solids	NA	576	NA	NA	NA	NA	528	584
Oil	1.2	NA	0.8	0.8	NA	NA	NA	NA

TABLE 6-13
MILLCREEK SITE SURFACE WATER ANALYSES - INORGANICS
PAGE TWO

Parameter	Sample Number[1]		
	SWMC19	SWMC20	SWMC21
pH (units)	8.1	7.3	8.2
Specific conductance (μmho/cm)	850	540	650
Alkalinity	204	160	165
Hardness	314	NA	258
Chemical oxygen demand	28	NA	32
Dissolved oxygen	NA	NA	10.4
Temperature (°C)	NA	NA	12.9
Sulfate	72	NA	64
Chloride	152	NA	64
Nitrate (as N)	2.40	NA	1.94
Ammonia (as N)	0.07	NA	0.04
Phosphate (as P)	0.05	NA	0.05
Total dissolved solids	616	NA	476
Oil	NA	NA	NA

[1]See Table 6-12 for sample locations
All analyses in milligrams per liter (mg/l), except where noted.
NA: Not Analyzed.

Sources: PADER, August 25, 1980; PADER, July 21, 1982; Wellington, R., September 1, 1982; PADER, December 14, 1982.

TABLE 6-14

MILLCREEK SITE
SURFACE WATER/SEDIMENT ANALYSES - METALS, CYANIDE, PHENOLS

	Sample Number[1]									
Parameter	SWMC01 (mg/l)	SWMC02 (mg/l)	SWMC03 (mg/l)	SWMC04 (mg/l)	SWMC05 (mg/l)	SWMC06 (mg/kg)	SWMC07 (mg/l)	SWMC08 (mg/l)	SWMC09 (mg/kg)	SWMC12 (mg/l)
Antimony	NA	0.004	0.38	NA	0.003	128	NA	--	215	NA
Arsenic	<0.01	<0.003	--	<0.01	<0.003	3.4	<0.01	--	6.5	<0.01
Beryllium	NA	<0.01	--	NA	<0.01	<1.0	NA	--	<0.70	NA
Cadmium	<0.001	<0.01	--	<0.001	<0.01	2.7	<0.001	--	2.0	<0.001
Chromium	0.01	<0.01	--	<0.01	<0.01	235	<0.01	--	43	0.01
Copper	0.23	0.28	0.05	0.02	0.22	11,000	<0.01	0.05	55	0.01
Lead	0.025	0.029	<0.05	<0.01	0.33	1,300	NA	--	87	<0.01
Mercury	<0.001	<0.0002	--	<0.001	<0.0002	<0.10	NA	--	0.10	<0.001
Nickel	0.01	<0.02	0.07	<0.01	<0.02	415	<0.01	--	30	<0.01
Selenium	<0.01	<0.005	--	<0.01	<0.005	<0.2	NA	--	0.25	<0.01
Silver	<0.01	<0.01	--	<0.01	<0.01	4.0	NA	--	3.3	<0.01
Thallium	NA	<0.003	NA	NA	<0.003	<2.0	NA	NA	<1.5	NA
Zinc	0.1	0.16	0.09	0.06	0.2	4,200	0.05	0.07	165	0.01
Cyanide	<0.01	NA	NA	0.01	NA	0.62	NA	NA	0.28	<0.01
Phenols	0.002	NA	NA	0.005	NA	<2.0	0.054	NA	2.4	0.002
Aluminum	0.2	NA	NA	0.42	NA	NA	NA	NA	NA	0.05
Barium	0.6	NA	NA	0.24	NA	NA	NA	NA	NA	0.7
Iron	0.35	NA	NA	0.04	NA	NA	3.16	NA	NA	2.22
Manganese	0.05	NA	NA	0.38	NA	NA	NA	NA	NA	0.51
Tellurium	NA	NA	--	NA	NA	NA	NA	--	NA	NA

TABLE 6-14
MILLCREEK SITE
SURFACE WATER/SEDIMENT ANALYSES - METALS, CYANIDE, PHENOLS
PAGE TWO

	Sample Number[1]								
Parameter	SWMC13 (mg/l)	SWMC14 (mg/l)	SWMC15 (mg/l)	SWMC16 (mg/l)	SWMC17 (mg/l)	SWMC18 (mg/l)	SWMC19 (mg/l)	SWMC20 (mg/l)	SWMC21 (mg/l)
Antimony	0.25	NA	0.56	NA	NA	NA	NA	NA	NA
Arsenic	--	<0.01	--	<0.01	<0.01	<0.01	<0.01	--	<0.01
Beryllium	--	NA	--	NA	NA	NA	NA	NA	NA
Cadmium	--	<0.001	--	<0.001	<0.001	<0.001	<0.001	--	<0.001
Chromium	--	<0.01	--	<0.01	<0.01	<0.01	<0.01	--	<0.01
Copper	0.03	<0.01	0.04	<0.01	0.01	<0.01	<0.01	--	0.01
Lead	--	<0.01	--	NA	<0.01	<0.01	<0.01	--	<0.01
Mercury	--	<0.001	--	NA	NA	NA	NA	NA	NA
Nickel	--	<0.01	--	<0.01	<0.01	0.01	<0.01	--	<0.01
Selenium	--	<0.01	--	NA	<0.01	<0.01	<0.01	--	<0.01
Silver	--	<0.01	--	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	0.03	0.02	0.04	0.01	0.02	0.02	0.02	--	0.01
Cyanide	NA	<0.01	NA	<0.01	<0.01	<0.01	<0.01	--	<0.01
Phenols	NA	0.002	NA	<0.002	0.02	<0.001	0.002	--	<0.01
Aluminum	NA	0.35	NA	NA	0.1	<0.05	<0.05	--	0.05
Barium	NA	0.67	NA	NA	NA	NA	NA	NA	NA
Iron	NA	3.14	NA	2.04	0.85	0.58	0.80	0.35	0.32
Manganese	NA	0.64	NA	NA	0.93	0.55	0.13	--	0.05
Tellurium	--	NA	--	NA	NA	NA	NA	NA	NA

mg/kg: milligrams per kilogram
mg/l: milligrams per liter
<: less than
[1]See Table 6-12 for sample locations
NA: Not Analyzed.
--: Not detected, detection limit unknown.

Sources: PADER, August 25, 1980; PADER, July 21, 1982; Wellington, R., September 1, 1982; Jerpe, J., September 8, 1982; Preston, H., September 10, 1982; Austin, J., September 11, 1982; Dreisch, September 14, 1982; Princeton Testing Laboratory, October 25, 1982; PADER, October 26, 1982; PADER, December 14, 1982; ERT, April 1983.

TABLE 6-15

MILLCREEK SITE
SURFACE WATER/SEDIMENT ANALYSES - BASE/NEUTRAL EXTRACTABLE ORGANICS

Parameter	Sample Number[1] SWMC06 (µg/kg)	SWMC09 (µg/kg)	SWMC10 (µg/l)
Anthracene/phenanthrene	190	410	--
Benzo(a)anthracene/chrysene	260	950	--
Benzo(a)pyrene	160	1,400	--
3,4-Benzo-fluoranthene	250	1,300	--
Benzo(g,h,i)perylene	--	1,300	--
Bis(2-ethylhexyl)phthalate	--	3,600	--
Dibenzo(a,h)anthracene	--	2,500	--
Diethyl phthalate	--	--	0.5
Di-n-octyl phthalate	--	<200	--
Fluoranthene	210	740	--
Indeno(1,2,3-cd)pyrene	--	940	--
Napthalene	290	--	--
Pyrene	160	690	--

<: less than
µg/kg: micrograms per kilogram
µg/l: micrograms per liter
[1]See Table 6-12 for sample locations.
--: Not detected, detection limit unknown.

Sources: Princeton Testing Laboratory, October 25, 1982; PADER, October 26, 1982.

AR000571

TABLE 6-16

MILLCREEK SITE
SURFACE WATER/SEDIMENT ANALYSES
PCBs, PESTICIDES, ACID EXTRACTABLE AND VOLATILE ORGANICS

Parameter	Sample Number[1]					
	SWMC04 (µg/l)	SWMC06 (µg/kg)	SWMC09 (µg/kg)	SWMC12 (µg/l)	SWMC13 (µg/l)	SWMC14 (µg/l)
Heptachlor	NA	<10	--	--	NA	--
PCB-1260	NA	<500	--	--	NA	--
Endosulfan-alpha	NA	--	200	--	NA	--
Heptachlor epoxide	NA	--	11	--	NA	--
Phenol	1.4	220	180	--	NA	--
Pentachlorophenol	0.3*	--	--	--	NA	--
Chloroethylene	--	--	--	--	--	18
1,1-Dichloroethane	--	--	--	--	15	7
1,2-Dichloroethylene	--	--	--	4	--	17
Tetrachloroethylene	--	5	--	--	--	--
trans-1,2-Dichloroethylene	--	--	--	--	14	--
1,1,1-Trichloroethane	--	--	--	--	93	82
Vinyl chloride	--	--	--	--	11	--

µg/l: micrograms per liter
* : estimated
[1]See Table 6-12 for sample locations
NA: Not Analyzed.
--: Not detected, detection limit unknown.
µg/kg: micrograms per kilogram

Sources: PADER, July 21, 1982; Princeton Testing Laboratory, October 25, 1982; PADER, December 14, 1982; ERT, April 1983.

AR000572

The drainage ditch (SWMC04) separating the Halmi and Riehl properties was sampled once by PADER and analyzed for inorganics and priority pollutants. Phenol (1.4 ug/l) and pentachlorophenol (0.3 ug/l) were detected along with metals and other inorganics.

Water from the south swamp was sampled once by EPA (SWMC05), once by ECHD (SWMC07), and once by ERT and TAT (SWMC08). The swamp sediment was sampled once by E & E (SWMC06). SWMC05 and 06 were analyzed for priority pollutants. SWMC08 was analyzed for metals, volatile organics, and PAHs. SWMC07 was analyzed for pH, oil, and metals. Metals were detected in all samples. SWMC06 contained phenol (220µg/kg) and tetrachloroethylene (5 µg/kg). No volatiles or PAHs were detected in SWMC08. No organics were detected in SWMC05.

PADER collected two water samples from Marshalls Run, one upstream (SWMC10) and one downstream (SWMC11) of the Millcreek Township portion of the site. E & E collected a stream sediment sample from Marshalls Run (SWMC09). The aqueous samples were analyzed for organic priority pollutants. Diethyl phthalate (0.5 ug/l) was detected in SWMC10. SWMC09 was analyzed for priority pollutants. No volatiles were detected. Numerous metals and base/neutral extractables were detected along with lesser numbers of PCB, pesticides, and phenol.

Marshalls Run, upstream of the site, was sampled once by PADER (SWMC12) and once by ERT and TAT (SWMC13). Both samples were analyzed for priority pollutants while more inorganics were analyzed for in SWMC12. Some metals and volatile organics were detected in both samples.

Marshalls Run, downstream of the site, was sampled once by PADER (SWMC14), once by ECHD (SWMC16), and once by ERT and TAT (SWMC15). SWMC14 was analyzed for priority pollutants; SWMC15 for metals, volatiles, and PAHs; and SWMC16 for inorganics and metals. Various metals were detected in all samples. Volatile organics were detected in SWMC14.

The Erie County Health Department conducted a study of Marshalls Run from the source to Lake Erie. Macroinvertebrates were collected in addition to water samples at five locations (SWMC 17 to 21). Samples were analyzed for inorganics and metals.

6.5 Biota

The Erie County Health Department conducted a stream survey of Marshalls Run in June 1982. The survey involved water sample collection along with macroinvertebrate collection. From this survey, the department concluded that the stream exhibits a depressed macroinvertebrate population, and that the presence of contaminants in the stream has contributed to this depressed state. It also recommended that a more comprehensive study be conducted (Wellington, 1982).

DRAFT

APPENDIX G

WELL LOCATION, SCREEN SETTING, TEST PIT LOCATIONS, AND SAMPLE LOCATION RATIONALE

DRAFT

MONITORING WELL LOCATION AND SCREEN SETTING RATIONALE

Well No.	Location/Rationale	Screen Setting/Rationale
15A	East Site - To check GW quality in alleged dumping area near swamp	Screened entire thickness of prime water bearing zone
16A	Mid Site - To check GW quality on downgradient edge of W. Central Site	Screen placed to monitor GW quality in sand and gravel deposit within the till
16B	Same as 16A	Screen placed to monitor GW quality in the sandy deposits above the till
17A	S. Site - To check GW quality in area where no information existed concerning possible dumping activities	Screen placed to monitor GW quality in lower portion of saturated zone
17B	Same as 17A	Screen placed to monitor GW quality in upper portion of saturated zone
18A	S.W. Site - To check GW quality of downgradient edge of of S.W. section of site	Screen placed to monitor GW quality in lower portion of saturated zone
18B	Same as 18A	Screen placed to monitor GW quality in upper portion of saturated zone
19A	Mid Site - To check GW quality at downgradient edge of of central site area	Screen placed to monitor GW quality in principal water bearing zone at the location

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MONITORING WELL LOCATION AND SCREEN SETTING RATIONALE
PAGE TWO

Well No.	Location/Rationale	Screen Setting/Rationale
20A	Mid Site - To check GW quality in middle of site, adjacent to two alleged dumping areas	Screen placed to monitor GW quality in lower portion of of saturated zone
20B	Same as 20A	Screen placed to monitor GW quality in upper portion of saturated zone
21A	Across Marshall's Run - To check GW quality in fill area of trucking co. parking lot	Screen placed to monitor GW quality in lower portion of saturated zone
21B	Same as 21A	Screen placed to monitor GW quality in upper portion of saturated zone
22A	In ballpark parking lot - To check GW quality S.-S.W. of site, near W. Branch of Marshall's Run	Screen placed to monitor GW quality in lower portion of saturated zone
22B	Same as 22A	Screen placed to monitor GW quality in middle portion of saturated zone
22C	Same as 22A	Screen placed to monitor GW quality in upper portion of saturated zone
23A	North edge of site - To check GW quality downgradient of known contaminated area	Screen placed to monitor GW quality in sandy deposit within till

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MONITORING WELL LOCATION AND SCREEN SETTING RATIONALE
PAGE THREE

Well No.	Location/Rationale	Screen Setting/Rationale
23B	Same as 23A	Screen placed to monitor GW quality in saturated zone above the till
24A	Near RR tracks S.E. of site - To provide upgradient water quality samples	Screen placed to provide background GW quality sample from lower portion of saturated zone
25A	Across 12th Street - To check GW quality at a distance downgradient of site	Screen placed to monitor GW quality in lower portion of saturated zone
25B	Same as 25A	Screen placed to monitor GW quality in upper portion of saturated zone

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SPLIT-SPOON SOIL SAMPLE RATIONALE

Soil Sample	Boring No.	Depth	Rationale
MC-SS-001	16A	6.0'-7.0'	Soil sample from the natural soils directly below the fill on site
MC-SS-002	16B	4.5'-6.0'	Soil sample from the fill directly above natural soils
MC-SS-003	17A	3.0'-4.5'	Soil sample - typical of fill in the area
MC-SS-004	18A	3.0'-4.5'	Soil sample from the fill directly above natural soils
MC-SS-005	18B	4.5'-6.0'	Soil sample of the natural soils directly below the fill
MC-SS-006	20A	3.0'-4.5'	Soil sample from fill, containing discolored soils
MC-SS-007	20A	6.0'-7.5'	Soil sample from fill-natural soil interface
MC-SS-008	21A	9.0'-10.5'	Soil sample from natural ground, near the water table
MC-SS-009	22A	3.0'-4.5'	Soil sample from fill-natural soil interface, at the water table
MC-SS-010	23A	9.0'-10.5'	Soil sample from natural soils, within the water table
MC-SS-011	23A	12.0-'13.5'	Soil sample from natural soils, within the water table

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SPLIT-SPOON SOIL SAMPLE RATIONALE
PAGE TWO

Soil Sample	Boring No.	Depth	Rationale
MC-SS-012	24A	12.0'-13.5'	Soil sample from natural soils, within the water table
MC-SS-013	25A	9.0'-12.0'	Soil sample from natural soils, at top of the water table
MC-SS-014			Blank - potting soil

SURFACE SOIL SAMPLE RATIONALE

Sample	Rationale
SO-001	Near Small Willow Clump S.W. of Central Mound where dumping observed by PANDER Personnel
SO-002	Dark Stained area south of drum stage area
SO-003	Stream bed for drainageway adjacent to W. 17th St. near baseball fields where drums were observed earlier in the year
SO-004	Stream bed of the north wet weather drainage ditch behind W. 13th St.
SO-005	Barren area in woods behind W 13th St. containes car battery pile and old railroad-ties
SO-006	Pile of rubble (looks like coal waste) behind well 19A 2-3CY
SO-007	Barren furnace dust pile in center of site
SO-008	Near Pallet pile where PANDER reported possible bulk dumping
SO-009	Barren sandy soil adjacent to Well 14
SO-010	On Sitter property by pile of 5 slag drums
SO-011	Barren area within a grassy area near slag drums
SO-012	Stained soil on Halmi property near swamp
SO-013	Stained soil on Sitter property near front end loader
SO-014	Stained soil in Drum Stage Area
SO-015	Stained Soil near gas well on Halmi property
SO-016	In area of alleged bulk dumping or drum burial near dead twisted tree SW of central mound
SO-017	500 ft. North of SO-016
SO-018	In former open pit area behind homes on W. 14th St.

SURFACE SOIL SAMPLE RATIONALE
PAGE TWO

Sample	Rationale
SO-019	In barren fill adjacent to swamp
SO-020	In barren fill adjacent to swamp behind dead, twisted tree
SO-021	In area suspected of bulk dumping SE of central mound near 3 drums
SO-022	In pond area at outflow to intermit pond
SO-023	By wreckage of Green Ford Pinto - Area of suspected Bulk Dumping
SO-024	Stained soil near access road
SO-025	On dike between ponds
SO-026	1326 Harper Drive Hetrick in area flooded by Marshall's Run-Shallow Soil
SO-027	Same as SO-026 but deep soil to collect potential contamination by GW Discharge
SO-028	1413 Honeywood LN - Groeger - area downgradient of site - wet throughout year - Shallow Soil
SO-029	Same as 028 but deep soil
SO-030	3227 W. 13th St. - Churchill - Back by stream bed of we weather drainage ditch - downgradient and within flooding of ditch
SO-031	Same as SO-030 but deep
SO-032	3071 W. 12th St. - Mazza - In garden, wet spot throughout the year - evelated OVA readings
SO-033	Same as SO-032 but deep - downgradient
SO-034	Shallow Soil - Background - Frontier Park
SO-035	Deep Soil - Background - Frontier Park
SO-036	Shallow Garden Sample - Al Nobbs Transmission

SURFACE WATER/SEDIMENT SAMPLE RATIONALE

Samples	Location/Rationale
SW-01/SD-01	Marshall's Run upstream of outflow from culvert beneath the railroad tracks
SW-02/SD-02	SW-02-Dry sediment taken at Marshall's Run converge with northern wet weather drainage ditch
SW-03/SD-03	Downstream Marshall's Run - North of West 12th Street. Appeared to be collection of road drainage.
SW-04/SD-04	West Branch of Marshall's Run - Downstream
SW-05/SD-05	Onsite Pond
SW-06/SD-06	In swamp near SO-19
SW-07/SD-07	In swap near Sittler Property
SW-08/SD-08	In lowland marshy area near the end of Marshall's Road. SW-08-Dry
SW-09/SD-09	In lowland marshy area between the Riehl and the Halmi property near MW-14. SW-09-Dry
SW-010/SD-010	West Branch of Marshall's Run upstream near baseball fields
SW-010A/SD-010A	Duplicates of SW-010 and SD-010

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TEST PIT LOCATION RATIONALE

Test Pit	Location/Rationale
TP-1	Near wreckage of Green Ford Pinto - reported area of bulk dumping
TP-2	East side of foundry sand mound reported area of burial/bulk dumping
TP-3	Same as TP-2
TP-4	Same as TP-2 and TP-3
TP-4A	In an effort to delineate the areal extent of a high OVA reading layer TP-4A and 5 were excavated
TP-5	See TP-4A
TP-6	Near area previously excavated by ERT to locate a drum
TP-7	In lowland oily area previously found to contain PCB
TP-8	8 and 8A were in the area west of the mound reported to have drums buried
TP-9	Same as TP-8
TP-10	Near small willow clump where PADER personnel noted bulk dumping

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TEST PIT LOCATION RATIONALE
PAGE TWO

Test Pit	Location/Rationale
TP-10A	Continued excavation in area reportedly containing buried drums
TP-11	Same as TP-10A
TP-12, 13, and 14	In area of dead twisted tree - bulk or buried dumping reporting in the area
TP-15	In wooden pallet area report to have bulk dumping
TP-16	Excavation exploraton of the Halmi property
TP-17	Excavation in the area of the gas well explosion and stained soil area

Soil samples taken from test pits either represented saturated samples, samples exhibiting elevated OVA reading, samples from near buried drums or in some cases actual drum contents (solids).

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APPENDIX H

CHEMICAL ANALYTICAL RESULTS

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TABLE H-1

ONSITE SURFACE SOIL CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/18/84)
MILLCREEK SITE
(All Values in µg/kg; Except Metals and Oil and Grease, mg/kg)

		Sample No.	MC-SO-014	MC-SO-002	MC-SO-24	MC-SO-25	MC-SO-023	MC-SO-021	MC-SO-022	MC-SO-007
		Traffic Report-Org.	C9353	C9341	C9364	C9365	C9363	C9361	C9362	C9346
		T.R.-Inorg.	MC2663	MC2651	MC2695	MC2696	MC2694	MC2692	MC2693	MC2656
		Location	Drum Stage Area	Drum Stage Area	Stained Soil	Dike Between Ponds	Near Pinto	Near Swamp	Near Shallow Pond	Furnace Dust Pile
PP#	CAS No.	Contaminant								
Organics - Volatile Fraction										
(86V)	108-88-3	Toluene (2.5)	26				5.8	4.54		22
(49V)	75-69-4	Fluorotrichloromethane (2.5)	12				4.5	5.4	5.4	4.2
(11V)	71-55-6	1,1,1-Trichloroethane (2.5)	19							
(44V)	75-09-2	Methylene Chloride (2.5)			73	36	37	200	39	31
Organics - Acid Fraction										
(65A)	108-95-2	Phenol								
Base/Neutral Fraction										
(55B)	91-20-3	Naphthalene (10)		510						
	91-52-6	2-Methylnaphthalene (20)								
(1B)	83-32-9	Acenaphthalene (10)		450						
(39B)	206-44-0	Fluoranthene (10)	4000	4000						
(72B)	56-55-3	Benzo(x)anthracene (10)		3,100						
(73B)	50-33-8	Benzo(a)pyrene (20)		4,300						
(74B)	205-99-2	Benzo(b)fluoranthene (20)	9,600	9,500	970		1300	1,300	800	
(75B)	207-08-9	Benzo(k)fluoranthene (20)		9,600			800		800	
(76B)	318-01-9	Chrysene (10)	4,700	3,200	440					
(78B)	120-12-7	Anthracene (20)		820						
(79B)	181-24-2	Benzo(ghi)perylene (20)		4,500						
(81B)	85-01-8	Phenanthrene (10)		4,000						
(83B)	183-39-5	Indeno(1,2,3-cd)pyrene (20)		4,600						
(84B)	129-00-0	Pyrene (10)		6,000						
(68B)	84-74-2	Di-n-butyl phthalate (10)	2,500			430	2,700		1,300	
(69B)	117-84-0	Di-n-octyl phthalate (10)						2,700		
(66B)	117-81-7	Bis(2-ethylhexyl)phthalate (10)		460	480					

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TABLE H-1
ONSITE SURFACE SOIL CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/18/84)
MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease, mg/kg)
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	Sample No.	MC-SO-014	MC-SO-002	MC-SO-24	MC-SO-25	MC-SO-023	MC-SO-021	MC-SO-022	MC-SO-007
	Traffic Report-Org.	C9353	C9341	C9364	C9365	C9363	C9361	C9362	C9346
	T.R.-Inorg.	MC2663	MC2651	MC2695	MC2696	MC2693	MC2694	MC2692	MC2656
	Location	Drum Stage Area	Drum Stage Area	Stained Soil	Dike Between Ponds	Near Pinto	Near Swamp	Near Shallow Pond	Furnace Dust Pile
PP# CAS No.	Contaminant								
Pesticides/PCBs									
(111D) 11096-82-5	PCB-1260 (4.0)	31,000	3,000						
(110P) 12672-29-6	PCB 1248 (4.0)			2,100	6,300	2,000		2,000	
(103P) 319-85-7	BHC-beta (4.0)								
Inorganics									
	Copper	4,032	2,242	10,595	9,305	5,170	19,455	12,325	231
	Lead	613	298	1,756	862	900	887	996	1,321
	Manganese	1,093	319	140	165	417	778	209	14,260
	Iron	74,355	15,035	8,305	7,670	18,085	21,470	8,600	35,240
	Zinc	1,628	926	5,455	2,533	3,045	1,360	2,865	2,398
	Aluminum	3,708	3,225	3,618	2,228	3,012	4,294	2,316	1,740
	Antimony (1.0)	1.8	1.1	1.8	3.6		2.8		
	Arsenic	1.5	3	3.0	1.3	1.7	2.0	0.6	6
	Barium (5)	95	29	18	13	45	52	16.5	39
	Beryllium (0.25)	0.4		0.8	0.4	0.8	1.0	1.2	1.3
	Cadmium (0.005)	0.9	0.7	0.95	0.8	0.95	1.0	0.8	0.9
	Chromium	29	20	11.0	14.5	22	34	21	820
	Cobalt (2.5)	4.0	3.0	3.3	5	2.5	8.0	5	
	Mercury (0.1)		3.0		0.1				0.4
	Nickel	418	123	205	401	80	670	512	269
	Selenium (0.1)						0.1	0.1	
	Silver (0.5)	1.5	6.0	3.5	3.0	1.3	16.0	3.5	3.5
	Thallium (0.5)								
	Tin (1.0)	44	17	20	16	67	208	61	1.2
	Vanadium (10)								86
Oil and Grease		52,000	980	2,700	400	1,900	570	1,400	280

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TABLE H-1
ONSITE SURFACE SOIL CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/18/84)
MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease, mg/kg)
PAGE THREE

		Sample No.	MC-SO-019	MC-SO-020	MC-SO-20A	MC-SO-005	MC-SO-018	MC-SO-001	MC-SO-008	MC-SO-006
		Traffic Report-Org.	C9358	C9359	C9360	C9344	C9357	C9340	C9347	C9345
		T.R.-Inorg.	MC2689	MC2690	MC2691	MC2654	MC2688	MC2650	MC2657	MC2655
		Location	Fill Adjacent Swamp	Near Twisted Tree	Duplicate	Barren Area Behind W. 12th St.	Former Open Pit Area	Near Willow Clump	Near Pallet Pile	Rubble Pile Near Well 19A
PP#	CAS No.	Contaminant								
Organics - Volatile Fraction										
(86V)	108-88-3	Toluene (2.5)				4.8		9.3	7.8	
(49V)	75-69-4	Fluoratrichloromethane (2.5)	4J	4.1						
(11V)	71-55-6	1,1,1-Trichloroethane (2.5)								
(44V)	75-09-2	Methylene Chloride	82	65	230	24	21	650	16	30
Organics - Acid Fraction										
(65A)	108-95-2	Phenol (10)								
Organics - Base/Neutral										
(55B)	91-20-3	Naphthalene (10)						400		
	91-57-6	2-Methylnaphthalene (20)						410		
(1B)	83-32-9	Acenapthalene (10)								
(39B)	206-44-0	Fluoranthene (10)		570						
(72B)	56-55-3	Benzo(a)anthracene (10)								
(73B)	50-33-8	Benzo(a)pyrene (20)								
(74B)	205-99-2	Benzo(b)fluoranthene (20)				830				
(75B)	207-08-9	Benzo(k)fluoranthene (20)								
(76B)	318-01-9	Chrysene (10)				460				
(78B)	120-12-7	Anthracene (10)								
(79B)	181-24-2	Benzo(ghi)perylene (20)								
(81B)	85-01-8	Phenanthrene (10)		420						
(83B)	183-39-5	Indeno(1,2,3-cd)pyrene (20)								
(84B)	129-00-0	Pyrene (10)		640		750				
(68B)	84-74-2	Di-n-butyl phthalate (10)							620	
(69B)	117-84-0	Di-n-octyl phthalate (10)							500	
(66B)	117-81-7	Bis(2-ethylhexyl)phthalate (10)								

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TABLE H-1
ONSITE SURFACE SOIL CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/18/84)
MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease, mg/kg)
PAGE FOUR

PP#	CAS No.	Contaminant	MC-SO-019	MC-SO-020	MC-SO-20A	MC-SO-005	MC-SO-018	MC-SO-001	MC-SO-008	MC-SO-006
		Sample No.	C9358	C9359	C9360	C9344	C9357	C9340	C9347	C9345
		Traffic Report-Org.	MC2689	MC2690	MC2691	MC2654	MC2688	MC2650	MC2657	MC2655
		T.R.-Inorg.								
		Location	Fill Adjacent Swamp	Near Twisted Tree	Duplicate	Barren Area Behind W. 12th St.	Former Open Pit Area	Near Willow Clump	Near Pallet Pile	Rubble Pile Near Well 19A
Pesticides/PCBs										
(111P)	11096-82-5	PCB 1260 (4)								
(110P)	12672-29-6	PCB 1248 (4)	98	310	560		320			
(103P)	319-85-7	BHC-beta (4)								
Inorganics										
		Copper	8,390	7,995	9,625	5,720	423	156	268	191
		Lead	867	1,046	1,089	1,095	93	163	49	93
		Manganese	142	142	132	110	140	194	5,605	141
		Iron	5,545	7,655	7,140	7,305	14,520	6,750	14,685	14,520
		Zinc	3,417	3,804	3,865	5,250	10.5	163	115	3.0
		Aluminum	3,149	4,666	3,378	2,790	627	1,653	6,430	103
		Antimony (1.0)	1.4		2.5		2.2			1.5
		Arsenic	1.0	1.7	1.0	1.5	25	1.5	1.7	16
		Barium (5)	14	21	24	17.5	11.5	18	73	
		Beryllium (0.25)			0.3				2	
		Cadmium (0.05)	0.9	0.95	1.1	1.0	0.13	0.6	0.18	
		Chromium	9.5	13	14	5.5	91	9.5	402	102
		Cobalt (2.5)	4.0	5.5	3		24			10
		Mercury (0.1)				0.1				
		Nickel	421	346	368	30	5,955	18	234	2,604
		Selenium (0.1)					0.5			
		Silver (0.5)	2.5	2.5	2.5					
		Thallium (0.5)								
		Tin (1.0)		86	130	2.1	5.4		5.0	2.6
		Vanadium (10)					19		293	16
Oil and Grease			780	1,200	910	3,900	7,900	1,100	170	810

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TABLE H-1
ONSITE SURFACE SOIL CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/18/84)
MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease, mg/kg)
PAGE FIVE

		Sample No.	MC-SO-012	MC-SO-013	MC-SO-015	MC-SO-016	MC-SO-017	MC-SO-003	MC-SO-004	MC-SO-010
		Traffic Report-Org.	C9351	C9352	C9354	C9355	C9356	C9342	C9343	C9349
		T.R.-Inorg.	MC2661	MC2662	MC2664	MC2665	MC2666	MC2652	MC2653	MC2659
		Location	Stained Soil Halmi Property	Sitter Property	Near Halmi Gas Well	Bulk Dumping Area	Bulk Dumping Area	Near Ballfield	Behind W. 13th Street	Sitter Property
PP#	CAS No.	Contaminant								
Organics - Volatile Fraction										
	67-64-1	Acetone (50)			65					
(86V)	108-88-3	Toluene (2.5)		2.9	24		11			11
(49V)	75-69-4	Fluorotrichloromethane (2.5)			2.9		3.2			
(11V)	71-55-6	1,1,1-Trichloroethane (2.5)								
(44V)	75-09-2	Methylene Chloride (2.5)	52	110	140	40	100	340		100
Organics - Acid Fraction										
(65A)	108-95-2	Phenol (10)		560						
Organics - Base/Neutral										
(55B)	91-20-3	Naphthalene (10)	690	980						
	91-57-6	2-Methylnaphthalene (20)								
(1B)	83-32-9	Acenaphthalene (10)								
(39B)	206-44-0	Fluoranthene (10)	3,500	1,100						
(72B)	56-55-3	Benzo(c)anthracene (10)	5,000	1,400						
(73B)	50-33-8	Benzo(a)pyrene (20)	85,000	1,700						
(74B)	205-99-2	Benzo(b)fluoranthene (20)	350,000	1,800						970
(75B)	207-08-9	Benzo(k)fluoranthene (20)	350,000	1,800						970
(76B)	318-01-9	Chrysene (10)	5,700	1,700						400
(78B)	120-12-7	Anthracene (10)								
(79B)	181-24-2	Benzo(ghi)perylene (20)	11,000							
(81B)	85-01-8	Phenanthrene (10)	1,300	570						
(83B)	183-39-5	Indeno(1,2,3-cd)pyrene (20)	10,000	1,400						
(84B)	129-00-0	Pyrene (10)	6,100	1,700						
(82B)	53-70-3	Dibenzo(a,n)anthracene (20)	3,400							
(68B)	84-74-2	Di-n-butyl phthalate (10)			72,000					
(69B)	117-84-0	Di-n-octyl phthalate (10)			9,100	760				
(66B)	117-81-7	Bis(2-ethylhexyl)phthalate (10)								

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TABLE II-1
ONSITE SURFACE SOIL CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/18/84)
MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease, mg/kg)
PAGE SIX

	Sample No.	MC-SO-012	MC-SO-013	MC-SO-015	MC-SO-016	MC-SO-017	MC-SO-003	MC-SO-004	MC-SO-010
	Traffic Report-Org.	C9351	C9352	C9354	C9355	C9356	C9342	C9343	C9349
	T.R.-Inorg.	MC2661	MC2662	MC2664	MC2665	MC2666	MC2652	MC2653	MC2659
	Location	Stained Soil Halmi Property	Sitter Property	Near Halmi Gas Well	Bulk Dumping Area	Bulk Dumping Area	Near Ballfield	Behind W. 13th Street	Sitter Property
PP# CAS No.	Contaminant								
Pesticides/PCBs									
(111P) 11096-82-5	PCB 1260 (4.0)								
(110P) 12672-29-6	PCB 1248 (4.0)								
(103P) 319-85-7	BHC-beta (4.0)	17							
Inorganics									
	Copper	39	28	36	179	25	15.5	39	88
	Lead	16	22	29	190	50	36	20	54
	Manganese	460	1,277	2,835	2,835	391	363	76	1,215
	Iron	19,255	8,740	11,160	20,725	7,345	13,335	6,810	35,430
	Zinc	30	21	60	193	101	98	69	57
	Aluminum	2,187	2,880	5,285	2,134	3,170	6,060	4,953	3,539
	Antimony (1.0)								
	Arsenic	2.0	1.5	1.7	1.5	2.5	6	7	2.0
	Barium (5)	27	55	42.5	36	29	64	155	40
	Beryllium (0.25)	0.25	0.7	3.0	4.8		0.3	0.45	0.7
	Cadmium (0.05)	0.18	0.16	0.7	0.6	0.3	0.5	0.9	0.4
	Chromium	35	33	430	76	19	9.5	7.0	267
	Cobalt (2.5)	3.0					4.5		4.5
	Mercury (0.1)							0.1	
	Nickel	60	32	86	60	5.5	18	11.5	109
	Selenium (0.1)	0.1		0.1		0.1	0.1	0.6	
	Silver (0.5)								
	Thallium (0.5)								
	Tin (1.0)								6.0
	Vanadium (1.0)	19	12	312				12	86
Oil and Grease		690	362	57,000	410	19,000	300	920	690

DRAFT

TABLE H-1
ONSITE SURFACE SOIL CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/18/84)
MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease, mg/kg)
PAGE SEVEN

		Sample No.	MC-SO-009	MC-SO-011
		Traffic Report-Org.	C9348	C9350
		T.R.-Inorg.	MC2658	MC2660
		Location	Near Well 14	Barren Area Near Swamp
PP#	CAS No.	Contaminant		
(86V)	108-88-3	Toluene (2.5)	4.9	
(49V)	75-69-4	Fluorotrichloromethane (2.5)	4.2	
(11V)	71-55-6	1,1,1-Trichloroethane (2.5)		
(44V)	75-09-2	Methylene Chloride (2.5)	59	21 R1
Organics - Acid Fraction				
(65A)	108-95-2	Phenol (10)		960
Organics - Base/Neutral				
(55B)	91-20-3	Naphthalene (10)		
	91-52-6	2-Methylnaphthalene (20)		
(1B)	83-32-9	Acenaphthalene (10)		
(39B)	206-44-o	Fluoranthene (10)		
(72B)	56-55-3	Benzo(a)anthracene (10)		
(73B)	50-33-8	Benzo(a)pyrene (20)		
(74B)	205-99-2	Benzo(b)fluoranthene (20)		
(75B)	207-08-9	Benzo(k)fluoranthene (20)		
(76B)	318-01-9	Chrysene (10)		
(78B)	120-12-7	Anthracene (10)		
(79B)	181-24-2	Benzo(ghi)perylene (20)		
(81B)	85-01-8	Phenanthrene (10)		
(83B)	183-39-5	Indeno(1,2,3-cd)pyrene (20)		
(84B)	129-00-0	Pyrene (10)		
(68B)	84-74-2	Di-n-butyl phthalate (10)		
(69B)	117-84-0	Di-n-octyl phthalate (10)		
(66B)	117-81-7	Bis(2-ethylhexyl)phthalate (10)		

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TABLE H-1
ONSITE SURFACE SOIL CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/18/84)
MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease, mg/kg)
PAGE EIGHT

		Sample No.	MC-SO-009	MC-SO-011
		Traffic Report-Org.	C9348	C9350
		T.R.-Inorg.	MC2658	MC2660
		Location	Near Well 14	Barren Area Near Swamp
PP#	CAS No.	Contaminant		
Pesticides/PCBs				
(111P)	11096-83-5	PCB-1260	470	
(110P)	12672-29-6	PCB 1248		
(103P)	319-85-7	BHC-beta		
Inorganics				
		Copper	8,350	10,420
		Lead	964	887
		Manganese	144	778
		Iron	8,220	21,470
		Zinc	35.3	1,360
		Aluminum	2,554	4,047
		Antimony (1.0)		2.8
		Arsenic	1.0	2.0
		Barium (5)	23	24
		Beryllium (0.25)		
		Cadmium (0.05)	0.7	0.9
		Chromium	14	66
		Cobalt (2.5)	5.0	4.5
		Mercury (0.1)		0.8
		Nickel	443	725
		Selenium (0.1)		
		Silver (0.5)	3.0	3.5
		Thallium (0.5)		
		Tin (1.0)		1.2
		Vanadium (1.0)		
Oil and Grease			1,100	550

Note: Values in parentheses are method detection limits
R1 - Rejected during data validation process because of reagent blank contamination.

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TABLE H-2

SUBSURFACE SOIL CONTAMINANTS (TEST PIT SAMPLES)
NUS RESULTS
MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease Values, (mg/kg))

		Sample No.	TP-001	TP-002	TP-003	TP-004	TP-005	TP-006	TP-007	TP-008
		Traffic Report-Org.	C9660	C9661	C9662	C9663	C9664	C9665	C9666	C9667
		T.R.-Inorg.	MC2596	MC2597	MC2598	MC4146	MC4147	MC4148	MC4149	MC4150
		Depth	7.0 ft	8.0 ft	9.0 ft	3.0 ft	3.25 ft	11.5 ft	2.5 ft	1.3 ft
PP#	CAS No.	Contaminant								
Organics - Volatile Fraction			[2.01]	[1.89]	[1.7]	[1.87]	[1.94]	[2.09]	[2.76]	[1.88]
(88V)	75-01-4	Vinyl Chloride (6.0)							733 R	
(87V)	79-01-6	Trichloroethene (3.0)					13.2 R		23.1 R	
(30V)	156-60-5	1,2-dichloroethene (6.0)					5,300 R	11.7 R	307 R	16.7 R
(44V)	75-09-2	Methylene Chloride (3)	336B R	214B R	75.9B R	237B R	248B R	11.3B R	70B R	47.6B R
	67-64-1	Acetone (6.0)	113B R	93.1B R	64.7B R	162B R	198B R	19B R	133B R	69.8B R
	591-78-6	2-hexanone (6.0)		5K R		126 R	32.8 R		57.9 R	
(4V)	71-43-2	Benzene (3)	9.4 R	9.4 R		14 R	7.9 R		16.1 R	
(86V)	108-88-3	Toluene (3)	346 R	617 R	336 R	1,120 R	1,610 R	197 R	159 R	32.7 R
(38V)	100-41-4	Ethylbenzene (3)		14.2 R	8.5 R		28.2 R			93.7 R
		Total Xylenes (3)		42 R	22.8 R	31.3 R	144 R			116 R
Organics - Acid Fraction			[9.9]	[9.4]	[8.5]	[9.2]	[576]	[10.4]	[820]	[9.3]
(65A)	108-95-2	Phenol (40)		390 R		4,000				
	106-44-5	4-Methyl Phenol (40)				4,430				
(34A)	105-67-9	2,4-Dimethyl Phenol (40)				917				

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TABLE H-2
SUBSURFACE SOIL CONTAMINANTS (TEST PIT SAMPLES)
NUS RESULTS MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease Values, (mg/kg))
PAGE TWO

		Sample No.	TP-009	TP-010
		Traffic Report-Org.	C9668	C9669
		T.R.-Inorg.	MC4151	MC4152
		Depth	2.5 ft	1.5 ft
PP#	CAS No.	Contaminant		
Organics - Volatile Fraction			[1.9]	[1.89]
(88V)	75-01-4	Vinyl Chloride (6.0)		
(87V)	79-01-6	Trichloroethene (3.0)		
(30V)	156-60-5	1,2-dichloroethene (6.0)		
(44V)	75-09-2	Methylene Chloride (3)	133B R	50.3B R
	67-64-1	Acetone (6.0)	113B R	46.4B R
	591-78-6	2-hexanone (6.0)		
(4V)	71-43-2	Benzene (3)		
(86V)	108-88-3	Toluene (3)	11.2 R	9.9 R
(38V)	100-41-4	Ethylbenzene (3)		
		Total Xylenes (3)		
Organics - Acid Fraction			[9.4]	[9.4]
(65A)	108-95-2	Phenol (40)		399 R
	106-44-5	4-Methyl Phenol (40)		
(34A)	105-67-9	2,4-Dimethyl Phenol (40)		

TABLE H-2
SUBSURFACE SOIL CONTAMINANTS (TEST PIT SAMPLES)
NUS RESULTS MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease Values, (mg/kg))
PAGE THREE

		Sample No. / Traffic Report-Org. / T.R.-Inorg. / Depth	TP-001 C9660 MC2596 7.0 ft	TP-002 C9661 MC2597 8.0 ft	TP-003 C9662 MC2598 9.0 ft	TP-004 C9663 MC4146 3.0 ft	TP-005 C9664 MC4147 3.25 ft	TP-006 C9665 MC4148 11.5 ft	TP-007 C9666 MC4149 2.5 ft	TP-008 C9667 MC4150 1.3 ft
Organics - Base/Neutral Fraction										
(55B)	91-20-3	Naphthalene (40)	1,400	737	116K	348K				
	91-57-6	2-Methylnaphthalene (40)	1,950	520	207K	233K				273K
(1B)	83-32-9	Acenaphthene (40)		697		124K				206K
(77B)	708-96-8	Acenaphthylene (40)			90K					168K
(78B)	120-12-7	Anthracene (40)		3,540						
(72B)	56-55-3	Benzo(a)anthracene (40)		4,590		1,830				659
(82B)	53-70-3	Dibenz(a,h)anthracene (40)		1,800		1,530				1,510
(81B)	85-01-8	Phenanthrene (40)	417	3,090	209K					544
(80B)	86-73-7	Fluorene (40)		402	78K	52K				398
(39B)	206-44-0	Fluoranthene (40)		4,710		1,740				
(74B)	205-99-2	Benzo(b)fluoranthene (40)		11,000		5,540				1,710
(75B)	207-08-9	Benzo(k)fluoranthene (40)								3,410

TABLE H-2
SUBSURFACE SOIL CONTAMINANTS (TEST PIT SAMPLES)
NUS RESULTS MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease Values, (mg/kg))
PAGE FOUR

		Sample No.	TP-009	TP-010
		Traffic Report-Org.	C9668	C9669
		T.R.-Inorg.	MC4151	MC4152
		Depth	2.5 ft	1.5 ft
Organics - Base/Neutral Fraction				
(55B)	91-20-3	Naphthalene (40)	438	318K
	91-57-6	2-Methylnaphthalene (40)	343	209K
(1B)	83-32-9	Acenaphthene (40)		92.5K
(77B)	208-96-8	Acenaphthylene (40)		162K
(78B)	120-12-7	Anthracene (40)		
(72B)	56-55-3	Benzo(a)anthracene (40)		599
(82B)	53-70-3	Dibenz(a,h)anthracene(40)		
(81B)	85-01-8	Phenanthrene (40)	249K	
(80B)	86-73-7	Fluorene (40)		
(39B)	206-44-0	Fluoranthene (40)	354K	1,200
(74B)	205-99-2	Benzo(b)fluoranthene (40)	803	1,650
(75B)	207-08-9	Benzo(k)fluoranthene (40)		

TABLE H-2
SUBSURFACE SOIL CONTAMINANTS (TEST PIT SAMPLES)
NUS RESULTS MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease Values, (mg/kg))
PAGE FIVE

		Sample No.	TP-001	TP-002	TP-003	TP-004	TP-005	TP-006	TP-007	TP-008
		Traffic Report-Org.	C9660	C9661	C9662	C9663	C9664	C9665	C9666	C9667
		T.R.-Inorg.	MC2596	MC2597	MC2598	MC4146	MC4147	MC4148	MC4149	MC4150
		Depth	7.0 ft	8.0 ft	9.0 ft	3.0 ft	3.25 ft	11.5 ft	2.5 ft	1.3 ft
PP#	CAS No.	Contaminant								
(26B)	218-01-9	Chrysene (40)		3,150		1,600				1,380
(84B)	129-00-0	Pyrene (40)		3,570		1,350				988
(73B)	50-32-8	Benzo(a)pyrene (40)		14,300		3,300				5,680
(83B)	193-39-5	Indeno(1,2,3-cd)pyrene (40)		4,150		1,790				1,190
(79B)	191-24-2	Benzo(g,h,i)perylene (40)		3,360		1,680				1,270
	132-64-9	Dibenzofuran (40)	217K	217K						
(66B)	117-81-7	Bis(2-ethylhexyl)phthalate (40)	468 R1	489 R1	1,070	451	6,520	172K R1		848
(67B)	85-68-7	Butylbenzyl phthalate (40)			590					
(68B)	84-74-2	Di-n-butyl phthalate (40)							567	
(69B)	117-84-0	Di-n-octyl phthalate (40)								
Organics - Pesticides/PCBs			[2]	[2]	[2]	[40]	[120]	[20]	[10]	[20]
(110P)	12672-29-6	PCB 1248 (10)								999
(111P)	11096-82-5	PCB 1260 (20)								260
(106P)	53469-21-9	PCB 1242 (20)							410*	
(107P)	11097-69-1	PCB 1254 (40)							6,600*	
Additional Information										
		pH (Standard Units)	6.0	6.0	6.0	7.0	6.0	6.0	6.0	7.0
		Oil and Grease	450	700	790	450	9,500	200	16,000	1,200

Notes:
* Results relayed to NUS from USEPA's Central Regional Laboratory.

TABLE H-2
SUBSURFACE SOIL CONTAMINANTS (TEST PIT SAMPLES)
NUS RESULTS MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease Values, (mg/kg))
PAGE SIX

		Sample No.	TP-009	TP-010
		Traffic Report-Org.	C9668	C9669
		T.R.-Inorg.	MC4151	MC4152
		Depth	2.5 ft	1.5 ft
PP#	CAS No.	Contaminant		
(26B)	218-01-9	Chrysene (40)		587
(84B)	129-00-0	Pyrene (40)	264K	754
(73B)	50-32-8	Benzo(a)pyrene (40)	957	
(83B)	193-39-5	Indeno(1,2,3-cd)pyrene (40)	503	
(79B)	191-24-2	Benzo(g,h,i)perylene (40)	506	
	132-64-9	Dibenzofuran (40)		
(66B)	117-81-7	Bis(2-ethylhexyl)phthalate (40)	474 R1	579 R1
(67B)	85-68-7	Butylbenzyl phthalate (40)	331K	2,110
(68B)	84-74-2	Di-n-butyl phthalate (40)	353K	257K
(69B)	117-84-0	Di-n-octyl phthalate (40)		3,930
Organics - Pesticides/PCBs			[2]	[20]
(110P)	12672-29-6	PCB 1248 (10)		
(111P)	11096-82-5	PCB 1260 (20)		
Additional Information				
		pH (Standard Units)	6.0	6.0
		Oil and Grease	660	990

Notes:
1. Values in parentheses adjacent to contaminant names are instrument detection limits.
2. Values in brackets are correction factors. Multiplication of the correction factor and the given instrument detection limit will yield the method detection limits for each fraction of each sample. Correction factor accounts for necessary dilutions and percent moisture.
3. B - Lab qualifier indicating compound was detected in reagent blank.
4. J - Lab qualifier indicating value is an approximation.
5. K - Lab qualifier indicating compound detected below method detection limit.
6. R - Rejected during data validation process; detection limits did not satisfy requirements of contract.
7. R1 - Rejected during data validation because of reagent blank contamination.

TABLE H-2
SUBSURFACE SOIL CONTAMINANTS (TEST PIT SAMPLES)
NUS RESULTS MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease Values, (mg/kg))
PAGE SEVEN

		Sample No.	TP-001	TP-002	TP-003	TP-004	TP-005	TP-006	TP-007	TP-008
		Traffic Report-Org.	C9660	C9661	C9662	C9663	C9664	C9665	C9666	C9667
		T.R.-Inorg.	MC2596	MC2597	MC2598	MC4146	MC4147	MC4148	MC4149	MC4150
		Depth	7.0 ft	8.0 ft	9.0 ft	3.0 ft	3.25 ft	11.5 ft	2.5 ft	1.3 ft
PP#	CAS No.	Contaminant								
Inorganics - Metals										
		Copper	205	38.5	38.5	55	156.5	18	8,350	101.5
		Lead	60	95	17	55	291	9.5	2,375	505
		Manganese	191	970	65	448	550	148.5	411	1,835
		Iron	10,450	25,900	3,055	39,350	18,400	28,600	20,900	26,900
		Zinc	318	142	299.5	75	10,350	70	7,750	258
		Aluminum	5,600	4,110	2,500	3,655	7,550	7,200	20,350	7,500
		Antimony (0.38)							[0.85]	4.35
		Arsenic	7.5	8	3.35	4.25	10	15	13.5	9.5
		Barium	33	32.5	9	20.5	49.5	60	85	104.5
		Beryllium	0.35	0.3	[0.05]	[0.1]	0.25	0.25	0.35	0.6
		Cadmium	0.35	1.9	0.055	0.34	1.9	[0.043]	10	1.2
		Chromium	13	26.5	5	30	37.5	10.5	60	50
		Cobalt	[2.35]	3.2	3.85	3.9	3.75	6	12	3.6
		Mercury (0.09)	0.145	0.255					0.415	0.13
		Nickel	38	90	6	41	26	15	965	28
		Selenium (0.1)	1.2	0.65						
		Silver	[0.135]	[0.135]		[0.225]	[0.455]	[0.225]	4	[0.365]
		Thallium (0.13)								
		Tin (0.95)			1.2		3.9		55	
		Vanadium	20	[7]	[2.85]	[4.35]	[9]	16	[8.5]	[8.5]

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TABLE H-2
SUBSURFACE SOIL CONTAMINANTS (TEST PIT SAMPLES)
NUS RESULTS MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease Values, (mg/kg))
PAGE EIGHT

		Sample No.	TP-009	TP-010
		Traffic Report-Org.	C9668	C9669
		T.R.-Inorg.	MC4151	MC4152
		Depth	2.5 ft	1.5 ft
PP#	CAS No.	Contaminant		
Inorganics - Metals				
		Copper	34	820
		Lead	60	252
		Manganese	256	985
		Iron	18,400	30,400
		Zinc	70	220
		Aluminum	3,570	5,700
		Antimony (0.38)		[0.65]
		Arsenic	7.5	8
		Barium	25	60
		Beryllium	[0.15]	0.35
		Cadmium	0.325	0.385
		Chromium	31.5	50
		Cobalt	[1.8]	3.85
		Mercury (0.09)		0.225
		Nickel	17.5	41.5
		Selenium (0.1)		
		Silver	[0.365]	1.4
		Thallium (0.13)		
		Tin (0.95)		22.5
		Vanadium	[3.55]	[7]

Notes:
1. Values in parentheses adjacent to contaminant names are instrument detection limits.
2. Values in brackets were detections above the method detection limit but below the contract required detection limit.

TABLE H-2
SUBSURFACE SOIL CONTAMINANTS (TEST PIT SAMPLES)
NUS RESULTS MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease Values, (mg/kg))
PAGE NINE

		Sample No.	TP-012	TP-013	TP-014	TP-015	TP-016	TP-017	TP-018	TP-019
		Traffic Report-Org.	C9672	C9673	C9674	C9675	C9676	C9677	C9678	C9679
		T.R.-Inorg.	MC4155	MC4156	MC4157	MC4158	MC4159	MC4160	MC4161	MC4162
		Depth	2.5 ft	1.0 ft	1.5 ft	5.0 ft	5.5 ft	4.5 ft	4.3 ft	Blank
PP#	CAS No.	Contaminant								
Organics - Volatile Fraction										
(44V)	75-09-2	Methylene Chloride	83B	39B	13B R1	3JB	120B	2JB R1	51B	200B
Organics - Acid Fraction										
(65A)	108-95-2	Phenol (370-390)	270J		320J		1,100	700		
	106-44-5	4-Methylphenol (560-590)	250J					470J		
(34A)	51-28-5	2,4-Dimethylphenol (520-550)	190J					310J		
	95-48-7	2-Methylphenol (370)	210J					240J		
Organics - Base/Neutrals										
(55B)	91-20-3	Naphthalene (370)	360J	370			520	1,300		
	91-57-6	2-Methylnapththalene (390)	360	190J	1,200		410	1,300	66J	
(81B)	85-01-8	Phenanthrene (390)	390	310J	690		380	2,000	100J	
(1B)	83-32-9	Acenaphthene (370-390)						250J		
(80B)	86-73-7	Fluorene (370-390)	96J				99J	420		
(78B)	120-12-7	Anthracene (370-390)								
(39B)	206-44-0	Fluoranthene (370-390)	180J				150J	4,300		
(84B)	129-00-0	Pyrene (370-390)	180J				200J	5,500		
(72B)	56-55-3	Benzo(a)anthracene (370-390)	140J					8,600		
(74B)	205-99-2	Benzo(b)fluoranthene (370-390)	320J	1,200				16,000		
(75B)	207-08-9	Benzo(k)fluoranthene (370-390)						14,000		
(73B)	50-32-8	Benzo(a)pyrene (370-390)		690				10,000		
(83B)	193-39-5	Indeno(1,2,3-cd)pyrene (370-390)						2,600		
(82B)	53-70-3	Dibenzo(a,h)anthracene (370-390)								

TABLE H-2
SUBSURFACE SOIL CONTAMINANTS (TEST PIT SAMPLES)
NUS RESULTS MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease Values, (mg/kg))
PAGE TEN

		Sample No.	TP-011	TP-011A
		Traffic Report-Org.	C9670	C9671
		T.R.-Inorg.	MC4153	MC4154
		Depth	2.0 ft	Duplicate
PP#	CAS No.	Contaminant		
Organics - Volatile Fraction				
(44V)	75-09-2	Methylene Chloride	200B	51B
Organics - Acid Fraction				
(65A)	108-95-2	Phenol (370-390)	130J	170J
	106-44-5	4-Methylphenol (560-590)	200J	230J
(34A)	51-28-5	2,4-Dimethylphenol (520-550)		
	95-48-7	2-Methylphenol (370)		
Organics - Base/Neutrals				
(55B)	91-20-3	Naphthalene (370)	300J	
	91-57-6	2-Methylnapththalene (390)	310J	350J
(81B)	85-01-8	Phenanthrene (390)	590	710
(1B)	83-32-9	Acenaphthene (370-390)	68J	76J
(80B)	86-73-7	Fluorene (370-390)	76J	100J
(78B)	120-12-7	Anthracene (370-390)		
(39B)	206-44-8	Fluoranthene (370-390)	770	850
(84B)	129-00-0	Pyrene (370-390)	740	830
(72B)	56-55-3	Benzo(a)anthracene (370-390)	580	680
(74B)	205-99-2	Benzo(b)fluoranthene (370-390)	1,160	890
(75B)	207-08-9	Benzo(k)fluoranthene (370-390)	560	
(73B)	50-32-8	Benzo(a)pyrene (370-390)	710	950
(83B)	193-39-5	Indeno(1,2,3-cd)pyrene (370-390)		
(82B)	53-70-3	Dibenzo(a,h)anthracene (370-390)		

Notes:
1. Values in parentheses are method detection limit ranges associated with these samples.

TABLE H-2
SUBSURFACE SOIL CONTAMINANTS (TEST PIT SAMPLES)
NUS RESULTS MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease Values, (mg/kg))
PAGE ELEVEN

		Sample No.	TP-012	TP-013	TP-014	TP-015	TP-016	TP-017	TP-018	TP-019
		Traffic Report-Org.	C9672	C9673	C9674	C9675	C9676	C9677	C9678	C9679
		T.R.-Inorg.	MC4155	MC4156	MC4157	MC4158	MC4159	MC4160	MC4161	MC4162
		Depth	2.5 ft	1.0 ft	1.5 ft	5.0 ft	5.5 ft	4.5 ft	4.3 ft	Blank
PP#	CAS No.	Contaminant								
(79B)	191-24-2	Benzo(g,h,i)perylene (370-390)								
(76B)	218-01-9	Chrysene (370-390)	230J					6,900		
(77B)	208-96-8	Acenaphthylene (370-390)								
(69B)	117-84-0	Di-n-octyl phthalate (370-390)								
(68B)	84-74-2	Di-n-butyl phthalate (370-390)		340J					160J	93J
(67B)	85-68-7	Benzyl butyl phthalate (520-550)								
(66B)	117-81-7	Bis(2-ethylhexyl)phthalate(390)	320J	960	1,200		530	380	270J	220J
(71B)	131-11-3	Diethylphthalate (370-390)		50J						
(5B)	192-87-5	Benzidine (2000-2100)								
Pesticides/PCBs										
(110P)	12672-29-6	PCB 1248 (200)		3,380			857			
(111P)	11096-82-5	PCB 1260 (400)								
	60-57-1	Dieldrin (40)								181
Additional Information										
		pH (Standard Units)	8.0	7.8	7.8	7.2	8.9	7.5	7.3	6.7
		Oil and Grease	670	1,300	1,700		61.0	400	190	550

AR000605

TABLE H-2
SUBSURFACE SOIL CONTAMINANTS (TEST PIT SAMPLES)
NUS RESULTS MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease Values, (mg/kg))
PAGE TWELVE

		Sample No.	TP-011	TP-011A
		Traffic Report-Org.	C9670	C9671
		T.R.-Inorg.	MC4153	MC4154
		Depth	2.0 ft	Duplicate
PP#	CAS No.	Contaminant		
(79B)	191-24-2	Benzo(g,h,i)perylene (370-390)	450	
(67B)	85-68-7	Benzyl butylphthalate(520-550)	120J	
(76B)	218-01-9	Chrysene (370-390)	660	790
(77B)	208-96-8	Acenaphthylene (370-390)		
(69B)	117-84-0	Di-n-octyl phthalate (370-390)	69J	
(68B)	84-74-2	Di-n-butyl phthalate (370-390)		
(5B)	192-87-5	Benzidine (2000-2100)		
	132-64-9	Dibenzofuran (370-390)		
Pesticides/PCBs				
(110P)	12672-29-6	PCB 1248 (200)		
(111P)	11096-82-5	PCB 1260 (400)		
	60-57-1	Dieldrin (40)		
Additional Information				
		pH (Standard Units)		
		Oil and Grease		

AR000606

TABLE H-2
SUBSURFACE SOIL CONTAMINANTS (TEST PIT SAMPLES)
NUS RESULTS MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease Values, (mg/kg))
PAGE THIRTEEN

Sample No.	TP-012	TP-013	TP-014	TP-015	TP-016	TP-017	TP-018	TP-019
Traffic Report-Org.	C9672	C9673	C9674	C9675	C9676	C9677	C9678	C9679
T.R.-Inorg.	MC4155	MC4156	MC4157	MC4158	MC4159	MC4160	MC4161	MC4162
Depth	2.5 ft	1.0 ft	1.5 ft	5.0 ft	5.5 ft	4.5 ft	4.3 ft	Blank
Inorganics - Metals								
Copper	55	8,150	530	5.0	48.5	14.5	20,500	11.5
Lead	310	945	166.5	10	23	13.5	1,205	6.5
Manganese	510	222.5	322	75	1,330	146.5	158	85
Iron	30,800	10,150	23,750	11,050	35,150	19,100	14,400	5,650
Zinc	180	3,825	585	55	36	11.5	7,450	25.5
Aluminum	4,715	7,600	5,350	6,100	5,900	2,165	17,400	2,740
Antimony (0.38)	1.25	1.2					2.7	
Arsenic	7	6	6	4.35	6	2.8	3.95	6.5
Barium	27.5	24	26.5	33	27	14	24.5	29
Beryllium	[0.2]	[0.1]	[0.15]	[0.2]	[0.15]	[0.05]	[0.2]	[0.1]
Cadmium	0.9	2.05	0.43	[0.0425]	0.075	0.065	4.25	0.175
Chromium	4.6	19.5	23.5	8.5	190.5	25.5	10.5	4.05
Cobalt	2.8	5.5	[2.05]	3.6	6	[2.4]	33	[2.05]
Mercury (0.09)		0.175	1.25					
Nickel	28	495	32.5	11.5	225.5	16	160	6
Selenium (0.1)			0.315					[0.035]
Silver (0.13)		2.95	0.55	[0.455]	1.5		7	[0.41]
Thallium (0.13)								
Tin (0.95)	8.5	138.5	5				313	
Vanadium	[7]	[4.3]	[4.7]	10	50	[6]	[9.5]	[7.5]

TABLE H-2
SUBSURFACE SOIL CONTAMINANTS (TEST PIT SAMPLES)
NUS RESULTS MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease Values, (mg/kg))
PAGE FOURTEEN

Sample No.	TP-011	TP-011A
Traffic Report-Org.	C9670	C9671
T.R.-Inorg.	MC4153	MC4154
Depth	2.0 ft	Duplicate
Inorganics - Metals		
Copper	183.5	179.5
Lead	263.5	297
Manganese	825	970
Iron	32,750	65,500
Zinc	239.5	162.5
Aluminum	5,700	6,750
Antimony (0.38)	1.05	[0.95]
Arsenic	7.5	10.5
Barium	55	60
Beryllium	0.25	[0.2]
Cadmium	416	1
Chromium	60	164
Cobalt	4.65	6
Mercury (0.09)		0.1
Nickel	45	90
Selenium (0.1)		
Silver (0.13)	0.95	[0.32]
Thallium (0.13)		
Tin (0.95)	8.5	8
Vanadium	[7.5]	[8.5]

Notes:
1. Values in parentheses are instrument detection limits.
2. Values in brackets were identified above the method detection limit but below the contract required detection limit.

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TABLE H-3

SUBSURFACE SOIL CONTAMINANTS (WELL BORINGS)
SAMPLED BY NUS CORPORATION (7/17/84)
MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease, mg/kg)

		Sample No.	SS-000	SS-001	SS-002	SS-003	SS-004	SS-005	SS-006	SS-007
		Traffic Report-Org.	C9765	C9744	C9745	C9746	C9747	C9761	C9762	C9763
		T.R.-Inorg.	MC1965	MC1944	MC1945	MC1946	MC1947	MC1961	MC1962	MC1963
			Blank	16A, 6-7 ft	16B, 4.5-6 ft	17A, 3-4.5 ft	18A, 3-4.5 ft	18B, 4.5-6 ft	20A, 3-4.5 ft	20A, 6-7.5 ft
PP#	CAS No.	Contaminant								
Organics - Volatile Fraction				[0.75]	[0.66]	[0.58]	[0.63]	[0.60]	[0.54]	[0.65]
(4V)	71-43-2	Benzene (5)					3K			
(86V)	108-88-3	Toluene (5)				3K	15.6			
(30V)	156-60-5	1,2-Dichloroethene (5)								
(44V)	75-09-2	Methylene Chloride (5)	17	5.35 R1	4.89 R1	12.6 R1	3K R1	3.09 R1	5.64 R1	3.07 R1
Organics - Acid Fraction										
Organics - Base/Neutral Fraction				[224]	[157]	[247]	[1,570]	[139]	[119]	[175]
(74B)	205-99-2	Benzo(b)fluoranthene (20)		4,480K		5,920	115,000	2,790K		3,490K
(75B)	207-08-9	Benzo(k)fluoranthene (20)		4,480K		6,230	54,700	2,790K		3,490K
(72B)	56-55-3	Benzo(a)anthracene (10)		2,240K	1,570K	2,470K	46,000	1,390K		1,750K
(73B)	50-32-8	Benzo(a)pyrene (20)		4,480K	3,140K	4,940K	57,800	2,790K		3,490K
(76B)	218-01-9	Chrysene (20)		4,480K	3,140K	4,940K	40,500	2,790K		3,490K
(79B)	191-24-2	Benzo(g,h,i)perylene (20)		4,480K	3,140K	4,940K	55,200	2,790K		3,490K
(81B)	85-01-8	Phenanthrene (10)		2,240K	1,570K	2,470K	26,000	1,390K	1,190K R2	1,750K
(83B)	193-39-5	Indeno(1,2,3-cd)pyrene (20)		4,480K	3,140K	4,940K	44,600	2,790K		3,490K
(84B)	129-00-0	Pyrene (10)		2,240K	1,570K	2,470K	43,400	1,390K		1,750K
(39B)	206-44-0	Fluoranthene (10)		2,240K	1,570K	2,470K	51,600	1,390K		1,750K
(78B)	120-12-7	Anthracene (10)				2,470K	15,700K	1,390K		
(80B)	86-73-7	Fluorene (10)				2,470K	15,700K			
(55B)	91-20-3	Naphthalene (10)				2,470K	15,700K	1,390K	1,190K R2	1,750K
(66B)	117-81-7	Bis(2-ethylhexyl)phthalate (10)		28,000C	1,570K R1	2,470K R1	15,700 R1	1,390K R1	1,190K R2	36,300C
(68B)	84-74-2	Di-n-butylphthalate (10)		8,810C	1,690C R1	2,470K R1	15,700 R1	1,390K R1	1,190K R2	1,750K R1
(70B)	84-66-2	Diethylphthalate (10)		2,240K	1,570K			1,390K	1,190K R2	1,750K
(69B)	117-84-0	Di-n-octyl phthalate (10)								1,750K
Organics - Pesticide/PCB Fraction										
(107P)	11097-69-1	PCB 1254 (0.1)				12			13	400

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TABLE H-3
SUBSURFACE SOIL CONTAMINANTS (WELL BORINGS)
SAMPLED BY NUS CORPORATION (7/17/84)
MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease, mg/kg)
PAGE TWO

PP#	CAS No.	Sample No. / Traffic Report-Org. / T.R.-Inorg. / Contaminant	SS-000 C9765 MC1965 Blank	SS-001 C9744 MC1944 16A, 6-7 ft	SS-002 C9745 MC1945 16B, 4.5-6 ft	SS-003 C9746 MC1946 17A, 3-4.5 ft	SS-004 C9747 MC1947 18A, 3-4.5 ft	SS-005 C9761 MC1961 18B, 4.5-6 ft	SS-006 C9762 MC1962 20A, 3-4.5 ft	SS-007 C9763 MC1963 20A, 6-7.5 ft
Oil and Grease										
Inorganics - Metals										
		Aluminum	1,760	6,050	5,500	1,630	2,450	4,750	760	5,750
		Antimony (1.0)								
		Arsenic (0.5)	2.1	2.7	3.6	0.8	1.4	2.4		2.1
		Barium (5)	22.2	141	110	16.5	18.3	47		158
		Beryllium (0.25)	0.25	0.5	0.7			0.3	0.3	
		Cadmium	0.15	0.6	0.7	0.23	0.12	0.2	0.13	1.1
		Chromium	3.2	8.3	7.7	38	17	23.5	2.2	10.5
		Cobalt (2.5)		3.6	2.6	3.9		4.8		3.3
		Copper	9.5	18.0	20.5	26.7	8.5	15.3	172.5	2010
		Iron	4,055	6,075	5,550	33,200	4,110	17,000	9,150	6,315
		Lead	2.8	8.8	16	31	6.4	5.5	7.2	182
		Manganese	67.3	49.5	80.5	620	201	382	112	94
		Nickel	5.0	12.5	9.7	126	13.8	20.3	77.5	975
		Selenium (0.1)	0.2				0.1		0.1	0.1
		Silver (0.5)	0.8				0.6			
		Thallium (0.5)								
		Tin (1.0)	1.2				8.3		1.7	7.2
		Vanadium (10)		10.7	10.8			17.6		
		Zinc	12.8	48.5	46.3	43.2	14.5	42.5	52.5	565

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TABLE H-3
SUBSURFACE SOIL CONTAMINANTS (WELL BORINGS)
SAMPLED BY NUS CORPORATION (7/17/84)
MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease, mg/kg)
PAGE THREE

		Sample No.	SS-008	SS-009	SS-010	SS-011	SS-012	SS-013	SS-013A	SS-014
		Traffic Report-Org.	C9764	C9766	C9767	C9768	C9769	C9770	C9771	C9772
		T.R.-Inorg.	MC1964	MC1966	MC1967	MC1968	MC1969	MC1970	MC1971	MC1972
			21A,9-10.5 ft	22A, 3-4.5 ft	23A,9-10.5 ft	23A,12-13.5 ft	24A,12-13.5 ft	25A, 9-12 ft	25A, 9-12 ft	Blank
PP#	CAS No.	Contaminant								
Organics - Volatile Fraction			[0.57]	[0.57]	[0.54]	[0.76]	[0.61]	[0.57]	[0.58]	
(4V)	71-43-2	Benzene (5)								
(86V)	108-88-3	Toluene (5)				6.63	3K	3K		
(30V)	156-60-5	1,2-dichloroethene (5)				7.64				
(44V)	75-09-2	Methylene chloride (5)		3.25 R1	3K R1	4.00 R1	14.6 R1	7.45 R1	5.71 R1	20.7 R1
Organics - Acid Fraction										
Organics - Base/Neutral Fraction			[152]	[58.1]	[47.5]	[56.3]	[48.7]	[52.8]	[48.7]	
(74B)	205-99-2	Benzo(b)fluoranthene (20)	3,040K							
(75B)	207-08-9	Benzo(k)fluoranthene (20)	3,040K							
(72B)	56-55-3	Benzo(a)anthracene (10)	1,520K							
(73B)	50-32-8	Benzo(a)pyrene (20)	3,040K							
(76B)	218-01-9	Chrysene (20)	3,040K							
(79B)	191-24-2	Benzo(g,h,i)perylene (20)	3,040K							
(81B)	85-01-8	Phenanthrene (10)	1,520K							
(83B)	193-39-5	Indeno(1,2,3 cd)pyrene (20)	3,040K							
(84B)	129-00-0	Pyrene (10)	1,520K							
(39B)	206-44-8	Fluoranthene (10)	1,520K							
(78B)	120-12-7	Anthracene (10)	1,520K							
(55B)	91-20-3	Naphthalene (10)					487K			
(70B)	84-66-2	Diethylphthalate (10)	1,520K							
(66B)	117-81-7	Bis(2-ethylhexyl)phthalate (10)	1,520K R1	581K R1	475 R1	563K R1		528K R1	487K R1	1,520K R1
(68B)	84-74-2	Di-n-butylphthalate (10)	1,520K R1	581K R1	475 R1	563K R1		528K R1		1,520K R1
Organics - Pesticide/PCB Fraction										
(107P)	11097-69-1	PCB 1254 (0.1)	24							

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TABLE H-3
SUBSURFACE SOIL CONTAMINANTS (WELL BORINGS)
SAMPLED BY NUS CORPORATION (7/17/84)
MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease, mg/kg)
PAGE FOUR

PP#	CAS No.	Sample No. / Traffic Report-Org. / T.R.-Inorg. / Contaminant	SS-008 C9764 MC1964 21A,9-10.5 ft	SS-009 C9766 MC1966 22A, 3-4.5 ft	SS-010 C9767 MC1967 23A,9-10.5 ft	SS-011 C9768 MC1968 23A,12-13.5 ft	SS-012 C9769 MC1969 24A,12-13.5 ft	SS-013 C9770 MC1970 25A, 9-12 ft	SS-013A C9771 MC1971 25A, 9-12 ft	SS-014 C9772 MC1972 Blank
Oil and Grease				0.34	0.21	1.400		0.250	0.247	0.640
Inorganics - Metals										
		Aluminum	1,045	5,820	3,250	3,210	3,270	4,870	4,300	1,270
		Antimony (1.0)								
		Arsenic	2.7	2.0	1.5	3.8	3.3	3.3	1.9	2.3
		Barium (5)		21.0	15.0	17.4	20.5	35.0	33.2	20
		Beryllium (0.25)		0.4					8.0	0.3
		Cadmium (0.05)		0.19	0.08	0.17	0.13	0.15	0.12	0.18
		Chromium	2.1	7.5	4.9	5.4	4.9	7.3	6.6	2.6
		Cobalt (2.5)		4.5	3.2	3.6	4.3	3.2	3.0	
		Copper	6.5	19.0	17.1	25.5	14.5	22.6	21.0	5.5
		Iron	3,795	11,400	7,800	9,200	9,950	10,500	9,500	3,000
		Lead	3.6	5.3	4.2	5.8	7.6	5.8	4.0	1.8
		Manganese	176	106.0	259	500	143.0	79.0	63.0	55.0
		Mercury (0.1)								
		Nickel	3.5	13.5	8.8	8.8	10.3	10.0	9.5	3.8
		Selenium (0.1)								
		Silver (0.5)								
		Thallium (0.5)								
		Tin (1.0)		1.35						
		Vanadium (10)								
		Zinc	17.5	50.0	40.0	45.0	44.2	40.4	39.0	10.6

Notes: Subsurface soils (SS) are samples of cuttings taken with a split-spoon sampler.
The location shown at the top is the monitoring well and the depth over which a composite sample was taken.
K - Actual value, within limitations of this method, is less than the actual value given.
C - Value corrected for blank concentration.
Values in parenthesis are the instrument detection limits for a given compound.
Values in brackets are correction factors which account for dilution of samples; multiplication of the instrument detection limit by the appropriate correction factor for that fraction will yield the method detection limit for a given compound of a given sample.
R1 - Rejected during data validation process because of reagent blank contamination.
R2 - Rejected during data validation process; matrix spike recoveries below contract specifications.

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TABLE H-4

GROUNDWATER CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/14/84)
MILLCREEK SITE
(All Values Presented in µg/l)

			Upgradient	Major Volatile Groundwater Contamination Area and Downgradient Onsite and Offsite Wells						
	Sample No.		MW-034	MW-011	MW-006	MW-007	MW-005	MW-004	MW-010	MW-003
	Traffic Report - Organic		C9377	C9313	C9307	C9308	C9306	C9305	C9312	C9304
	Traffic Report - Inorganic		MC2687	MC2623	MC2617	MC2618	MC2616	MC2615	MC2622	MC2614
	Monitoring Well No.		MW-21B	MW-4	MW-1	MW-3	MW-5	MW-2	MW-6	MW-9
PP# CAS No.	Contaminant									
Organics - Volatile Fraction										
	Total xylenes	(5)			< 5					
(16V) 75-00-3	Chloroethane	(5)						32	44	5.5
(13V) 75-34-3	1,1-dichloroethane	(5)			25	12	27	230Ω		260
(10V) 107-06-2	1,2-dichloroethane	(5)							6.0	7.6
(29V) 75-35-4	1,1-dichloroethene	(5)						8.4		11
(30V) 156-60-5	1,2-dichloroethene	(5)		32	47	22	64	16	79	110
(87V) 79-01-6	Trichloroethene	(5)			14		6.4	14		
(11V) 71-55-6	1,1,1-trichloroethane	(5)			160	6.9	46	960Ω	25	590
(88V) 75-01-4	Vinyl chloride	(5)		12	45	13	33	6.1	110	91
(44V) 75-09-2	Methylene chloride	(5)	11	500Ω	1,200Ω	110	120	8.3	68	< 5
Base/Neutral Fraction										
(54B) 78-59-1	Isophorone	(10)								73
(70B) 84-66-2	Diethyl phthalate	(10)								
(68B) 84-74-2	Di-n-butyl phthalate	(10)								
Inorganics - HSL Heavy Metals										
	Iron	(15)	1420	1440	1480	705	4650	5940	2020	2610
	Manganese	(4.0)	609	430	551	640	842	583	528	744
	Cadmium	(0.88)								
	Aluminum	(34)								
	Antimony	(6.2)								
	Arsenic	(4.1)								16
	Barium	(28)	184	232	206	135		134	148	246
	Beryllium	(0.3)								
	Chromium	(3.3)								

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TABLE H-4
GROUNDWATER CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/14/84)
MILLCREEK SITE
(All Values Presented in µg/l)
PAGE TWO

		Upgradient	Major Volatile Groundwater Contamination Area and Downgradient Onsite and Offsite Wells						
Sample No.		MW-034	MW-011	MW-006	MW-007	MW-005	MW-004	MW-010	MW-003
Traffic Report - Organic		C9377	C9313	C9307	C9308	C9306	C9305	C9312	C9304
Traffic Report - Inorganic		MC2687	MC2623	MC2617	MC2618	MC2616	MC2615	MC2622	MC2614
Monitoring Well No.		MW-21B	MW-4	MW-1	MW-3	MW-5	MW-2	MW-6	MW-9
Inorganics - HSL Heavy Metals (Continued)									
Cobalt	(4.6)								
Mercury	(0.05)	0.22							
Nickel	(5.2)								
Selenium	(1.9)								
Silver	(3.8)								
Thallium	(4.1)								
Tin	(15)	39		32	234	24			36
Vanadium	(15)								
Zinc	(2.1)		26	61	11	21	12		12
Copper	(5.4)								

Notes:
1 Values listed in parentheses are instrument detection limits.
2 Denotes quantitated from a secondary ion.
3 Less than (<) values depict substances detected below detection limit provided.
4 K - indicates compound detected below the method detection limit.

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TABLE H-4
GROUNDWATER CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/14/84)
MILLCREEK SITE
(All Values Presented in µg/l)
PAGE THREE

				Major Volatile Groundwater Contamination Area and Downgradient Onsite and Offsite Wells				
		Sample No.		MW-002	MW-009	MW-016	MW-001	MW-032
		Traffic Report - Organic		C9303	C9311	C9320	C9328	C9337
		Traffic Report - Inorganic		MC2613	MC2621	MC2630	MC2612	MC2647
		Monitoring Well No.		MW-10	MW-7	MW-23B	MW-11	MW-25B
PP#	CAS No.	Contaminant						
Organics - Volatile Fraction								
(16V)	75-00-3	Chloroethane	(5)					
(13V)	75-35-3	1,1-dichloroethane	(5)	< 5				
(10V)	107-06-2	1,2-dichloroethane	(5)					
(29V)	75-35-4	1,1-dichloroethene	(5)	8.5	6.4	16		
(30V)	156-60-5	1,2-dichloroethene	(5)	10,000	3,000	29,000	93	5.1
(87V)	79-01-6	Trichloroethene	(5)	300	5	140		
(11V)	71-55-6	1,1,1-trichloroethane	(5)					
(88V)	75-01-4	Vinyl chloride	(5)	120	220	200K	6.4	
(44V)	75-09-2	Methylene chloride	(5)	23	310			95
Base/Neutral Fraction								
(54B)	78-59-1	Isophorone	(10)					
(70B)	84-66-2	Diethyl phthalate	(10)	< 10			24	
(68B)	84-74-2	Di-n-butyl phthalate	(10)				21	

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TABLE H-4
GROUNDWATER CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/14/84)
MILLCREEK SITE
(All Values Presented in µg/l)
PAGE FOUR

		Major Volatile Groundwater Contamination Area and Downgradient Onsite and Offsite Wells				
Sample No.		MW-002	MW-009	MW-016	MW-001	MW-032
Traffic Report - Organic		C9303	C9311	C9320	C9328	C9337
Traffic Report - Inorganic		MC2613	MC2621	MC2630	MC2612	MC2647
Monitoring Well No.		MW-10	MW-7	MW-23B	MW-11	MW-25B
Inorganics - HSL Heavy Metals						
Iron	(15)	9,320	8,190	4,710	10,600	386
Manganese	(4.0)	1,360	890	722	666	338
Cadmium	(0.88)					18
Lead	(1.8)					
Mercury	(0.2)					
Aluminum	(34)	495				
Antimony	(6.2)					
Arsenic	(4.1)					
Barium	(28)		264	158	155	
Beryllium	(0.3)					
Chromium	(3.3)					
Cobalt	(4.6)					
Mercury	(0.05)					
Nickel	(5.2)					
Selenium	(1.9)					
Silver	(3.8)					
Thallium	(4.1)					
Tin	(15)		22	21	22	54
Vanadium	(15)					
Zinc	(2.1)				13	61
Copper	(5.4)					

Notes: Values listed in parentheses are instrument detection limits.
Less than (<) values depict substances detected below detection limits.
K - Indicates compound detected below the method detection limits.

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TABLE II-4
GROUNDWATER CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/14/84)
MILLCREEK SITE
(All Values Presented in µg/l)
PAGE FIVE

			Remaining Onsite and Offsite Wells							
		Sample No.	MW-013	MW-014	MW-012	MW-008	MW-008A	MW-023	MW-023A	MW-021
		Traffic Report - Organic	C9315	C9316	C9314	C9309	C9310	C9327	C9332	C9325
		Traffic Report - Inorganic	MC2625	MC2626	MC2624	MC2619	MC2620	MC2637	MC2642	MC2635
		Monitoring Well No.	MW-8	MW-12	MW-13	MW-14	MW-14	MW-16B	MW-16B	MW-17B
PP#	CAS No.	Contaminant								
Organics - Volatile Fraction										
(16V)	75-00-3	Chloroethane (5)								
(13V)	75-35-3	1,1-dichloroethane (5)								
(10V)	107-06-2	1,2-dichloroethane (5)								
(29V)	75-35-4	1,1-dichloroethene (5)								
(30V)	156-60-5	1,2-dichloroethene (5)								
(87V)	79-01-6	Trichloroethene (5)								
(11V)	71-55-6	1,1,1-trichloroethane (5)								
(88V)	75-01-4	Vinyl chloride (5)								
(44V)	75-09-2	Methylene chloride (5)	36		36	5.3	75	410C	360C	
Base/Neutral Fraction										
(59B)	78-59-1	Isophorone (10)								
(70B)	84-66-2	Diethyl phthalate (10)	41		23					
(68B)	84-74-2	Di-n-butyl phthalate (10)								

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TABLE H-4
GROUNDWATER CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/14/84)
MILLCREEK SITE
(All Values Presented in µg/l)
PAGE SIX

			Remaining Onsite and Offsite Wells							
		Sample No.	MW-013	MW-014	MW-012	MW-008	MW-008A	MW-023	MW-023A	MW-021
		Traffic Report - Organic	C9315	C9316	C9314	C9309	C9310	C9327	C9332	C9325
		Traffic Report - Inorganic	MC2625	MC2626	MC2624	MC2619	MC2620	MC2637	MC2642	MC2635
		Monitoring Well No.	MW-8	MW-12	MW-13	MW-14	MW-14	MW-16B	MW-16B	MW-17B
PP#	CAS No.	Contaminant								
Inorganics - HSL Heavy Metals										
		Iron (15)		10,100	20,800	1,610	1,370			16,900
		Manganese (4.0)	100	1,830	519	1,910	1,920	131	126	1,330
		Cadmium (0.88)								
		Aluminum (34)								
		Antimony (6.2)								
		Arsenic (4.1)			37					
		Barium (28)	134	129	193	128	131			312
		Beryllium (0.3)								
		Chromium (3.3)								
		Cobalt (4.6)								
		Mercury (0.05)								
		Nickel (5.2)								
		Selenium (1.9)								
		Silver (3.8)								
		Thallium (4.1)								
		Tin (15)	29		21		30	31	30	
		Vanadium (15)								
		Copper (5.4)								
		Zinc (2.1)		18	14		10			18

Notes: Values listed in parentheses are instrument detection limits.
Indicates result correctred for reagent blank contamination.

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TABLE H-4
GROUNDWATER CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/14/84)
MILLCREEK SITE
(All Values Presented in µg/l)
PAGE SEVEN

			Remaining Onsite and Offsite Wells			
		Sample No.	MW-025	MW-019	MW-029	MW-030
		Traffic Report - Organic	C9329	C9323	C9334	C9335
		Traffic Report - Inorganic	MC2639	MC2633	MC2644	MC2645
		Monitoring Well No.	MW-18B	MW-20B	MW-22B	MW-22C
PP#	CAS No.	Contaminant				
Organics - Volatile Fraction						
(16V)	75-00-3	Chloroethane (5)				
(13V)	75-35-3	1,1-dichloroethane (5)				
(10V)	107-06-2	1,2-dichloroethane (5)				
(29V)	75-35-4	1,1-dichloroethene (5)				
(30V)	156-60-5	1,2-dichloroethene (5)		5K		
(87V)	79-01-6	Trichloroethene (5)				
(11V)	71-55-6	1,1,1-trichloroethane (5)				
(88V)	75-01-4	Vinyl chloride (5)				
(44V)	75-09-2	Methylene chloride (5)	120C	130C	14	56
Base/Neutral Fraction						
(59B)	78-59-1	Isophorone (10)				
(70B)	84-66-2	Diethyl phthalate (10)				
(68B)	84-74-2	Di-n-butyl phthalate (10)				

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TABLE H-4
GROUNDWATER CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/14/84)
MILLCREEK SITE
(All Values Presented in µg/l)
PAGE EIGHT

			Remaining Onsite and Offsite Wells			
		Sample No.	MW-025	MW-019	MW-029	MW-030
		Traffic Report - Organic	C9329	C9323	C9334	C9335
		Traffic Report - Inorganic	MC2639	MC2633	MC2644	MC2645
		Monitoring Well No.	MW-18B	MW-20B	MW-22B	MW-22C
PP#	CAS No.	Contaminant				
Inorganics - HSL Heavy Metals						
		Iron (15)	210	1,160		513
		Manganese (4.0)	423	1,300	71	426
		Cadmium (0.88)				
		Aluminum (34)				
		Antimony (6.2)				
		Arsenic (4.1)				
		Barium (28)	310	162		120
		Beryllium (0.3)				
		Chromium (3.3)				
		Cobalt (4.6)				
		Mercury (0.05)				
		Nickel (5.2)				
		Selenium (1.9)				
		Silver (3.8)				
		Thallium (4.1)				
		Tin (15)		46	33	20
		Vanadium (15)				
		Zinc (2.1)		15		
		Copper (5.4)				

Notes: Values listed in parentheses are instrument detection limits.

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TABLE H-5

GROUNDWATER CONTAMINANTS (DEEP WELLS)
SAMPLED BY NUS CORPORATION (8/15-17/84)
MILLCREEK SITE
(All Values Presented in µg/l)

				Upgradient	Volatiles Area	Downgradient
		Sample No.		MW-033	MW-015	MW-031
		Traffic Report-Org.		C9338	C9319	C9336
		Traffic Report-Inorganic		MC2648	MC2629	MC2646
		Monitoring Well No.		MW-21A	MW-23A	MW-25A
PP#	CAS No.	Contaminant				
Organics - Volatile Fraction						
(16V)	75-00-3	Chloroethane	(5)			
(13V)	75-35-3	1,1-Dichloroethane	(5)			
(10V)	107-06-2	1,2-Dichloroethane	(5)			
(29V)	75-35-4	1,1-Dichloroethene	(5)			
(30V)	156-60-5	1,2-Dichloroethene	(5)		16	
(87V)	79-01-6	Trichloroethene	(5)		5K	
(11V)	71-55-6	1,1,1-Trichloroethene	(5)			
(88V)	75-01-4	Vinyl Chloride				
(44V)	75-09-2	Methylene Chloride	(5)	44		1,900
Base/Neutral Fraction						
(54B)	78-59-1	Isophorone	(10)			
(70B)	84-66-2	Diethylphthalate	(10)			
(68B)	84-74-2	Di-n-butyl phthalate	(10)			
HSL Heavy Metals						
		Iron	(15)	1,000		2,600
		Manganese	(4.0)	234	137	302
		Cadmium	(0.88)			
		Aluminum	(34)			
		Antimony	(62)			
		Arsenic	(4.1)			
		Barium	(28)	164	125	399
		Beryllium	(0.3)			
		Chromium	(3.3)			

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TABLE H-5
GROUNDWATER CONTAMINANTS (DEEP WELLS)
SAMPLED BY NUS CORPORATION (8/15-17/84)
MILLCREEK SITE
(All Values Presented in µg/l)
PAGE TWO

		Sample No.	Upgradient	Volatiles Area	Downgradient
		Traffic Report-Org.	MW-033	MW-015	MW-031
		Traffic Report-Inorganic	C9338	C9319	C9336
		Monitoring Well No.	MC2648	MC2629	MC2646
			MW-21A	MW-23A	MW-25A
PP#	CAS No.	Contaminant			
HSL Heavy Metals (Continued)					
		Cobalt	(4.6)		
		Mercury	(0.05)		
		Nickel	(5.2)		
		Selenium	(1.9)		
		Silver	(3.8)		
		Thallium	(4.1)		
		Tin	(15)	25	
		Vanadium	(15)		
		Copper	(5.4)		
		Zinc	(2.1)	21	13

Note: Values in parentheses instrument detection limits

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TABLE H-5
GROUNDWATER CONTAMINANTS (DEEP WELLS)
SAMPLED BY NUS CORPORATION (8/15-17/84)
MILLCREEK SITE
(All Values Presented in µg/l)
PAGE THREE

				Remaining Deep Monitoring Wells							
		Sample No.		MW-017	MW-022	MW-020	MW-024	MW-026	MW-018	MW-028	MW-027
		Traffic Report-Org.		C9321	C9326	C9324	C9328	C9330	C9322	C9333	C9331
		Traffic Report-Inorganic		MC2631	MC2636	MC2634	MC2638	MC2640	MC2632	MC2643	MC2641
		Monitoring Well No.		MW-15A	MW-16A	MW-17A	MW-18A	MW-19A	MW-20A	MW-22A	MW-24A
PP#	CAS No.	Contaminant									
Organics - Volatile Fraction											
(16V)	75-00-3	Chloroethane	(5)								
(13V)	75-35-3	1,1-Dichloroethane	(5)								
(10V)	107-06-2	1,2-Dichloroethane	(5)								
(29V)	75-35-4	1,1-Dichloroethene	(5)								
(30V)	156-60-5	1,2-Dichloroethene	(5)	6.0					5K		
(87V)	79-01-6	Trichloroethene	(5)								
(11V)	71-55-6	1,1,1-Trichloroethene	(5)								
(88V)	75-01-4	Vinyl Chloride									
(44V)	75-09-2	Methylene Chloride	(5)					230C	86C	6,900	1,400C
Base/Neutral Fraction											
(54B)	78-59-1	Isophorone	(10)								
(70B)	84-66-2	Diethylphthalate	(10)								
(68B)	84-74-2	Di-n-butyl phthalate	(10)								
Pesticides/PCBs											
(92P)	50-29-3	4,4' DDT	(0.01)	0.047							

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TABLE H-5
GROUNDWATER CONTAMINANTS (DEEP WELLS)
SAMPLED BY NUS CORPORATION (8/15-17/84)
MILLCREEK SITE
(All Values Presented in µg/l)
PAGE FOUR

		Sample No.	Remaining Deep Monitoring Wells							
		Traffic Report-Org.	MW-017	MW-022	MW-020	MW-024	MW-026	MW-018	MW-028	MW-027
		Traffic Report-Inorganic	C9321	C9326	C9324	C9328	C9330	C9322	C9333	C9331
		Monitoring Well No.	MC2631	MC2636	MC2634	MC2638	MC2640	MC2632	MC2643	MC2641
			MW-15A	MW-16A	MW-17A	MW-18A	MW-19A	MW-20A	MW-22A	MW-24A
PP#	CAS No.	Contaminant								
HSL Heavy Metals										
		Iron	(15)	345	74	205				
		Manganese	(4.0)	563	24	305				
		Cadmium	(0.88)				118	192	211	100	155
		Aluminum	(34)								
		Antimony	(6.2)								
		Arsenic	(4.1)								
		Barium	(28)	224	223						
		Beryllium	(0.3)				101				
		Chromium	(3.3)						105		287
		Cobalt	(4.6)								
		Mercury	(0.05)								
		Nickel	(5.2)								
		Selenium	(1.9)								
		Silver	(3.8)								
		Thallium	(4.1)								
		Tin	(15)	29	30	29	27	31		37	192
		Vanadium	(15)								
		Copper	(5.4)								
		Zinc	(2.1)						12		58

Note: Values in parentheses instrument detection limits

AR000624

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TABLE H-6

SURFACE WATER CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/17/84)
MILLCREEK SITE
(All Values Presented in µg/l)

									Western Extreme of Site		Downstream
		Sample No.	MC-SW-000	MC-SW-001	MC-SW-003	MC-SW-005	MC-SW-006	MC-SW-007	MC-SW-010	MC-SW-10A	MC-SW-004
		Traffic Report-Organic	C9318	C9774	C9775	C9777	C9778	C9779	C9780	C9781	C9776
		Traffic Report-Inorganic	MC-2628 (Blank)	MC-2678	MC-2679	MC-2681	MC-2682	MC-2683	MC-2684	MC-2685	MC-2680
		Location		Upstream Marshall's Run	Downstream Marshall's Run	Onsite Pond	In Swamp Near SS-019	Swamp Sample Near Sitter Property	West Branch Marshall's Run by Ballfield	Duplicate of SW-010	Downstream West Branch Marshall's Run
PP#	CAS No.	Contaminant									
Organics - Volatile Fraction											
(44V)	75-09-02	Methylene Chloride (5)	11 R1	13 R1			7.9 R1	36 R1	9.8 R1	11 R1	36 R1
Organics - Acid Fraction [1]											
Organics - Base/Neutral Fraction[1]											
Organics - Pesticides[1]											
Organics - PCBs[1]											
Inorganics											
(120M)		Copper (5.4)				584	9,560	409			
		Iron (15)		644	5,580	508	21,600	2,210	368	305	2,810
(122M)		Lead (1.8)			185	89	1,940	101			14
		Manganese (4.0)		231	1,580	63	1,310	732	33	29	92
(128M)		Zinc (2.1)		11	96	306	6,430	294	12	13	39
		Aluminum (34)			805	271	6,270	352			1,410
		Antimony (6.2)									
		Arsenic (4.1)									
		Barium (28)		105	171		169				

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TABLE H-6
SURFACE WATER CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/17/84)
MILLCREEK SITE
(All Values Presented in µg/l)
PAGE TWO

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		Sample No.	MC-SW-000	MC-SW-001	MC-SW-003	MC-SW-005	MC-SW-006	MC-SW-007	Western Extreme of Site		Downstream
		Traffic Report-Organic	C9318	C9774	C9775	C9777	C9778	C9779	MC-SW-010	MC-SW-10A	MC-SW-004
		Traffic Report-Inorganic	MC-2628	MC-2678	MC-2679	MC-2681	MC-2682	MC-2683	C9780	C9781	C9776
			(Blank)						MC-2684	MC-2685	MC-2680
		Location		Upstream Marshall's Run	Downstream Marshall's Run	Onsite Pond	In Swamp Near SS-019	Swamp Sample Near Sitter Property	West Branch Marshall's Run by Ballfield	Duplicate of SW-010	Downstream West Branch Marshall's Run
PP#	CAS No.	Contaminant									
Inorganics (Continued)											
		Beryllium (0.3)									
		Chromium (3.3)									
		Cobalt (4.6)					20				
		Mercury (0.05)			0.81						
		Nickel (5.2)					0.28				
		Selenium (1.9)				53	386				
		Silver (3.8)									
		Thallium (4.1)									
		Tin (15)	22	24	23	22	385	45	36		22
		Vanadium (15)									
		Copper (5.4)									
		Cadmium (0.88)									
Oil and Grease[1]							3.7				1.2

[1] Compounds undetected.
Values in parenthesis are instrument detection limits.
R1 - Rejected during data validation process because of field blank contamination.

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TABLE H-7

SEDIMENT CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/17/84)
MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease in mg/kg)

			Marshall's Run			PCB and Lead Area Southeast Corner	Lead Contaminated Area South Central	Near Sitter Property	Between Halmi and Riehl Property	Near End of Marshall's Road
			Upelevation	Alongside	Downelevation					
		Sample No.	MCSD-001	MCSD-002	MCSD-003	MCSD-005	MCSD-006	MCSD-007	MCSD-009	MCSD-008
		Traffic Report-Organic	C9376	C9378	C9379	C9381	C9382	C9383	C9385	C9384
		Traffic Report-Inorganic	MC2667	MC2668	MC2669	MC2671	MC2672	MC2673	MC2675	MC2674
PP#	CAS No.	Contaminant	Marshall Up	Marshall Down	Marshall W-12	On Site Pond	Swamp	Swamp	Onsite Low Area	Swampy Area
Organics - Volatile Fraction										
(44V)	75-09-2	Methylene chloride (2.5)	17	22	43	46	35	810	17	45
Organics - Acid Fraction										
(65A)	108-95-2	Phenol (10)				870	760		990	
Organics - Base/Neutral Fraction										
(76B)	318-01-9	Chrysene (10)	1,500							
(66B)	117-81-7	Bis(2-ethylhexyl)phthalate (10)		2,200	2,300	2,500				1,000
(67B)	85-68-7	Benzyl butyl phthalate (10)				1,400				1,500
(68B)	84-74-2	Di-n-butylphthalate (10)			1,100	1,100				
(69B)	117-84-0	Di-n-octyl phthalate (10)								
(84B)	129-00-0	Pyrene (10)	2,500							
(72B)	56-55-3	Benzo(a)anthracene (10)	1,200		1,500					
(39B)	206-44-8	Fluoranthene (10)	2,800		3,300					
(81B)	85-01-8	Phenanthrene (10)	2,200		3,100					
(75B)	207-08-9	Benzo(k)fluoranthene (20)	1,500							
Organics - PCBs										
(110P)	12672-29-6	PCB 1248 (4)				290PN	170PN	430PN	1,500PN	

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TABLE H-7
SEDIMENT CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/17/84)
MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease in mg/kg)
PAGE TWO

PP#	CAS No.	Contaminant	Marshall's Run Upelevation	Marshall's Run Alongside	Marshall's Run Downelevation	PCB and Lead Area Southeast Corner	Lead Contaminated Area South Central	Near Sitter Property	Between Halmi and Riehl Property	Near End of Marshall's Road
		Sample No.	MC-SD-001	MC-SD-002	MC-SD-003	MC-SD-005	MC-SD-006	MC-SD-007	MC-SD-009	MC-SD-008
		Traffic Report-Organic	C9376	C9378	C9379	C9381	C9387	C9383	C9385	C9384
		Traffic Report-Inorganic	MC2667	MC2668	MC2669	MC2671	MC2672	MC2673	MC2675	MC2674
			Marshall Up	Marshall Down	Marshall W-12	On Site Pond	Swamp	Swamp	Onsite Low Area	Swampy Area
Organics - Pesticides										
(93P)	72-55-9	4,4'-DDE (4)	33PN							
(92P)	50-29-3	4,4'-DDT (4)	41PN							
(94P)	72-54-8	4,4'-DDD (4)	42PN							
Inorganics - Metals										
		Copper	30	51	71.1	3,144	5,210	4,798	6,605	19
		Iron	11,230	16,685	11,115	3,675	4,292	8,310	7,335	2,655
		Lead	49	47	72	340	632	570	672	19
		Manganese	223	299	182	50	89	120	146	54
		Zinc	137	137	103	1,223	2,168	2,040	2,406	40
		Aluminum	4,543	5,370	2,790	1,555	2,235	3,177	2,615	3,649
		Antimony (1.0)				1.4	2.0	1.8	1.0	
		Arsenic	6.5	7.0	4	0.5	1.3	0.8	1.0	1.3
		Barium	53	57	34	14	12	21	12	93
		Beryllium (0.25)	0.4							
		Cadmium	0.6	0.7	0.45	0.5	0.77	0.7	0.7	0.5
		Chromium	8.5	14	13	7	7	13	11	8.5
		Cobalt (2.5)	6.0	5.0	3.0			3.0	3.0	
		Mercury (0.1)							0.5	0.1
		Nickel	13.5	19	42	119	214	167	394	9.0
		Selenium (0.1)			0.1					0.25
		Silver (0.5)				0.6	1.5	1.5	1.5	
		Thallium (0.5)								
		Tin (1.0)			1.2	70	109	60	71	1.0
		Vanadium (10)		10						12

AR000628

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TABLE H-7
SEDIMENT CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/17/84)
MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease in mg/kg)
PAGE THREE

			Marshall's Run			PCB and Lead Area Southeast Corner	Lead Contaminated Area South Central	Near Sitter Property	Between Halmi and Riehl Property	Near End of Marshall's Road
			Upelevation	Alongside	Downelevation					
		Sample No.	MC-SD-001	MC-SD-002	MC-SD-003	MC-SD-005	MC-SD-006	MC-SD-007	MC-SD-009	MC-SD-008
		Traffic Report-Organic	C9376	C9378	C9379	C9381	C9387	C9383	C9385	C9384
		Traffic Report-Inorganic	MC2667	MC2668	MC2669	MC2671	MC2672	MC2673	MC2675	MC2674
PP#	CAS No.	Contaminant	Marshall Up	Marshall Down	Marshall W-12	On Site Pond	Swamp	Swamp	Onsite Low Area	Swampy Area
		Oil and Grease	3,400	1,800	5,800	1,800	540	680	1,800	300

AR000629

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TABLE II-7
SEDIMENT CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/17/84)
MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease in mg/kg)
PAGE FOUR

			West Branch of Marshall's Run		
			Adjacent Site		Downstream
		Sample No.	MCSD-010	MCSD-010A	MCSD-004
		Traffic Report-Organic	C9386	C9387	C9380
		Traffic Report-Inorganic	MC2676	MC2677	MC2670
PP#	CAS No.	Contaminant	Marshall West Up	Dup MCSD-010	Marshall West
Organics - Volatile Fraction					
(44V)	75-09-2	Methylene chloride (2.5)	25	16 R1	15 R1
Organics - Acid Fraction					
(65A)	108-95-2	Phenol (10)			
Organics - Base/Neutral Fraction					
(66B)	117-81-7	Bis(2-ethylhexyl)phthalate (10)			
(67B)	85-68-7	Benzyl butyl phthalate (10)			
(68B)	84-74-2	Di-n-butylphthalate (10)			
(69B)	117-84-0	Di-n-octyl phthalate (10)			
(84B)	129-00-0	Pyrene (10)		630	11,000
(72B)	56-55-3	Benzo(a)anthracene (10)			
(39B)	206-44-0	Fluoranthene (10)		590	5,600
(81B)	85-01-8	Phenanthrene (10)			
Organics - PCBs					
(110P)	12672-29-6	PCB 1248 (4)			
Organics - Pesticides					
(93P)	72-55-9	4,4'-DDE (4)			
(92P)	50-29-3	4,4'-DDT (4)			
(94P)	72-54-8	4,4'-DDD (4)			

DRAFT

TABLE H-7
SEDIMENT CONTAMINANTS
SAMPLED BY NUS CORPORATION (8/17/84)
MILLCREEK SITE
(All Values Presented in µg/kg; Except Metals and Oil and Grease in mg/kg)
PAGE FIVE

			West Branch of Marshall's Run		
			Adjacent Site		Downstream
		Sample No.	MC-SD-010	MC-SD-010A	MC-SD-004
		Traffic Report-Organic	C9386	C9387	C9380
		Traffic Report-Inorganic	MC2676	MC2677	MC2670
PP#	CAS No.	Contaminant	Marshall West	Dup MCSD-010	Marshall West
Inorganics - Metals					
		Copper	24	20	22
		Iron	11,060	10,950	6,340
		Lead	19	15	48
		Manganese	95	133	106
		Zinc	59	63	83.5
		Aluminum	5,290	5,155	3,223
		Antimony (1.0)			
		Arsenic	2.5	2.5	3.5
		Barium	31	29	54
		Beryllium (0.25)			
		Cadmium	0.6	0.65	1.1
		Chromium	7	7.0	7
		Cobalt	3.5	4.0	5.5
		Mercury (0.1)			
		Nickel	18	18	17
		Selenium	0.15		0.1
		Silver (0.5)			
		Thallium (0.5)			
		Tin (1.0)	1.4		
		Vanadium (10)		7.0	
		Oil and Grease	1,500	1,000	5,100

Notes:
Values in parenthesis are instrument detection limits
PN - Pesticide/PCB not confirmed by GC/MS.
R1 - Rejected during data validation process because of reagent blank contamination.

METALS DATA
Wheeling Laboratory Section
Mill Creek Drum Removal, SMO Case No. R3-1

[illegible] No.	NEIC No.	CRL No.	Collection Date/Time	Arsenic µg/g	Barium µg/g	Cadmium µg/g	Chromium µg/g	Lead µg/g	Nickel µg/g	Selenium µg/g	Silver µg/g	Sodium µg/g
8403230604	28684	84032001	8312061125	23	95	9.1	<4.1	45	53	20	<4.1	18,000
8403230605	28751	84032002	8312051500	27	95	8.7	<4.1	58	58	20	<4.1	2,100
8403230606	28752	84032003	[illegible] 51510	22	780	11	10	490	57	27	<4.1	2,000
8403230607	28754	84032004	[illegible]	29	84	9.6	<4.0	88	52	17	<4.0	2,000
8403230608	28755	84032005	[illegible]061025	24	1,600	92	28	15,000	100	23	6.4	2,400
8403230609	28756	84032006	8312061030	26	110	8.7	<3.9	55	59	21	3.9	2,300
8403230610	28757	84032007	8312061035	9.7	120	8.2	<3.9	62	66	20	<3.9	2,300
8403230611	28758	84032008	8312061040	33	100	8.8	4.0	56	64	29	<4.0	3,200
8403230612	28759	84032009	8312061050	37	120	13	2,900	37	460	11	<3.8	1,600
8403230613	28760	84032010	8312061055	27	99	11	<4.1	28	70	[illegible]	7.0	2,000
8403230614	28761	84032011	8312061105	27	330	8.8	7.6	64	64	[illegible]	<4.0	2,300
8403230615	28763	84032012	8312061120	24	100	9.1	7.9	83	58	[illegible]	<4.1	15,000
8403230616	28765	84032013	8312061210	28	100	15	<3.8	42	50	[illegible]	5.4	2,200
8403230617	28767	84032014	8312060920	150	160	27	460	130	240	[illegible]	11	4,000
8403230618	28768	84032015	8312071130	100	98	45	16,000	3,600	27,000	[illegible]	490	2,000
8403230619	28768D	84032016	8312071130	140	96	56	7,200	2,900	14,000	[illegible]	350	2,000
8403230620	28768T	84032017	8312071130	110	99	61	13,000	3,400	25,000		370	1,900

THIS TABLE HAS BEEN REPRODUCED AS RECEIVED. PORTIONS OF IT ARE UNREADABLE.

METALS DATA
Wheeling Laboratory Section
Mill Creek Drum Removal, SMO Case No. R3-1

WLS No.	NEIC No.	CRL No.	Collection Date/Time	Arsenic µg/g	Barium µg/g	Cadmium µg/g	Chromium µg/g	Lead µg/g	Nickel µg/g	Selenium µg/g	Silver µg/g	Sodium µg/g
8403230621	28768S	84032018	8312071130	500	1,600(116)	13(*)	13,000(**)	5,400(149)	27,000(**)	1,100(66.2)	40(*)	3,400(103)
8403230622	28770	84032019	8312061130	24	110	11	13	25	57	19	7.3	2,400
8403230623	28771	84032020	8312061140	27	110	11	13	53	57	23	7.8	2,400
8403230624	28772	84032021	8312061200	39	160	15.6	8.8	39	60	24	9.2	2,600
8403230625	C-5292 (R.B.)	84032022		73	350	37	34	120	98	64	25	6,000
8403230626	Con.(R.S.)	84032023		58	620	24	23,000	740	82	39	18	6,500
8405020660	Con. S-21	84041905		<0.3	590	1,000	890	750	620	1.2	99	950
8405020661	C-5929	84041906		<3	140	18	<10	<3	<20	11	<10	910
8405020656	28753	84041901	8312061000	<0.3	13	2.3	<1.0	<0.3	<2.0	1.0	<1.0	120
8405020657	28753D	84041902	8312061000	<0.3	13	2.6	1.6	<0.3	2.0	0.8	1.0	130
8405020658	28753T	84041903	8312061000	<0.3	14	1.7	1.0	<0.3	2.0	0.7	1.0	110
8405020659	28753S	84041904	8312061000	150(60.0)	110(38.7)	250(99.1)	260(104)	230(92.0)	180(71.2)	210(83.7)	94(37.2)	100(***)

NOTE: Values in parenthesis represent the percent recovery of the spike for that particular element.

*Spike not recovered

**Spike not reportable due to large dilution

***Not spiked

U.S. Environmental Protection Agency
Contract Laboratory Program

Hazardous Substances Laboratories
Denver Federal Center, Bldg. 53, Box 25227
Denver, Colorado 80225

PREPARED HAZARDOUS WASTE EXTRACT CUSTODY RECORD

Region No. 3

Regional Contact

SMO Case No.

NEIC Project No. R3-1 Mill Creek

Sample Number	Region Station Number	Station Location	Collection Date	Collection Time	X-ray/IR	KOH Fusion	Total Mercury (in duplicate)	Strong Acid Anions	Method 3050	Phase No.	Comments
28684	14	Ethylene Glycol H	12-6-83	1135		X				01	84032001
28751	01	Lot #1 Met. 410-M	12-5-83	1500		X				03	84032002
28752	02	Lot #2 Volatile-S	12-5-83	1510		X				03	84032003
~~28753~~ dk											
28754	04	Lot #3 Oil-M	12-6-83	1005		X				01, 02	84032004
28755	05	Grease-R	12-6-83	1025		X				01, 02	84032005
28756	06	Grease-M	12-6-83	1030		X				01	84032006
28757	07	Grease-H	12-6-83	1035		X				03	84032007
28758	08	Grease-H	12-6-83	1040		X				01, 02	84032008
28759	09	~~Grease~~ dk Solvent-H	12-6-83	1050		X				01, 02, 03	84032009
28760	10	Solvent-M	12-6-83	1055		X				03	84032010
28761	11	Solvent-R Direction Open	12-6-83	1105		X				01	84032011

	Date / Time		Date / Time
Shipped via Federal Express Airbill no. 772189515 Sealed for shipment	3-19-84 / 1100	Received by (signature) [illegible]	3-20-84 / 8:40
Relinquished by (signature) Diana Hudson	3-19-84 / 1100	Received by (signature) Helen Kerr	3/20/84 / 8:10
Cris Donaldson Joann M. Green	3-20-84 / 12:05	Joann M. Green	3/20/84 / 12:05

Sample Phases:
01 Water Miscible Liquid
02 Solid
03 Non Water Miscible Liquid

1/1/84dh

AR000634

U.S. Environmental Protection Agency
Contract Laboratory Program

Hazardous Substances Laboratories
Denver Federal Center, Bldg. 53, Box 25227
Denver, Colorado 80225

PREPARED HAZARDOUS WASTE EXTRACT CUSTODY RECORD

Region No.:
Regional Contact:
SMO Case No.:
NEIC Project No.:

	Sample Number	Region Station Number	Station Location	Collection Date	Collection Time	X-ray/IR	KOH Fusion	Total Mercury (in duplicate)	Strong Acid Anions	Method 3050	Phase No.	Comments
15	28763	13	Ethylene Glycol R	12-6-83	1140		X				01	84032012
16	28765	18	H2O R	12-6-83	1210		X				01	84032013
17	28767	19	NaCN Solid M	12-6-83	920		X				02	84032014
18	28768	20	NaCN Solid Group M	12-7-83	1130		X				02	84032015
19	28768D	20	Duplicate	12-7-83	1130		X				02	84032016
20	28768T	20	Triplicate	12-7-83	1130		X				02	84032017
21	28768S	20	Spike	12-7-83	1130		X				02	84032018
22	28770	15	H2O M	12-6-83	1130		X				01	84032019
23	28771	16	H2O/Resin S	12-6-83	1140 ~~1200~~		X				01	84032020
24	28772	17	H2O H	12-6-83	1200		X				01 02	84032021
25	C5927	–	Reagent Blank	–	–		X				–	84032022
26	Control	–	Rivers Sediment	–	–		X				–	84032023

Extracts Prepared

	Date / Time		Date / Time
Shipped via Federal Express Airbill no. 7732189515 Sealed for shipment	3-19-84 / 1100	Received by (signature) [illegible]	3-20-84 / 8:40
Relinquished by (signature) Diana Hudson	3/19/84 / 1100	Received by (signature) Helen Rouse	3/23/84 / 8:10
[illegible] Donald Olson [illegible]	3/22/84 / 12:05	[illegible]	3/24/84 / 12:05

Sample Phases:
01 Water Miscible Liquid
02 Solid
03 Non Water Miscible Liquid

1/1/84dh

AR000635

U.S. Environmental Protection Agency
Contract Laboratory Program

Hazardous Substance Laboratories
Denver Federal Center, Bldg. 53, Box 25227
Denver, Colorado 80225

PREPARED HAZARDOUS WASTE EXTRACT CUSTODY RECORD

Region No. 3

Regional Contact

SMO Case No.

NEIC Project No. R3 / Mill Creek

Sample Number	Region Station Number	Station Location	Collection Date	Collection Time	X-ray/IR	KOH Fusion	Total Mercury (in duplicate)	Strong Acid Anions	Method 3050	Phase No.	Comments
Control	—	Tomorrow 331	—	--	—	X				—	
38762	12	Ethylene Glycol H G.E.	12-6-85	1115		X				DI	[illegible]

Extracts Prepared

Shipped via Federal Express
Airbill no. 772189513
Sealed for shipment

Relinquished by (signature)	Date / Time	Received by (signature)	Date / Time
Diana Hudson	3-19-84 / 1100	[illegible]	3/20/84 / 8:41
Diana Hudson	3-19-84 / 1100	Helen Rouse	3/23/84 / 8:18
[illegible] Anna M. Brown	3-22-84 / 12:05	[illegible]	3/24/84 / 12:05

Sample Phases:
01 Water Miscible Liquid
02 Solid
03 Non Water Miscible Liquid

1/1/84dh

AR000636

U.S. Environmental Protection Agency
Contract Labortory Program

Hazardous Substances Laboratories
Denver Federal Center, Bldg. 53, Box 25227
Denver, Colorado 80225

PREPARED HAZARDOUS WASTE EXTRACT CUSTODY RECORD

Region No.	Regional Contact
3	

SMO Case No.	NEIC Project No.
R3-1	

Sample Number	Region Station Number	Station Location	Collection Date	Collection Time	Sample Extracts Prepared: METHOD 3050							Phase No.	COMMENTS
28753	03	Lot #3 Lightoil-R	12-6-83	1000	X			84041902				03	
28753D	03	Duplicate	12-6-83	1000	X			84041902				03	
28753T	03	Triplicate	12-6-83	1000	X			84041903				03	
28753S	03	Spike	12-6-83	1000	X			84041904				03	
Control	—	CONOSTAN S-21	—	—	X			84041905				—	
C5929	—	Reagent Blank	—	—	X			84041906				RC	

Shipped via Federal Express Airbill no. 353315366 Sealed for Shipment	date / time 1/18/84 0800	Received by (signature) for action	date / time 5-2-84 9:50 A
Relinquished by (signature) Louise C. Rhodes	date / time 1/18/89 0800	Received by (signature) Janet Robison	date / time 4-19-84 9:15
Janet Robison	5/1/84 1308	Fed. Exp. 287973560	1/1/84dh

Sample Phases:
01 - Water Miscible Liquid
02 - Solid
03 - Non Water Miscible Liquid

AR000637

STATION #11

SAMPLE #	DATE	ANALYSIS	CONTAMINANT	CONC.*	MEDIA	VOLUME
23	11-17-82	Aromatic Amines	-	BDL	Silica (3 stage)	180.0 L
39	11-17-82	Particulates (Metal)	-	BDL	Particulates Filters	288.0 L

STATION #12

SAMPLE #	DATE	ANALYSIS	CONTAMINANT	CONC.*	MEDIA	VOLUME
VOID - NO SAMPLES						

STATION #13

SAMPLE #	DATE	ANALYSIS	CONTAMINANT	CONC.*	MEDIA	VOLUME
27	11-17-82	Organics	-	BDL	Carbon (10 mg)	28.0 L
21	11-17-82	Aromatic Amines	-	BDL	Silica (3 stage)	180.0 L
25	11-17-82	Inorganic Acids	-	BDL	Silica (2 stage)	27.74 L
Outside drum 30	11-17-82	Organics	-	BDL	Carbon (150 mg)	26.22 L
Outside drum 37	11-17-82	Organics	-	BDL	Carbon (150 mg)	9.51 L

METALS DETECTION LIMITS

Analyte	Micrograms of Analyte per Milliliter for 1% Absorption
Lead	2.5
Antimony	12.5
Zinc	1.0
Silver	1.25
Nickel	2.5
Copper	1.25
Arsenic	50.0
Cadmiuim	1.0
Beryllium	1.0
Selenium	12.5
Tellurium	12.5
Mercury	12.5
Chromium	1.25

ORGANIC SOLVENTS DETECTION LIMITS

Analyte	Detection Limit in Micrograms per Sample	
	Small C-Tube (150 mg)	Large C-Tube (600 mg)
Acetone	16	48
Benzene	1	3
Carbon tetrachloride	2	5
Chloroform	4	11
Dichloromethane	1	4
p-Dioxane	5	15
Ethylene dichloride	3	9
MEK	6	17
Styrene	1	3
Tetrachloroethylene	4	12
1,1,2, trichloroethylene	1	4
Methyl chloroform	1	4
Trichloroethylene	1	4
Toluene	1	3
Xylene	2	6
Total Organic Hydrpcarbons (as toluene)	2	6

AROMATIC AMINES DETECTION LIMITS

Analyte	Micrograms of Analyte
Aniline	10
n,n Dimethylamine	10
p-toluidine	10
2,4-xylidine	10
o-anisidine	10
p-anisidine	10
p-nitroaniline	50

PCB DETECTION LIMITS

Detection limit of 1 microgram of PCB's per section of the sample.

INORGANIC ACIDS DETECTION LIMITS

All samples were checked for the presence of six acids: HF, HCL, HBr, HNO_3, H_2SO_4, and H_3PO_4.

The detection limit for acids: 20 micrograms with the exception of hydrochloric acid and hydrofluoric acid, which is 3 micrograms.

The following is a summary of the Thermal desorption/field GC done on-site.

DATE	STATION	MEDIA	VOLUME	ANALYSES	Results Total # Peaks	Results Total Conc. **
11/16/82	5	Tenax	9.26 L	Total Vapors Gases	1 peak	BDL
11/16/82	3	Tenax	8.8 L	"	2 peaks	BDL
11/16/82	3	Carbon Spheres	55.16 L	"	2 peaks	BDL
11/16/82	1	Carbon Spheres	43.5 L	"	2 peaks	BDL
11/16/82	2	Carbon Spheres	43.86 L	"	1 peak	BDL
11/16/82	4	Carbon Spheres	7.02 L	"	1 peak	BDL
11/17/82	11	Carbon Spheres	101.15 L	"	9 peaks	BDL
11/17/82	13	Carbon Spheres	108.75 L	"	11 peaks	BDL
11/17/82	10	Carbon Spheres	116.25 L	"	11 peaks	BDL

The following is a summary of types of samples collected in the crawl spaces, collection media, volumes and results. The detection limits are the same as those previously mentioned.

STATION - 1326 Harpes

ANALYSES	CONTAMINANT	CONCENTRATIONS
Organics***	1) Milligrams of total hydrocarbon per cubic meter of air.	0.11 mg/m^3
	2) Parts of total hydrocarbon as Toluene per million parts of air	0.03 ppm

STATION - 1326 Harpes (cont.)

ANALYSES	CONTAMINANT	CONCENTRATIONS
PCB's	--	BDL
ganics***	Carbon Tetrachloride	Less than 20 micrograms
Aromatic Amines	--	BDL

STATION - 1332 Harpes

ANALYSES	CONTAMINANT	CONCENTRATIONS
Organics***	1. Milligrams of total hydrocarbon per cubic meter of air	0.1 mg/m^3
	2. Parts of total hydrocarbons as Toluene per million parts of air	0.0003 ppm
Aromatic Amines	--	BDL

STATION - 3269 W. 14th

ANALYSES	CONTAMINANT	CONCENTRATIONS
Organics***	1. Milligrams of total hydrocarbon per cubic meter of air	0.18 mg/m^3
	2. Parts of total hydrocarbon as Toluene per million parts of air	0.05 mg/m^3
PCB's	--	BDL

STATION - OROS Residence

ANALYSES	CONTAMINANT	CONCENTRATIONS
Organics***	1. Milligrams of total hydrocarbon per cubic meter of air	0.27 mg/m^3
	2. Parts of total hydrocarbon as Toluene per million parts of air.	0.07 ppm

TION - 3123 W. 13th

ANALYSES	CONTAMINANT	CONCENTRATIONS
Organics***	1. Milligrams of total hydrocarbon per cubic meter of air	0.49 mg/m^3
	2. Parts of total hydrocarbon as Toluene per million parts of air	0.13 ppm

* BDL = below detection limits

** = total concentrations = time weighted average (TWA) as methane

*** Since one or more very small peaks were observed between the standard organics in NIOSH Method P&CAM 127 by a GC, the extractions were then analyzed by a GC/MS. With the exception of the organic sample from 1326 Harpes, the GC/MS analysis did not reveal any additional information. The GC/MS analysis of the organic sample from station 1326 Harpes revealed the presence of carbon tetrachloride, however, the concentration was below the detection limit.

CONCLUSION:

On-site samples: While the November 16th & 17th air sampling did not reveal the presence of airborne vapor/gas contaminants approaching the PEL's or TLV's, it should not be interpeted to mean that the air was free of potential hazardous contaminants. Since a large portion of the site was not covered be vegetation, potential for exposure to hazardous particulates must be taken into consideration and evaluated against the surface soil samples and personnel job functions. In addition, potential personnel exposure to hazardous gases/vapors must be evaluated since temperature during the sampling periods ranged from 20°F to 49°F and the only positive air samples was a 150 mg carbon tube which was placed inside of a clean black metal pan face down into the soil which was not covered with vegetation.

OFF-SITE OBSERVATIONS

Since there were peaks at or slightly above the GC's detection limit, but not in sufficient concentration to be identified on a GC/MS, I requested the contract lab to total all peaks in a sample and report it as total hydrocarbons (as if it were Toluene). Again, the ambient temperatures must be kept in mind since they ranged from 20°F to 49°F. The only organic identified was Carbon Tetrachloride. While the results are relatively low and do not approach PEL's or TLV's, it should not be interpeted to mean that the air was free of potential hazardous contaminants. It was recommended that a public health official review this data.

SAFETY PLAN

Based on the on-site air analyses and site conditions, Level C protection appears to have been the appropriate level of protection for most of the site activities conducted during ERT activities. Once the surface soil samples are analyzed and data available, it may be appropriate to extend the support and contamination reduction areas further into the contaminated area as well designate some portions of the contamination zone as Level D.

cc: Royal Nadeau
Mike Zickler

STATION #5 (BACKGROUND)

SAMPLE #	DATE	ANALYSIS	CONTAMINANT	CONC.*	MEDIA	VOLUME
5-B	11-16-82	Organics	-	BDL	Carbon (150 mg)	16.74 L
9	11-16-82	Aromatic Amine	-	BDL	Silica (3 stage)	180.0 L
12-H	11-16-82	PCB's	-	BDL	Florisil	17.32 L

Station #8 (BACKGROUND)

SAMPLE #	DATE	ANALYSIS	CONTAMINANT	CONC.*	MEDIA	VOLUME
36-K	11-17-82	Organics	-	BDL	Carbon (150 mg)	32.52L
20	11-17-82	Aromatic Amine	-	BDL	Silica (3 stage)	358.0 L
1/38	11-17-82	Particulates (Metals)	-	BDL	Particulates Filters	324.0 L
34-I	11-17-82	Inorganic Acids	-	BDL	Silica (2 stage)	12.66L

Station #1

SAMPLE #	DATE	ANALYSIS	CONTAMINANT	CONC.*	MEDIA	VOLUME
3-F	11-16-82	Organics	-	BDL	Carbon (150 mg)	12.28 L
7	11-16-82	Aromatic Amines	-	BDL	Silica (3 stage)	117.4 L
11-C	11-16-82	PCB's	-	BDL	Florisil	11.43 L
17	11-16-82	Particulates (Metals)	-	BDL	Particulates Filters	174.0 L

Station #2

SAMPLE #	DATE	ANALYSIS	CONTAMINANT	CONC.*	MEDIA	VOLUME
8	11-16-82	Aromatic Amines	-	BDL	Silica (3 stage)	120.2 L
10	11-16-82	PCB's	-	BDL	Florisil	10.52 L

STATION #3

SAMPLE #	DATE	ANALYSIS	CONTAMINANT	CONC.*	MEDIA	VOLUME
4-G	11-16-82	Organics	-	BDL	Carbon (150 mg)	9.45 L
6	11-16-82	Aromatic Amines	-	BDL	Silica (3 stage)	141.7 L
13	11-16-82	PCB's	-	BDL	Florisil	12.82 L
16	11-16-82	Particulates (Metals)	-	BDL	Particulates Filters	275.6 L

STATION #4

SAMPLE #	DATE	ANALYSIS	CONTAMINANT	CONC.*	MEDIA	VOLUME
12	11-16-82	Organics	-	BDL	Carbon (150 mg)	10.83 L

STATION #6

SAMPLE #	DATE	ANALYSIS	CONTAMINANT	CONC.*	MEDIA	VOLUME
14-K	11-16-82	Organics	-	BDL	Carbon (150 mg)	11.69 L

STATION #7

SAMPLE #	DATE	ANALYSIS	CONTAMINANT	CONC.*	MEDIA	VOLUME
15-D	11-16-82	Organics	-	BDL	Carbon (150 mg)	12.16 L

STATION #9

SAMPLE #	DATE	ANALYSIS	CONTAMINANT	CONC.*	MEDIA	VOLUME
31-F	11-17-82	Organics	-	BDL	Carbon (150 mg)	35.66 L

STATION #10

SAMPLE #	DATE	ANALYSIS	CONTAMINANT	CONC.*	MEDIA	VOLUME
pan sample) 32-A	11-17-82	Organics	**		Carbon (150 mg)	28.27 L
22	11-17-82	Aromatic Amines	-	BDL	Silica (3 stage)	180.0 L
26	11-17-82	Inorganic Acids	-	BDL	Silica (2 stage)	29.08 L

** showed presence of 0.039 milligrams/1,1,1 trichlorethane/1.378 mg/m^3/0.253 ppm

DRAFT

APPENDIX I

TENTATIVELY IDENTIFIED COMPOUNDS DETECTED AT THE MILLCREEK SITE

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATION (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	MUS SAMP. NO. LAB SAMP. NO. SAMPLE LOCATION	MC-SO-001 C9340	MC-SO-002 C9341	MC-SO-003 C9342	MC-SO-004 C9343	MC-SO-005 C9344	MC-SO-006 C9345	MC-SO-007 C9346	MC-SO-008 C9347	MC-SO-009 C9348	MC-SO-010 C9349	MC-SO-011 C9350
55162-61-3	tetracontane, 3,5,7,4-trimethyl					1500/65.6							
						2200/71.7							
						46000/77.3							
						26000/73.4							
17301-22-3	undecane, 2,5-dimethyl,					15000/72.5							
3790-71-4	2,6,10-dodecatrien-1-OL,3,7,11-trimethyl-(Z,E)					7700/35.5							
						58000/62.4							2200/72.6
17302-27-1	nonane, 2,5-dimethyl					67000/74.1							
56292-65-0	dodecane, 2,5-dimethyl					5900/57.6							
1454-85-9	1-heptadecanol					17000/73.5							
60-29-7	ethane, 1,1'-oxybis					2/96.6							
5129-60-2	pentadecanoic acid, 14-methyl-methylester						830/78.6						
593-45-3	octadecane						7600/79.3						
54833-23-7	eicosane, 10-methyl						2000/63.0						
							3100/63.7						
1560-88-9	octadecane, 2-methyl						1800/52.6						
56292-69-4	tetradecane, 2,5-dimethyl						2300/52.7						
40710-42-7	hentetracontanol						3700/41.9						
56292-65-0	dodecane, 2,5-dimethyl						1700/59.4						
1560-95-8	tetradecane, 2-methyl						3000/67.9						
112-95-8	eicosane						3200/68.8						
7225-64-1	heptadecane, 9-octyl						2200/45.8						
55045-14-2	tetradecane, 4-ethyl						4200/58.5						
51504-54-2	1,4-hexadiene, 2,3,4,5-tetramethy							640/28.9					
55103-66-7	2(1H)-benzocyclooctenone, decahydro-4A-methyl,-trans							1300/57.7					
611-55-2	4(1H)-pteridinone, 2-amino-6,7-dimethyl							1100/18.1					
55401-75-7	anthracene,9-dodecyltetradecahydro							1000/34.4					
481-21-0	cholestane, (5 Alpha)-							850/22.9			580/36.3		
372-64-5	disulfide bis (trifluoromethyl)							710/15.0					
55255-70-4	anthracene, 9-cyclohexyltetradecahydro							1800/45.6					
55334-01-5	phenanthrene, 9-dodecyltetradecahydro							2000/47.6					
55133-89-6	anthracene, 9-butyltetradecahydro							720/21.6					
487-06-9	2H-1-benzopyran-2-one, 5,7-dimethoxy									230/20.3			
131-18-0	1,2,benzenedicarboxylic acid, dipentyl ester									360/67.5			
										5900/64.7			
55314-42-4	dodecane, 1,2-dibromo									230/31.8			
										2100/31.6			
31083-60-0	tricyclo/4.3.1.13,8]undecane-1-carboxylic acid, methyl									310/33.1			
40710-42-7	1-hentetracontanol									1200/46.5			
565-59-3	pentane, 2,3-dimethyl									720/20.1			
40710-70-1	octatetracomtane, 1-100									640/52.8			
591-21-1	cyclohexanol, 3-methyl									190/47.1			
54714-35-1	butanoic acid, 2-methylcyclohexyl ester, cis									370/21.9			
42541-33-3	1,3,2 dioxarsenane, 2-butyl									740/42.0			

AR000647

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	MUS SAMP. NO. / LAB SAMP. NO. / SAMPLE LOCATION	MC-SO-001 C9340	MC-SO-002 C9341	MC-SO-003 C9342	MC-SO-004 C9343	MC-SO-005 C9344	MC-SO-006 C9345	MC-SO-007 C9346	MC-SO-008 C9347	MC-SO-009 C9348	MC-SO-010 C9349	MC-SO-011 C9350
3913-02-8	1-octanol,2-butyl-												
52896-87-4	heptane,4-(1-methylethyl)-												
56554-64-4	hexadecane,1,1-bis(dodecycloxy)-												
5441-52-1	cyclohexanol,3,5-dimethyl												
112-42-5	1-undecanol												
544-63-8	tetradecanoic acid												
17851-53-5	1,2-benzenedicarboxylic acid, butyl 2-methylpropyl ester												
2091-29-4	9-hexadecanoic acid												
56554-78-0	7-heptadecene,1-chloro-												
105-87-3	2,6-octadien-1-OL,3,7-dimethyl-,acetate,(E)-												
51110-93-1	2H-1,6-benzoxazocin-5(6H)-one,3,4-dihydro												
6006-01-5	3,7,11-tridecatrienenitrile,4,8,12-trimethyl-												
747-90-0	cholesta-3,5-diene												
1454-85-9	1-heptadecanol												
294-62-2	cyclododecane												
101-41-7	benzene acetic acid, methylester												
629-96-9	1-eicosanol												
288-13-1	1H-pyrazole												
103-82-2	benzene acetic acid												
764-48-7	ethanol, 2-(ethenyloxy)-												
123-08-0	benzaldehyde,4-hydroxy-												
121-33-5	benzaldehyde, 4-hydroxy-3-methoxy-												
134-96-3	benzaldehyde, 4-hydroxy-3,5-dimethoxy-												
1002-84-2	pentadecanoic acid												
530-57-4	benzoic acid, 4-hydroxy-3,5-dimethoxy												
6714-00-7	5-hepten-2-one												
638-66-4	octadecanal												
57396-76-6	2H-1-benzopyran-3,4,7-triol,3,4-dihydro-2-(3-hydroxy												
112-88-9	1-octadecene												
56554-96-2	2-octadecanol												
7154-79-2	pentane,2,2,3,3-tetramethyl-												
142-50-7	1,6,10-dodecatrien-3-OL,3,7,11-trimethyl-,/5-(2)/-												
1073-06-9	benzene,1-bromo-3-fluoro												

AR000648

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	NUS SAMP. NO. / LAB SAMP. NO. / SAMPLE LOCATION	MC-S0-001 C9340	MC-S0-002 C9341	MC-S0-003 C9342	MC-S0-004 C9343	MC-S0-005 C9344	MC-S0-006 C9345	MC-S0-007 C9346	MC-S0-008 C9347	MC-S0-009 C9348	MC-S0-010 C9349	MC-S0-011 C9350
80-71-7	2-cyclopenten-1-one,2-hydroxy-3-methyl												
54482-49-4	cholest-24-ENE,(5.alpha.20XI)-												
17312-74-2	decane,5-ethyl-5-methyl-												
19719-70-1	4-norcarem-2-one,1,3,5,-tri-tert-butyl-4-oxo-2,5-cyclo-hexadien-1-yl]methyl-												
141-14-0	6-octen-1-Ol,3,7-dimethyl-propanoate												
54482-31-4	D-homoandrostane,(5.alpha.,13.alpha.)-												
55429-83-9	hexacosane,9-octyl-												
39707-54-5	1,4-benzenediol,2-(decahydro-55,8a-trimethyl-2-methylene -1-naphthalenyl)-methyl)-,(1R-(1.alpha.,4a.beta.,8a.alpha.))-												
56771-77-8	4-hexanoic acid, 3-methyl-2,6-dioxo-												
100-68-5	benzene-(methylthio)-												
56009-20-2	cyclohexane,1-(1,5-dimethylhexyl)-4-(4-methylpentyl)												
18465-99-1	9,12,15-octadecatrienoic acid,2,3-dihydroxypropylester,(Z,Z,Z)-												
1732-10-1	nonanedioic acid, dimethyl ester												
6064-90-0	heneicosanoic acid, methyl ester												
1731-86-8	undecanoic acid, methyl ester												
57-11-4	octadecanoic acid												
17302-27-1	nonane,2,5-dimethyl-												
544-25-2	1,3,5-cycloheptatriene												
112-53-8	1-dodecanol												
2425-54-9	tetradecane,1-chloro-												
4706-81-4	2-tetradecanol												
13-18-0	1,2-benzenedicarboxylic acid, diphenyl ester												
27554-26-3	1,2-benzenedicarboxylic acid, disoctyl ester												
7299-89-0	1,2-benzenedicarboxylic acid, bis(2-ethylbutyl)ester												
28080-85-5	10-undecenoic acid, octyl ester												
52783-43-4	nonadecanol												
473-15-4	2-naphthalenemethanol,decahydro-.alpha.,alpha.,4a-trimethyl-8-methylene-,(2R-(2.alpha.,4a.alpha.,8a.beta.))-												
77-02-1	2,4,6(1H,3H,5H)-pyrimidinetrione,5-(1-methylethyl)-5-2 (propenyl)-												
120-75-2	benzothiazole,2-methyl-												
84-69-5	1,2-benzenedicarboxylic acid, bis(2-methylpropyl)ester												
205-99-2	benz/e/acephenanthrylene												

AR000649

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	NUS SAMP. NO. LAB SAMP. NO. SAMPLE LOCATION	MC-S0-001 C9340	MC-S0-002 C9341	MC-S0-003 C9342	MC-S0-004 C9343	MC-S0-005 C9344	MC-S0-006 C9345	MC-S0-007 C9346	MC-S0-008 C9347	MC-S0-009 C9348	MC-S0-010 C9349	MC-S0-011 C9350
95-63-6	benzene 1,2,4-trimethyl												
2381-21-7	pyrene 1-methyl												
5353-25-3	ethanol, 2-(9-octadecenyloxy)-(Z)												
82-05-3	7H-benz/de/anthracen-7-one												
205-43-6	benzo/b/naptho/1,2-D/thiopene												
203-12-3	benzo/ghi/fluoranthene												
195-19-7	benzo/c/phenanthrene												
2541-69-7	benz/a/anthracene',7-methyl												
604-53-5	1,1'-binaphtalene												
4076-39-5	benzo/c/phenanthrene, 1-methyl												
205-82-3	benzo/j/fluoranthene												
193-39-5	ideno/1,2,3-co/pyrene												
191-24-2	benzo/ghi/perylene												
111-76-2	ethanol, 2-butoxy												
1921-70-6	pentadecane, 2,6,10,14-tetramethyl												
693-88-9	aziridine, 1,2,3-trimethyl-trans												
1560-88-9	octadecane, 2-methyl												
1560-84-5	eicosane, 2-methyl												
55255-86-2	1-hexadecanone, 1-cyclopentyl												
55401-55-3	docasane, 11-decyl												
207-08-9	benzo/k/fluoranthene												
464-42-6	bicyclo/2.2.1/heptan-2-amine, 1,7,7-trimethyl-endo												
55334-01-5	phenanthrene, 9-dodecyl, tetradecahydro												
112-95-8	eicosane												
18344-37-1	heptadecane, 2,6,10,14-tetramethyl												
55045-10-8	tridecane, 6-propyl												

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	MUS SAMP. NO. / LAB SAMP. NO. / SAMPLE LOCATION	MC-SO-001 C9340	MC-SO-002 C9341	MC-SO-003 C9342	MC-SO-004 C9343	MC-SO-005 C9344	MC-SO-006 C9345	MC-SO-007 C9346	MC-SO-008 C9347	MC-SO-009 C9348	MC-SO-010 C9349	MC-SO-011 C9350
57-10-3	hexadecanoicacid												
593-45-3	octadecane												
638-36-8	hexadecane 2,6,10,14-tetramethyl												
630-06-8	hexatriacontane												
55030-62-1	tridecane, 4,8-dimethyl												
697-40-5	bicyclo/2/2/octane, 1-bromo-4-methyl												
629-95-7	pentacosane												
55401-65-5	pentalene octahydro-1-(2-octyldecdyl)												
192-97-2	benzo/e/pyrene												
107-87-9	2-pentanone												
928-68-7	2-heptanone, 6-methyl												
110-43-0	2-heptanone												
111-13-7	2-octanone												
694-87-1	bicyclo/4.2-0/octa-1,3,5-trien												
88-99-3	1,2-benzenedicarboxylic acid												
7469-40-1	naphalene, 1,2-dihydro-4-phenyl												
54986-44-6	benzene, (1,3,3-trimethylnonyl)-												
4443-55-4	cyclohexane, eicosyl-												
54033-48-6	heptadecane, 3,6,10,15-tetramethyl												
1888-57-9	3-hexanone, 2,5-dimethyl												
7614-93-9	benzene, 1,1'-(3-methyl-1-propene-1,3-diylobis)												
17651-53-6	1,2-benzenedicarboxylic acid, butyl 2-methyl propyl ester												
84-74-2	1,2-benzenedicarboxylic acid, dibutyl ester												
610-15-1	benzamide, 2-nitro												
33010-48-9	iron, tricarboxyl/(2,3,4,5-etc.)-2,5-dimethyl-2,4-HE												
112-86-4	benzene,1-fluoro-3-1000												
41093-43-9	1,2-benzisoselenazole, 3-methyl												
53432-05-6	1H-purine-2,6-dione,3,7-diethyl-3,7-dihydro-1-methyl												
58-72-0	benzene,1,1'1''-(1-ethenyl-2-ylidene)tris-												
930-57-4	cyclopropane, butyl-												
104-76-7	1-hexanol, 2-hexyl												
143-08-8	1-nonanol												
10042-59-8	1-heptanol,2-propyl												
544-76-3	hexadecane												
55-68-3	benzene acetic acid, 3-methoxy-4-(2,2,3,3,3-pentafluoro)												
30950-89-1	5.alpha-cholest-1-EN-19-OL												
4780-40-6	furan, 2,5-bis(1,1-dimethylethyl)												
9079-31-0	tetradecane, 1-(methylsulfinyl)-												
1071-26-7	heptane,2,2-dimethyl												
629-94-7	heneicosane												

TENTA[illegible] LY [illegible]TIFIE[illegible] IPOUN[illegible]
MI[illegible]K SITE
CONCENTRATION (µg/kg/[illegible]CENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	NUS SAMP. NO. / LAB SAMP. NO. / SAMPLE LOCATION	MC-SO-012 C9351	MC-SO-013 C9352	MC-SO-014 C9353	MC-SO-015 C9354	MC-SO-016 C9355	MC-SO-017 C9356	MC-SO-018 C9357	MC-SO-019 C9358	MC-SO-020 C9359	MC-SO-020A C9360	MC-SO-021 C9361
55162-61-3	tetracontane, 3,5,2,4-trimethyl					63000/44.3							
17301-22-3	undecane, 2,5-dimethyl,												
3790-71-4	2,6,10-dodecatrien-1-Ol,3,7,11-trimethyl-(Z,E)									1400/59.1	740/48.1		
17302-27-1	nonane, 2,5-dimethyl												
56292-65-0	dodecane, 2,5-dimethyl												
1454-85-9	1-heptadecanol												
60-29-7	ethane, 1,1'-oxybis												
5129-60-2	pentadecanoic acid, 14-methyl-methylester									6.9/98.0			
593-45-3	octadecane												
54833-23-7	eicosane, 10-methyl												
1560-88-9	octadecane, 2-methyl												
56292-69-4	tetradecane, 2,5-dimethyl												
40710-42-7	hentetracontanol												
56292-65-0	dodecane, 2,5-dimethyl												
1560-95-8	tetradecane, 2-methyl												
112-95-8	eicosane												
7225-64-1	heptadecane, 9-octyl												
55045-14-2	tetradecane, 4-ethyl												
51504-54-2	1,4-hexadiene, 2,3,4,5-tetramethy												
55103-66-7	2(1H)-benzocyclooctenone, decahydro-4A-methyl,-trans												
611-55-2	4(1H)-pteridinone, 2-amino-6,7-dimethyl												
55401-75-7	anthracene,9-dodecyltetradecahydro				35000/48.8			15000/48.9	1700/50.9				
481-21-0	cholestane, (5 Alpha)-				29000/45.1								
372-64-5	disulfide bis (trifluoromethyl)												
55255-70-4	anthracene, 9-cyclohexyltetradecahydro												
55334-01-5	phenanthrene, 9-dodecyltetradecahydro												
55133-89-6	anthracene, 9-butyltetradecahydro							1700/32.7					
487-06-9	2H-1-benzopyran-2-one, 5,7-dimethoxy						1300/54.3						
131-18-0	1,2,benzenedicarboxylic acid, dipentyl ester												
55334-42-4	dodecane, 1,2-dibromo							32000/42.1					
31003-60-0	tricyclo/4.3.1.13,8)undecane-1-carboxylic acid, methyl												
40710-42-7	1-hentetracontanol												
565-59-3	pentane, 2,3-dimethyl												
40710-70-1	octatetracomtane, 1-1000												
591-23-1	cyclohexanol, 3-methyl												
54714-35-1	butanoic acid, 2-methylcyclohexyl ester, cis												
42541-33-3	1,3,2 dioxarsenane, 2-butyl												

AR000652

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	MUS SAMP. NO. LAB SAMP. NO. SAMPLE LOCATION	MC-SO-012 C9351	MC-SO-013 C9352	MC-SO-014 C9353	MC-SO-015 C9354	MC-SO-016 C9355	MC-SO-017 C9356	MC-SO-018 C9357	MC-SO-019 C9358	MC-SO-020 C9359	MC-SO-020A C9360	MC-SO-021 C9361
3913-02-8	1-octanol,2-butyl-												
52896-87-4	heptane,4-(1-methylethyl)-												
56554-64-4	hexadecane,1,1-bis(dodecycloxy)-												
5441-52-1	cyclohexanol,3,5-dimethyl												
112-42-5	1-undecanol												
544-63-8	tetradecanoic acid												
17851-53-5	1,2-benzenedicarboxylic acid, butyl 2-methylpropyl ester												
2091-29-4	9-hexadecanoic acid												
56554-78-0	7-heptadecene,1-chloro-												
105-87-3	2,6-octadien-1-OL,3,7-dimethyl-,acetate,(E)-												
51110-93-1	2H-1,6-benzoxazocin-5(6H)-one,3,4-dihydro												
6006-01-5	3,7,11-tridecatrienenitrile,4,8,12-trimethyl-												
747-90-0	cholesta-3,5-diene												
1454-85-9	1-heptadecanol												
294-62-2	cyclododecane												
101-41-7	benzene acetic acid, methylester												
629-96-9	1-eicosanol												
288-13-1	1H-pyrazole												
103-82-2	benzene acetic acid												
764-48-7	ethanol, 2-(ethenyloxy)-												
123-08-0	benzaldehyde,4-hydroxy-												
121-33-5	benzaldehyde, 4-hydroxy-3-methoxy-												
134-96-3	benzaldehyde, 4-hydroxy-3,5-dimethoxy-												
1002-84-2	pentadecanoic acid												
530-57-4	benzoic acid, 4-hydroxy-3,5-dimethoxy												
6714-00-7	5-hepten-2-one												
638-66-4	octadecanal												
57396-76-6	2H-1-benzopyran-3,4,7-triol,3,4-dihydro-2-(3-hydroxy												
112-88-9	1-octadecene												
56554-96-2	2-octadecanol												
7154-79-2	pentane,2,2,3,3-tetramethyl-												
142-50-7	1,6,10-dodecatrien-3-OL,3,7,11-trimethyl-,/5-(2)/-												
1073-06-9	benzene,1-bromo-3-fluoro												

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	NUS SAMP. NO. / LAB SAMP. NO. / SAMPLE LOCATION	MC-S0-012 C9351	MC-S0-013 C9352	MC-S0-014 C9353	MC-S0-015 C9354	MC-S0-016 C9355	MC-S0-017 C9356	MC-S0-018 C9357	MC-S0-019 C9358	MC-S0-020 C9359	MC-S0-020A C9360	MC-S0-021 C9361
80-71-7	2-cyclopenten-1-one,2-hydroxy-3-methyl							3000/23.4					
54482-49-4	cholest-24-ENE,(5.alpha.20XI)-							8000/23.3					
17312-74-2	decane,5-ethyl-5-methyl-							3900/23.0					
19719-70-1	4-norcaren-2-one,1,3,5,-tri-tert-butyl-4-oxo-2,5-cyclo-hexadien-1-yl)methyl-												
141-14-0	6-octen-1-OL,3,7-dimethyl-propanoate							3300/30.8	1800/62.2				
54482-31-4	D-homandrostane,(5.alpha.,13.alpha.)-							21000/42.4					
								8400/46.5					
								9100/48.9					
55429-83-9	hexacosane,9-octyl-							13000/21.9					
39707-54-5	1,4-benzenediol, 2-(decahydro-5,5,8a-trimethyl-2-methylene -1-naphthalenyl)-methyl)-,(1R-(1.alpha.,4a.beta.,8a.alpha.))-								1700/40.9				
56771-77-8	4-hexanoic acid, 3-methyl-2,6-dioxo-								1500/44.4				
100-68-5	benzene-(methylthio)-								820/24.5				
56009-20-2	cyclohexane,1-(1,5-dimethylhexyl)-4-(4-methylpentyl)								1000/51.3				
18465-99-1	9,12,15-octadecatrienoic acid,2,3-dihydroxypropylester,(Z,Z,Z)-								4500/39.4				
1732-10-1	nonanedioic acid, dimethyl ester									420/80.4			
6064-90-0	heneicosanoic acid, methyl ester									450/75.4			
1731-86-8	undecanoic acid, methyl ester										380/72.5	300/68.7	
57-11-4	octadecanoic acid										860/67.6		
17302-27-1	nonane,2,5-dimethyl-											580/80.5	
544-25-2	1,3,5-cycloheptatriene												17000/95.3
112-53-8	1-dodecanol												
2425-54-9	tetradecane,1-chloro-												
4706-81-4	2-tetradecanol												
13-18-0	1,2-benzenedicarboxylic acid, diphenyl ester												
27554-26-3	1,2-benzenedicarboxylic acid, disoctyl ester												
7299-89-0	1,2-benzenedicarboxylic acid, bis(2-ethylbutyl)ester												
28080-85-5	10-undecenoic acid, octyl ester												
52783-43-4	nonadecanol												
473-15-4	2-naphthalenemethanol,decahydro-.alpha.,alpha.,4a-trimethyl-8-methylene-,(2R-(2.alpha.,4a.alpha.,8a.beta.))-												
77-02-1	2,4,6(1H,3H,5H)-pyrimidinetrione,5-(1-methylethyl)-5-2 (propenyl)-												
120-75-2	benzothiazole,2-methyl-												
84-69-5	1,2-benzenedicarboxylic acid, bis(2-methylpropyl)ester												
205-99-2	benz/e/acephenanthrylene												

AR000654

ORIGINAL (Red)

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	NUS SAMP. NO. / LAB SAMP. NO. / SAMPLE LOCATION	MC-SO-012 C9351	MC-SO-013 C9352	MC-SO-014 C9353	MC-SO-015 C9354	MC-SO-016 C9355	MC-SO-017 C9356	MC-SO-018 C9357	MC-SO-019 C9358	MC-SO-020 C9359	MC-SO-020A C9360	MC-SO-021 C9361
95-63-6	benzene 1,2,4-trimethyl		730/91.7										
			800/81.9										
2381-21-7	pyrene 1-methyl		390/78.0	360/39.9									
			300/88.1										
			310/78.2										
			260/56.2										
5353-25-3	ethanol, 2-(9-octadecenyloxy)-(Z)		400/45.5										
82-05-3	7H-benz/de/anthracen-7-one		240/69.8										
205-43-6	benzo/b/naptho/1,2-D/thiopene		370/85.3										
			220/76.2										
203-12-3	benzo/ghi/fluoranthene		530/84.4										
			360/80.0										
195-19-7	benzo/c/phenanthrene		160/79.9										
			220/79.0										
2541-69-7	benz/a/anthracene',7-methyl		500/74.0										
			250/69.3										
			290/79.7										
604-53-5	1,1'-binaphtalene		390/57.6										
4076-39-5	benzo/c/phenanthrene, 1-methyl		560/60.9										
205-82-3	benzo/j/fluoranthene		600/84.1	780/49.8									
			3200/88.7	2400/84.3									
			940/88.0										
			410/75.1										
			1800/90.1										
			590/88.6										
193-39-5	ideno/1,2,3-co/pyrene		740/66.1										
191-24-2	benzo/ghi/perylene		660/79.0										
			480/85.4										
111-76-2	ethanol, 2-butoxy		690/96.6										
1921-70-6	pentadecane, 2,6,10,14-tetramethyl			580/55.1	60000/85.8								
693-88-9	aziridine, 1,2,3-trimethyl-trans			380/40.2									
1560-88-9	octadecane, 2-methyl			710/37.9									
1560-84-5	eicosane, 2-methyl			750/37.1									
55255-86-2	1-hexadecanone, 1-cxyclopentyl			670/19.1									
55401-55-3	docasane 11-decyl			1400/68.1									
				600/50.1									
207-08-9	benzo/k/fluoranthene			570/68.6									
464-42-6	bicyclo/2.2.1/heptan-2-amine, 1,7,7-trimethyl-endo			620/30.3									
55334-01-5	phenanthrene, 9-dodecyl tetradecahydro			960/46.0				11000/43.6	900/37.5				
									7000/59				
112-95-8	eicosane			910/47.5	120,000/84.4								
					34000/59.8								
					60000/67.7								
18344-37-1	heptadecane, 2,6,10,14-tetramethyl				75000/75.2			4500/60.1					
55045-10-8	tridecane, 6-propyl				41000/65.2								

AR000655

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	MUS SAMP. NO. / LAB SAMP. NO. / SAMPLE LOCATION	MC-SO-012 C9351	MC-SO-013 C9352	MC-SO-014 C9353	MC-SO-015 C9354	MC-SO-016 C9355	MC-SO-017 C9356	MC-SO-018 C9357	MC-SO-019 C9358	MC-SO-020 C9360	MC-SO-020A C9362	MC-SO-021 C9361
57-10-3	hexadecanoicacid				21000/66.2								
593-45-3	octadecane				26000/70.6	80000/74.6				1000/72.5			
638-36-8	hexadecane 2,6,10,14-tetramethyl				48000/62.7					710/68.6			
630-06-8	hexatriacontane				40000/74.0	70000/62.8						420/71.2	
55030-62-1	tridecane, 4,8-dimethyl				46000/67.3								
697-40-5	bicyclo/2/2/octane, 1-bromo-4-methyl				2800/69.1	40000/70.8							
629-95-7	pentacosane				38000/36.1								
55401-65-5	pentalene octahydro-1-(2-octyldedyl)				40000/32.2								
					33000/61.5								
					48000/40.9								
192-97-2	benzo/e/pyrene								1700/42.5				
107-87-9	2-pentanone								830/137.4				
					36000/41.3				890/40.7				
928-68-7	2-heptanone, 6-methyl					5.1/97.1							
110-43-0	2-heptanone					9.2/94.9							
						9.2/95.0							
111-13-7	2-octanone					7.1/81.6							
694-87-1	bicyclo/4.2-0/octa-1,3,5-trien					10.0/82.7							
88-99-3	1,2-benzenedicarboxylic acid					13.0/78.7							
7469-40-1	naphalene, 1,2-dihydro-4-phenyl					78000/98.0							
54986-44-6	benzene, (1,3,3-trimethylmonyl)-					43000/95.7							
4443-55-4	cyclohexane, eicosyl-					30000/84.0							
54033-48-6	heptadecane, 3,6,10,15-tetramethyl					51000/45.4							
1888-57-9	3-hexanone, 2,5-dimethyl					49000/57.9							
7614-93-9	benzene, 1,1'-(3-methyl-1-propene-1,3-diylobis)					61000/48.8							
17651-53-5	1,2-benzenedicarboxylic acid, butyl 2-methyl propyl ester					38000/31.0							
84-74-2	1,2-benzenedicarboxylic acid, dibutyl ester					63000/29.8							
610-15-1	benzamide, 2-nitro					38000/46.8							
33010-48-9	iron, tricarboxyl/(2,3,4,5-etc.)-2,5-dimethyl-2,4-HE					46000/32.4							
1121-86-4	benzene,1-fluoro-3-1000						1700/23.9						
40193-43-9	1,2-benzisoselenazole, 3-methyl						770/16.2						
53432-05-6	1H-purine-2,6-dione,3,7-diethyl-3,7-dihydro-1-methyl						590/15.6						
58-72-0	benzene,1,1'1''-(-1-ethenyl-2-ylidene)tris-						500/11.0						
930-57-4	cyclopropane, butyl-						740/10.2						
104-76-7	1-hexanol, 2-hexyl						1300/18.3						
143-08-8	1-nonanol						2900/90.8						
10042-59-8	1-heptanol,2-propyl						1100/96.1						
544-76-3	hexadecane						1700/94.1						
55-68-3	benzene acetic acid, 3-methoxy-4-(2,2,3,3,3-pentafluoro)						970/89.3						
30950-89-1	5.alpha-cholest-1-EN-19-OL						1500/85.9						
4780-40-6	furan, 2,5-bis(1,1-dimethylethyl)						3100/15.8						
9079-31-0	tetradecane, 1-(methylsulfinyl)-						1400/21.5						
1071-26-7	heptane,2,2-dimethyl						690/16.4						
629-94-7	heneicosane							4600/33.6					
								3200/43.0					
								9000/34.7					

AR000659

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATION (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	NUS SAMP. NO. / LAB SAMP. NO. / SAMPLE LOCATION	MC-SO-022 C9362	MC-SO-023 C9363	MC-SO-024 C9364	MC-SO-025 C9365	MC-SO-026 C9366	MC-SO-026A C9339	MC-SO-027 C9367	MC-SO-028 C9368	MC-SO-029 C9369	MC-SO-030 C9370	MC-SO-031 C9371
55162-61-3	tetracontane, 3,5,2,4-trimethyl				330/51.8								
17301-22-3	undecane, 2,5-dimethyl,												
3790-71-4	2,6,10-dodecatrien-1-OL,3,7,11-trimethyl-(Z,E)									410/73.2	1600/65.2		
17302-27-1	nonane, 2,5-dimethyl												
56297-65-0	dodecane, 2,5-dimethyl												
1454-85-9	1-heptadecanol												
60-29-7	ethane, 1,1'-oxybis					2192.8							
5129-60-2	pentadecanoic acid, 14-methyl-methylester												
593-45-3	octadecane												
54833-23-7	eicosane, 10-methyl												
1560-88-9	octadecane, 2-methyl												
56292-69-4	tetradecane, 2,5-dimethyl												
40710-42-7	hentetracontanol												
56292-65-0	dodecane, 2,5-dimethyl												
1560-95-8	tetradecane, 2-methyl												
112-95-8	eicosane												
7225-64-1	heptadecane, 9-octyl												
55045-14-2	tetradecane, 4-ethyl												
51504-54-2	1,4-hexadiene, 2,3,4,5-tetramethy												
55103-66-7	2(1H)-benzocyclooctenone, decahydro-4A-methyl,-trans												
611-55-2	4(1H)-pteridinone, 2-amino-6,7-dimethyl												
55401-75-7	anthracene,9-dodecytetradecahydro												
481-21-0	cholestane, (5 Alpha)-												
372-64-5	disulfide bis (trifluoromethyl)												
55255-70-4	anthracene, 9-cyclohexyltetradecahydro												
55334-01-5	phenanthrene, 9-dodecyltetradecahydro												
55133-89-6	anthracene, 9-butyltetradecahydro												
487-06-9	2H-1-benzopyran-2-one, 5,7-dimethoxy												
131-18-0	1,2,benzenedicarboxylic acid, dipentyl ester												
55334-42-4	dodecane, 1,2-dibromo			9300/20.2									
31083-60-0	tricyclo/4.3.1.13,8)undecane-1-carboxylic acid, methyl												
40710-42-7	1-hentetracontanol												
565-59-3	pentane, 2,3-dimethyl												
40710-70-1	octatetracontane, 1-1000												
591-23-1	cyclohexanol, 3-methyl												
54714-35-1	butanoic acid, 2-methylcyclohexyl ester, cis												
42541-33-3	1,3,2 dioxarsenane, 2-butyl												

AR000657

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	NUS SAMP. NO. / LAB SAMP. NO. / SAMPLE LOCATION	MC-SO-022 C9362	MC-SO-023 C9363	MC-SO-024 C9364	MC-SO-025 C9365	MC-SO-026 C9366	MC-SO-026A C9339	MC-SO-027 C9367	MC-SO-028 C9368	MC-SO-029 C9369	MC-SO-030 C9370	MC-SO-031 C9371
3913-02-8	1-octanol,2-butyl-			8700/18.1									
52896-87-4	heptane,4-(1-methylethyl)-			4900/16.0									
56554-64-4	hexadecane,1,1-bis(dodecycloxy)-			4200/54.2									
5441-52-1	cyclohexanol,3,5-dimethyl			2100/27.4									
112-42-5	1-undecanol				520/82.7								
544-63-8	tetradecanoic acid				820/51.8	430/75.9							
17851-53-5	1,2-benzenedicarboxylic acid, butyl 2-methylpropyl ester					450/86.3							
2091-29-4	9-hexadecanoic acid					550/62.1		730/65.9		1100/64.3			
56554-78-0	7-heptadecene,1-chloro-					750/32.3							
105-87-3	2,6-octadien-1-OL,3,7-dimethyl-,acetate,(E)-					800/40.5							
51110-93-1	2H-1,6-benzoxazocin-5(6H)-one,3,4-dihydro					450/52.0							
6006-01-5	3,7,11-tridecatrienenitrile,4,8,12-trimethyl-					13000/65.1							
747-90-0	cholesta-3,5-diene					1100/39.8							
1454-85-9	1-heptadecanol						1300/70.8					8300/78.4	
							1800/69.9					3000/63.8	
												4000/67.7	
294-62-2	cyclododecane						3900/67.1						
101-41-7	benzene acetic acid, methylester							530/94.9					
629-96-9	1-eicosanol										560/77.2		
288-13-1	1H-pyrazole											3500/74.1	
103-82-2	benzene acetic acid											3800/89.6	
764-48-7	ethanol, 2-(ethenyloxy)-											1300/68.2	
123-08-0	benzaldehyde,4-hydroxy-											1100/81.8	
121-33-5	benzaldehyde, 4-hydroxy-3-methoxy-											2100/89.3	
134-96-3	benzaldehyde, 4-hydroxy-3,5-dimethoxy-											2100/45.1	
1002-84-2	pentadecanoic acid											1600/70.1	
530-57-4	benzoic acid, 4-hydroxy-3,5-dimethyl											1600/30.8	
6714-00-7	5-hepten-2-one											3000/42.5	
638-66-4	octadecanal											1400/60.2	
57396-76-6	2H-1-benzopyran-3,4,7-triol,3,4-dihydro-2-(3-hydroxy											1800/35.3	
112-88-9	1-octadecene											22000/43.7	
												18000/68.3	
56554-96-2	2-octadecanol												760/76.9
													1700/73.3
													1300/73.2
7154-79-2	pentane,2,2,3,3-tetramethyl-												
142-50-7	1,6,10-dodecatrien-3-OL,3,7,11-trimethyl-,/5-(2)/-												
1073-06-9	benzene,1-bromo-3-fluoro												

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	NUS SAMP. NO. / LAB SAMP. NO. / SAMPLE LOCATION	MC-SO-022 C9362	MC-SO-023 C9363	MC-SO-024 C9364	MC-SO-025 C9365	MC-SO-026 C9366	MC-SO-026A C9339	MC-SO-027 C9367	MC-SO-028 C9368	MC-SO-029 C9369	MC-SO-030 C9370	MC-SO-031 C9371
80-71-7	2-cyclopenten-1-one,2-hydroxy-3-methyl												
54482-49-4	cholest-24-ENE,(5.alpha.20XI)-												
17312-74-2	decane,5-ethyl-5-methyl-												
19719-70-1	4-norcaren-2-one,1,3,5,-tri-tert-butyl-4-oxo-2,5-cyclo-hexadien-1-yl)methyl-												
141-14-0	6-octen-1-OL,3,7-dimethyl-propanoate												
54482-31-4	D-homoandrostane, (5.alpha.,13.alpha.)-												
55429-83-9	hexacosane,9-octyl-												
39707-54-5	1,4-benzenediol, 2-(decahydro-5,5,8a-trimethyl-2-methylene-1-naphthalenyl)-methyl)-,(1R-(1.alpha.,4a.beta.,8a.alpha.))-												
56771-77-8	4-hexanoic acid, 3-methyl-2,6-dioxo-												
100-68-5	benzene-(methylthio)-												
56009-20-2	cyclohexane,1-(1,5-dimethylhexyl)-4-(4-methylpentyl)												
18465-99-1	9,12,15-octadecatrienoic acid,2,3-dihydroxypropylester,(Z,Z,Z)-												
1732-10-1	nonanedioic acid, dimethyl ester												
6064-90-0	heneicosanoic acid, methyl ester												
1731-86-8	undecanoic acid, methyl ester												
57-11-4	octadecanoic acid												
17302-27-1	nonane,2,5-dimethyl-												
544-25-2	1,3,5-cycloheptatriene												
112-53-8	1-dodecanol		7300/81.1	1500/78.4									
			5100/79.9										
2425-54-9	tetradecane,1-chloro-		29000/71.9										
			8000/71.0										
4706-81-4	2-tetradecanol		3100/71.3										
13-18-0	1,2-benzenedicarboxylic acid, diphenyl ester		2200/66.6	8200/71.3									
			11000/65.5	2400/48.7									
			6700/63.3	23000/69.1									
			14000/64.9										
			7300/63.4										
			3800/65.3										
			14000/64.5										
27554-26-3	1,2-benzenedicarboxylic acid, disoctyl ester		1800/55.3	840/53.8									
			5900/53.6	4300/57.2									
			2600/47.9	910/53.6									
			6500/57.2										
7299-89-0	1,2-benzenedicarboxylic acid, bis(2-ethylbutyl)ester		1700/58.8		500/64.1								
28080-85-5	10-undecenoic acid, octyl ester		3700/25.2										
52783-43-4	nonadecanol		720/72.8							610/76.8			
473-15-4	2-naphthalenemethanol,decahydro-.alpha.,alpha.,4a-trimethyl-8-methylene-,(2R-(2.alpha.,4a.alpha.,8a.beta.))-			390/18.1									
77-02-1	2,4,6(1H,3H,5H)-pyrimidinetrione,5-(1-methylethyl)-5-2(propenyl)-			370/28.2									
120-75-2	benzothiazole,2-methyl-			880/34.0									
84-69-5	1,2-benzenedicarboxylic acid, bis(2-methylpropyl)ester			1500/53.8	500/67.7								
205-99-2	benz/e/acephenanthrylene			1200/45.8									

AR000659

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	NUS SAMP. NO. LAB SAMP. NO. SAMPLE LOCATION	MC-SO-022 C9362	MC-SO-023 C9363	MC-SO-024 C9364	MC-SO-025 C9365	MC-SO-026 C9366	MC-SO-026A C9339	MC-SO-027 C9367	MC-SO-028 C9368	MC-SO-029 C9369	MC-SO-030 C9370	MC-SO-031 C9371
95-63-6	benzene 1,2,4-trimethyl												
2381-21-7	pyrene 1-methyl												
5353-25-3	ethanol, 2-(9-octadecenyloxy)-(Z)												
82-05-3	7H-benz/de/anthracen-7-one												
205-43-6	benzo/b/naptho/1,2-D/thiopene												
203-12-3	benzo/ghi/fluoranthene												
195-19-7	benzo/c/phenanthrene												
2541-69-7	benz/a/anthracene',7-methyl												
604-53-5	1,1'-binaphtalene												
4076-39-5	benzo/c/phenanthrene, 1-methyl												
205-82-3	benzo/j/fluoranthene												
193-39-5	ideno/1,2,3-co/pyrene												
191-24-2	benzo/ghi/perylene												
111-76-2	ethanol, 2-butoxy												
1921-70-6	pentadecane, 2,6,10,14-tetramethyl												
693-88-9	aziridine, 1,2,3-trimethyl-trans												
1560-88-9	octadecane, 2-methyl												
1560-84-5	eicosane, 2-methyl												
55255-86-2	1-hexadecanone, 1-cyclopentyl												
55401-55-3	adocasane, 11-decyl												
207-08-9	benzo/k/fluoranthene												
464-42-6	bicyclo/2.2.1/heptan-2-amine, 1,7,7-trimethyl-endo												
55334-01-5	phenanthrene, 9-dodecyl, tetradecahydro												
112-95-8	eicosane												
18344-37-1	heptadecane, 2,6,10,14-tetramethyl												
55045-10-8	tridecane, 6-propyl												

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	NUS SAMP. NO. / LAB SAMP. NO. / SAMPLE LOCATION	MC-SO-022 C9362	MC-SO-023 C9363	MC-SO-024 C9364	MC-SO-025 C9365	MC-SO-026 C9366	MC-SO-026A C9339	MC-SO-027 C9367	MC-SO-028 C9368	MC-SO-029 C9369	MC-SO-030 C9370	MC-SO-031 C9371
57-10-3	hexadecanoicacid		1300/73.2		1500/73.2	1500/78.7	1500/76.2	1600/75.2		1400/76.5		5300/77.6	
593-45-3	octadecane											1300/81.4	
638-36-8	hexadecane 2,6,10,14-tetramethyl											2700/87.6	
630-06-8	hexatriacontane												
55030-62-1	tridecane, 4,8-dimethyl												
697-40-5	bicyclo/2/2/octane, 1-bromo-4-methyl												
629-95-7	pentacosane												
55401-65-5	pentalene octahydro-1-(2-octyldedyl)												
192-97-2	benzo/e/pyrene												
107-87-9	2-pentanone												
928-68-7	2-heptanone, 6-methyl												
110-43-0	2-heptanone												
111-13-7	2-octanone												
694-87-1	bicyclo/4.2-0/octa-1,3,5-trien												
88-99-3	1,2-benzenedicarboxylic acid			1700/91.9	620/90.7								
7469-40-1	naphalene, 1,2-dihydro-4-phenyl												
54986-44-6	benzene, (1,3,3-trimethylnonyl)-												
4443-55-4	cyclohexane, eicosyl-												
54033-48-6	heptadecane, 3,6,10,15-tetramethyl												
1888-57-9	3-hexanone, 2,5-dimethyl												
7614-93-9	benzene, 1,1'-(3-methyl-1-propene-1,3-diylobis)												
17651-53-5	1,2-benzenedicarboxylic acid, butyl 2-methyl propyl ester												
84-74-2	1,2-benzenedicarboxylic acid, dibutyl ester												
610-15-1	benzamide, 2-nitro												
33010-48-9	iron, tricarboxyl/(2,3,4,5-etc.)-2,5-dimethyl-2,4-HE												
112-86-4	benzene,1-fluoro-3-1000												
41093-43-9	1,2-benzisoselenazole, 3-methyl												
53432-05-6	1H-purine-2,6-dione,3,7-diethyl-3,7-dihydro-1-methyl												
58-72-0	benzene,1,1'1''-(1-ethenyl-2-ylidene)tris-												
930-57-4	cyclopropane, butyl-												
104-76-7	1-hexanol, 2-hexyl												
143-08-8	1-nonanol												
10042-59-8	1-heptanol,2-propyl												
544-76-3	hexadecane												
55-68-3	benzene acetic acid, 3-methoxy-4-(2,2,3,3,3-pentafluoro)												
30950-89-1	5.alpha-cholest-1-EN-19-OL												
4780-40-6	furan, 2,5-bis(1,1-dimethylethyl)												
9079-31-0	tetradecane, 1-(methylsulfinyl)-												
1071-26-7	heptane,2,2-dimethyl												
629-94-7	heneicosane												

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATION (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	MUS SAMP. NO. / LAB SAMP. NO. / SAMPLE LOCATION	MC-SO-022 C9362	MC-SO-023 C9363	MC-SO-024 C9364	MC-SO-025 C9365	MC-SO-026 C9366	MC-SO-026A C9339	MC-SO-027 C-9367	MC-SO-028 C-9368	MC-SO-029 C9369	MC-SO-030 C9370	MC-SO-031 C9371
593-45-3	octadecane												
54833-48-6	heptadecane 2,6,10,15 tetramethyl												
30361-97-8	5-triazine, 2-(chloromethyl)-4,6-bis(trichloromethyl)												
42604-04-6	cycloheptane, methoxy												
18641-76-4	methylamine-N-(butylhexylidene												
638-36-8	hexadecane 2,6,10,14 tetramethyl												
42604-04-6	cycloheptane, methoxy												
693-88-9	aztridine, 1,2,3-trimethyl-trans												
6304-50-3	docecane, 2,2,4,9,11,11-hexamethyl												
486-90-8	7,14-methano-4H, 6H-dipyrido/1,2-A: 10,2'E//diaz												
6638-11-5	2H-1,3-benzoxazine, 3-cyclohexyl-3,4-dihydro												
18641-74-2	methylamine, N-(1-ethylhexylidene)												
56666-79-6	3-pyrazolidinone, 1,2,4,5-tetramethyl												
36099-44-2	oxirane,2-(1,1-dimethylethyl)-cis												
55401-55-3	docosane, 11-decyl												
29833-69-0	1-pentadecene, 2-methyl												
108-88-3	benzene, methyl												
79-34-5	ethane, 1,1,2,2-tetrachloro												
585-34-2	phenol, 3-(1,1-dimethylethyl												
832-71-3	phenanthrene, 3-methyl												
203-64-5	4H-cyclopenta/def/phenanthrene												
82-05-3	7H-benz/de/anthracen-7-one												
205-43-6	benzo/b/naptho/1,2-D/thiophene							460/94.7					
203-12-3	benzo/ghi/fluoranthene									430/96.9			
195-19-7	benzo/c/phenanthrene												
1542-69-7	benz/a/anthracene, 7-methyl												
765-87-7	1,2-cyclohexanedione												
36237-66-8	6,10,14-hexadecatrien-1-OL,3,7,11,15-tetramethyl-,/R												
205-82-3	benzo/J/fluoranthene												
3790-71-4	2,6,10-dorecatrien, 1-OL,3,7,11-trimethyl - (2,E)												
2432-80-6	hexanethioc acid, S-heptylester												
3387-41-5	bicyclo/3.1.0/hexane,4-methylene-1-(1-methylethyl)-												
143-28-2	9-octadecen-1-OL												
57-10-3	hexadecanoic acid												
630-06-8	hexatriacontane												
18302-67-5	palmitaldehyde, diallylacetal												
10544-50-0	sulfur (mol.S8)												

AR000662

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATION (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	NUS SAMP. NO. LAB SAMP. NO. SAMPLE LOCATION	MC-SO-032 C9372	MC-SO-033 C9373	MC-SO-034 C9374	MC-SO-035 C9375	MC-SO-036 C9388
55162-61-3	tetracontane, 3,5,2,4-trimethyl						
17301-22-3	undecane, 2,5-dimethyl,						
3790-71-4	2,6,10-dodecatrien-1-OL,3,7,11-trimethyl-(Z,E)						
17302-27-1	nonane, 2,5-dimethyl						
56292-65-0	dodecane, 2,5-dimethyl						
1454-85-9	1-heptadecanol						
60-29-7	ethane, 1,1'-oxybis						
5129-60-2	pentadecanoic acid, 14-methyl-methylester						
593-45-3	octadecane						
54833-23-7	eicosane, 10-methyl						
1560-88-9	octadecane, 2-methyl						
56292-69-4	tetradecane, 2,5-dimethyl						
40710-42-7	hentetracontanol						
56292-65-0	dodecane, 2,5-dimethyl						
1560-95-8	tetradecane, 2-methyl						
112-95-8	eicosane						
7225-64-1	heptadecane, 9-octyl						
55045-14-2	tetradecane, 4-ethyl						
51504-54-2	1,4-hexadiene, 2,3,4,5-tetramethy						
55103-66-7	2(1H)-benzocyclooctenone, decahydro-4A-methyl,-trans						
611-55-2	4(1H)-pteridinone, 2-amino-6,7-dimethyl						
55401-75-7	anthracene,9-dodecytetradecahydro						
481-21-0	cholestane, (5 Alpha)-						
372-64-5	disulfide bis (trifluoromethyl)						
55255-70-4	anthracene, 9-cyclohexyltetradecahydro						
55334-01-5	phenanthrene, 9-dodecyltetradecahydro						
55133-89-6	anthracene, 9-butyltetradecahydro						
487-06-9	2H-1-benzopyran-2-one, 5,7-dimethoxy						
131-18-0	1,2,benzenedicarboxylic acid, dipentyl ester						
55334-42-4	dodecane, 1,2-dibromo						
31083-60-0	tricyclo/4.3.1.13,8)undecane-1-carboxylic acid, methyl						
40710-42-7	1-hentetracontanol						
565-59-3	pentane, 2,3-dimethyl						
40710-70-1	octatetracomtane, 1-IODO						
591-23-1	cyclohexanol, 3-methyl						
54714-35-1	butanoic acid, 2-methylcyclohexyl ester, cis						
42911-33-3	1,3,2 dioxarsenane, 2-butyl						

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	NUS SAMP. NO. / LAB SAMP. NO. / SAMPLE LOCATION	MC-SO-032 C9372	MC-SO-033 C9373	MC-SO-034 C9374	MC-SO-035 C9375	MC-SO-036 C9388
3913-02-8	1-octanol,2-butyl-						
52896-87-4	heptane,4-(1-methylethyl)-						
56554-64-4	hexadecane,1,1-bis(dodecycloxy)-						
5441-52-1	cyclohexanol,3,5-dimethyl						
112-42-5	1-undecanol						
544-63-8	tetradecanoic acid						
17851-53-5	1,2-benzenedicarboxylic acid, butyl 2-methylpropyl ester						
2091-29-4	9-hexadecanoic acid						
56554-78-0	7-heptadecene,1-chloro-						
105-87-3	2,6-octadien-1-OL,3,7-dimethyl-,acetate,(E)-						
51110-93-1	2H-1,6-benzoxazocin-5(6H)-one,3,4-dihydro						
6006-01-5	3,7,11-tridecatrienenitrile,4,8,12-trimethyl-						
747-90-0	cholesta-3,5-diene						
1454-85-9	1-heptadecanol						
294-62-2	cyclododecane						
101-41-7	benzene acetic acid, methylester						
629-96-9	1-eicosanol						
288-13-1	1H-pyrazole						
103-82-2	benzene acetic acid						
764-48-7	ethanol, 2-(ethenyloxy)-						
123-08-0	benzaldehyde,4-hydroxy-						
121-33-5	benzaldehyde, 4-hydroxy-3-methoxy-						
134-96-3	benzaldehyde, 4-hydroxy-3,5-dimethoxy-						
1002-84-2	pentadecanoic acid						
530-57-4	benzoic acid, 4-hydroxy-3,5-dimethoxy						
6714-00-7	5-hepten-2-one						
638-66-4	octadecanal						
57396-76-6	2H-1-benzopyran-3,4,7-triol,3,4-dihydro-2-(3-hydroxy						
112-88-9	1-octadecene						
56554-96-2	2-octadecanol						
7154-79-2	pentane,2,2,3,3-tetramethyl-		1300/78.6				
142-50-7	1,6,10-dodecatrien-3-OL,3,7,11-trimethyl-,/5-(2)/-		2100/54.0				
1073-06-9	benzene,1-bromo-3-fluoro						41/70.2

AR000664

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	NUS SAMP. NO. LAB SAMP. NO. SAMPLE LOCATION	MC-SO-032 C9372	MC-SO-033 C9373	MC-SO-034 C9374	MC-SO-035 C9375	MC-SO-036 C9388
80-71-7	2-cyclopenten-1-one,2-hydroxy-3-methyl						
54482-49-4	cholest-24-ENE,(5.alpha.20XI)-						
17312-74-2	decane,5-ethyl-5-methyl-						
19719-70-1	4-norcaren-2-one,1,3,5,-tri-tert-butyl-4-oxo-2,5-cyclo-hexadien-1-yl)methyl-						
141-14-0	6-octen-1-OL,3,7-dimethyl-propanoate						
54482-31-4	D-homoandrostane, (5.alpha.,13.alpha.)-						
55429-83-9	hexacosane,9-octyl-						
39707-54-5	1,4-benzenediol, 2-(decahydro-5,5,8a-trimethyl-2-methylene -1-naphthalenyl)-methyl)-,(1R-(1.alpha.,4a.beta.,8a.alpha.))-						
56771-77-8	4-hexanoic acid, 3-methyl-2,6-dioxo-						
100-68-5	benzene-(methylthio)-						
56009-20-2	cyclohexane,1-(1,5-dimethylhexyl)-4-(4-methylpentyl)						
18465-99-1	9,12,15-octadecatrienoic acid,2,3-dihydroxypropylester,(Z,Z,Z)-						
1732-10-1	nonanedioic acid, dimethyl ester						
6064-90-0	heneicosanoic acid, methyl ester						
1731-86-8	undecanoic acid, methyl ester						
57-11-4	octadecanoic acid						
17302-27-1	nonane,2,5-dimethyl-						
544-25-2	1,3,5-cycloheptatriene						
112-53-8	1-dodecanol						
2425-54-9	tetradecane,1-chloro-						
4706-81-4	2-tetradecanol						
13-18-0	1,2-benzenedicarboxylic acid, diphenyl ester						
27554-26-3	1,2-benzenedicarboxylic acid, disoctyl ester						
7299-89-0	1,2-benzenedicarboxylic acid, bis(2-ethylbutyl)ester						
28080-85-5	10-undecenoic acid, octyl ester						
52783-43-4	nonadecanol			560/76.5			
473-15-4	2-naphthalenemethanol,decahydro-.alpha.,alpha.,4a-trimethyl-8-methylene-,(2R-(2.alpha.,4a.alpha.,8a.beta.))-						
77-02-1	2,4,6(1H,3H,5H)-pyrimidinetrione,5-(1-methylethyl)-5-2 (propenyl)-						
120-75-2	benzothiazole,2-methyl-						
84-69-5	1,2-benzenedicarboxylic acid, bis(2-methylpropyl)ester						
205-99-2	benz/e/acephenanthrylene						

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	NUS SAMP. NO. LAB SAMP. NO. SAMPLE LOCATION	MC-SO-031 C9372	MC-SO-032 C9373	MC-SO-033 C9374	MC-SO-034 C9375	MC-SO-035 C9388	MC-SO-036 C9339
95-63-6	benzene 1,2,4-trimethyl							
2381-21-7	pyrene 1-methyl							
5353-25-3	ethanol, 2-(9-octadecenyloxy)-(Z)							
82-05-3	7H-benz/de/anthracen-7-one							
205-43-6	benzo/b/naptho/1,2-D/thiopene							
203-12-3	benzo/ghi/fluoranthene							
195-19-7	benzo/c/phenanthrene							
2541-69-7	benz/a/anthracene',7-methyl							
604-53-5	1,1'-binaphtalene							
4076-39-5	benzo/c/phenanthrene, 1-methyl							
205-82-3	benzo/j/fluoranthene							
193-39-5	ideno/1,2,3-co/pyrene							
191-24-2	benzo/ghi/perylene							
111-76-2	ethanol, 2-butoxy							
1921-70-6	pentadecane, 2,6,10,14-tetramethyl							
693-88-9	aziridine, 1,2,3-trimethyl-trans							
1560-88-9	octadecane, 2-methyl							
1560-84-5	eicosane, 2-methyl							
55255-86-2	1-hexadecanone, 1-cyclopentyl							
55401-55-3	docasane, 11-decyl							
207-08-9	benzo/k/fluoranthene							
464-42-6	bicyclo/2.2.1/heptan-2-amine, 1,7,7-trimethyl-endo							
55334-01-5	phenanthrene, 9-dodecyl, tetradecahydro							
112-95-8	eicosane							
18344-37-1	heptadecane, 2,6,10,14-tetramethyl							
55045-10-8	tridecane, 6-propyl							

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	NUS SAMP. NO. LAB SAMP. NO. SAMPLE LOCATION	MC-SO-032 C9372	MC-SO-033 C7373	MC-SO-034 C7374	MC-SO-035 C9375	MC-SO-036 C9388
57-10-3	hexadecanoicacid						
593-45-3	octadecane						
638-36-8	hexadecane 2,6,10,14-tetramethyl						
630-06-8	hexatriacontane						
55030-62-1	tridecane, 4,8-dimethyl						
697-40-5	bicyclo/2/2/octane, 1-bromo-4-methyl						
629-95-7	pentacosane						
55401-65-5	pentalene octahydro-1-(2-octyldedyl)						
192-97-2	benzo/e/pyrene						
107-87-9	2-pentanone						
928-68-7	2-heptanone, 6-methyl						
110-43-0	2-heptanone						
111-13-7	2-octanone						
694-87-1	bicyclo/4.2-0/octa-1,3,5-trien						
88-99-3	1,2-benzenedicarboxylic acid						
7469-40-1	naphalene, 1,2-dihydro-4-phenyl						
54986-44-6	benzene, (1,3,3-trimethylmonyl)-						
4443-55-4	cyclohexane, eicosyl-						
54033-48-6	heptadecane, 3,6,10,15-tetramethyl						
1888-57-9	3-hexanone, 2,5-dimethyl						
7614-93-9	benzene, 1,1'-(3-methyl-1-propene-1,3-diylobis)						
17651-53-5	1,2-benzenedicarboxylic acid, butyl 2-methyl propyl ester						
84-74-2	1,2-benzenedicarboxylic acid, dibutyl ester						
610-15-1	benzamide, 2-nitro						
33010-48-9	iron, tricarboxyl/(2,3,4,5-etc.)-2,5-dimethyl-2,4-HE						
112-86-4	benzene,1-fluoro-3-1000						
41093-43-9	1,2-benzisoselenazole, 3-methyl						
53432-05-6	1H-purine-2,6-dione,3,7-diethyl-3,7-dihydro-1-methyl						
58-72-0	benzene,1,1'1''-(1-ethenyl-2-ylidene)tris-						
930-57-4	cyclopropane, butyl-						
104-76-7	1-hexanol, 2-hexyl						
143-08-8	1-nonanol						
10042-59-8	1-heptanol,2-propyl						
544-76-3	hexadecane						
55-68-3	benzene acetic acid, 3-methoxy-4-(2,2,3,3,3-pentafluoro)						
3[illegible]0-89-1	5.alpha-cholest-1-EN-19-OL						
4780-40-6	furan, 2,5-bis(1,1-dimethylethyl)						
9079-31-0	tetradecane, 1-(methylsulfinyl)-						
1070-26-7	heptane,2,2-dimethyl						
629-94-7	heneicosane						

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATION (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SURFACE SOIL SAMPLES

CAS NO.	COMPOUND	NUS SAMP. NO. LAB SAMP. NO. SAMPLE LOCATION	MC-SO-032 C9372	MC-SO-033 C9373	MC-SO-034 C9374	MC-SO-035 C9375	MC-SO-036 C9388
593-45-3	octadecane						
54833-48-6	heptadecane 2,6,10,15 tetramethyl						
30361-97-8	5-triazine, 2-(chloromethyl)-4,6-bis(trichloromethyl)						
42604-04-6	cycloheptane, methoxy						
18641-76-4	methylamine-N-(butylhexylidene						
638-36-8	hexadecane 2,6,10,14 tetramethyl						
42604-04-6	cycloheptane, methoxy						
693-88-9	aziridine, 1,2,3-trimethyl-trans						
6304-50-3	docecane, 2,2,4,9,11,11-hexamethyl						
486-90-8	7,14-methano-4H, 6H-dipyrido/1,2-A1 10,2'E//diazo						
6638-11-5	2H-1,3-benzoxazine, 3-cyclohexyl-3,4-dihydro						
18641-74-2	methylamine, N-(1-ethylhexylidene)						
56666-79-6	3-pyrazolidinone, 1,2,4,5-tetramethyl						
36099-44-2	oxirane,2-(1,1-dimethylethyl)-cis						
55401-55-3	docosane, 11-decyl						
29833-69-0	1-pentadecene, 2-methyl						
108-88-3	benzene, methyl						
79-34-5	ethane, 1,1,2,2-tetrachloro				560/88.1		
585-34-2	phenol, 3-(1,1-dimethylethyl						
832-71-3	phenanthrene, 3-methyl						
203-64-5	4H-cyclopenta/def/phenanthrene						
82-05-3	7H-benz/de/anthracen-7-one						
205-43-6	benzo/b/naptho/1,2-D/thiophene						
203-12-3	benzo/ghi/floranthene						
195-19-7	benzo/c/phenanthrene						
1542-69-7	benz/a/anthracene, 7-methyl						
765-87-7	1,2-cyclohexanedione						
36237-66-8	6,10,14-hexadecatrien-1-OL,3,7,11,15-tetramethyl-,/R		2400/64.8				
205-82-3	benzo/J/fluoranthene						
3790-71-4	2,6,10-docecatrien, 1-OL,3,7,11-trimethyl - (Z,E)						
2432-80-6	hexanethioc acid, 5-heptylester						
3387-41-5	bicyclo/3.1.0/hexane,4-methylene-1-(1-methylethyl)-						
143-28-2	9-octadecen-1-OL						
57-10-3	hexadecanoic acid						
630-06-8	hexatriacontane						
18302-67-5	palmitaldehyde, diallylacetal						
10544-50-0	sulfur (mol.58)						

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: TEST PIT (SUBSURFACE SOILS)

CAS NO.	COMPOUND	MUS SAMP. NO. LAB SAMP. NO. SAMPLE LOCATION	MC-TP-011 C9670 T.P. 11	MC-TP-011A C9671 T.P. 11 DUPL.	MC-TP-012 C9672 T.P. 12	MC-TP-013 C9673 T.P. 13	MC-TP-014 C9674 T.P. 14	MC-TP-015 C9675 T.P. 15	MC-TP-016 C9676 T.P. 16	MC-TP-017 C9677 T.P. 17	MC-TP-018 C9678 T.P. 18	MC-TP-019 C9679 BLANK
625-06-9	2-pentanol, 2,4-dimethyl		4400 J									
17302-32-8	nonane, 3,7-dimethyl		710 J									
629-78-7	heptadecane		1400 J	2800 J	2800 J	1600 J	5600 J		4100 J		460 J	1500 J
18344-37-1	heptadecane, 2,6,10,15-tetramethyl		1200 J	1700 J	1000 J		3700 J		3400 J			
17301-32-1	undecane, 4,7-dimethyl		1400 J									
13287-21-3	tridecane, 6-methyl		1200 J									
629-78-7	heptadecane		1400 J									
108-21-4	acetic acid, 1-methylethyl ester			2300 J				6100 J				
4305-26-4	2-hexanone, 6-acetyloxy			3700 J	2800 J			1500				4100 J
1120-21-4	undecane			1400 J			850 J				740 J	
3913-02-8	1-octanol, 2-butyl			2800 J	1100 J							
17301-23-4	undecane, 2,6-dimethyl			2000 J								
629-50-5	tridecane			2000 J	4600 J							
629-94-7	heneicosane			1200 J		1600 J			1700 J		640 J	
3129-56-4	dodecane, 2,6,11-trimethyl				3100 J		4300 J					
29812-79-1	hydroxylamine, o-decyl				1200 J						380 J	
1921-70-6	pentadecane, 2,6,10,14-tetramethyl				3400 J							
54833-48-6	heptadecane, 2,6,10,15-tetramethyl					1200 J						
62016-34-6	octane, 2,3,7-trimethyl						1100 J					
563-16-6	hexane, 3,3-dimethyl						2200 J					
17301-32-5	undecane, 4,7-dimethyl						2100 J		2100 J			
17301-32-5	undecane, 4,7-dimethyl								3400 J			
108-21-4	acetic acid, 1-methylethyl ester				3400 J	4600 J				3900 J	5900 J	
123-15-9	pentanal, 2-methyl										780 J	
589-43-5	hexane, 2,4-dimethyl										450 J	
62016-37-9	octane, 2,4,6-trimethyl										400 J	
57-10-3	hexadecanoic acid										1600 J	1500 J
544-63-8	tetradecanoic acid										1500 J	

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: TEST PIT (SUBSURFACE SOILS)

CAS NO.	COMPOUND										
		NUS SAMP. NO.	MC-TP-001	MC-TP-002	MC-TP-003	MC-TP-004	MC-TP-005	MC-TP-006	MC-TP-007	MC-TP-008	MC-TP-009	MC-TP-010
		LAB SAMP. NO.	C9660	C9661	C9662	C9663	C9664	C9665	C9666	C9667	C9668	C9669
		SAMPLE LOCATION	T.P. 1	T.P. 2	T.P. 3	T.P. 4	T.P. 5	T.P. 6	T.P. 7	T.P. 8	T.P. 9	T.P. 10

All TIC's listed as 'Unknown' for all samples on this page.

MEDIUM: SUBSURFACE SOILS

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/kg)/PERCENT PURITY (if reported)

CAS NO.	COMPOUND	NUS SAMPLE NO. LAB SAMPLE NO. SAMPLE LOCATION	MC-SS-011 C9768 BORING 23A	MC-SS-012 C9769 BORING 24A	MC-SS-013 C9770 BORING 25A	MC-SS-013A C9771 25A DUP.	MC-SS-014 C9772 BLANK
127-18-4	Tetrachloroethyene						
79-34-5	1,1,2,2-tetrachloroethane		818 J	1230 J	1830 J	1560 J	
123-79-5	hexanedionic acid, diethyl ester		22,400 J	943 J			
79-00-5	1,1,2-trichloroethane			563 J	894 J	945 J	
100-52-7	benzaldehyde						
27554-26-3	1,2-benzene dicarboxylic acid						
240770-77-7	2-methyl, cyclopentanol		966 J	547 J	1250 J	790 J	
544-25-2	1,3,5-cycloheptatriene			668 J			
33467-74-2	2-hexan-1-01,propanoate			517 J			
10061-02-6	1,3-dichloropropene			730 J	1930 J	1490 J	
1120-72-5	2-methyl cyclopentanone				1020 J	877 J	
2490-48-4	2-methyl, hexadecanol						21900 J
75-69-4	methane, trichlorofluoro						51 J

ENTA LY FIE POUN
MI K SITE
CONCENTRATION (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SEDIMENTS

CAS NO.	COMPOUND	MUS SAMP. NO. LAB SAMP. NO. SAMPLE LOCATION	MC-SD-001 C9376	MC-SD-002 C9378	MC-SD-003 C9379	MC-SD-004 C9380	MC-SD-005 C9381	MC-SD-006 C9382	MC-SD-007 C9383	MC-SD-008 C9384	MC-SD-009 C9385	MC-SD-010 C9386	MC-SD-010A C9387 (DUPLICATE)
289-16-7	1,2,4-trithiolane											1300/93.1	
23186-70-1	pentane, 1-(2-propenyloxy)-											1700/67.4	
131-18-0	1,2-benzene dicarboxylicacid, dipentylester											1300/72.9	
27554-26-3	1,2,benzene dicarboxylicacid, diisoocytylster											880/49.5	
28080-85-5	10-undecenoicacid, octylester											1500/23.6	
84-69-5	1,2,benzenedicarboxylicacid, bis(2-methyl-propyl)ester											930/60.3	
56805-31-3	pentanal, 3-(hydroxymethyl),4-4-dimethyl												1200/38.5
18641-72-0	methylamine, N-(methyheptylidene)-												3900/38.6
2171-74-6	1,3-benzodioxil-2-one												2600/44.5
6570-92-9	pentane, 1-bromo-3,4-dimethyl												1300/44.7
638-53-9	tridecanoic acid												1600/28.8
1002-84-2	pentadecanoic acid												1600/40.9
11023-53-3	aspicilin												4400/34.0
15093-42-2	urea, 2-phenethyl-3-phenyl-2-thio												5600/39.7
111-20-6	decanedioic acid												2900/34.5
2136-70-1	ethanol, 2-(tetradecyloxy)-												1800/41.4
286-99-7	13-oxabicyclo/10.1.0/tridecane												1000/38.4
26537-06-4	ether, methyl 1-octadecenyl												1600/43.1
55030-62-1	tridecane, 4,8-dimethyl-												610/62.6
1921-70-6	pentadecane, 2,6,10,14-tetramethyl												1500/81.3
541-63-8	tetra decanoic acid												1400/77.1
3674-66-6	phenanthrene, 2,5-dimethyl												890/56.6
593-45-3	octadecane												820/54.2
106-02-5	oxacyclohexadecan-2-one												950/58.9
57-11-4	octadecanoic acid												2100/42.7
1454-85-9	1-heptadecanol												52.3/510
56771-77-8	4-hexanoic acid, 3-methyl-2,6-dioxo												1200/73.0
54482-31-4	D-homoandrostane, (5.alpha.13 alpha)-												980/33.2
294-62-2	cyclododecane												1100/23.3
39707-54-5	* 1,4-benzenediol, 2-/(decahyddry-5,5,8A-trimethyl-2met												870/63.4
5090-67-5	azuleno/4,5,-B/furan-2(3H)-one, decahydro-8,9 dihydrox												2200/45.7
55133-96-5	thiazolo/5,4-D/pyrimidine, 7-(butylthio)-5-methyl												1800/45.0
2305-79-5	1H-indazole 4,5,6,7-tetrahydro												980/22.0
													1200/38.5

AR000672

TENTATIVELY IDENTIFIED COMPOUNDS

MILL K SI

CONCENTRATION (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SEDIMENTS

CAS NO.	COMPOUND	AUS SAMP. NO. / LAB SAMP. NO. / SAMPLE LOCATION	MC-SD-001 C9376	MC-SD-002 C9378	MC-SD-003 C9379	MC-SD-004 C9380	MC-SD-005 C9381	MC-SD-006 C9382	MC-SD-007 C9383	MC-SD-008 C9384	MC-SD-009 C9385	MC-SD-010 C9386	MC-SD-010A C9387 (DUPLICATE)
693-88-9	aziridine, 1,2,3-trimethyl,-trans					4000/50.3							
4549-40-0	nitrosamine, n-methyl-n-nitroso					13000/46.9							
10599-79-8	ethanamine, n-(1-propylbutylidene)-					22000/47.2							
68-95-1	6-proline, 1-acetyl					32000/50.6							
56792-66-1	tridecane, 2,5-dimethyl-					22000/53.2							
634-03-7	morpholine, 3,4-dimethyl-2-phenyl,-(2R-trans)						2000/37.1						
22058-71-5	methylamine,N-(1-methylhexylidene)--						2500/52.8						
693-88-9	aziridene 1,2,3 trimethyl-trans						1400/57.1						480/56.2
22058-71-5	methylamine, N-(1-methylhexylidene)-						1800/51.7						
							2100/49.5						
68-95-1	6-proline, 1-acetyl						8100/38.0						
56805-31-3	pentanal, 3-(hydroxymethyl)-4,4, dimethyl						3500/42.1				770/56.1		1100/59.2
2791-29-9	hexadecane, 1,1-dimethoxy						4100/38.9	1900/38.3					
56363-86-1	1,2-cyclohexanediol, 1,2, diethyl						11000/23.9						
117-39-0	hexadecanoic acid, methyl ester						1100/39.1						
79-00-5	ethane, 1,1,2-trichloro-						2500/35.9						
1123-49-5	isoxazole, 3,5-dimethyl-4-nitro						2500/29.1						
5-6666-45-6	pyrroline, 1-(1-oxo-9,11-octadienyl)-,(E,E)-						3100/34.9						
26537-06-4	ether, methyl 1-octadecenyl						4100/40.6						
55947-04-1	2H-pyran,tetrahydro-2-(2,5-undecadiynyloxy)-						11000/12.0						
765-27-5	eicosyne						4000/28.6						
248-70-4	1-benzothiene 3,2,-B 1 benzothiphene						22000/27.0						
56555-00-1	2-octadecenal						1300/41.1						
55255-23-7	6-tridecene 2,2,4,10,12,12 hexamethyl-7-(3,5, 5, trimethylhexyl)-						9000/37.6						
79-34-5	ethane 1,1,2,2-tetrachloro-							730/80.6					
108-67-2	benzene, 1,3,5 trimethyl							970/44.6			650/43.0		
22058-71-5	methylamine, N(1-methylhexylidene)-							1000/53.0					
54-63-0	tetradecanoic acid							680/33.9		1800/73.4			2200/43.8
1611-12-7	ethanamine, N-butylidene							630/43.9					
78-27-3	cyclohexanol, 1-ethynyl							710/35.0					
4413-21-2	cyclopentane, 1,1-ethylidenbis							1500/39.3					
57-10-3	hexadecanoic acid							2600/44.5	740/167.8	2200/58.5			3200/77.3
15519-14-9	ether, 1-hexadecenymethyl							2400/42.5					
629 96-9	1-eicosanol							1400/53.7					
286-99-7	13-oxabicyclo/10.10/tridecane							2600/32.0					1000/38.4
593-45-3	octadecane							2000/50.4					1700/43.5
630-01-3	hexacosane							8300/65.0					
4562-27-0	4(1H)-pyrimidinone								2400/51.3				
30361-97-8	S-triazine, 2-(chloromethyl)-4,6-bis (trichloromethyl)								1600/18.4				
57-10-3	hexadecanoic acid								2200/60.7	6100/76.9	2200/58.5		
3913-07-8	1-octanol,2-butyl								18H0/73.3				
363-72-4	benzene, pentafluoro								1300/19.4				

AR000673

TENTATIVELY IDENTIFIED COMPOUNDS
MIDDLE CREEK SITE
CONCENTRATION (µg/kg)/PERCENT PURITY (if reported)

MEDIUM: SEDIMENTS

CAS NO.	COMPOUND	NUS SAMP. NO. / LAB SAMP. NO. / SAMPLE LOCATION	MC-SD-001 C9376	MC-SD-002 C9378	MC-SD-003 C9379	MC-SD-004 C9380	MC-SD-005 C9381	MC-SD-006 C9382	MC-SD-007 C9383	MC-SD-008 C9384	MC-SD-009 C9385	MC-SD-010 C9386	MC-SD-010A C9387 (DUPLICATE)
27886-67-5	2,4-imidazolidinedione, 5-methyl-5-(2-methylpropyl)-								1400/26.9				
54774-81-1	pyridine, 2-chloro-3,4,5,6-tetra fluoro								960/21.5				
420-42-8	arsine, (trifluoromethyl)-								520/16.7				
19542-77-9	L-cysteine, n-acetyl-5-(phenylmethyl)								950/23.2				
105-86-2	2,6-octadien-1-OL-3,7-dimethyl - formate								1700/47.5				
205-99-2	benzene acenaphenanthpylene								740/60.3				
55000-30-1	cyclohexanol dodecyl								680/35.5				
563-16-6	hexane, 3,3-dimethyl								890/66.0				
55638-41-0	5-octen-2-one, 6-methyl-8-(2,66,-trimethyl-1-cyclohexen-1-yl)-								780/36.1				
55334-01-5	benzamide, 2-nitro								2600/16.7				
619-50-1	benzoic acid, 4-nitro-methylester								3300/23.8				
103-82-2	benzene acetic acid									8500/86.3			2400/84.5
585-34-2	phenol, 3-(1,1-dimethyl)-									4400/83.4			
2091-29-4	9-hexadecenoic acid									4600/62.0			2400/58.3
112-80-1	9-octadecenoic acid									2800/48.2			710/29/3
106-02-5	oxacyclohexadecan-2-one									3900/52.4			
629-99-2	pentacosane									4200/82.8			
630-06-8	hexatrincontane									13000/75.2			650/72.6
										5600/76.3			
										24000/86.0			
613-59-2	napthelene, 2-(phenylmethyl)-									29000/84.0			
29354-98-1	hexadecanol									3700/42.6			
56847-03-1	6,9, octadecadiynoic acid, methylester									7000/72.4			
59-02-9	2H-1-benzopyran-6-OL, 3,4-dihydro-2,5,7,8-tetramethyl									5800/33.8			
										8200/52.2			
56599-50-9	2H-pyran,2-(7-heptadecynyloxy) tetrahydro									9400/37.8			
127-18-4	ethene, tetrachloro										440/90.6		
27154-43-4	piperidinone										3000/43.5		
55556-86-0	pyrrolidine, 2,5-dimethyl-1-nitroso										1400/40.5		
803-58-7	anthracene, 9,10-dihydro, 9,10,-diphenyl										1000/22.9		
592-56-3	acetaldehyde, ethylhydrazone										470/36.1		
1725-04-8	oxacyclotetradecan-2-one										580/36.9		
57-11-4	octadecanoic acid										930/42.1		2300/49/7
19455-91-5	5-tetrazine, 3,5-bis(diisopropylamino)-										710/41.1		
115-19-5	3-butyn-02-OL, 2-methyl										920/37.6		
14620-55-4	octadecane, 1,1,-dimethyl										630/49.3		
56943-71-6	ethanone, 2-(hexahydro-2H-oxocin-3-YL										940/51.4		
2791-29-9	hexadecane, 1,1-dimethoxy										380/41.0		
623-98-3	fulfurous acid, dipropylester										660/34.1		
52752-25-7	butanoic acid, 2-cyano-3 methyylester										720/32.8		
2408-37-9	cyclohexanone, 2,2,5-trimethyl										290/43.4		
624-15-7	2,6 octadien-1-OL, 3,7-dimethy										2000/42.3		

AR000674

MEDIUM: GROUNDWATER

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATIONS (µg/l)/PERCENT PURITY (if reported)

CAS NO.	COMPOUND	NUS SAMP. NO. LAB SAMP. NO. SAMPLE LOCATION	MC-MW-000 C9301 BLANK	MC-MW-002 C9303 EPA-MW-10	MC-MW-005 C9306 EPA-MW-5	MC-MW-006 C9307 EPA-MW-1	MC-MW-007 C9308 EPA-MW-3	MC-MW-008 C9309 EPA-MW-14	MC-MW-010 C9312 EPA-MW-6	MC-MW-011 C9313 EPA-MW-4	MC-MW-012 C9314 EPA-MW-13	MC-MW-013 C9315 EPA-MW-13	MC-MW-000-1 C9317 BLANK
105-60-2	2H-azepin-2-one, hexahydro-			33/86.8	57/92.8	110/85.8	210/85.8	190/85.8	64/79.1	160/77.1			
143-07-7	dodecanoic acid									29/47.7			
15918-07-7	4-nonene,5-methyl-				130/67.3	340/74.1			93/73.2				
3790-71-4	2,6,10-dodecantrien-1-OL, 3,7,11-trimethyl-(Z,E) -								23/44.3				
1678-98-4	cyclohexane, (2-methylpropyl)-						21/784						
5090-4-5	9-octadecanal					37/63.4							
57-10-3	hexadecanoic acid				36/79.9								
629-05-0	1-octyne			24/67.3									
7863-64-9	2,6,10,14,18-22-tetracosahexaene, 2,6,10,15,19,23-hex												
105-60-2	2H-azepin-2-one,hexahydro												
116-02-9	Cyclohexanol, 3,3,5-trimethyl-												
301-02-0	9-octadecanomide, (Z) -												
301-02-0	9-octadecanamide, (Z) -												
544-63-8	tetradecanoic acid												
143-28-2	9-octadecen-1-OL, (Z) -												
10544-50-0	Sulfur, Mol. (S8)												
2091-29-4	9-hexadecanoic acid												
127-18-4	tetrachloroethene												
60-32-2	6-aminohexanoic acid												NDB/97.8
98-54-4	4(1,1-Dimethylethyl)phenol												

AR000675

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATION (µg/l)/PERCENT PURITY (if reported)

MEDIUM: GROUNDWATER

CAS NO.	COMPOUND	NUS SAMP. NO. LAB SAMP. NO. SAMPLE LOCATION	MC-MW-009 C9311 EPA-MW-07	MC-MW-001 C9302 EPA-MW-11	MC-MW-008A C9310 EPA-MW-14 (DUPLICATE)	MC-MW-014 C-9316 EPA-MW-12	MC-MW-003 C9304 EPA-MW-9	MC-MW-004 C9305 EPA-MW-2	MC-MW-015 C9319 NUS-MW-23A	MC-MW-016 C9320 NUS-MW-23B	MC-MW-017 C9321 NUS-MW-15A
105-60-2	2H-azepin-2-one, hexahydro-		230/92.1	70/82.8	190/84.8			47/69.9			
143-07-7	dodecanoic acid										
15918-07-7	4-nonene,5-methyl-						1,000/75.1				
3790-71-4	2,6,10-dodecantrien-1-OL, 3,7,11-trimethyl-(Z,E) -					51/66.0		21/74.8			
1678-98-4	cyclohexane, (2-methylpropyl)-										
5090-4-5	9-octadecanal										
57-10-3	hexadecanoic acid							90/79.4			
629-05-0	1-octyne										
7863-64-9	2,6,10,14,18-22-tetracosahexaene, 2,6,10,15,19,23-hex				36/22.6						
105-60-2	2H-azepin-2-one,hexahydro				140/81.9						
116-02-9	Cyclohexanol, 3,3,5-trimethyl-						391/80.9				
301-02-0	9-octadecanomide, (Z) -						291/53.7				
301-02-0	9-octadecanamide, (Z) -						261/68.8				
544-63-8	tetradecanoic acid							15/73.3			
143-28-2	9-octadecen-1-OL, (Z) -							37/67.1			
10544-50-0	Sulfur, Mol. (S8)							360/81.2			
2091-29-4	9-hexadecanoic acid							55/59.6			
127-18-4	tetrachloroethene								NDB/98.4	NDB/98.0	NDB/98.0
60-32-2	6-aminohexanoic acid										
98-54-4	4(1,1-Dimethylethyl)phenol										
108-88-3	Toluene										

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATION (µg/l)/PERCENT PURITY (if reported)

MEDIUM: GROUNDWATER

CAS NO.	COMPOUND	NUS SAMP. NO. LAB SAMP. NO. SAMPLE LOCATION	MC-MW-018 C9322 NUS-MW-20A	MC-MW-019 C9323 NUS-MW-20B	MC-MW-020 C9324 NUS-MW-17A	MC-MW-021 C9325 NUS-MW-17B	MC-MW-022 C9326 NUS-MW-16A	MC-MW-023 C9327 NUS-MW-16B	MC-MW-024 C9328 NUS-MW-18A	MC-MW-025 C9329 NUS-MW-18B	MC-MW-026 C9330 NUS-MW-19A	MC-MW-027 C9331 NUS-MW-24A	MC-MW-23A C9332 NUS-MW-16B (DUPLICATE)
105-60-2	2H-azepin-2-one, hexahydro-												
143-07-7	dodecanoic acid												
15918-07-7	4-nonene,5-methyl-												
3790-71-4	2,6,10-dodecantrien-1-OL, 3,7,11-trimethyl-(Z,E) -												
1678-98-4	cyclohexane, (2-methylpropyl)-												
5090-4-5	9-octadecanal												
57-10-3	hexadecanoic acid												
629-05-0	1-octyne												
7863-64-9	2,6,10,14,18-22-tetracosahexaene, 2,6,10,15,19,23-hex												
105-60-2	2H-azepin-2-one,hexahydro												
116-02-9	Cyclohexanol, 3,3,5-trimethyl-												
301-02-0	9-octadecanomide, (Z) -												
301-02-0	9-octadecanamide, (Z) -												
544-63-8	tetradecanoic acid												
143-28-2	9-octadecen-1-OL, (Z) -												
10544-50-0	Sulfur, Mol. (S8)												
2091-29-4	9-hexadecanoic acid												
127-18-4	tetrachloroethene		NDB/98.4	NDB/95.0	NDB/97.9	NDB/98.4	NDB/96.5	NDB/91.4	NDB/98.6	NDB/96.1	NDB/97.8	NDB/96.7	NDB/96.2
60-32-2	6-aminohexanoic acid			71J/90.3								93J/89.2	37J/86.6
98-54-4	4(1,1-Dimethylethyl)phenol					* /94.3							
108-88-3	Toluene												

* RIC quantitation affected by coelution of unknown compound with the quantitation standard naphthalene-d8.

TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATION (µg/l)/PERCENT PURITY (if reported)

MEDIUM: GROUNDWATER

CAS NO.	COMPOUND	NUS SAMP. NO. LAB SAMP. NO. SAMPLE LOCATION	MC-MW-032 C9337 MW-25B	MC-MW-028 C9333 MW-22A	MC-MW-034 C9377 MW-21B	MC-MW-029 C9334 MW-22B	MC-MW-030 C9335 MW-22C	MC-MW-031 C9336 MW-25A	MC-MW-033 C9338 MW-21A	MC-MW-000 C9318 BLANK
105-60-2	2H-azepin-2-one, hexahydro-									
143-07-7	dodecanoic acid									
15918-07-7	4-nonene,5-methyl-									
3790-71-4	2,6,10-dodecantrien-1-OL, 3,7,11-trimethyl-(Z,E) -									
1678-98-4	cyclohexane, (2-methylpropyl)-									
5090-4-5	9-octadecanal									
57-10-3	hexadecanoic acid									
629-05-0	1-octyne									
7863-64-9	2,6,10,14,18-22-tetracosahexaene, 2,6,10,15,19,23-hex									
105-60-2	2H-azepin-2-one,hexahydro									
116-02-9	Cyclohexanol, 3,3,5-trimethyl-									
301-02-0	9-octadecanomide, (Z) -									
301-02-0	9-octadecanamide, (Z) -									
544-63-8	tetradecanoic acid									
143-28-2	9-octadecen-1-OL, (Z) -									
10544-50-0	Sulfur, Mol. (S8)									
2091-29-4	9-hexadecanoic acid									
127-18-4	tetrachloroethene									
60-32-2	6-aminohexanoic acid						68 J	70 J		
98-54-4	4(1,1-Dimethylethyl)phenol									
108-88-3	Toluene		323 JB	368 JB	373 JB	339 JB	354 JB	440 JB	375 JB	419 JB

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TENTATIVELY IDENTIFIED COMPOUNDS
MILLCREEK SITE
CONCENTRATION (µg/l)/PERCENT PURITY (if reported)

MEDIUM: SURFACE WATERS

CAS NO.	COMPOUND	NUS SAMPLE NO. LAB SAMPLE NO. SAMPLE LOCATION	MC-SW-001 C9774	MC-SW-003 C9775	MC-SW-004 C9776	MC-SW-005 C9777	MC-SW-006 C9778	MC-SW-007 C9779	MC-SW-010 C9780	MC-SW-010A C9781
108-88-3	Toluene		352JB	425JB	354JB	334JB	383JB	517JB	381JB	338JB
60-32-2	6-Amino, hexanoic acid					58				

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APPENDIX J

SPECIFIC POSITIVE TOXICITY TESTS CONDUCTED ON THE CONTAMINANTS OF CONCERN (ALL DATA FROM RTECS, USDHHS, 1984)

TABLE J-2

TRICHLOROETHENE
CAS NO. 79-01-6

Mutagenicity Bioassays	Reported Reproductive and Developmental Effects	Reported Tumorigenic Activity
Mutation in microorganisms Microsomal mutagenicity assay (3 cases) Unscheduled DNA synthesis (3 cases) DNA inhibition Sister chromatid exchange Oncogenic transfer DNA damage (3 cases) Specific locus test Host-mediated assay Sperm morphology Oncogenic transformation	Reproductive Effects Spermatogenesis (ihl/mus) Developmental Effects Muscoskelatal system (ihl/rat) (2 cases) other developmental abnormalities (ihl/rat) Post-implantation mortality, fetotoxicity (ihl/rat) urogenital system (ihl/rat)	Equivocal tumorigenic agent, lymphoma, kidney tumors (ihl/rat) Carcinogenic, liver tumors (orl/mus) Equivacol tumorigenic agent, lymphomas, bronchogenic carcinoma (ihl/mus) Equivocal tumorigenic agent, lymphomas, liver tumors (ihl/ham) Carcinogenic, liver tumors, (orl/mus) Carcinogenic, lymphoma (ihl/mus)

TABLE J-2

TRICHLOROETHENE
CAS NO. 79-01-6

Mutagenicity Bioassays	Reported Reproductive and Developmental Effects	Reported Tumorigenic Activity
Mutation in microorganisms Microsomal mutagenicity assay (3 cases) Unscheduled DNA synthesis (3 cases) DNA inhibition Sister chromatid exchange Oncogenic transfer DNA damage (3 cases) Specific locus test Host-mediated assay Sperm morphology Oncogenic transformation	Reproductive Effects Spermatogenesis (ihl/mus) Developmental Effects Muscoskelatal system (ihl/rat) (2 cases) other developmental abnormalities (ihl/rat) Post-implantation mortality, fetotoxicity (ihl/rat) urogenital system (ihl/rat)	Equivocal tumorigenic agent, lymphoma, kidney tumors (ihl/rat) Carcinogenic, liver tumors (orl/mus) Equivacol tumorigenic agent, lymphomas, bronchogenic carcinoma (ihl/mus) Equivocal tumorigenic agent, lymphomas, liver tumors (ihl/ham) Carcinogenic, liver tumors, (orl/mus) Carcinogenic, lymphoma (ihl/mus)

TABLE J-4

1,1,1-TRICHLOROETHANE
CAS NO. 71-55-6

Mutagenicity Bioassays	Reported Reproductive and Developmental Effects	Reported Tumorigenic Activity
Mutation in microorganisms Microsomal mutagenicity assay DNA repair Oncogenic transformation (3 cases)	Reproductive Effects None reported Developmental Effects Cardiovascular effects (orl/rat) Muscoskelatal effects (ihl/rat) Urogenital effects, other abnormalities (ihl/rat) Fetotoxicity (ihl/rat)	None reported

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TABLE J-4

1,1,1-TRICHLOROETHANE
CAS NO. 71-55-6

Mutagenicity Bioassays	Reported Reproductive and Developmental Effects	Reported Tumorigenic Activity
Mutation in microorganisms Microsomal mutagenicity assay DNA repair Oncogenic transformation (3 cases)	Reproductive Effects None reported Developmental Effects Cardiovascular effects (orl/rat) Muscoskelatal effects (ihl/rat) Urogenital effects, other abnormalities (ihl/rat) Fetotoxicity (ihl/rat)	None reported

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TABLE J-6

1,2-DICHLOROETHENE
CAS NO. 156-60-5

Mutagenicity Bioassays	Reported Reproductive and Developmental Effects	Reported Tumorigenic Activity
None reported	None reported	None reported

TABLE J-6

1,2-DICHLOROETHENE
CAS NO. 156-60-5

Mutagenicity Bioassays	Reported Reproductive and Developmental Effects	Reported Tumorigenic Activity
None reported	None reported	None reported

TABLE J-8

BENZO(A)PYRENE
CAS NO. 50-32-8

Mutagenicity Bioassays	Reported Reproductive and Developmental Effects	Reported Tumorigenic Activity
Microsomal mutagenicity assay (8 studies)	Reproductive Effects	Carcinogenic, GI tumor, musculoskelatal tumors (orl/rat)
DNA damage (76 studies)	Oogenesis (orl/mus)	Equivocal tumorigenic agent, site-of-application tumor (ipr/rat)
Mutation in microorganisms (2 studies)	Oogenesis (ipr/mus)	Neoplastic, site-of-application tumor (scu/rat)
DNA repair (2 studies)	Spermatogenesis (ipr/mus)	Equivocal tumorigenic agent, skin and appendages (ivn/rat)
Gene conversion and mitotic recombination (2 studies)	Spermatogenesis, testes, epididymis, sperm duct (ipr/ham)	Carcinogenic, site-of-application tumor (ims/rat)
Phage inhibition capacity (3 studies)	Developmental Effects	Equivocal tumorigenic agent, brain tumors, site-of-application tumors (ice/rat)
Unscheduled DNA synthesis (18 studies)	Extra embryonic structure, other effects (orl/rat)	Carcinogenic, respiratory system tumors, (its/rat)
DNA inhibition (7 studies)	Litter size, female fertility index, male fertility index (orl/mus)	Carcinogenic, respiratory system tumors, blood system tumors (orl/mus)
Sex chromosome loss and nondisjuncture (6 studies)	Immune and reticuloendothelial system (ipr/mus)	Equivocal tumorigenic agent, respiratory system tumors (ihl/mus)
Mutation in mammalian somatic cells (25 studies)	Craniofacial, skin and appendages, musculoskelatal (ipr/mus)	Carcinogenic, transplacental tumorigenesis (skn/mus)
Oncogenic transformation (21 studies)	Neonatal Effects	Carcinogenic, other tumors (skn/mus)
Cytogenetic analysis (29 cases)	Stillbirth, growth statistics (orl/rat)	Carcinogenic, blood system tumors, site-of-application tumors (skn/mus)
Sister chromatid exchange (26 cases)	Live birth index (orl/rat)	Neoplastic, respiratory system tumors (ipr/mus)
Fluid body assay (3 cases)	Germ cell effects (ipr/rat)	Carcinogenic, transplacental tumorigenesis, respiratory system tumors (ipr/mus)
Micronucleus test (3 cases)	Germ cell effects (orl/mus)	Carcinogenic, site-of-application tumors (scu/mus)
Specific locus test (3 cases)	Delayed effects (orl/mus)	Carcinogenic, transplacental tumorigenesis, respiratory system tumors (scu/mus)
Dominant lethal test	Weaning or lactation effects (orl/mus)	Equivocal tumorigenic agent, respiratory system tumors (itr/mus)
Sperm morphology (5 cases)	Growth statistics (orl/mus)	Carcinogenic, site-of-application tumors (imp/mus)
	Stillbirth (ipr/mus)	Equivocal tumorigenic agent, site-of-application tumors (unk/mus)
	Live birth index (scu/mus)	Carcinogenic, leukemia, colon tumors (rec/mus)
		Equivocal tumorigenic agent, site-of-application tumors (par/dog)
		Equivocal tumorigenic agent, respiratory system tumors, site-of-application tumors (imp/dog)
		Equivocal tumorigenic agent, respiratory system tumors (scu/mky)

TABLE J-8

BENZO(A)PYRENE
CAS NO. 50-32-8

Mutagenicity Bioassays	Reported Reproductive and Developmental Effects	Reported Tumorigenic Activity
Microsomal mutagenicity assay (8 studies)	Reproductive Effects	Carcinogenic, GI tumor, musculoskelatal tumors (orl/rat)
DNA damage (76 studies)	Oogenesis (orl/mus)	Equivocal tumorigenic agent, site-of-application tumor (ipr/rat)
Mutation in microorganisms (2 studies)	Oogenesis (ipr/mus)	Neoplastic, site-of-application tumor (scu/rat)
DNA repair (2 studies)	Spermatogenesis (ipr/mus)	Equivocal tumorigenic agent, skin and appendages (ivn/rat)
Gene conversion and mitotic recombination (2 studies)	Spermatogenesis, testes, epididymis, sperm duct (ipr/ham)	Carcinogenic, site-of-application tumor (ims/rat)
Phage inhibition capacity (3 studies)	Developmental Effects	Equivocal tumorigenic agent, brain tumors, site-of-application tumors (ice/rat)
Unscheduled DNA synthesis (18 studies)	Extra embryonic structure, other effects (orl/rat)	Carcinogenic, respiratory system tumors, (its/rat)
DNA inhibition (7 studies)	Litter size, female fertility index, male fertility index (orl/mus)	Carcinogenic, respiratory system tumors, blood system tumors (orl/mus)
Sex chromosome loss and nondisjuncture (6 studies)	Immune and reticuloendothelial system (ipr/mus)	Equivocal tumorigenic agent, respiratory system tumors (ihl/mus)
Mutation in mammalian somatic cells (25 studies)	Craniofacial, skin and appendages, musculoskelatal (ipr/mus)	Carcinogenic, transplacental tumorigenesis (skn/mus)
Oncogenic transformation (21 studies)	Neonatal Effects	Carcinogenic, other tumors (skn/mus)
Cytogenetic analysis (29 cases)	Stillbirth, growth statistics (orl/rat)	Carcinogenic, blood system tumors, site-of-application tumors (skn/mus)
Sister chromatid exchange (26 cases)	Live birth index (orl/rat)	Neoplastic, respiratory system tumors (ipr/mus)
Fluid body assay (3 cases)	Germ cell effects (ipr/rat)	Carcinogenic, transplacental tumorigenesis, respiratory system tumors (ipr/mus)
Micronucleus test (3 cases)	Germ cell effects (orl/mus)	Carcinogenic, site-of-application tumors (scu/mus)
Specific locus test (3 cases)	Delayed effects (orl/mus)	Carcinogenic, transplacental tumorigenesis, respiratory system tumors (scu/mus)
Dominant lethal test	Weaning or lactation effects (orl/mus)	Equivocal tumorigenic agent, respiratory system tumors (itr/mus)
Sperm morphology (5 cases)	Growth statistics (orl/mus)	Carcinogenic, site-of-application tumors (imp/mus)
	Stillbirth (ipr/mus)	Equivocal tumorigenic agent, site-of-application tumors (unk/mus)
	Live birth index (scu/mus)	Carcinogenic, leukemia, colon tumors (rec/mus)
		Equivocal tumorigenic agent, site-of-application tumors (par/dog)
		Equivocal tumorigenic agent, respiratory system tumors, site-of-application tumors (imp/dog)
		Equivocal tumorigenic agent, respiratory system tumors (scu/mky)

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TABLE J-9

NAPHTHALENE
CAS NO. 91-20-3

Mutagenicity Bioassays	Reported Reproductive and Developmental Effects	Reported Tumorigenic Activity
DNA damage (2 cases, both in vivo)	Muscoskeletal, cardiovascular system (ipr/rat)	Equivalent tumorigenic lymphomas, uterine tumors (scu/rat)

TABLE J-9

NAPHTHALENE
CAS NO. 91-20-3

Mutagenicity Bioassays	Reported Reproductive and Developmental Effects	Reported Tumorigenic Activity
DNA damage (2 cases, both in vivo)	Muscoskeletal, cardiovascular system (ipr/rat)	Equivalent tumorigenic lymphomas, uterine tumors (scu/rat)

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TABLE J-11

PCB-1248
CAS NO. 12672-29-6

Mutagenicity Bioassays	Reported Reproductive and Developmental Effects	Reported Tumorigenic Activity
	Reproductive Effects Menstrual cycle disorders (orl/mky) Developmental Effects Post-implantation mortality (orl/mky) Abortion (orl/mky) Immune and reticuloendothelial system (orl/rbt) Neonatal Effects Behavioral (orl/mky) Growth statistics, behavioral (orl/mky)	

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TABLE J-12

TENATIVELY IDENTIFIED COMPOUNDS
FOR WHICH THE REGISTRY OF TOXIC EFFECTS OF
CHEMICAL SUBSTANCES (RTECS) LISTING PROVIDES EVIDENCE OF TOXIC
BIOLOGICAL EFFECTS IN EXPERIMENTAL TEST SYSTEMS

CAS No.	Compound
	Tumorigenicity
203-64-5	4H-Cyclopenta (d,e,f) phenanthrene
195-19-7	Benzo(c)phenanthrene
2541-69-7	Benz(a)anthracene, 7-methyl-
112-53-8	Dodecyl alcohol
57-11-4	Stearic acid
55556-88-2	Piperazine, 2,5-dimethyl-1,4-dinitroso
79-34-5	Ethane, 1,1,2,2-tetrachloro-
127-18-4	Ethylene, tetrachloro-
79-00-5	Ethane, 1,1,2-trichloro-
10061-02-6	Propene, 1,3-dichloro-
57-10-3	Palmitic acid
1921-70-6	Pentadecane, 2,6,10,14-tetramethyl-
84-74-2	Phthalic acid, dibutyl ester
58-72-0	Ethylene, triphenyl-
	Mutagenicity
195-19-7	Benzo(c)phenanthrene
2541-69-7	Benz(a)anthracene, 7-methyl-
60-29-7	Ethane, 1,1'-oxybis-
59-02-9	2H-1-benzopyran-6-ol, 3,4-dihydro-2,5,7,8-tetramethyl-2-(4,8,12-trimethyltridecyl)-,(2R-(2R*(4R*,8R*)))-
112-80-1	9-octadecenoic acid
55556-88-2	Piperazine, 2,5-dimethyl-1,4-dinitroso
108-67-8	Mesitylene
79-34-5	Ethane, 1,1,2,2-tetrachloro-
127-18-4	Ethylene, tetrachloro-
79-00-5	Ethane, 1,1,2-trichloro-
100-52-7	Benzaldehyde
10061-02-6	Propene, 1,3-dichloro-
2381-21-7	Pyrene, 1-methyl-
82-05-3	7H-Benz(d,e) anthracen-7-one
191-24-2	Benzo (g,h,i) perylene
195-19-7	Benzo(c) phenanthrene
84-74-2	Phthalic acid, dibutyl ester

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TABLE J-12
TENATIVELY IDENTIFIED COMPOUNDS
FOR WHICH THE REGISTRY OF TOXIC EFFECTS OF
CHEMICAL SUBSTANCES (RTECS) LISTING PROVIDES EVIDENCE OF TOXIC
BIOLOGICAL EFFECTS IN EXPERIMENTAL TEST SYSTEMS
PAGE TWO

CAS No.	Compound
	Carcinogenicity
205-82-3	Benzo(j)fluoranthene
205-99-2	Benz(e)acephenan thrylene
4549-40-0	Vinylarsonic acid, beta-chloro-
79-34-5	Ethane, 1,1,2,2-tetrachloro-
79-00-5	Ethane, 1,1,2-trichloro-
	Reproductive Effects
58-72-0	Ethylene, triphenyl-
127-18-4	Ethylene, tetrachloro-
59-02-9	2H-1-benzopyran-6-ol, 3,4-dihydro-2,5,7,8-tetramethyl-2-(4,8,12-trimethyltridecyl)-,(2R-(2R*(4R*, 8R*)))-
131-18-0	Phthalic acid, diphenyl ester
84-74-2	Phthalic acid, dibutyl ester
84-69-5	Phthalic acid, disobutyl ester