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NAS FORT WORTH
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MEETING MINUTES FROM BASE REALIGNMENT AND CLOSURE MEETING HELD 11 FEBRUARY 1999 WITH ATTACHMENTS NAS FORT WORTH TX
2/11/1999
BRAC TEAM

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P.W.

NAVAL AIR STATION
FORT WORTH JRB
CARSWELL FIELD
TEXAS

ADMINISTRATIVE RECORD
COVER SHEET

AR File Number 448

File:
P.W. 79D

448

448 1

RCRA FACILITY INVESTIGATION OF LANDFILLS 4, 5, 8, AND WASTE BURIAL AREA 7 PRESENTATION SUMMARY

BASE CLOSURE TEAM MEETING
NAS FORT WORTH JRB, TEXAS
FEBRUARY 11, 1999

JIM COSTELLO
MIQUETTE ROCHFORD
HYDROGEOLOGIC, INC.
1155 HERNDON PARKWAY, SUITE 900
HERNDON, VIRGINIA 20170

BASE CLOSURE TEAM MEETING
NAS FORT WORTH JRB, TEXAS
FEBRUARY 11, 1999

PROJECT OBJECTIVES

Primary objective: To determine the nature and extent of contamination at each SWMU in order to evaluate the potential risk to human health and the environment.

Tasks necessary to meet the primary objective:

- Determine the lateral and horizontal extent of each SWMU
- Describe the contents of each SWMU
- Delineate soil contamination resulting from historical use
- Determine if groundwater has been impacted by each SWMU

INVESTIGATIONAL HISTORY

Stage I Investigation by Radian 1986

Landfill 4:	Five soil borings advanced, soil samples collected outside of unit
Landfill 5:	Three soil borings advanced, soil samples collected outside of unit
Landfill 8:	Not investigated, no samples collected
WP 7:	Three soil borings, soil samples collected outside of unit

Stage II Investigation by Radian 1989

Landfill 4:	Four soil borings advanced, soil samples collected outside of unit
Landfill 5:	Six soil borings advanced, soil samples collected outside of unit
Landfill 8:	Not investigated, no samples collected
WP 7:	Three soil borings, soil samples collected outside of unit

Drum Removal Action WP 7 in 1992

A total of 41 drums were removed, 12 of which were full/partially full with TCE/PCE.

Initial RFI field effort conducted by HydroGeoLogic 1997

Air photos used in conjunction with geophysical survey to delineate areal extent of each landfill. Test pit trenches were excavated in each unit to determine the vertical extent and type of waste. Submitted Technical Memorandum in March 1998 outlining additional sampling needs. Samples were analyzed for VOCs, SVOCs, and Metals.

Landfill 4:	Ten trenches within unit, location based on aerial photographs
Landfill 5:	Ten trenches within unit, location based on aerial photographs

Landfill 8:	Eight trenches within unit, location based on aerial photographs
WP 7:	Seven soil borings within unit

HydroGeoLogic conducted the latest field effort in summer 1998 to collect soil samples for Appendix IX analyses as required by RCRA Part B permit.

Landfill 4:	Six soil borings within unit
Landfill 5:	Six soil borings within unit
Landfill 8:	Seven soil borings within unit
WP 7:	Six soil borings within unit

RESULTS AND RECOMMENDATIONS

Preliminary examination of laboratory data indicates that for all detections of acetone, methylene chloride, and bis(2-ethylhexy)phthlate can be considered laboratory contaminants as they are commonly detected in laboratory and equipment blanks, and the concentrations detected are not significantly above detection limits. Therefore, these chemicals do not warrant further investigation.

Arsenic, selenium, and thallium were detected in soil samples at all four SWMUs. The approach and methodology used for the statistical analysis were based on the recommendations provided in USEPA's Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Interim Final Guidance (1989 and 1992.) Preliminary statistical results indicate that concentrations of these metals are not statistically above background. Tables 1 and 2 present the preliminary statistical results for surface and subsurface soil data, respectively. Further statistical analysis should be completed for other metals including chromium and lead, for samples collected at all four SWMUs.

Landfill 4

Debris identified in this landfill consisted of construction materials, medical waste, and office waste. The depth to groundwater at Landfill 4 is approximately 25 feet below ground surface.

Figures 1 and 2 present all data above RRS 1 values detected in soil samples collected during test pit trench excavations and borings, respectively.

Insignificant detections—concentrations less than an order of magnitude above RRS 1 values—of xylenes, napthalene, and toluene were identified in a limited number of soil samples at Landfill 4. No source areas were identified associated with these detections. Therefore, no further investigation is necessary for these compounds. The 5-foot sampling interval at location BHGLTA403 contained detections of chlordane, dieldrin, and p,p'DDE. This is the only sample where any of these three chemicals were detected in this landfill and the concentrations do not exceed Risk Reduction Standards by more than an order of magnitude. Therefore, no additional sampling is proposed.

Additional delineation is necessary to delineate the extent of PAHs in surface soil east of BHGLTA401 and north of BHGLTA406. Two additional soil samples are proposed for this delineation.

Medical waste was identified in test pit trenches excavated at Landfills 4 and 5. Medical waste should be considered during the Corrective Measures Study.

Landfill 5

Debris identified in this landfill consisted of construction materials, medical waste, and office waste. The average depth to water in the vicinity of Landfill 5 is approximately 20 feet below ground surface.

Figures 3 and 4 present all data above RRS 1 values detected in soil samples collected during test pit trench excavations and borings, respectively.

Lead was detected in surface soil sample THGLTA015 at a concentration of 20,000 mg/kg. Although this lead concentration is delineated, an additional soil sample should be collected from this location to verify this result. Only one other lead concentration detected at Landfill 5 exceeds background; the 5-foot sampling interval of location BHGLTA509 contains a lead concentration of 57.5 mg/kg.

PAHs, VOCs, and lead detected at the 5-foot sampling interval of BHGLTA509 and require horizontal delineation to the east. In addition, PAHs and VOCs are not delineated to the west of Landfill 5, in the vicinity of BHGLTA508 and LF05-5D at the 10-foot and 15-foot intervals.

Landfill 8

Debris identified in this landfill consisted of scrap metal, asphalt, concrete, and tar. The average depth to water in the vicinity of Landfill 8 is approximately 15 feet below ground surface.

Figures 5 and 6 present all data above RRS 1 values detected in soil samples collected during test pit trench excavations and borings, respectively. It should be noted that landfill material was present in borings BHGLTA813, BHGLTA815, and BHGLTA816; therefore, additional landfill delineation is necessary to the west of these borings.

Various PAHs are not delineated in surface soil samples collected at locations BHGLTA813, BHGLTA815, BHGLTA816, BHGLTA817. Four additional surface soil samples are necessary to delineate PAHs. PAHs detected at the 5-foot sampling interval in boring BHGLTA816 are not delineated, nor are PAHs delineated in the 15-foot interval of locations BHGLTA813 and BHGLTA815.

Location BHGLTA815 should also be re-sampled to confirm concentrations of barium, lead, silver, and beryllium. A surface soil sample for lead SPLP should be collected from BHGLTA812.

Waste Burial Area 7 (WP7)

Figure 7 presents all data above RRS 1 values detected in soil samples. The average depth to groundwater at WP7 is approximately 25 feet below ground surface.

Lead was detected at a concentration of 3,130 mg/kg in surface soil sample BHGLTA006. An additional soil sample should be collected from this location to verify this result. Other lead concentrations detected in surface (0 to 2 feet) soils exceed background values ranging between 155 to 166 mg/kg. An additional surface soil sample should be collected east of BHGLTA001 for lead delineation.

TCE concentrations were detected in soil samples at concentrations ranging from 0.0057 to 0.22 mg/kg. One soil boring should be installed east of BHGLTA075 and sampled at the 5-, 10-, and 15-foot intervals for TCE. In addition, one boring should be installed south of BHGLTA072 and sampled at the 10- and 15-foot intervals for TCE.

PAHs were detected in surface soil samples collected at locations BHGLTA001, BHGLTA002 BHGLTA003, BHGLTA007, BHGLTA071, BHGLTA072, and BHGLTA075. Additional surface soil samples are necessary for delineation of PAHs to the south of BHGLTA072, west of BHGLTA071, and east of BHGLTA001.

Groundwater--All SWMUs

In January 1998, groundwater samples were collected from two monitoring wells and analyzed for the Appendix IX analytical suite. Sample LF05-19C only contained one detection above RRS1 values: TCE was detected a 56 μg/L. Sample WP07-10C contained the following metals and corresponding concentrations above background: arsenic at 0.01 mg/L and manganese at 0.39 mg/L. Concentrations of TCE (1,200 μg/L); trans-1,2-dicholorethene (21 μg/L); and 1,4-dichlorobenze (6.4 μg/L) present in this sample exceeded RRS 1 values. No other constituents were detected in either of these samples above RRS 1 values.

A groundwater sample should be collected downgradient of Landfills 4, 5, and 8 and sampled for the Appendix IX suite to better determine if these SWMU are impacting groundwater..

Table 1
Statistical Analysis for DO2 Soil Boring
Comparison of Soil Background Concentrations Against Investigation Data

Mann-Whitney Test Analysis Results for Surface Soils

Parameter	*TL_98*	*TL97_bkgd*	*AS_98*	*AS98_bkgd*	*SE_98*	*SE98-bkgd*
Count	29	30	29	30	29	30
Mean	8.39	35.44	5.39	3.50	5.07	0.19
Std.Dev.	8.70	25.03	5.06	1.06	5.96	0.19
Ranked Sum	596	1168	957	813	937.5	825
Mann-Witney Static	709		348		368	
Approx. z-score for Mann-Witney Static	4.154		1.319		1.023	

Critical Z = 2.3263, corresponds to the upper .01 percentile of the standard normal distribution

Table 2
Statistical Analysis for DO2 Soil Boring
Comparison of Soil Background Concentrations Against Investigation Data

Mann-Whitney Test Analysis Results for Subsurface Soils

Parameter	*TL_98*	*TL97_bkgd*	*AS_98*	*AS98_bkgd*	*SE_98*	*SE98-bkgd*
Count	83	30	83	30	83	30
Mean	6.40	34.66	4.71	3.03	4.17	0.040
Std.Dev.	10.09	19.98	6.52	1.13	5.21	0.09
Ranked Sum	3794	2516	4524	2069	5274	825
Mann-Witney Static	2182		1452		702	
Approx. z-score for Mann-Witney Static	6.092		1.346		3.530	

Critical Z = 2.3263, corresponds to the upper .01 percentile of the standard normal distribution

HydroGeoLogic, Inc.—Presentation
NAS Fort Worth JRB, Texas

Figure 1
Landfill 4/SWMU 22

Soil Analytical Concentrations Above Background or Method Quantification Limit

Air Force Center For Environmental Excellence
Brooks AFB, Texas

THGLTA008 *1

Method	Analyte	Unit	Results Surface	Results Subsurface
SW6010	Calcium	mg/kg	183000	
SW6010	Zinc	mg/kg	43.1	
SW8260	1,2,4-Trichlorobenzene	mg/kg		1.5 F
SW8260	1,2,4-Trimethylbenzene	mg/kg		5.8 J
SW8260	1,2-Dichlorobenzene	mg/kg		1.8
SW8260	1,3,5-Trimethylbenzene (mesitylene)	mg/kg		1.5 F
SW8260	1,3-Dichlorobenzene	mg/kg		0.76 F
SW8260	1,4-Dichlorobenzene	mg/kg		0.76 F
SW8260	Naphthalene	mg/kg		19 J
SW8270	Benzo(a)anthracene	mg/kg	2.4 F	
SW8270	Benzo(a)pyrene	mg/kg	3.2 F	
SW8270	Benzo(b)fluoranthene	mg/kg	4.6	
SW8270	Benzo(g,h,i)perylene	mg/kg	2.9 F	
SW8270	Chrysene	mg/kg	3.3	
SW8270	Fluoranthene	mg/kg	6	
SW8270	Indeno(1,2,3-c,d)pyrene	mg/kg	2.8 F	
SW8270	Phenanthrene	mg/kg	1.7 F	
SW8270	Pyrene	mg/kg	5.4	

THGLTA007 *1

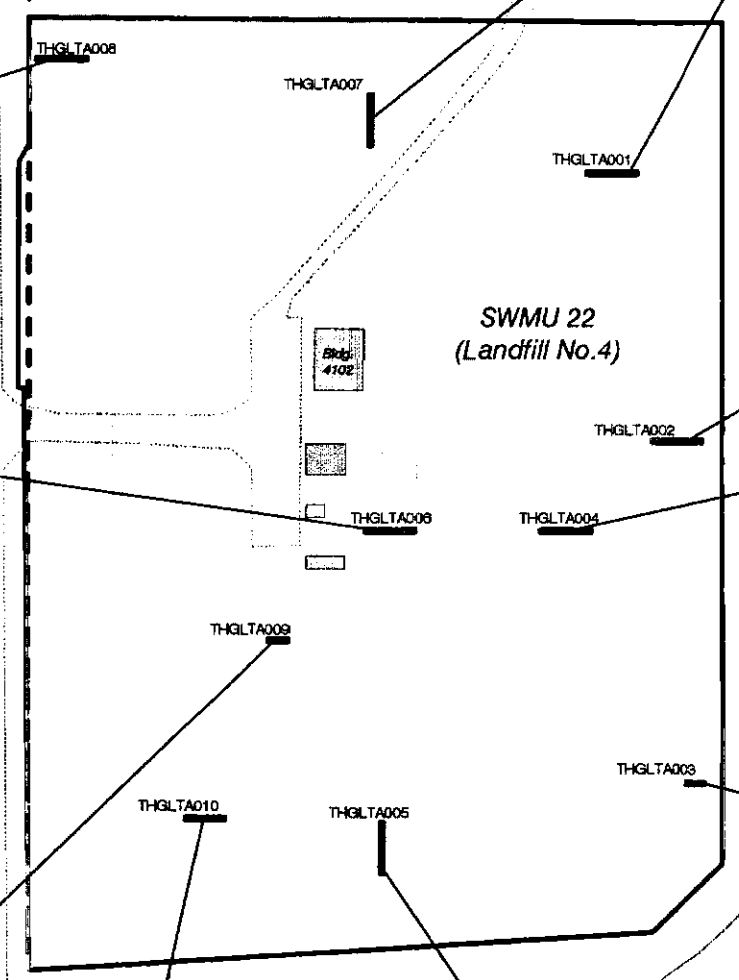
Method	Analyte	Unit	Results Surface	Results Subsurface
SW6010	Antimony	mg/kg	0.65 J	
SW6010	Cadmium	mg/kg	0.73 F	
SW6010	Calcium	mg/kg	176000	320000
SW6010	Lead	mg/kg	32.2	
SW6010	Magnesium	mg/kg		2540 J
SW8270	Benzo(a)anthracene	mg/kg	1.1 F	
SW8270	Benzo(a)pyrene	mg/kg	1.4 F	
SW8270	Benzo(b)fluoranthene	mg/kg	1.8 F	
SW8270	Benzo(g,h,i)perylene	mg/kg	1.1 F	
SW8270	Chrysene	mg/kg	1.4 F	
SW8270	Fluoranthene	mg/kg	3 F	
SW8270	Indeno(1,2,3-c,d)pyrene	mg/kg	1.1 F	
SW8270	Phenanthrene	mg/kg	1.1 F	
SW8270	Pyrene	mg/kg	2.8 F	

THGLTA001 *1

Method	Analyte	Unit	Results Surface	Results Subsurface
SW6010	Calcium	mg/kg	176000	
SW8260	Ethylbenzene	mg/kg		0.058
SW8260	Isopropylbenzene (cumene)	mg/kg		0.13
SW8260	m- & p-Xylene (sum of isomers)	mg/kg		0.29
SW8260	o-Xylene (1,2-dimethylbenzene)	mg/kg		0.24
SW8260	Toluene	mg/kg		0.013 F
SW8270	2-Methylnaphthalene	mg/kg		1.4
SW8270	Naphthalene	mg/kg		1.3

THGLTA002 *1

Method	Analyte	Unit	Results Surface	Results Subsurface
SW6010	Lead	mg/kg		27.2
SW8260	1,2,4-Trimethylbenzene	mg/kg		0.011 F
SW8260	m- & p-Xylene (sum of isomers)	mg/kg		0.0095 F
SW8260	Toluene	mg/kg		0.0071 F
SW8270	Anthracene	mg/kg	0.83 F	
SW8270	Benzo(a)anthracene	mg/kg	2.8 F	
SW8270	Benzo(a)pyrene	mg/kg	3 F	
SW8270	Benzo(b)fluoranthene	mg/kg	4	
SW8270	Benzo(g,h,i)perylene	mg/kg	2.1 F	
SW8270	bis(2-Ethylhexyl)phthalate	mg/kg		2.1
SW8270	Chrysene	mg/kg	3.2 F	
SW8270	Fluoranthene	mg/kg	8.5	
SW8270	Indeno(1,2,3-c,d)pyrene	mg/kg	2.2 F	
SW8270	Phenanthrene	mg/kg	4.9	
SW8270	Pyrene	mg/kg	6.5	



THGLTA006 *1

Method	Analyte	Unit	Results Subsurface
SW6010	Lead	mg/kg	13.9
SW6010	Potassium	mg/kg	1940 J
SW6010	Silver	mg/kg	0.22 F
SW6010	Zinc	mg/kg	39.1
SW7471	Mercury	mg/kg	0.066 F

THGLTA004 *1

Method	Analyte	Unit	Results Subsurface
SW6010	Arsenic	mg/kg	7.9
SW6010	Chromium (total)	mg/kg	20.1 J
SW6010	Lead	mg/kg	18
SW6010	Magnesium	mg/kg	2740 J
SW6010	Manganese	mg/kg	508 J
SW6010	Zinc	mg/kg	41
SW7471	Mercury	mg/kg	0.084 F

THGLTA003 *1

Method	Analyte	Unit	Results Surface	Results Subsurface
SW6010	Arsenic	mg/kg		7.3
SW6010	Cobalt	mg/kg		7.8 F
SW6010	Lead	mg/kg		74.4
SW6010	Silver	mg/kg		0.6 F
SW6010	Zinc	mg/kg		45.1
SW7471	Mercury	mg/kg		0.049 F
SW8260	Ethylbenzene	mg/kg		0.023
SW8260	m- & p-Xylene (sum of isomers)	mg/kg		0.0079
SW8260	Toluene	mg/kg	0.006	
SW8270	Anthracene	mg/kg	0.64 F	
SW8270	Benzo(a)anthracene	mg/kg	2.4 F	
SW8270	Benzo(a)pyrene	mg/kg	2.7 F	
SW8270	Benzo(b)fluoranthene	mg/kg	3.4	
SW8270	Benzo(g,h,i)perylene	mg/kg	2 F	
SW8270	Chrysene	mg/kg	2.8 F	
SW8270	Fluoranthene	mg/kg	6.8	
SW8270	Indeno(1,2,3-c,d)pyrene	mg/kg	2 F	
SW8270	Phenanthrene	mg/kg	4	
SW8270	Pyrene	mg/kg	5.3	

THGLTA009 *1

Method	Analyte	Unit	Results Surface	Results Subsurface
SW6010	Antimony	mg/kg		0.99 J
SW6010	Cadmium	mg/kg		0.63 F
SW6010	Calcium	mg/kg	233000	
SW6010	Lead	mg/kg		21.4
SW6010	Zinc	mg/kg		63.3
SW7471	Mercury	mg/kg		0.12 F

THGLTA010 *1

Method	Analyte	Unit	Results Surface
SW8270	Fluoranthene	mg/kg	0.46 F
SW8270	Pyrene	mg/kg	0.4 F

THGLTA005 *1

Method	Analyte	Unit	Results Surface
SW6010	Copper	mg/kg	17.40
SW8260	Toluene	mg/kg	0.022

Legend

- NAS Fort Worth JRB (Carswell Field)
- Former Carswell Air Force Base
- Landfill Boundaries
- BHGLTA202 — Test Pit Location
- BHGLTA211 — Borehole Location
- GMI-22-07M — Monitoring Well Location

***NOTES:**

1 = August/September 1997 RFI
2 = IRP Phase II, Stage I (Radian 1986)
3 = RI/FS Stage 2 (Radian 1989)
4 = June/July 1998 RFI

J = Estimated
F = Detection between the SQL and MDL
S = Screening level data

MQL (Method Quantitation Limit) = the lowest calibration standard that is analyzed during an initial calibration (e.g., the lowest non-zero standard)

SQL (Sample Quantification Limit) = sample specific practical quantification limit for organics and sulfide.

MDL (Method Detection Limit)

Bgmd (Background) = Jacobs basewide values for inorganics (1998).

Red shaded values in analytical tables indicate values => RRS2.

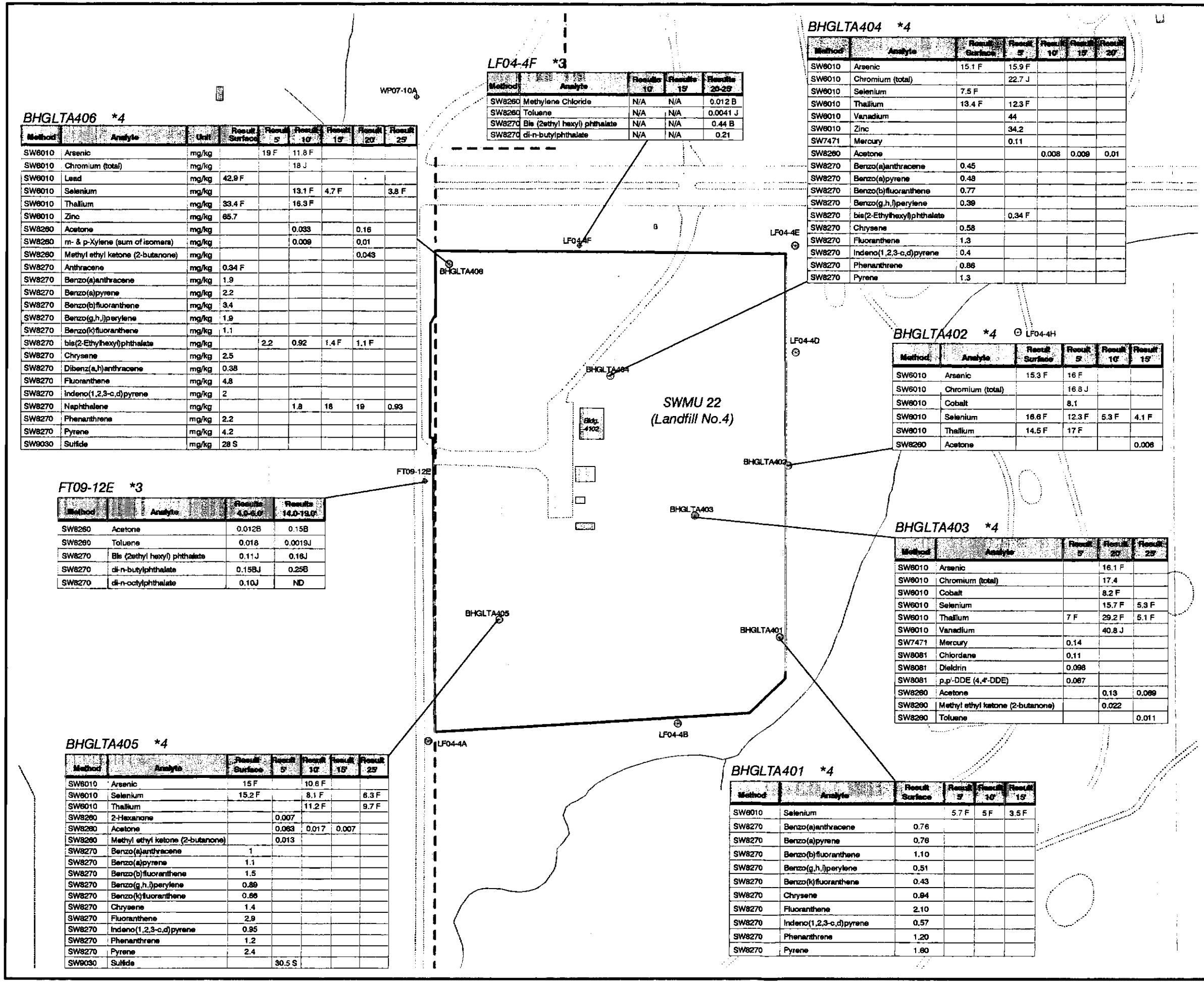
All data reported in mg/Kg.

N

75 0 75 150 Feet
Scale in feet

Project: AFC001-024C
Filename: 024C/REPORT/trenches.apr
Created: 02/05/99 nzehms
Revised: 02/10/99 jb
Map Source: HydroGeoLogic, Inc.—GIS Database

HYDRO GeoLogic INC.



BHGLTA406 *4

Method	Analyte	Unit	Result Surface	Result 5'	Result 10'	Result 15'	Result 20'	Result 25'
SW6010	Arsenic	mg/kg		19 F	11.8 F			
SW6010	Chromium (total)	mg/kg			18 J			
SW6010	Lead	mg/kg	42.9 F					
SW6010	Selenium	mg/kg			13.1 F	4.7 F		3.8 F
SW6010	Thallium	mg/kg	33.4 F		16.3 F			
SW6010	Zinc	mg/kg	65.7					
SW8260	Acetone	mg/kg			0.033		0.16	
SW8260	m- & p-Xylene (sum of isomers)	mg/kg			0.009		0.01	
SW8260	Methyl ethyl ketone (2-butanone)	mg/kg					0.043	
SW8270	Anthracene	mg/kg	0.34 F					
SW8270	Benzo(a)anthracene	mg/kg	1.9					
SW8270	Benzo(a)pyrene	mg/kg	2.2					
SW8270	Benzo(b)fluoranthene	mg/kg	3.4					
SW8270	Benzo(g,h,i)perylene	mg/kg	1.9					
SW8270	Benzo(k)fluoranthene	mg/kg	1.1					
SW8270	bis(2-Ethylhexyl)phthalate	mg/kg		2.2	0.92	1.4 F	1.1 F	
SW8270	Chrysene	mg/kg	2.5					
SW8270	Dibenz(a,h)anthracene	mg/kg	0.38					
SW8270	Fluoranthene	mg/kg	4.8					
SW8270	Indeno(1,2,3-c,d)pyrene	mg/kg	2					
SW8270	Naphthalene	mg/kg			1.8	18	19	0.93
SW8270	Phenanthrene	mg/kg	2.2					
SW8270	Pyrene	mg/kg	4.2					
SW9030	Sulfide	mg/kg	28 S					

LF04-4F *3

Method	Analyte	Results 10'	Results 15'	Results 20-25'
SW8260	Methylene Chloride	N/A	N/A	0.012 B
SW8260	Toluene	N/A	N/A	0.0041 J
SW8270	Bis (2ethyl hexyl) phthalate	N/A	N/A	0.44 B
SW8270	di-n-butylphthalate	N/A	N/A	0.21

BHGLTA404 *4

Method	Analyte	Result Surface	Result 5'	Result 10'	Result 15'	Result 20'
SW6010	Arsenic	15.1 F	15.9 F			
SW6010	Chromium (total)		22.7 J			
SW6010	Selenium	7.5 F				
SW6010	Thallium	13.4 F	12.3 F			
SW6010	Vanadium		44			
SW6010	Zinc		34.2			
SW7471	Mercury		0.11			
SW8260	Acetone			0.008	0.009	0.01
SW8270	Benzo(a)anthracene	0.45				
SW8270	Benzo(a)pyrene	0.48				
SW8270	Benzo(b)fluoranthene	0.77				
SW8270	Benzo(g,h,i)perylene	0.39				
SW8270	bis(2-Ethylhexyl)phthalate		0.34 F			
SW8270	Chrysene	0.58				
SW8270	Fluoranthene	1.3				
SW8270	Indeno(1,2,3-c,d)pyrene	0.4				
SW8270	Phenanthrene	0.86				
SW8270	Pyrene	1.3				

BHGLTA402 *4

Method	Analyte	Result Surface	Result 5'	Result 10'	Result 15'
SW6010	Arsenic	15.3 F	16 F		
SW6010	Chromium (total)		16.8 J		
SW6010	Cobalt		8.1		
SW6010	Selenium	16.6 F	12.3 F	5.3 F	4.1 F
SW6010	Thallium	14.5 F	17 F		
SW8260	Acetone				0.006

FT09-12E *3

Method	Analyte	Results 4.0-6.0'	Results 14.0-15.0'
SW8260	Acetone	0.012B	0.15B
SW8260	Toluene	0.018	0.0019J
SW8270	Bis (2ethyl hexyl) phthalate	0.11J	0.16J
SW8270	di-n-butylphthalate	0.158J	0.25B
SW8270	di-n-octylphthalate	0.10J	ND

BHGLTA403 *4

Method	Analyte	Result 5'	Result 20'	Result 25'
SW6010	Arsenic		16.1 F	
SW6010	Chromium (total)		17.4	
SW6010	Cobalt		8.2 F	
SW6010	Selenium		15.7 F	5.3 F
SW6010	Thallium	7 F	29.2 F	5.1 F
SW6010	Vanadium		40.8 J	
SW7471	Mercury	0.14		
SW8081	Chlordane	0.11		
SW8081	Dieldrin	0.098		
SW8081	p,p'-DDE (4,4'-DDE)	0.067		
SW8260	Acetone		0.13	0.089
SW8260	Methyl ethyl ketone (2-butanone)		0.022	
SW8260	Toluene			0.011

BHGLTA405 *4

Method	Analyte	Result Surface	Result 5'	Result 10'	Result 15'	Result 25'
SW6010	Arsenic	15 F		10.6 F		
SW6010	Selenium	15.2 F		8.1 F		6.3 F
SW6010	Thallium			11.2 F		9.7 F
SW8260	2-Hexanone		0.007			
SW8260	Acetone		0.063	0.017	0.007	
SW8260	Methyl ethyl ketone (2-butanone)		0.013			
SW8270	Benzo(a)anthracene	1				
SW8270	Benzo(a)pyrene	1.1				
SW8270	Benzo(b)fluoranthene	1.5				
SW8270	Benzo(g,h,i)perylene	0.89				
SW8270	Benzo(k)fluoranthene	0.66				
SW8270	Chrysene	1.4				
SW8270	Fluoranthene	2.9				
SW8270	Indeno(1,2,3-c,d)pyrene	0.95				
SW8270	Phenanthrene	1.2				
SW8270	Pyrene	2.4				
SW9030	Sulfide		30.5 S			

BHGLTA401 *4

Method	Analyte	Result Surface	Result 5'	Result 10'	Result 15'
SW6010	Selenium		5.7 F	5 F	3.5 F
SW8270	Benzo(a)anthracene	0.76			
SW8270	Benzo(a)pyrene	0.76			
SW8270	Benzo(b)fluoranthene	1.10			
SW8270	Benzo(g,h,i)perylene	0.51			
SW8270	Benzo(k)fluoranthene	0.43			
SW8270	Chrysene	0.94			
SW8270	Fluoranthene	2.10			
SW8270	Indeno(1,2,3-c,d)pyrene	0.57			
SW8270	Phenanthrene	1.20			
SW8270	Pyrene	1.60			

HydroGeoLogic, Inc.—Presentation
NAS Fort Worth JRB, Texas

Figure 2
Landfill 4/SWMU 22

Soil Analytical Concentrations Above Background or Method Quantification Limit

Air Force Center For
Environmental Excellence
Brooks AFB, Texas

Legend

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Red shaded values in analytical tables indicate values => RRS2.

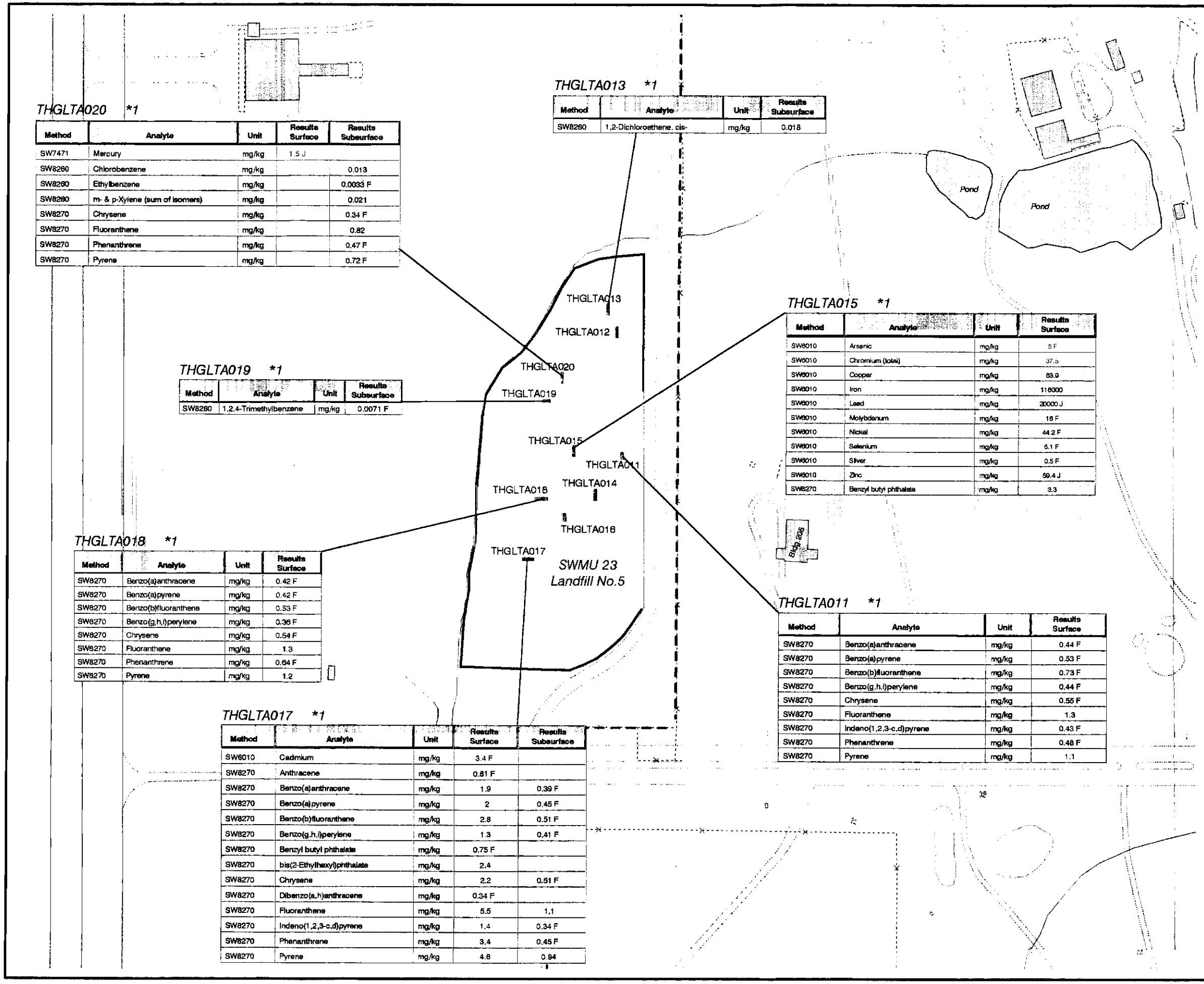
All data reported in mg/Kg.

N

75 0 75 150 Feet
Scale in feet

Project: AFC001-024C
Filename: 024C/REPORT/BORINGS.apr
Created: 02/05/99 nzehms
Revised: 02/10/99 jb
Map Source: HydroGeoLogic, Inc.—GIS Database

HYDRO GeoLogic INC.



THGLTA020 *1

Method	Analyte	Unit	Results Surface	Results Subsurface
SW7471	Mercury	mg/kg	1.5 J	
SW8260	Chlorobenzene	mg/kg		0.013
SW8260	Ethylbenzene	mg/kg		0.0033 F
SW8260	m- & p-Xylene (sum of isomers)	mg/kg		0.021
SW8270	Chrysene	mg/kg		0.34 F
SW8270	Fluoranthene	mg/kg		0.82
SW8270	Phenanthrene	mg/kg		0.47 F
SW8270	Pyrene	mg/kg		0.72 F

THGLTA013 *1

Method	Analyte	Unit	Results Subsurface
SW8260	1,2-Dichloroethene, cis-	mg/kg	0.018

THGLTA019 *1

Method	Analyte	Unit	Results Subsurface
SW8260	1,2,4-Trimethylbenzene	mg/kg	0.0071 F

THGLTA015 *1

Method	Analyte	Unit	Results Surface
SW6010	Arsenic	mg/kg	8 F
SW6010	Chromium (total)	mg/kg	37.5
SW6010	Copper	mg/kg	83.9
SW6010	Iron	mg/kg	116000
SW6010	Lead	mg/kg	20000 J
SW6010	Molybdenum	mg/kg	18 F
SW6010	Nickel	mg/kg	44.2 F
SW6010	Selenium	mg/kg	6.1 F
SW6010	Silver	mg/kg	0.5 F
SW6010	Zinc	mg/kg	59.4 J
SW8270	Benzyl butyl phthalate	mg/kg	3.3

THGLTA018 *1

Method	Analyte	Unit	Results Surface
SW8270	Benzo(a)anthracene	mg/kg	0.42 F
SW8270	Benzo(a)pyrene	mg/kg	0.42 F
SW8270	Benzo(b)fluoranthene	mg/kg	0.53 F
SW8270	Benzo(g,h,i)perylene	mg/kg	0.36 F
SW8270	Chrysene	mg/kg	0.54 F
SW8270	Fluoranthene	mg/kg	1.3
SW8270	Phenanthrene	mg/kg	0.64 F
SW8270	Pyrene	mg/kg	1.2

THGLTA011 *1

Method	Analyte	Unit	Results Surface
SW8270	Benzo(a)anthracene	mg/kg	0.44 F
SW8270	Benzo(a)pyrene	mg/kg	0.53 F
SW8270	Benzo(b)fluoranthene	mg/kg	0.73 F
SW8270	Benzo(g,h,i)perylene	mg/kg	0.44 F
SW8270	Chrysene	mg/kg	0.55 F
SW8270	Fluoranthene	mg/kg	1.3
SW8270	Indeno(1,2,3-c,d)pyrene	mg/kg	0.43 F
SW8270	Phenanthrene	mg/kg	0.48 F
SW8270	Pyrene	mg/kg	1.1

THGLTA017 *1

Method	Analyte	Unit	Results Surface	Results Subsurface
SW6010	Cadmium	mg/kg	3.4 F	
SW8270	Anthracene	mg/kg	0.81 F	
SW8270	Benzo(a)anthracene	mg/kg	1.9	0.39 F
SW8270	Benzo(a)pyrene	mg/kg	2	0.45 F
SW8270	Benzo(b)fluoranthene	mg/kg	2.8	0.51 F
SW8270	Benzo(g,h,i)perylene	mg/kg	1.3	0.41 F
SW8270	Benzyl butyl phthalate	mg/kg	0.75 F	
SW8270	bis(2-Ethylhexyl)phthalate	mg/kg	2.4	
SW8270	Chrysene	mg/kg	2.2	0.51 F
SW8270	Dibenzo(a,h)anthracene	mg/kg	0.34 F	
SW8270	Fluoranthene	mg/kg	5.5	1.1
SW8270	Indeno(1,2,3-c,d)pyrene	mg/kg	1.4	0.34 F
SW8270	Phenanthrene	mg/kg	3.4	0.45 F
SW8270	Pyrene	mg/kg	4.8	0.94

HydroGeoLogic, Inc.—Presentation
NAS Fort Worth JRB, Texas

Figure 3
Landfill 5/SWMU 23

Soil Analytical Concentrations Above Background or Method Quantification Limit

Air Force Center For Environmental Excellence
Brooks AFB, Texas

Legend

- NAS Fort Worth JRB (Carswell Field)
- Former Carswell Air Force Base
- Landfill Boundaries
- BHGLTA202 — Test Pit Location
- BHGLTA211 — Borehole Location
- GMI-22-07M — Monitoring Well Location

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75 0 75 150 Feet
Scale in feet

Project: AFC001-024C
Filename: 024C/REPORT/trenches.apr
Created: 02/05/99 nzehms
Revised: 02/08/99 cf
Map Source: HydroGeoLogic, Inc.—GIS Database

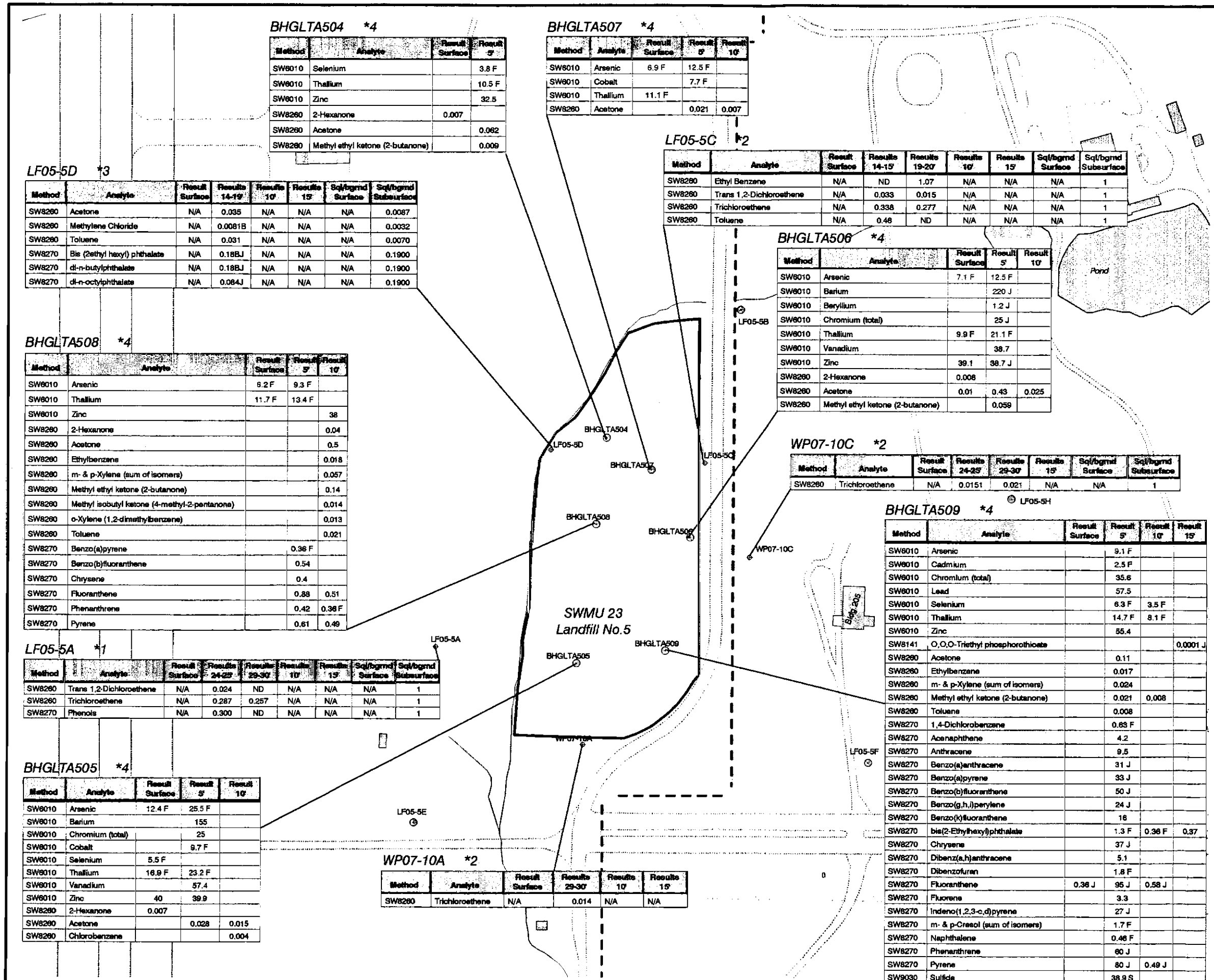
HYDRO GeoLogic INC.

HydroGeoLogic, Inc.—Presentation
NAS Fort Worth JRB, Texas

Figure 4
Landfill 5/SWMU 23

Soil Analytical Concentrations Above Background or Method Quantification Limit

Air Force Center For Environmental Excellence
Brooks AFB, Texas



BHGLTA504 *4

Method	Analyte	Result Surface	Result 5'
SW6010	Selenium		3.8 F
SW6010	Thallium		10.5 F
SW6010	Zinc		32.5
SW8260	2-Hexanone	0.007	
SW8260	Acetone		0.062
SW8260	Methyl ethyl ketone (2-butanone)		0.009

BHGLTA507 *4

Method	Analyte	Result Surface	Result 5'	Result 10'
SW6010	Arsenic	6.9 F	12.5 F	
SW6010	Cobalt		7.7 F	
SW6010	Thallium	11.1 F		
SW8260	Acetone		0.021	0.007

LF05-5D *3

Method	Analyte	Result Surface	Results 14-19'	Results 10'	Results 15'	Sql/bgmd Surface	Sql/bgmd Subsurface
SW8260	Acetone	N/A	0.035	N/A	N/A	N/A	0.0087
SW8260	Methylene Chloride	N/A	0.0081B	N/A	N/A	N/A	0.0032
SW8260	Toluene	N/A	0.031	N/A	N/A	N/A	0.0070
SW8270	Bis (2ethyl hexyl) phthalate	N/A	0.18BJ	N/A	N/A	N/A	0.1900
SW8270	di-n-butylphthalate	N/A	0.18BJ	N/A	N/A	N/A	0.1900
SW8270	di-n-octylphthalate	N/A	0.084J	N/A	N/A	N/A	0.1900

LF05-5C *2

Method	Analyte	Result Surface	Results 14-15'	Results 19-20'	Results 10'	Results 15'	Sql/bgmd Surface	Sql/bgmd Subsurface
SW8260	Ethyl Benzene	N/A	ND	1.07	N/A	N/A	N/A	1
SW8260	Trans 1,2-Dichloroethene	N/A	0.033	0.015	N/A	N/A	N/A	1
SW8260	Trichloroethene	N/A	0.338	0.277	N/A	N/A	N/A	1
SW8260	Toluene	N/A	0.46	ND	N/A	N/A	N/A	1

BHGLTA506 *4

Method	Analyte	Result Surface	Result 5'	Result 10'
SW6010	Arsenic	7.1 F	12.5 F	
SW6010	Barium		220 J	
SW6010	Beryllium		1.2 J	
SW6010	Chromium (total)		25 J	
SW6010	Thallium	9.9 F	21.1 F	
SW6010	Vanadium		38.7	
SW6010	Zinc	39.1	38.7 J	
SW8260	2-Hexanone	0.008		
SW8260	Acetone	0.01	0.43	0.025
SW8260	Methyl ethyl ketone (2-butanone)		0.059	

BHGLTA508 *4

Method	Analyte	Result Surface	Result 5'	Result 10'
SW6010	Arsenic	6.2 F	9.3 F	
SW6010	Thallium	11.7 F	13.4 F	
SW6010	Zinc			38
SW8260	2-Hexanone			0.04
SW8260	Acetone			0.5
SW8260	Ethylbenzene			0.018
SW8260	m- & p-Xylene (sum of isomers)			0.057
SW8260	Methyl ethyl ketone (2-butanone)			0.14
SW8260	Methyl isobutyl ketone (4-methyl-2-pentanone)			0.014
SW8260	o-Xylene (1,2-dimethylbenzene)			0.013
SW8260	Toluene			0.021
SW8270	Benzo(a)pyrene		0.36 F	
SW8270	Benzo(b)fluoranthene		0.54	
SW8270	Chrysene		0.4	
SW8270	Fluoranthene		0.88	0.51
SW8270	Phenanthrene		0.42	0.36 F
SW8270	Pyrene		0.61	0.49

WP07-10C *2

Method	Analyte	Result Surface	Results 24-25'	Results 29-30'	Results 15'	Sql/bgmd Surface	Sql/bgmd Subsurface
SW8260	Trichloroethene	N/A	0.0151	0.021	N/A	N/A	1

BHGLTA509 *4

Method	Analyte	Result Surface	Result 5'	Result 10'	Result 15'
SW6010	Arsenic		9.1 F		
SW6010	Cadmium		2.5 F		
SW6010	Chromium (total)		35.6		
SW6010	Lead		57.5		
SW6010	Selenium		6.3 F	3.5 F	
SW6010	Thallium		14.7 F	8.1 F	
SW6010	Zinc		55.4		
SW8141	O,O,O-Triethyl phosphorothioate				0.0001 J
SW8260	Acetone		0.11		
SW8260	Ethylbenzene		0.017		
SW8260	m- & p-Xylene (sum of isomers)		0.024		
SW8260	Methyl ethyl ketone (2-butanone)		0.021	0.008	
SW8260	Toluene		0.008		
SW8270	1,4-Dichlorobenzene		0.63 F		
SW8270	Acenaphthene		4.2		
SW8270	Anthracene		9.5		
SW8270	Benzo(a)anthracene		31 J		
SW8270	Benzo(a)pyrene		33 J		
SW8270	Benzo(b)fluoranthene		50 J		
SW8270	Benzo(g,h,i)perylene		24 J		
SW8270	Benzo(k)fluoranthene		16		
SW8270	bis(2-Ethylhexyl)phthalate		1.3 F	0.36 F	0.37
SW8270	Chrysene		37 J		
SW8270	Dibenz(a,h)anthracene		5.1		
SW8270	Dibenzofuran		1.8 F		
SW8270	Fluoranthene	0.36 J	95 J	0.58 J	
SW8270	Fluorene		3.3		
SW8270	Indeno(1,2,3-c,d)pyrene		27 J		
SW8270	m- & p-Cresol (sum of isomers)		1.7 F		
SW8270	Naphthalene		0.46 F		
SW8270	Phenanthrene		60 J		
SW8270	Pyrene		80 J	0.49 J	
SW9030	Sulfide		38.9 S		

LF05-5A *1

Method	Analyte	Result Surface	Results 24-25'	Results 29-30'	Results 10'	Results 15'	Sql/bgmd Surface	Sql/bgmd Subsurface
SW8260	Trans 1,2-Dichloroethene	N/A	0.024	ND	N/A	N/A	N/A	1
SW8260	Trichloroethene	N/A	0.287	0.257	N/A	N/A	N/A	1
SW8270	Phenols	N/A	0.300	ND	N/A	N/A	N/A	1

BHGLTA505 *4

Method	Analyte	Result Surface	Result 5'	Result 10'
SW6010	Arsenic	12.4 F	25.5 F	
SW6010	Barium		155	
SW6010	Chromium (total)		25	
SW6010	Cobalt		9.7 F	
SW6010	Selenium	5.5 F		
SW6010	Thallium	16.9 F	23.2 F	
SW6010	Vanadium		57.4	
SW6010	Zinc	40	39.9	
SW8260	2-Hexanone	0.007		
SW8260	Acetone		0.028	0.015
SW8260	Chlorobenzene			0.004

WP07-10A *2

Method	Analyte	Result Surface	Results 29-30'	Results 10'	Results 15'
SW8260	Trichloroethene	N/A	0.014	N/A	N/A

Legend

- NAS Fort Worth JRB (Carswell Field)
- Former Carswell Air Force Base
- Landfill Boundaries
- *BHGLTA202* Test Pit Location
- *BHGLTA211* Borehole Location
- *GM1-22-07M* Monitoring Well Location

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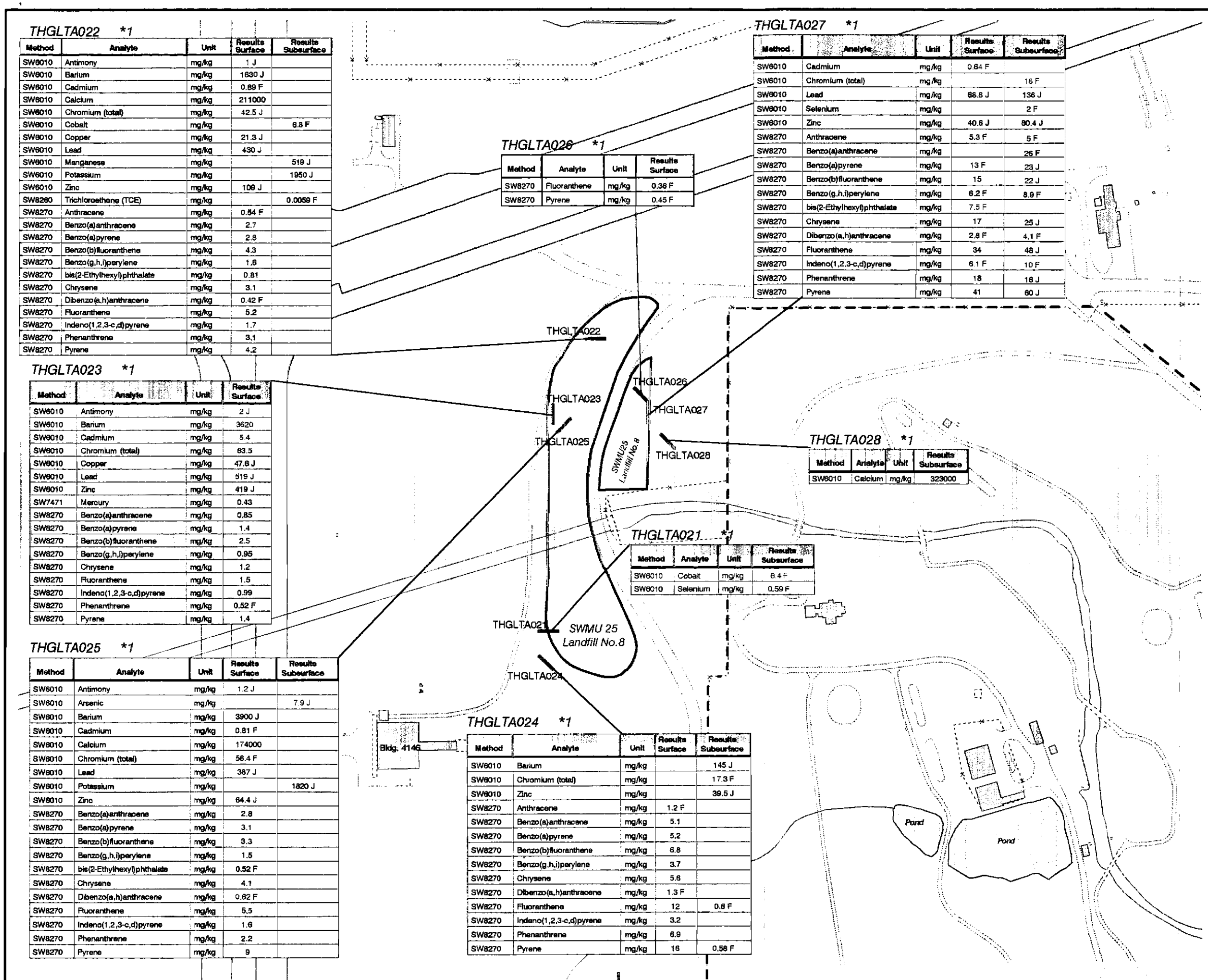
All data reported in mg/Kg.

N

75 0 75 150 Feet
Scale in feet

Project: APC001-024C
Filename: 024C/REPORT/BORINGS.apr
Created: 02/05/99 nzehms
Revised: 02/09/99 jb
Map Source: HydroGeoLogic, Inc.—GIS Database

HYDRO GeoLogic INC.



THGLTA022 *1

Method	Analyte	Unit	Results Surface	Results Subsurface
SW6010	Antimony	mg/kg	1 J	
SW6010	Barium	mg/kg	1630 J	
SW6010	Cadmium	mg/kg	0.89 F	
SW6010	Calcium	mg/kg	211000	
SW6010	Chromium (total)	mg/kg	42.5 J	
SW6010	Cobalt	mg/kg		6.8 F
SW6010	Copper	mg/kg	21.3 J	
SW6010	Lead	mg/kg	430 J	
SW6010	Manganese	mg/kg		519 J
SW6010	Potassium	mg/kg		1950 J
SW6010	Zinc	mg/kg	109 J	
SW8260	Trichloroethene (TCE)	mg/kg		0.0059 F
SW8270	Anthracene	mg/kg	0.54 F	
SW8270	Benzo(a)anthracene	mg/kg	2.7	
SW8270	Benzo(a)pyrene	mg/kg	2.8	
SW8270	Benzo(b)fluoranthene	mg/kg	4.3	
SW8270	Benzo(g,h,i)perylene	mg/kg	1.6	
SW8270	bis(2-Ethylhexyl)phthalate	mg/kg	0.81	
SW8270	Chrysene	mg/kg	3.1	
SW8270	Dibenzo(a,h)anthracene	mg/kg	0.42 F	
SW8270	Fluoranthene	mg/kg	5.2	
SW8270	Indeno(1,2,3-c,d)pyrene	mg/kg	1.7	
SW8270	Phenanthrene	mg/kg	3.1	
SW8270	Pyrene	mg/kg	4.2	

THGLTA023 *1

Method	Analyte	Unit	Results Surface
SW6010	Antimony	mg/kg	2 J
SW6010	Barium	mg/kg	3620
SW6010	Cadmium	mg/kg	5.4
SW6010	Chromium (total)	mg/kg	63.5
SW6010	Copper	mg/kg	47.6 J
SW6010	Lead	mg/kg	519 J
SW6010	Zinc	mg/kg	419 J
SW7471	Mercury	mg/kg	0.43
SW8270	Benzo(a)anthracene	mg/kg	0.85
SW8270	Benzo(a)pyrene	mg/kg	1.4
SW8270	Benzo(b)fluoranthene	mg/kg	2.5
SW8270	Benzo(g,h,i)perylene	mg/kg	0.95
SW8270	Chrysene	mg/kg	1.2
SW8270	Fluoranthene	mg/kg	1.5
SW8270	Indeno(1,2,3-c,d)pyrene	mg/kg	0.99
SW8270	Phenanthrene	mg/kg	0.52 F
SW8270	Pyrene	mg/kg	1.4

THGLTA025 *1

Method	Analyte	Unit	Results Surface	Results Subsurface
SW6010	Antimony	mg/kg	1.2 J	
SW6010	Arsenic	mg/kg		7.9 J
SW6010	Barium	mg/kg	3900 J	
SW6010	Cadmium	mg/kg	0.81 F	
SW6010	Calcium	mg/kg	174000	
SW6010	Chromium (total)	mg/kg	56.4 F	
SW6010	Lead	mg/kg	387 J	
SW6010	Potassium	mg/kg		1820 J
SW6010	Zinc	mg/kg	64.4 J	
SW8270	Benzo(a)anthracene	mg/kg	2.8	
SW8270	Benzo(a)pyrene	mg/kg	3.1	
SW8270	Benzo(b)fluoranthene	mg/kg	3.3	
SW8270	Benzo(g,h,i)perylene	mg/kg	1.5	
SW8270	bis(2-Ethylhexyl)phthalate	mg/kg	0.52 F	
SW8270	Chrysene	mg/kg	4.1	
SW8270	Dibenzo(a,h)anthracene	mg/kg	0.62 F	
SW8270	Fluoranthene	mg/kg	5.5	
SW8270	Indeno(1,2,3-c,d)pyrene	mg/kg	1.6	
SW8270	Phenanthrene	mg/kg	2.2	
SW8270	Pyrene	mg/kg	9	

THGLTA026 *1

Method	Analyte	Unit	Results Surface
SW8270	Fluoranthene	mg/kg	0.36 F
SW8270	Pyrene	mg/kg	0.45 F

THGLTA027 *1

Method	Analyte	Unit	Results Surface	Results Subsurface
SW6010	Cadmium	mg/kg	0.64 F	
SW6010	Chromium (total)	mg/kg		16 F
SW6010	Lead	mg/kg	68.8 J	136 J
SW6010	Selenium	mg/kg		2 F
SW6010	Zinc	mg/kg	40.6 J	80.4 J
SW8270	Anthracene	mg/kg	5.3 F	5 F
SW8270	Benzo(a)anthracene	mg/kg		26 F
SW8270	Benzo(a)pyrene	mg/kg	13 F	23 J
SW8270	Benzo(b)fluoranthene	mg/kg	15	22 J
SW8270	Benzo(g,h,i)perylene	mg/kg	6.2 F	8.9 F
SW8270	bis(2-Ethylhexyl)phthalate	mg/kg	7.5 F	
SW8270	Chrysene	mg/kg	17	25 J
SW8270	Dibenzo(a,h)anthracene	mg/kg	2.8 F	4.1 F
SW8270	Fluoranthene	mg/kg	34	48 J
SW8270	Indeno(1,2,3-c,d)pyrene	mg/kg	6.1 F	10 F
SW8270	Phenanthrene	mg/kg	18	16 J
SW8270	Pyrene	mg/kg	41	60 J

THGLTA028 *1

Method	Analyte	Unit	Results Subsurface
SW6010	Calcium	mg/kg	323000

THGLTA021 *1

Method	Analyte	Unit	Results Subsurface
SW6010	Cobalt	mg/kg	6.4 F
SW6010	Selenium	mg/kg	0.59 F

THGLTA024 *1

Method	Analyte	Unit	Results Surface	Results Subsurface
SW6010	Barium	mg/kg		145 J
SW6010	Chromium (total)	mg/kg		17.3 F
SW6010	Zinc	mg/kg		39.5 J
SW8270	Anthracene	mg/kg	1.2 F	
SW8270	Benzo(a)anthracene	mg/kg	5.1	
SW8270	Benzo(a)pyrene	mg/kg	5.2	
SW8270	Benzo(b)fluoranthene	mg/kg	6.8	
SW8270	Benzo(g,h,i)perylene	mg/kg	3.7	
SW8270	Chrysene	mg/kg	5.6	
SW8270	Dibenzo(a,h)anthracene	mg/kg	1.3 F	
SW8270	Fluoranthene	mg/kg	12	0.6 F
SW8270	Indeno(1,2,3-c,d)pyrene	mg/kg	3.2	
SW8270	Phenanthrene	mg/kg	6.9	
SW8270	Pyrene	mg/kg	16	0.58 F

HydroGeoLogic, Inc.—Presentation
NAS Fort Worth JRB, Texas

Figure 5
Landfill 8/SWMU 25

Soil Analytical Concentrations Above Background or Method Quantification Limit

Air Force Center For Environmental Excellence
Brooks AFB, Texas

Legend

- NAS Fort Worth JRB (Carswell Field)
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N

100 0 100 200 Feet
Scale in feet

Project: AFC001-024C
Filename: 024C/REPORT/trenches.apr
Created: 02/05/99 nzehms
Revised: 02/08/99 cf
Map Source: HydroGeoLogic, Inc.—GIS Database

HYDRO GeoLogic INC.

HydroGeoLogic, Inc.—Presentation
NAS Fort Worth JRB, Texas

Figure 6
Landfill 8/SWMU 25

Soil Analytical Concentrations Above Background or Method Quantification Limit

Air Force Center For Environmental Excellence
Brooks AFB, Texas

BHGLTA812 *4

Method	Analyte	Unit	Result Surface	Result 5'	Result 10'	Result 15'
SW6010	Arsenic	mg/kg			14.3 F	9.8 F
SW6010	Barium	mg/kg	1220 J	131		
SW6010	Cadmium	mg/kg	1 F			
SW6010	Chromium (total)	mg/kg	26.1	22.8		21
SW6010	Lead	mg/kg	245 J	73.2 F		
SW6010	Selenium	mg/kg	5.9 F	5.4 F	7.3 F	9.4 F
SW6010	Thallium	mg/kg	10.8 F	14.1 F	20 F	25.9 F
SW6010	Zinc	mg/kg	72.4 J	38.1 J		
SW8260	1,2-Dichloroethene, cis-	mg/kg				0.008
SW8260	Acetone	mg/kg		0.052		
SW8260	Tetrachloroethene (PCE)	mg/kg	0.056 J			
SW8260	Trichloroethene (TCE)	mg/kg	0.026 J			0.052
SW8270	Acenaphthene	mg/kg	0.7 J			
SW8270	Anthracene	mg/kg	1.9 J			
SW8270	Benzo(a)anthracene	mg/kg	13 J			
SW8270	Benzo(a)pyrene	mg/kg	12 J			
SW8270	Benzo(b)fluoranthene	mg/kg	17 J			
SW8270	Benzo(g,h,i)perylene	mg/kg	5.2 J			
SW8270	Benzo(k)fluoranthene	mg/kg	7.7 J			
SW8270	bis(2-Ethylhexyl)phthalate	mg/kg	4.7 J			
SW8270	Chrysene	mg/kg	13 J			
SW8270	Dibenzo(a,h)anthracene	mg/kg	0.5 J			
SW8270	Dibenzofuran	mg/kg	0.37 J			
SW8270	Fluoranthene	mg/kg	27 J			
SW8270	Fluorene	mg/kg	0.62 J			
SW8270	Indeno(1,2,3-c,d)pyrene	mg/kg	10 J			
SW8270	Phenanthrene	mg/kg	11 J			
SW8270	Pyrene	mg/kg	23 J			
SW9030	Sulfide	mg/kg		35.8 S	36.3 S	39.8 S

BHGLTA813 *4

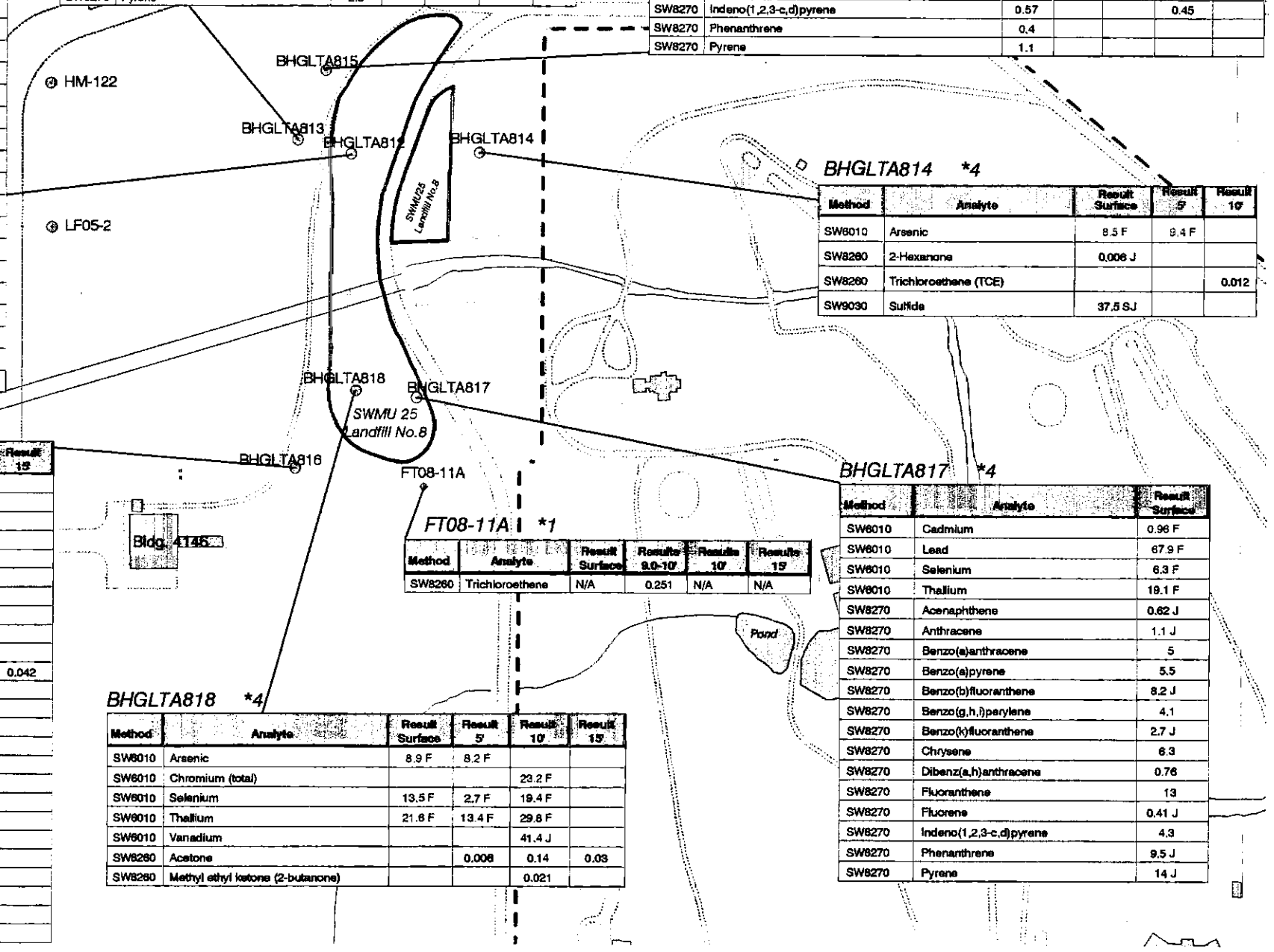
Method	Analyte	Result Surface	Result 5'	Result 10'	Result 15'	Result 20'
SW6010	Arsenic	8 F		8.8 F	14.7 F	
SW6010	Chromium (total)				25.3	
SW6010	Lead	64.5 F				
SW6010	Selenium				13.6 F	
SW6010	Thallium				30.3 F	
SW6010	Vanadium				42.7 J	
SW6010	Zinc				39.5 J	
SW7471	Mercury					0.12
SW8260	Acetone		0.015	0.012	0.066	
SW8260	Methyl ethyl ketone (2-butanone)				0.01	
SW8270	Benzo(a)anthracene	1.2			-	
SW8270	Benzo(a)pyrene	1.5				
SW8270	Benzo(b)fluoranthene	2.2				
SW8270	Benzo(g,h,i)perylene	1				
SW8270	Benzo(k)fluoranthene	0.8				
SW8270	bis(2-Ethylhexyl)phthalate				3.3	
SW8270	Chrysene	1.5				
SW8270	Fluoranthene	3.2				
SW8270	Indeno(1,2,3-c,d)pyrene	1.1				
SW8270	Phenanthrene	1.5				
SW8270	Pyrene	2.8				

BHGLTA815 *4

Method	Analyte	Result Surface	Result 5'	Result 10'	Result 15'	Result 20'
SW6010	Arsenic				7.5 F	
SW6010	Barium	23100				
SW6010	Beryllium	14.4				
SW6010	Chromium (total)	94.4				
SW6010	Copper	25.5				
SW6010	Lead	363				
SW6010	Selenium			6.1 F	9.9 F	
SW6010	Silver	2.7 F				
SW6010	Thallium			9.8 F	17.5 F	36.3 F
SW6010	Zinc	299				
SW8260	Acetone		0.013 J			
SW8260	Methyl isobutyl ketone (4-methyl-2-pentanone)	0.016 J				
SW8260	Toluene	0.017 J				
SW8270	Benzo(a)anthracene	0.58				
SW8270	Benzo(a)pyrene	0.82			0.49	
SW8270	Benzo(b)fluoranthene	1.3			0.72	
SW8270	Benzo(g,h,i)perylene	0.53			0.4	
SW8270	Benzo(k)fluoranthene	0.6				
SW8270	bis(2-Ethylhexyl)phthalate	0.8				
SW8270	Chrysene	0.91				
SW8270	Fluoranthene	1.2				
SW8270	Indeno(1,2,3-c,d)pyrene	0.57			0.45	
SW8270	Phenanthrene	0.4				
SW8270	Pyrene	1.1				

BHGLTA814 *4

Method	Analyte	Result Surface	Result 5'	Result 10'
SW6010	Arsenic	8.5 F	9.4 F	
SW8260	2-Hexanone	0.006 J		
SW8260	Trichloroethene (TCE)			0.012
SW9030	Sulfide	37.5 SJ		



BHGLTA816 *4

Method	Analyte	Result Surface	Result 5'	Result 10'	Result 15'
SW6010	Arsenic	6.5 F		18.9 F	
SW6010	Barium	347		136	
SW6010	Beryllium			1.2	
SW6010	Cadmium	0.99 F			
SW6010	Chromium (total)	27.2		26.4	
SW6010	Lead	89.4	13.3 F		
SW6010	Selenium	8.4 F		18.7 F	
SW6010	Thallium	19.3 F		30.5 F	
SW6010	Vanadium			45.3 J	
SW6010	Zinc	43.7 J		35.3 J	
SW8260	Acetone				0.042
SW8260	Tetrachloroethene (PCE)			0.007	
SW8270	Anthracene	0.42			
SW8270	Benzo(a)anthracene	8.6	0.39		
SW8270	Benzo(a)pyrene	9.1 J	0.52 J		
SW8270	Benzo(b)fluoranthene	13	0.71		
SW8270	Benzo(g,h,i)perylene	6.3	0.39		
SW8270	Benzo(k)fluoranthene	5.7			
SW8270	bis(2-Ethylhexyl)phthalate	0.34			
SW8270	Chrysene	9.1 J	0.46 J		
SW8270	Dibenz(a,h)anthracene	1.5			
SW8270	Fluoranthene	12	0.71		
SW8270	Indeno(1,2,3-c,d)pyrene	7	0.34 F		
SW8270	Phenanthrene	2.8	0.46		
SW8270	Pyrene	15	0.87		

FT08-11A *1

Method	Analyte	Result Surface	Results 9.0-10'	Results 10'	Results 15'
SW8260	Trichloroethene	N/A	0.251	N/A	N/A

BHGLTA818 *4

Method	Analyte	Result Surface	Result 5'	Result 10'	Result 15'
SW6010	Arsenic	8.9 F	8.2 F		
SW6010	Chromium (total)			23.2 F	
SW6010	Selenium	13.5 F	2.7 F	19.4 F	
SW6010	Thallium	21.6 F	13.4 F	29.8 F	
SW6010	Vanadium			41.4 J	
SW8260	Acetone		0.008	0.14	0.03
SW8260	Methyl ethyl ketone (2-butanone)			0.021	

BHGLTA817 *4

Method	Analyte	Result Surface
SW6010	Cadmium	0.96 F
SW6010	Lead	67.9 F
SW6010	Selenium	6.3 F
SW6010	Thallium	19.1 F
SW8270	Acenaphthene	0.62 J
SW8270	Anthracene	1.1 J
SW8270	Benzo(a)anthracene	5
SW8270	Benzo(a)pyrene	5.5
SW8270	Benzo(b)fluoranthene	8.2 J
SW8270	Benzo(g,h,i)perylene	4.1
SW8270	Benzo(k)fluoranthene	2.7 J
SW8270	Chrysene	6.3
SW8270	Dibenz(a,h)anthracene	0.76
SW8270	Fluoranthene	13
SW8270	Fluorene	0.41 J
SW8270	Indeno(1,2,3-c,d)pyrene	4.3
SW8270	Phenanthrene	9.5 J
SW8270	Pyrene	14 J

Legend

- NAS Fort Worth JRB (Carswell Field)
- Former Carswell Air Force Base
- Landfill Boundaries
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- *BHGLTA211* Borehole Location
- GMI-22-07M Monitoring Well Location

***NOTES:**

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J = Estimated
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MQL (Method Quantitation Limit) = the lowest calibration standard that is analyzed during an initial calibration (e.g., the lowest non-zero standard)

SQL (Sample Quantification Limit) = sample specific practical quantification limit for organics and sulfide.

MDL (Method Detection Limit)

Bgrnd (Background) = Jacobs basewide values for inorganics (1998).

Red shaded values in analytical tables indicate values => RRS2.

All data reported in mg/Kg.

N

125 0 125 250 Feet
Scale in feet

Project: APC001-024C
Filename: 024C/REPORT/BORINGS.apr
Created: 02/05/99 nzehms
Revised: 02/09/99 jb
Map Source: HydroGeoLogic, Inc.—GIS Database

HYDRO GeoLogic INC.

HydroGeoLogic, Inc.—Presentation
NAS Fort Worth JRB, Texas

Figure 7
Waste Pile 7/SWMU 24

Soil Analytical Concentrations Above Background or Method Quantification Limit

Air Force Center For
Environmental Excellence
Brooks AFB, Texas

WP07-10C *2

Method	Analyte	Result Surface	Results 24-25'	Results 29-30'	Results 15'	Sql/bgrnd Surface	Sql/bgrnd Subsurface
SW8260	Trichloroethene	N/A	0.0151	0.021	N/A	N/A	1

BHGLTA071 *4

Method	Analyte	Result Surface	Result 5'	Result 10'	Result 15'
SW6010	Arsenic		12.5 F		
SW6010	Barium	441			
SW6010	Chromium (total)		16.8		
SW6010	Lead	49.7 F			
SW6010	Selenium		15.8 F	8.7 F	5.1 F
SW6010	Thallium		12.4 F		
SW6010	Zinc	50.5 J			
SW8260	Dichlorodifluoromethane			0.007	
SW8260	Trichloroethene (TCE)		0.039		
SW8270	Acenaphthene	0.68			
SW8270	Anthracene	1.6			
SW8270	Benzo(a)anthracene	10 J			
SW8270	Benzo(a)pyrene	12 J			
SW8270	Benzo(b)fluoranthene	19 J			
SW8270	Benzo(g,h,i)perylene	10 J			
SW8270	Dibenz(a,h)anthracene	1.9			
SW8270	Fluoranthene	25 J			
SW8270	Fluorene	0.39			
SW8270	Indeno(1,2,3-c,d)pyrene	11 J			
SW8270	Phenanthrene	10 J			
SW8270	Pyrene	23 J			

BHGLTA003 *1

Method	Analyte	Unit	Results Surface
SW8260	Trichloroethene (TCE)	mg/kg	0.017
SW8270	Benzo(b)fluoranthene	mg/kg	0.39 F
SW8270	Fluoranthene	mg/kg	0.52 F
SW8270	Pyrene	mg/kg	0.46 F

BHGLTA005 *1

Method	Analyte	Unit	Results Surface
SW8260	Trichloroethene (TCE)	mg/kg	0.0057 F

WP07-10A *2

Method	Analyte	Result Surface	Results 29-30'	Results 10'	Results 15'	Sql/bgrnd Surface	Sql/bgrnd Subsurface
SW8260	Trichloroethene	N/A	0.014	N/A	N/A	N/A	1

BHGLTA072 *4

Method	Analyte	Result Surface	Result 5'	Result 10'	Result 15'	Result 20'
SW6010	Arsenic			6.8 F		
SW6010	Copper	30.5 J				
SW6010	Lead	155 F				
SW6010	Selenium		15.7 F	10.7 F	5.9 F	4.4 F
SW6010	Thallium			9 F		
SW6010	Zinc	116 J				
SW8260	Acetone		0.007	0.008		
SW8260	Trichloroethene (TCE)			0.032	0.018	
SW8270	Benzo(a)anthracene	1.2				
SW8270	Benzo(a)pyrene	1.2				
SW8270	Benzo(b)fluoranthene	1.7				
SW8270	Benzo(g,h,i)perylene	0.89				
SW8270	Benzo(k)fluoranthene	0.76				
SW8270	Chrysene	1.3				
SW8270	Fluoranthene	2 J				
SW8270	Indeno(1,2,3-c,d)pyrene	0.75				
SW8270	Phenanthrene	0.64 J				
SW8270	Pyrene	1.9				

BHGLTA002 *1

Method	Analyte	Unit	Results Surface	Results Subsurface
SW6010	Lead	mg/kg	48.9 J	
SW6010	Zinc	mg/kg	44.1	
SW7471	Mercury	mg/kg	0.15	0.061 F
SW8260	Trichloroethene (TCE)	mg/kg	0.02	
SW8270	Benzo(a)anthracene	mg/kg	0.97	
SW8270	Benzo(a)pyrene	mg/kg	1.3	
SW8270	Benzo(b)fluoranthene	mg/kg	1.8	
SW8270	Benzo(g,h,i)perylene	mg/kg	1.1 J	
SW8270	Chrysene	mg/kg	1.3	
SW8270	Diethyl phthalate	mg/kg		2.3
SW8270	Fluoranthene	mg/kg	2.5 J	
SW8270	Indeno(1,2,3-c,d)pyrene	mg/kg	1.1 J	
SW8270	Phenanthrene	mg/kg	0.74	
SW8270	Pyrene	mg/kg	2.2 J	

BHGLTA001 *1

Method	Analyte	Unit	Results Surface
SW6010	Antimony	mg/kg	0.75 J
SW6010	Cadmium	mg/kg	1.4 F
SW6010	Lead	mg/kg	166
SW6010	Silver	mg/kg	1.3 F
SW6010	Zinc	mg/kg	87.8
SW8270	Anthracene	mg/kg	0.41 F
SW8270	Benzo(a)anthracene	mg/kg	3.7
SW8270	Benzo(a)pyrene	mg/kg	4.2
SW8270	Benzo(b)fluoranthene	mg/kg	5.6
SW8270	Benzo(g,h,i)perylene	mg/kg	2 J
SW8270	Chrysene	mg/kg	3.9
SW8270	Dibenzo(a,h)anthracene	mg/kg	0.6 F
SW8270	Fluoranthene	mg/kg	4.9 J
SW8270	Indeno(1,2,3-c,d)pyrene	mg/kg	2.3 J
SW8270	Phenanthrene	mg/kg	1.6 J
SW8270	Pyrene	mg/kg	4.6 J

BHGLTA076 *4

Method	Analyte	Result Surface	Result 5'	Result 10'	Result 15'	Result 20'
SW6010	Arsenic	6.9 F				
SW6010	Selenium	11 F		3.4 F	5 F	3.4 F
SW6010	Thallium	9.8 F	27.3 F			
SW8260	Tetrachloroethene (PCE)		0.11	0.009		
SW8260	Trichloroethene (TCE)		0.066	0.05		
SW8270	bis(2-Ethylhexyl)phthalate		0.59			

BHGLTA075 *4

Method	Analyte	Result Surface	Result 5'	Result 10'	Result 15'	Result 20'
SW6010	Arsenic	8.5 F	17.4 F			
SW6010	Chromium (total)		18.3 F			
SW6010	Selenium	11.8 F	17.3 F		5.4 F	5.5 F
SW6010	Thallium	7.5 F				
SW6010	Zinc	58.6 J				
SW8260	2-Hexanone	0.009				
SW8260	Tetrachloroethene (PCE)		0.01			
SW8260	Trichloroethene (TCE)		0.22	0.056	0.015	
SW8270	Benzo(b)fluoranthene	0.37 F				
SW8270	Fluoranthene	0.41				
SW8270	Pyrene	0.38 F				

WP07-10B *2

Method	Analyte	Result Surface	Results 14-15'	Results 29-30'	Results 10'	Results 15'
SW8260	1,1-Trichloroethane	N/A	ND	0.044	N/A	N/A
SW8260	Trichloroethene	N/A	ND	0.097	N/A	N/A

BHGLTA074 *4

Method	Analyte	Result Surface	Result 5'	Result 10'	Result 15'	Result 20'
SW6010	Arsenic	7.3 F				
SW6010	Chromium (total)		18.5 F			
SW6010	Selenium	13.8 F			6 F	5.5 F
SW6010	Thallium	9.9 F				
SW6010	Zinc	57.1 J	34.2 J			
SW8260	2-Hexanone	0.007				
SW8260	Trichloroethene (TCE)		0.021	0.017		
SW8270	1,4-Naphthoquinone		3.6			

BHGLTA006 *1

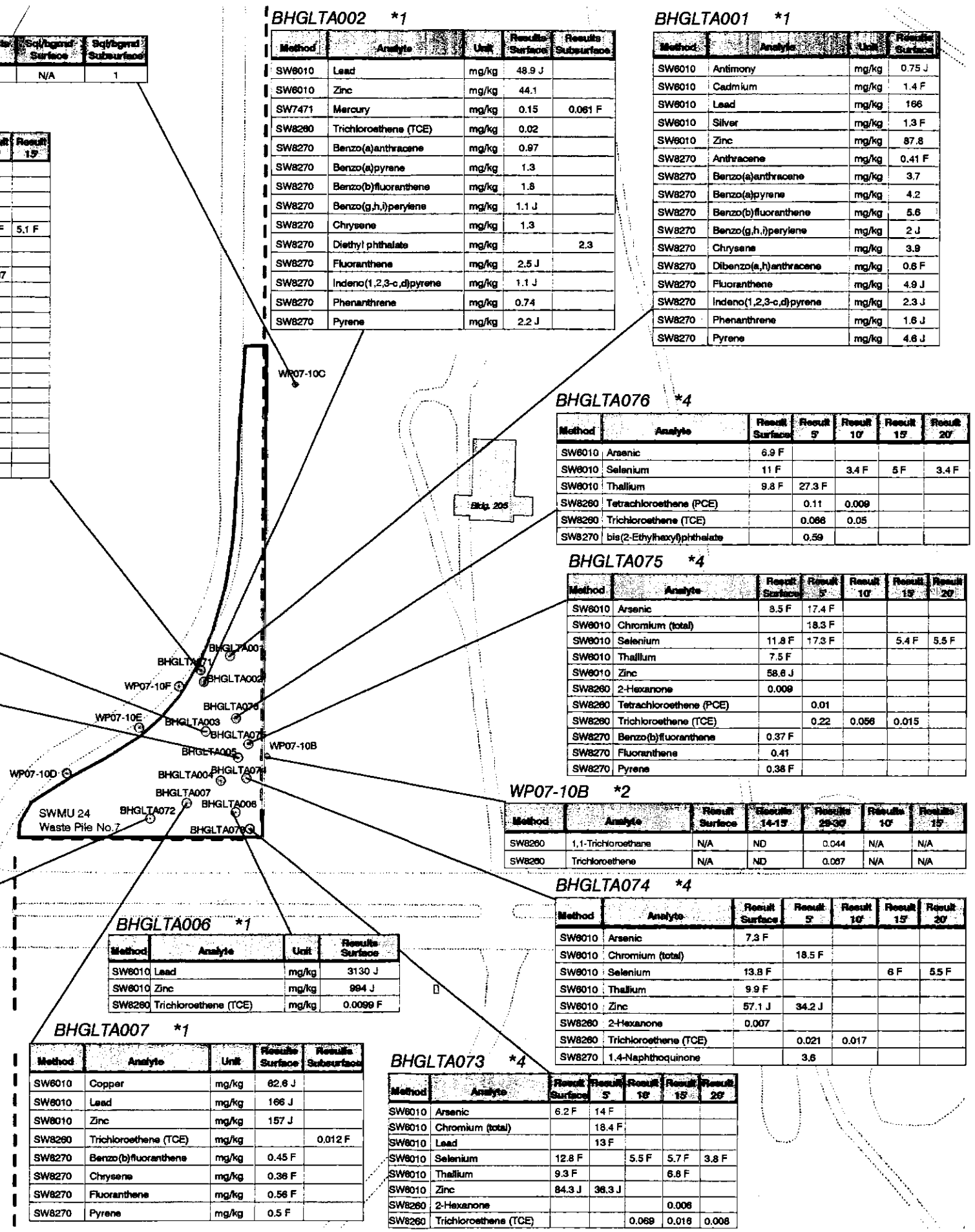
Method	Analyte	Unit	Results Surface
SW6010	Lead	mg/kg	3130 J
SW6010	Zinc	mg/kg	994 J
SW8260	Trichloroethene (TCE)	mg/kg	0.0099 F

BHGLTA007 *1

Method	Analyte	Unit	Results Surface	Results Subsurface
SW6010	Copper	mg/kg	62.6 J	
SW6010	Lead	mg/kg	166 J	
SW6010	Zinc	mg/kg	157 J	
SW8260	Trichloroethene (TCE)	mg/kg		0.012 F
SW8270	Benzo(b)fluoranthene	mg/kg	0.45 F	
SW8270	Chrysene	mg/kg	0.36 F	
SW8270	Fluoranthene	mg/kg	0.56 F	
SW8270	Pyrene	mg/kg	0.5 F	

BHGLTA073 *4

Method	Analyte	Result Surface	Result 5'	Result 10'	Result 15'	Result 20'
SW6010	Arsenic	6.2 F	14 F			
SW6010	Chromium (total)		18.4 F			
SW6010	Lead		13 F			
SW6010	Selenium	12.8 F		5.5 F	5.7 F	3.8 F
SW6010	Thallium	9.3 F			6.8 F	
SW6010	Zinc	84.3 J	36.3 J			
SW8260	2-Hexanone				0.006	
SW8260	Trichloroethene (TCE)			0.069	0.016	0.008



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N

100 0 100 200 Feet
Scale in feet

Project: AFC001-024C
Filename: 024C/REPORT/borings.apr
Created: 02/05/99 nzehms
Revised: 02/09/99 JB
Map Source: HydroGeoLogic, Inc.—GIS Database

HYDRO GeoLogic INC.

FINAL PAGE

ADMINISTRATIVE RECORD

FINAL PAGE