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NAS CECIL FIELD, FL
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TECHNICAL MEMORANDUM EVALUATION OF SUPPLEMENTAL SOIL SAMPLE ANALYTICAL RESULTS FROM AREA BETWEEN BS-1 AND BV-4 SOUTH FUEL FARM FACILITY NAS CECIL FIELD FL

1/5/2007

CH2MHILL CONSTRUCTORS INC

TECHNICAL MEMORANDUM

Evaluation of Supplemental Soil Sample Analytical Results from Area Between BS-1 and BV-4, South Fuel Farm Facility, Naval Air Station, Cecil Field, Jacksonville, Florida

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DATE:	January 5, 2007

CH2M HILL Constructors, Inc. (CCI) conducted supplemental soil sampling in the area between biosparging well BS-1 and bioventing (BV) well BV-4 (Figure 1) to assess if the area has been remediate by the site BV system. This area was identified as contaminated using the PID readings above 50 ppm by ABB in 1995. However, no soil samples have been collected in this area as part of annual soil sampling at the site. The annual soil sampling is conducted to assess the BV system's effectiveness to remediate impacted soil at the site.

The CCI technical memorandum (TM*) Evaluation of Biosparging and Bioventing Systems at the South Fuel Farm Facility, Naval Air Station, Cecil Field, Jacksonville, Florida* dated June 6, 2006 recommended that soil samples be collected from 4 locations in the area between BS-1 and BV-4. The TM also recommended that the analytical results be compared to the Leachability based on Groundwater Criteria Soil Cleanup Target Levels (SCTLs) and the Direct Exposure Industrial SCTLs to assess soil contamination conditions.

Supplemental Soil Sampling and Analytical Results

The supplemental soil sampling was conducted on August 3, 2006. A total of 12 soil samples were collected from 4 borings (sample I.D.s A through D) at depths of 3, 6, and 9 feet below ground surface (bgs) (Figure 1). The soil samples were analyzed for benzene, toluene, ethylbenzene, and xylene (BTEX) and methyl tert butyl ether (MTBE) by U.S. Environmental Protection Agency (EPA) Method 8260B, naphthalene and polycyclic aromatic hydrocarbons (PAHs) by EPA Method 8310, and total recoverable petroleum hydrocarbon (TRPH) by the Florida Petroleum Residual Organic (FL PRO) Method. The analytical results are summarized in Table 1. Table 1 also presents the Leachability based on Groundwater Criteria and the Direct Exposure Industrial and Residential SCTLs. The analytical laboratory report from the soil sampling is provided in Attachment A.

The analytical results indicated that no parameter was detected at a concentration that exceeded the that exceeded either the Leachability based on Groundwater Criteria nor the Direct Exposure Residential or Industrial SCTLs in soil samples from four boring locations (A through D).

Current Soil Contamination Conditions

Information on the soil contamination conditions was initially presented in the CCI TM *Evaluation of Biosparging and Bioventing Systems at the South Fuel Farm Facility, Naval Air Station, Cecil Field, Jacksonville, Florida.* This soil contamination conditions will be further evaluated with the addition of the supplement soil sample results and a comparison to direct exposure residential SCTLs.

Soil sampling is conducted on an annual basis in the 4th quarter of each year at 15 soil boring locations (Figure 1) to assess the effectiveness of the bioventing system. The 2005 sample results represent the most current sitewide soil contamination conditions at the site and are summarized in Table 2. Historical soil analytical results are presented in Table B-1 of Attachment B.

Based on the most current data (2005 annual and 2006 supplemental soil analytical results) total recoverable petroleum hydrocarbons (TRPH) was detected at concentrations that exceeded the Leachability based on Groundwater Criteria and the Direct Exposure Residential Soil Cleanup Target Levels (SCTLs) in soil samples from two boring locations (B-41 and B-104). However, analyses of Total Hydrocarbon Criteria Working Group Analyses (THCWGA) was performed on the B-41 and B-104 soil samples and indicated that the concentrations of the individual fractions of TRPH are below their respective SCTLs. In addition, benzo (a) pyrene and dibenz (a, h) athracene in boring B-70 exceeded the Direct Exposure Residential SCTL. With the exception of TRPH in boring B-41, this is the first time the above mentioned parameters were detected in their associated borings at concentrations above the regulatory standard. TRPH concentrations in boring B-41 show a decreasing trend since 2003.

As presented below, historically TRPH is the most frequently detected parameter at concentrations that exceeded an SCTL. Other parameters were detected at concentrations above their respective SCTLs but the frequency of detection was minimal. As shown on Table B-1 in Attachment A the detections of parameters above the SCTLs were sporadic with the exception of TRPH.

Frequency of Detections above SCTLs

Parameter	# Of Samples	Detections above SCTL	Boring Location
Benzene	117	2	B-96, B-167
Ethylbenzene	117	3	B31, B-146, B167
Xylenes (total)	117	8	B-31, B-41 (2), B-96, B-137, B-146, B-167 (2)
Naphthalene	102	5	B-41, B-70, B-96, B-167 (2)
1-Methylnaphthalene	102	8	B-31, B-41, B-70, B-96, B-106, B-167 (3)
2-Methylnaphthalene	102	5	B-41, B-70, B-96, B-167 (2)
Acenaphthalene	102	1	B-110
Benzo (a) pyrene	102	2	B-70, B-106
Dibenzo (a, h) anthracene	102	1	B-106
TRPH	117	35	B-31, B-41 (5), B-70, B-96 (6), B-99 (2), B-101 (3), B-104, B-106 (4), B-110 (2), B-137, B-146 (4), B-167 (4)

(X) – indicates numbers of detections in individual sample when more than one.

Based on a comparison of the 2005 annual soil sample and the 2006 supplemental soil sample analytical results versus the historic results, operation of the bioventing system and natural attenuation processes have been successful at reducing parameter concentrations to levels below the SCTLs. In general, the 2005 TRPH concentrations have decreased from historical concentrations and the individual fractions those detections in 2005 are below SCTLs. Although other parameters have been detected at concentrations above SCTLs, the frequency of these detections is sporadic indicating that they are not representative of soil conditions at the site.

Recommendations for Bioventing System

It is recommended that operation of the bioventing system be discontinued for the following reasons:

- 2005 annual soil sample and the 2006 supplemental soil sample analytical results indicate that TRPH concentrations are below SCTLs.
- Historic concentrations of parameters detected above SCTLs have reduced to levels below the SCTLs as a result of the operation of the bioventing system and natural attenuation processes.

Recommendations for Future Soil Sampling at the SFF Site

It is recommended that one additional annual soil sampling event be conducted at the site during June 2007, after operation of the bioventing system is discontinued in January 2007, to confirm that remedial objectives have been achieved. If these soil sample analytical results are below industrial SCTLs, the Navy will propose no further action (NFA) with relevant institutional controls for site soils as prescribed in the land use control plan for the site.

Tables

Table 1

Soil Analytical Results

South Fuel Farm, Supplemental Soil Sampling, August 2006

Station ID	Sample ID	Sample Depth (ft bgs)	Sample Date	Benzene	Ethylbenzene	Toluene	Xylenes, total	tert-butyl methyl ether	Naphthalene	1-methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Indeno(1,2,3-c,d)pyrene	Dibenz(a,h)anthracene	Fluorene	Fluoranthene	Phenanthrene	Pyrene	Petroleum Hydrocarbons
Direct Exposure Industrial[1]				1.7	9200	60000	700	24000	300	1800	2100	20000	20000	300000	6.6	0.7	6.5	66	52000	640	6.6	0.7	33000	59000	36000	45000	2700
Direct Exposure Residential[1]				1.2	1500	7500	130	4200	55	200	210	2400	1800	21000	1.3	0.1	1.3	13	2500	130	1.3	0.1	2600	3200	2200	2400	460
Leachability to GW Criteria[1]				0.007	0.6	0.5	0.2	0.09	1.2	2.2	6.1	2.1	27	2500	0.8	8	2.4	25	32000	77	6.6	0.7	160	1200	250	880	340
				Units in mg/kg																							
BORING A @3 FT	86SFFBA3SQ306	3	8/3/2006	0.00508 U	0.00508 U	0.00508 U	0.0102 U	0.00508 U	0.00913 U	0.0366 U	0.0366 U	0.0366 U	0.0366 U	0.00363 U	0.00363 U	0.00363 U	0.00363 U	0.00363 U	0.00363 U	0.00593 J	0.00913 U	0.00363 U	0.0184 U	0.00363 U	0.00363 U	0.00363 U	9.52 JB
BORING A @6 FT	86SFFBA6SQ306	6	8/3/2006	0.0051 U	0.0051 U	0.0051 U	0.0102 U	0.0051 U	0.00881 U	0.0353 U	0.0353 U	0.0353 U	0.0353 U	0.0035 U	0.0035 U	0.0035 U	0.0035 U	0.0035 U	0.0035 U	0.0035 U	0.00881 U	0.0035 U	0.0177 U	0.0035 U	0.0035 U	0.0035 U	6.74 JB
BORING A @9 FT	86SFFBA9SQ306	9	8/3/2006	0.00479 U	0.00479 U	0.00479 U	0.00957 U	0.00479 U	0.0102 U	0.0408 U	0.0408 U	0.0408 U	0.0408 U	0.00405 U	0.00405 U	0.00405 U	0.00405 U	0.00405 U	0.00405 U	0.00405 U	0.0102 U	0.00405 U	0.0205 U	0.00405 U	0.00405 U	0.00405 U	7.73 JB
BORING B @3 FT	86SFFBB3SQ306	3	8/3/2006	0.00181 J	0.00513 U	0.0237	0.0155	0.00513 U	0.00866 U	0.0348 U	0.0122 J	0.0818	0.0348 U	0.00344 U	0.0181	0.0268	0.0393	0.0234	0.037	0.0357 J	0.0313	0.032	0.0174 U	0.0209 J	0.00344 U	0.0351	60 JB
BORING B @6 FT	86SFFBB6SQ306	6	8/3/2006	0.00502 U	0.00502 U	0.00502 U	0.01 U	0.00502 U	0.00981 U	0.0394 U	0.0394 U	0.0394 U	0.0394 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.00981 U	0.0039 U	0.0197 U	0.0039 U	0.0039 U	0.0039 U	11.1 JB
BORING B @9 FT	86SFFBB9SQ306	9	8/3/2006	0.00554 U	0.00554 U	0.00554 U	0.0111 U	0.00554 U	0.00936 U	0.0376 U	0.0376 U	0.0376 U	0.0376 U	0.00372 U	0.00502	0.0107	0.0107	0.00658	0.0129	0.0118 J	0.00936 U	0.00372 U	0.0188 U	0.018 J	0.00661	0.0228	13.8 JB
BORING C @3 FT	86SFFBC3SQ306	3	8/3/2006	0.00512 U	0.00512 U	0.00512 U	0.00361 J	0.00512 U	0.00871 U	0.0349 U	0.0349 U	0.0349 U	0.0349 U	0.00346 U	0.00346 U	0.0107	0.0101	0.00273 J	0.0111	0.00346 U	0.00871 U	0.00346 U	0.0175 U	0.00346 U	0.00346 U	0.00391	27.5 JB
BORING C @ 6FT	86SFFBC6SQ306	6	8/3/2006	0.00512 U	0.00512 U	0.00512 U	0.0102 U	0.00512 U	0.0129	0.0375 U	0.0375 U	0.0375 U	0.0375 U	0.00372 U	0.00372 U	0.00372 U	0.00372 U	0.00372 U	0.00372 U	0.00372 U	0.00935 U	0.00372 U	0.0188 U	0.00372 U	0.00372 U	0.0099	99.7 JB
BORING C @9 FT	86SFFBC9SQ306	9	8/3/2006	0.00553 U	0.0107	0.00553 U	0.164	0.00553 U	0.00956 U	0.0384 U	0.0384 U	0.0384 U	0.0384 U	0.0109	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.0038 U	0.00956 U	0.0038 U	0.0192 U	0.0306	0.047	0.0195	21.1 JB
BORING D @3 FT	86SFFBD3SQ306	3	8/3/2006	0.00578 U	0.00578 U	0.00578 U	0.0116 U	0.00578 U	0.00867 U	0.0348 U	0.0348 U	0.0348 U	0.0348 U	0.00345 U	0.00345 U	0.00781	0.0127	0.00365	0.00937 J	0.00426 J	0.00867 U	0.0088	0.0174 U	0.00443 J	0.00345 U	0.00426 J	9.51 JB
BORING D @ 6FT	86SFFBD6SQ306	6	8/3/2006	0.00535 U	0.00535 U	0.00535 U	0.0107 U	0.00535 U	0.00952 U	0.0382 U	0.0382 U	0.0382 U	0.0382 U	0.00379 U	0.00379 U	0.00379 U	0.00379 U	0.00379 U	0.00379 U	0.00379 U	0.00952 U	0.00379 U	0.0192 U	0.00379 U	0.00379 U	0.00379 U	12.7 JB
BORING D @9 FT	86SFFBD9SQ306	9	8/3/2006	0.00546 U	0.00546 U	0.00546 U	0.0109 U	0.00546 U	0.00965 U	0.0387 U	0.0387 U	0.0387 U	0.0387 U	0.00384 U	0.00384 U	0.00384 U	0.00384 U	0.00384 U	0.00384 U	0.00384 U	0.00965 U	0.00384 U	0.0194 U	0.00384 U	0.00384 U	0.00384 U	10.7 JB

Notes:

All concentrations reported in milligrams per kilograms (mg/kg).

SCTL[1RES] - Residential Soil Cleanup Target Level

1 = Ch 62-777 FAC Soil Cleanup Target Level (SCTLs) reported in mg/kg

U - The analyte was analyzed for , but not detected.

J - estimated value

B-The analyte was detected in the associated method and/or calibration blank.

UJ- Value non-detected estimated.

JB- Estimate value..The analyte was detected in the associated method and/or calibration blank.

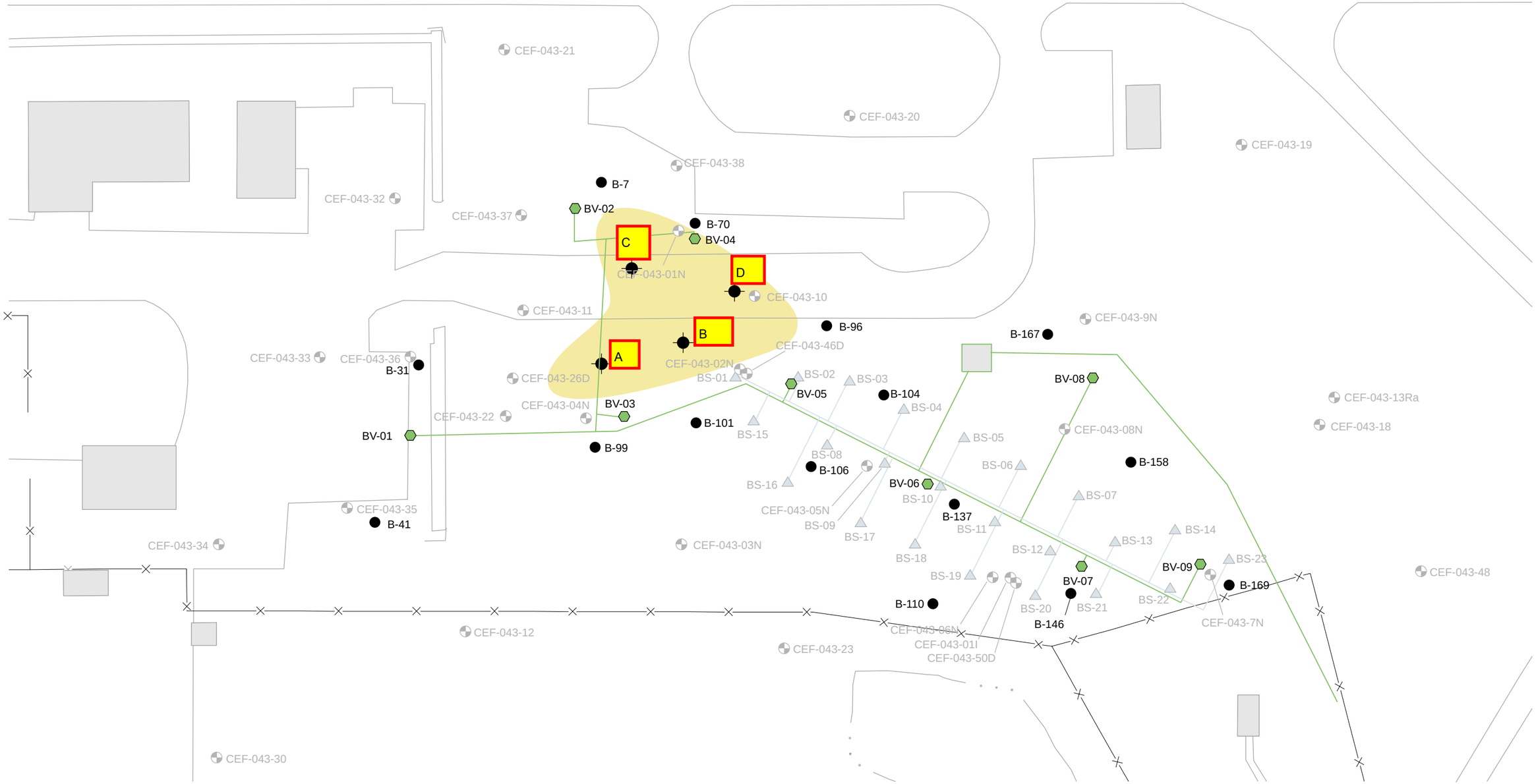
NA - Not Available at time of rule adoption

Table 2
Analytical Results from Annual Soil Sampling, December 2005
South Fuel Farm; 4th Quarter 2005

Station ID	Sample ID	Sample Depth (ft bgs)	Sample Date	Benzene	Ethylbenzene	Toluene	Xylenes, total	tert-butyl methyl ether	Naphthalene	1-methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Chrysene	Indeno(1,2,3-c,d)pyrene	Dibenz(a,h)anthracene	Fluorene	Fluoranthene	Phenanthrene	Pyrene	Petroleum Hydrocarbons	C10-C12 Petroleum Hydrocarbons	C12-C16 Petroleum Hydrocarbons	C16-C22 Petroleum Hydrocarbons	C22-C36 Petroleum Hydrocarbons	C8-C10 Petroleum Hydrocarbons
			Leachability to GW Criteria[1]	0.007	0.6	0.5	0.2	0.09	1.2	2.2	6.1	2.1	27	2500	0.8	8	2.4	25	32000	77	6.6	0.7	160	1200	250	880	340	520	1000	3200	25000	340
			Direct Exposure Residential[1]	1.2	1500	7500	130	4200	55	200	210	2400	1800	21000	1.3	0.1	1.3	13	2500	130	1.3	0.1	2600	3200	2200	2400	460	900	1500	1300	2300	460
			Direct Exposure Industrial[1]	1.7	9200	60000	700	24000	300	1800	2100	20000	20000	300000	6.6	0.7	6.5	66	52000	640	6.6	0.7	33000	59000	36000	45000	2700	5900	12000	11000	40000	2700
				Unit in mg/kg																											
B-7	86-B7-S-1201-05	2	12/1/2005	0.00493 U	0.00493 U	0.00493 U	0.00986 U	0.00493 U	0.00933 U	0.0374 U	0.0374 U	0.0374 U	0.0374 U	0.00371 U	0.00371 U	0.00371 U	0.00371 U	0.00371 U	0.00371 U	0.00371 U	0.00933 U	0.00371 U	0.0188 U	0.00371 U	0.00371 U	0.00371 U	8.99 UJ	NA	NA	NA	NA	NA
B-31	86-B31-S-1201-05	2	12/1/2005	0.00517 U	0.00517 U	0.00517 U	0.0103 U	0.00517 U	0.0216 J	0.0359 U	0.0359 U	0.0232 J	0.0359 U	0.00356 U	0.00356 U	0.00356 U	0.0199 J	0.00356 U	0.00356 U	0.00356 U	0.00896 U	0.00356 U	0.018 U	0.00356 U	0.00356 U	0.00356 U	10.7 JB	NA	NA	NA	NA	NA
B-41	86-B41-S-1201-05	4	12/1/2005	0.23 U	0.23 U	0.23 U	0.459 U	0.23 U	0.112 J	1.75 J	1.38 J	0.189 U	0.0322 J	0.0187 U	0.0187 U	0.0187 U	0.0187 U	0.0187 U	0.0187 U	0.0187 U	0.0471 U	0.0187 U	0.0592 J	0.0415 J	0.117 J	0.0372 J	1970 JB	504.927 JB	1130.903 JB	26.691 JB	11.221 JB	43.644 JB
B-70	86-B70-S-1201-05	4	12/1/2005	0.00263 J	0.00123 J	0.00451 J	0.00569 J	0.00529 U	0.0873 U	0.35 U	0.35 U	0.35 U	0.35 U	0.019 J	0.257 J	**0.705**	0.797	0.244 J	0.522 J	0.477 J	0.726 J	**0.545**	0.0948 J	0.475 J	0.149 J	0.415 J	22.8 JB	NA	NA	NA	NA	NA
B-96	86-B96-S-1201-05	4	12/1/2005	0.249 U	0.249 U	0.249 U	0.498 U	0.249 U	0.017 U	0.0682 U	0.0682 U	0.0682 U	0.0682 U	0.00676 U	0.00676 U	0.00676 U	0.00676 U	0.00676 U	0.00676 U	0.00676 U	0.017 U	0.00676 U	0.0342 U	0.00676 U	0.00676 U	0.00676 U	8.3 UJ	NA	NA	NA	NA	NA
B-99	86-B99-S-1201-05	4	12/1/2005	0.00439 U	0.00439 U	0.00439 U	0.00879 U	0.00439 U	0.0376 J	0.0287 J	0.0385 U	0.0385 U	0.0385 U	0.00381 U	0.00381 U	0.00735	0.00381 U	0.00381 U	0.179 J	0.00935	0.0517 J	0.00381 U	0.0193 U	0.00381 U	0.00768	0.00381 U	43.9 JB	NA	NA	NA	NA	NA
B-101	86-B101-S-1201-05	4	12/1/2005	0.00508 U	0.00508 U	0.00508 U	0.0102 U	0.00508 U	0.00885 U	0.0355 U	0.0355 U	0.0355 U	0.0355 U	0.00352 U	0.00352 U	0.00352 U	0.00838	0.00352 U	0.00331 J	0.00352 U	0.00449 J	0.00352 U	0.0178 U	0.00352 U	0.00352 U	0.00352 U	8.53 UJ	NA	NA	NA	NA	NA
B-104	86-B104-S-1201-05	4	12/1/2005	0.00514 U	0.00514 U	0.00779	0.00502 J	0.00514 U	0.0455 U	0.182 U	0.182 U	0.182 U	0.182 U	0.0181 U	0.0181 U	0.0364	0.0353	0.0136 J	0.0181 U	0.0181 U	0.056 J	0.0181 U	0.0915 U	0.0181 U	0.0181 U	0.0927 J	1380 JB	0.858 JB	331.275 JB	743.94 JB	139.018 JB	1.17 JB
B-106	86-B106-S-1201-05	4	12/1/2005	0.00503 U	0.00503 U	0.00503 U	0.0101 U	0.00503 U	0.0453 U	0.182 U	0.182 U	0.182 U	0.182 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.0167 J	0.018 U	0.0911 U	0.018 U	0.018 U	0.018 U	19.7 JB	NA	NA	NA	NA	NA
B-110	86-B110-S-1201-05	2	12/1/2005	0.00508 U	0.00508 U	0.00508 U	0.0102 U	0.00508 U	0.00996 U	0.04 U	0.04 U	0.04 U	0.04 U	0.00396 U	0.00396 U	0.00396 U	0.00396 U	0.00396 U	0.00396 U	0.00396 U	0.00996 U	0.00396 U	0.02 U	0.00396 U	0.00396 U	0.00396 U	9.53 UJ	NA	NA	NA	NA	NA
B-137	86-B137-S-1201-05	4	12/1/2005	0.00529 U	0.00529 U	0.00529 U	0.0106 U	0.00529 U	0.0091 U	0.0365 U	0.0365 U	0.0365 U	0.0365 U	0.00362 U	0.00362 U	0.00362 U	0.00362 U	0.00362 U	0.00362 U	0.00362 U	0.0091 U	0.00362 U	0.0183 U	0.00362 U	0.00362 U	0.00362 U	9.5 JB	NA	NA	NA	NA	NA
B-146	86-B146-S-1201-05	4	12/1/2005	0.00523 U	0.00523 U	0.000974 J	0.00248 J	0.00523 U	0.00886 U	0.0356 U	0.0132 J	0.0356 U	0.0356 U	0.00352 U	0.0228 J	0.00352 U	0.0105	0.00366 J	0.0258 J	0.00352 U	0.0164 J	0.038 J	0.0178 U	0.0092	0.00352 U	0.00516	13.4 JB	NA	NA	NA	NA	NA
B-158	86-B158-S-1201-05	2	12/1/2005	0.00515 U	0.00515 U	0.00515 U	0.0103 U	0.00515 U	0.009 U	0.0361 U	0.0361 U	0.0361 U	0.0361 U	0.00358 U	0.00358 U	0.00358 U	0.00358 U	0.00358 U	0.00358 U	0.00358 U	0.009 U	0.00358 U	0.0181 U	0.00358 U	0.00358 U	0.00358 U	6.36 JB	NA	NA	NA	NA	NA
B-167	86-B167-S-1201-05	2	12/1/2005	0.00571 U	0.00571 U	0.00571 U	0.0114 U	0.00571 U	0.00996 U	0.0399 U	0.0399 U	0.0399 U	0.0399 U	0.00396 U	0.0097 J	0.0102 J	0.0202 J	0.00652 J	0.029 J	0.00638 J	0.0164 J	0.0749 J	0.02 U	0.00693 J	0.00396 U	0.0145 J	14.9 JB	NA	NA	NA	NA	NA
B-189	86-B189-S-1201-05	4	12/1/2005	0.00534 U	0.00534 U	0.00534 U	0.0107 U	0.00534 U	0.00892 U	0.0358 U	0.0358 U	0.0358 U	0.0358 U	0.00355 U	0.00355 U	0.00355 U	0.00355 U	0.00355 U	0.00355 U	0.00355 U	0.00892 U	0.00355 U	0.0179 U	0.00355 U	0.00355 U	0.00355 U	7.38 JB	NA	NA	NA	NA	NA

Notes:
All concentrations reported in micrograms per kilogram (mg/kg) unless otherwise noted.
1 = Ch 62-777 F.A.C Soil Cleanup Target Level (SCTLs) reported in mg/kg
U - The analyte was analyzed for , but not detected.
J - Result is estimated
UJ- Value non-detected estimated.
JB- Estimate value..The analyte was detected in the associated method and/or calibration blank.
Bold values indicate compounds that exceed Residential or Industrial Direct Exposure Level
Shaded values indicate compounds that exceed Leachability to GW Criteria
NA - Not Analyzed
NE - Not Established

Figures



LEGEND

- Monitoring Well Location
- Biovent Well Location
- Biosparging Well Location
- Soil Boring Location
- Proposed Additional Soil Sample Location
- Approximate Area of PID Reading Above 50 ppm without Annual Soil Sample Locations

North

0 80 160

Approximate scale in feet

FIGURE 1
Supplemental Soil Sampling Locations (August 2006)
South Fuel Farm Site Biovent System
NAS Cecil Field
Jacksonville, Florida

CH2MHILL

ES042006017ATL NAS-104.ai

Attachment A
Supplemental Soil Sample Analytical Data Sheets

Former South Fuel Farm Site, NAS Cecil Field, Jacksonville
Data Summary Table
Supplemental Soil Sampling 2006

SFF Additional Soil Sampling 2006	Station ID	BORING A @3 FT	BORING A @6 FT	BORING A @9 FT	BORING B @3 FT	BORING B @6 FT	BORING B @9 FT	BORING C @3 FT	BORING C @ 6FT	BORING C @9 FT	BORING D @3 FT	BORING D @ 6FT	BORING D @9 FT
	Sample ID	**86SFFBA3SQ306**	**86SFFBA6SQ306**	**86SFFBA9SQ306**	**86SFFBB3SQ306**	**86SFFBB6SQ306**	**86SFFBB9SQ306**	**86SFFBC3SQ306**	**86SFFBC6SQ306**	**86SFFBC9SQ306**	**86SFFBD3SQ306**	**86SFFBD6SQ306**	**86SFFBD9SQ306**
	Sample Date	**8/3/2006**	**8/3/2006**	**8/3/2006**	**8/3/2006**	**8/3/2006**	**8/3/2006**	**8/3/2006**	**8/3/2006**	**8/3/2006**	**8/3/2006**	**8/3/2006**	**8/3/2006**
	Units in mg/kg												
Parameter	**SCTL[1RES]**												
FLPRO													
Petroleum hydrocarbons	460	9.52 JB	6.74 JB	7.73 JB	60 JB	11.1 JB	13.8 JB	27.5 JB	99.7 JB	21.1 JB	9.51 JB	12.7 JB	10.7 JB
SW8260B													
Benzene	1.2	0.00508 U	0.0051 U	0.00479 U	0.00181 J	0.00502 U	0.00554 U	0.00512 U	0.00512 U	0.00553 U	0.00578 U	0.00535 U	0.00546 U
Ethylbenzene	1500	0.00508 U	0.0051 U	0.00479 U	0.00513 U	0.00502 U	0.00554 U	0.00512 U	0.00512 U	0.0107	0.00578 U	0.00535 U	0.00546 U
tert-butyl methyl ether	4400	0.00508 U	0.0051 U	0.00479 U	0.00513 U	0.00502 U	0.00554 U	0.00512 U	0.00512 U	0.00553 U	0.00578 U	0.00535 U	0.00546 U
Toluene	7500	0.00508 U	0.0051 U	0.00479 U	0.0237	0.00502 U	0.00554 U	0.00512 U	0.00512 U	0.00553 U	0.00578 U	0.00535 U	0.00546 U
Xylenes, total	130	0.0102 U	0.0102 U	0.00957 U	0.0155	0.01 U	0.0111 U	0.00361 J	0.0102 U	0.164	0.0116 U	0.0107 U	0.0109 U
SW8310													
1-methylnaphthalene	93	0.0366 U	0.0353 U	0.0408 U	0.0348 U	0.0394 U	0.0376 U	0.0349 U	0.0375 U	0.0384 U	0.0348 U	0.0382 U	0.0387 U
2-Methylnaphthalene	210	0.0366 U	0.0353 U	0.0408 U	0.0122 J	0.0394 U	0.0376 U	0.0349 U	0.0375 U	0.0384 U	0.0348 U	0.0382 U	0.0387 U
Acenaphthene	2400	0.0366 U	0.0353 U	0.0408 U	0.0818	0.0394 U	0.0376 U	0.0349 U	0.0375 U	0.0384 U	0.0348 U	0.0382 U	0.0387 U
Acenaphthylene	1800	0.0366 U	0.0353 U	0.0408 U	0.0348 U	0.0394 U	0.0376 U	0.0349 U	0.0375 U	0.0384 U	0.0348 U	0.0382 U	0.0387 U
Anthracene	21000	0.00363 U	0.0035 U	0.00405 U	0.00344 U	0.0039 U	0.00372 U	0.00346 U	0.00372 U	0.0109	0.00345 U	0.00379 U	0.00384 U
Benzo(a)anthracene	1.3	0.00363 U	0.0035 U	0.00405 U	0.0181	0.0039 U	0.00502	0.00346 U	0.00372 U	0.0038 U	0.00345 U	0.00379 U	0.00384 U
Benzo(a)pyrene	0.1	0.00363 U	0.0035 U	0.00405 U	0.0268	0.0039 U	0.0107	0.0107	0.00372 U	0.0038 U	0.00781	0.00379 U	0.00384 U
Benzo(b)fluoranthene	1.3	0.00363 U	0.0035 U	0.00405 U	0.0393	0.0039 U	0.0107	0.0101	0.00372 U	0.0038 U	0.0127	0.00379 U	0.00384 U
Benzo(g,h,i)perylene	2500	0.00363 U	0.0035 U	0.00405 U	0.037	0.0039 U	0.0129	0.0111	0.00372 U	0.0038 U	0.00937 J	0.00379 U	0.00384 U
Benzo(k)fluoranthene	13	0.00363 U	0.0035 U	0.00405 U	0.0234	0.0039 U	0.00658	0.00273 J	0.00372 U	0.0038 U	0.00365	0.00379 U	0.00384 U
Chrysene	130	0.00593 J	0.0035 U	0.00405 U	0.0357 J	0.0039 U	0.0118 J	0.00346 U	0.00372 U	0.0038 U	0.00426 J	0.00379 U	0.00384 U
Dibenz(a,h)anthracene	0.1	0.00363 U	0.0035 U	0.00405 U	0.032	0.0039 U	0.00372 U	0.00346 U	0.00372 U	0.0038 U	0.0088	0.00379 U	0.00384 U
Fluoranthene	3200	0.00363 U	0.0035 U	0.00405 U	0.0209 J	0.0039 U	0.018 J	0.00346 U	0.00372 U	0.0306	0.00443 J	0.00379 U	0.00384 U
Fluorene	2600	0.0184 U	0.0177 U	0.0205 U	0.0174 U	0.0197 U	0.0188 U	0.0175 U	0.0188 U	0.0192 U	0.0174 U	0.0192 U	0.0194 U
Indeno(1,2,3-c,d)pyrene	1.3	0.00913 U	0.00881 U	0.0102 U	0.0313	0.00981 U	0.00936 U	0.00871 U	0.00935 U	0.00956 U	0.00867 U	0.00952 U	0.00965 U
Naphthalene	55	0.00913 U	0.00881 U	0.0102 U	0.00866 U	0.00981 U	0.00936 U	0.00871 U	0.0129	0.00956 U	0.00867 U	0.00952 U	0.00965 U
Phenanthrene	2200	0.00363 U	0.0035 U	0.00405 U	0.00344 U	0.0039 U	0.00661	0.00346 U	0.00372 U	0.047	0.00345 U	0.00379 U	0.00384 U
Pyrene	2400	0.00363 U	0.0035 U	0.00405 U	0.0351	0.0039 U	0.0228	0.00391	0.0099	0.0195	0.00426 J	0.00379 U	0.00384 U

Notes:
All concentrations reported in milligrams per kilograms (mg/kg).
Bold and Shaded indicates concentration exceeds **(SCTL[1RES])** Residential Soil Cleanup Target Level.
Values Bolded are analytes not detected by the lab but are above the **(SCTL[1RES])** Residential Soil Cleanup Target Level
SCTL[1RES] - Residential Soil Cleanup Target Level
1 = Ch 62-777 FAC Soil Cleanup Target Level (SCTLs) reported in mg/kg
U - The analyte was analyzed for , but not detected.
J - estimated value
B-The analyte was detected in the associated method and/or calibration blank.
UJ- Value non-detected estimated.
JB- Estimate value..The analyte was detected in the associated method and/or calibration blank.
NA - Not Available at time of rule adoption

Attachment B
Historical Soil Analytical Results

TABLE B-1
South Fuel Farm Historical Soil Analytical Results

Soil Boring Number	Sample Date	Sample Depth (feet bls)	Benzene	Ethyl Benzene	Toluene	Xylene	Methyl tert-butyl ether	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (g,h,i) perylene	Chrysene	Indeno (1, 2, 3-cd) pyrene	Dibenzo (a,h) anthracene	Fluorene	Fluoranthene	Phenanthrene	Pyrene	TRPH (mg/kg)
Leachability to GW Criteria[1]			0.007	0.6	0.5	0.2	0.09	1.2	2.2	6.1	2.1	27	2500	0.8	8	2.4	25	32000	77	6.6	0.7	160	1200	250	880	340
Direct Exposure Residential[1]			1.2	1500	7500	130	4200	55	200	210	2400	1800	21000	1.3	0.1	1.3	13	2500	130	1.3	0.1	2600	3200	2200	2400	460
Direct Exposure Industrial[1]			1.7	9200	60000	700	24000	300	1800	2100	20000	20000	300000	6.6	0.7	6.5	66	52000	640	6.6	0.7	33000	59000	36000	45000	2700
B-7	3/22/99	N/A	0.11 U	0.11 U	0.11 U	0.33 U	0.64 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	84
	9/13/00	N/A	0.001 U	0.001 U	0.001 U	0.003 U	0.002 U	0.018 U	0.037 U	0.037 U	0.019 U	0.037 U	0.0018 U	0.0018 U	0.002 U	0.0037 U	0.0018 U	0.003 U	0.0018 U	0.0018 U	0.0036 U	0.003 U	0.0037 U	0.037 U	0.0018 U	8
	10/18/01	2	0.001 U	0.001 U	0.001 U	0.0031 U	0.001 U	0.597 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	18 U
	10/10/02	2	0.00102 J	0.00141 J	0.00325 J	0.0119	0.00589 U	0.00884 U	0.0177 U	0.0177 U	0.00353 U	0.0353 U	0.0177 U	0.00353 U	0.00353 U	0.00353 U	0.00353 U	0.00353 U	0.00353 U	0.00353 U	0.00353 U	0.0177 U	0.00353 U	0.00353 U	0.00353 U	9.42 U
	11/5/03	2	0.00486 U	0.00486 U	0.00486 U	0.00971 U	0.00486 U	0.00966 U	0.0387 U	0.0387 U	0.0387 U	0.0387 U	0.00384 U	0.00384 U	0.00384 U	0.00384 U	0.00384 U	0.00384 U	0.00384 U	0.00966 U	0.00384 U	0.0194 U	0.00384 U	0.00384 U	0.00384 U	127
	12/7/04	2	0.00504 U	0.00504 U	0.00504 U	0.0101 U	0.00504 U	0.00914 U	0.0367 U	0.0367 U	0.0367 U	0.0367 U	0.00363 U	0.00363 U	0.00363 U	0.00363 U	0.00363 U	0.00363 U	0.00363 U	0.00914 U	0.00363 U	0.0184 U	0.00363 U	0.00363 U	0.00363 U	35 JB
B-31	3/22/99	N/A	0.012 U	0.012 U	0.012 U	0.036 U	0.071 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	170
	9/13/00	N/A	0.0011 U	0.0011 U	0.0011 U	0.0031 U	0.002 U	0.02 U	0.04 U	0.04 U	0.02 U	0.04 U	0.002 U	0.002 U	0.002	0.004 U	0.002 U	0.01	0.002 U	0.0028	0.01	0.004 U	0.004 U	0.04 U	0.002 U	180
	10/18/01	4	0.0011 U	0.0011 U	0.0011 U	0.0033 U	0.0011 U	0.604 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	18 U
	10/10/02	3	0.225 U	0.225 U	0.0506 J	0.45 U	0.225 U	0.00863 U	0.0173 U	0.0173 U	0.00345 U	0.0345 U	0.0173 U	0.00345 U	0.00345 U	0.00345 U	0.00345 U	0.00345 U	0.00345 U	0.00345 U	0.00345 U	0.0173 U	0.0116	0.00345 U	0.00345 U	8.38 J
	11/5/03	2	0.00518 U	0.00518 U	0.00518 U	0.0104 U	0.00518 U	0.00935 U	0.0375 U	0.0375 U	0.0375 U	0.0375 U	0.00372 U	0.00372 U	0.00372 U	0.00372 U	0.00372 U	0.00372 U	0.00372 U	0.00935 U	0.00372 U	0.0188 U	0.00372 U	0.00372 U	0.00372 U	9.01 U
	12/7/04	2	0.461 U	1.04	0.278 J	6.81	0.461 U	1.2	4.18	3.49	0.392 U	0.392 U	0.0389 U	0.0389 U	0.0389 U	0.0389 U	0.0389 U	0.0389 U	0.0389 U	0.0978 U	0.0389 U	0.0531 J	0.0389 U	0.0389 U	0.0389 U	1440 JB
B-41	3/22/99	N/A	0.013 U	0.013 U	0.013 U	0.038 U	0.076 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	30
	9/13/00	N/A	0.55 U	0.55 U	0.55 U	24.9	1.1 U	3.3	22	14	1 U	2 U	0.098 U	0.098 U	0.099 U	0.2 U	0.098 U	0.2 U	0.098 U	0.098 U	0.19 U	0.21	0.88	0.2 U	0.098 U	460
	10/18/01	4	0.0011 U	0.0011 U	0.0011 U	0.0033 U	0.0011 U	0.579 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	0.058 U	17 U
	10/10/02	4	0.219 U	0.219 U	0.219 U	0.437 U	0.219 U	0.00859 U	0.0172 U	0.0172 U	0.00344 U	0.0344 U	0.0172 U	0.00344 U	0.00344 U	0.00344 U	0.00344 U	0.00344 U	0.00344 U	0.00344 U	0.00344 U	0.0172 U	0.00344 U	0.00344 U	0.00344 U	1640
	11/5/03	4	0.212 U	0.212 U	0.212 U	1.56	0.212 U	0.00984 U	0.066	0.0395 U	0.0395 U	0.0395 U	0.00391 U	0.00391 U	0.00146 J	0.00147 J	0.00391 U	0.00391 U	0.00391 U	0.00984 U	0.00391 U	0.0198 U	0.00391 U	0.00391 U	0.00391 U	10400
	12/7/04	4	0.242 U	0.242 U	0.242 U	0.484 U	0.242 U	0.0145	0.0628	0.0394 U	0.0394 U	0.0394 U	0.0039 U	0.0443	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.0039 U	0.00981 U	0.0039 U	0.0197 U	0.0256	0.0039 U	0.0717	3200 JB
B-70	3/22/99	N/A	0.13 U	0.13 U	0.13 U	0.4 U	0.8 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	830
	9/13/00	N/A	0.0014	0.001 U	0.002	0.019	0.002 U	0.02 U1	0.041 U	0.041 U	0.094	0.109	0.002 U1	0.016	0.005	0.014	0.012	0.004 U	0.043	0.0025	0.004 U	0.004 U	0.091	0.041 U	0.148	100
	10/18/01	4	0.001 2 U	0.001 2 U	0.001 2 U	0.0036 U	0.001 2 U	0.565 U	0.056 U	0.035 J	0.056 U	0.056 U	0.056 U	0.0053J	0.007J	0.015J	0.056 U	0.016J	0.008J	0.010J	0.056 U	0.056 U	0.056 U	0.0049 J	0.0057J	64
	10/10/02	4	0.00141 J	0.00104 J	0.00337 J	0.0102	0.00495 U	0.151 J	0.0161 U	0.0161 U	0.00614 J	0.0322 U	0.0161 U	0.0554 J	0.0847 J	0.0795 J	0.0747 J	0.0746 J	0.0952 J	0.0588 J	0.0616 J	0.0161 U	0.168 J	0.0222 J	0.0621 J	114 J
	11/5/03	4	0.00547	0.00136 J	0.0175 B	0.0164	0.00496 U	1.97	7.77	9.7	0.738 U	0.738 U	0.0731 U	0.0731 U	0.0731 U	0.0731 U	0.0731 U	0.0731 U	0.0731 U	0.184 U	0.0731 U	0.37 U	0.0731 U	0.0731 U	0.134	93.5
	12/7/04	4	0.00465 U	0.00465 U	0.00465 U	0.00929 U	0.00465 U	0.00853 U	0.0342 U	0.0342 U	0.0342 U	0.0342 U	0.00339 U	0.00339 U	0.00339 U	0.00339 U	0.00339 U	0.00339 U	0.00339 U	0.00853 U	0.00339 U	0.0172 U	0.00339 U	0.00339 U	0.00339 U	9.33 JB
B-96	3/22/99	N/A	0.1 U	0.25	0.1 U	5.8	0.63 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	7600
	9/13/00	N/A	0.22 U	0.22 U	0.22 U	0.65 U	0.43 U	0.074	0.48	0.58	0.032	0.058	0.039	0.015	0.012	0.02	0.011	0.005	0.021	0.0063	0.0087	0.11	0.004 U	0.26	0.002 U	1800
	10/18/01	4	0.024	0.017	0.0017	0.0141	0.001 U4	0.562	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.016	0.056 U	0.033	0.015	0.016	0.018	0.014	0.056 U	0.056 U	0.056 U	0.056 U	0.128	969
	10/10/02	4	0.269 U	0.269 U	0.269 U	0.538 U	0.269 U	0.0404 U	0.0807 U	0.0807 U	0.0161 U	0.161 U	0.0807 U	0.0161 U	0.0161 U	0.0161 U	0.0161 U	0.0161 U	0.0161 U	0.0161 U	0.0161 U	0.0807 U	0.0274 J	0.0161 U	0.142 J	2710 J
	11/5/03	4	0.00517 U	0.00188 J	0.0013 B	0.00894 J	0.00517 U	0.135	0.0382 U	0.0382 U	0.0382 U	0.0382 U	0.00378 U	0.00378 U	0.00378 U	0.00378 U	0.00378 U	0.00378 U	0.00378 U	0.00952 U	0.00378 U	0.0191 U	0.00378 U	0.0259	0.00378 U	4860
	12/7/04	4	0.216 U	0.216 U	0.216 U	0.433 U	0.216 U	8.19 J	15.5 J	24.5 J	0.339 U	0.772 J	0.0336 U	0.0336 U	0.0336 U	0.0336 U	0.0336 U	0.0336 U	0.0336 U	0.0846 U	0.0336 U	0.649 J	0.0336 U	0.0336 U	0.455 J	59600 JB
B-99	3/22/99	N/A	0.11 U	0.11 U	0.11 U	0.33 U	0.67 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	570
	9/13/00	N/A	0.001	0.001 U	0.0018	0.0017	0.002 U	0.02 U	0.04 U	0.073	0.14	0.04 U	0.004	0.0076	0.016	0.025	0.0057	0.024	0.02	0.013	0.019	0.004 U	0.052	0.04 U	0.028	8.1 U
	10/18/01	4	0.001 2 U	0.001 2 U	0.001 2 U	0.0035 U	0.001 2 U	0.593 U	0.059 U	0.059 U	0.059 U	0.059 U	0.059 U	0.027J	0.032J	0.040J	0.017J	0.029J	0.040J	0.024J	0.059 U	0.059 U	0.046J	0.024J	0.015J	36
	10/10/02	4	0.00157 J	0.00156 J	0.00516	0.0154	0.00482 U	0.0235 J	0.0171 U	0.0171 U	0.009 J	0.0342 U	0.0171 U	0.165 J	0.0713 J	0.0805 J	0.0357 J	0.0418 J	0.117 J	0.0351 J	0.00342 U	0.0171 U	0.223 J	0.0396 J	0.147 J	33.7 J
	11/5/03	4	0.00517 U	0.00188 J	0.0013 B	0.00894 J	0.00517 U	0.135	0.0382 U	0.0382 U	0.0382 U	0.0382 U	0.00378 U	0.00378 U	0.00378 U	0.00378 U	0.00378 U	0.00378 U	0.00378 U	0.00952 U	0.00378 U	0.0191 U	0.00378 U	0.0259	0.00378 U	4860
	12/7/04	4	0.235 U	0.235 U	0.235 U	0.47 U	0.235 U	0.00887 U	0.0356 U	0.0356 U	0.0356 U	0.0356 U	0.00353 U	0.00353 U	0.00353 U	0.00353 U	0.00353 U	0.071	0.00353 U	0.00887 U	0.0325	0.0179 U	0.00353 U	0.00353 U	0.00353 U	20 JB
B-101	3/22/99	N/A	0.12 U	0.12 U	0.12 U	0.36 U	0.72 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	320
	9/13/00	N/A	0.0011 U	0.0011 U	0.0011 U	0.0031 U	0.002 U	0.021 U	0.04 U2	0.042 U	0.021 U	0.04 U2	0.021 U	0.021 U	0.006	0.0066	0.0029	0.018	0.0046	0.009	0.0084	0.004 U	0.04 U2	0.04 U2	0.021 U	8.4 U
	10/18/01	4	0.00088	0.001 U	0.0012	0.003 U	0.001 U	0.572 U	0.206	1.09	0.17	1.25	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	1.14	0.057 U	0.057 U	0.321	1.84	0.912	0.201	7510
	10/10/02	4	0.268 U	0.268 U	0.268 U	0.537 U	0.268 U	0.805 U	1.61 U	1.61 U	0.322 U	3.22 U	1.61 U	0.322 U	0.322 U	0.322 U	0.322 U	0.322 U	0.322 U	0.322 U	0.322 U	1.61 U	2.49	1.03	6.77	13100
	11/5/03	4	0.00586 U	0.00586 U	0.00586 U	0.0117 U	0.00586 U	0.0509 U	0.204 U	0.204 U	0.204 U	0.204 U	0.0202 U	0.0304	0.0202 U	0.0202 U	0.0202 U	0.0202 U	0.0202 U	0.0509 U	0.0202 U	0.102 U	0.0202 U	0.0241	0.0202 U	965 J
	12/7/04	4	0.00477 U	0.00477 U	0.00477 U	0.0012 J	0.00477 U	0.00916 U	0.0367 U	0.0367 U	0.0367 U	0.0367 U	0.00364 U	0.00364 U	0.00364 U	0.00364 U	0.00364 U	0.00364 U	0.00364 U	0.00916 U	0.00364 U	0.0184 U	0.00364 U	0.00364 U	0.00364 U	67.7 JB
B-104	3/22/99	N/A	0.11 U	0.11 U	0.11 U	0.33 U	0.67 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	28
	9/13/00	N/A	0.001 U	0.001 U	0.0018	0.0084	0.002 U	0.02 U1	0.041 U	0.041 U	0.02 U1	0.041 U	0.002 U1	0.002 U1	0.002 U	0.0041 U	0.002 U1	0.004 U	0.002 U1	0.002 U1	0.0041 U	0.004 U	0.0041 U	0.041 U	0.002 U1	8.3 U
	10/18/01	4	0.001 U2	0.001 U2	0.001 U2	0.0035 U	0.001 U2	0.569 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.011J	0.057 U	0.0041J	0.057 U	0.057 U	0.057 U	0.057 U	0.0049J	0.057 U	0.014J	80
	10/10/02	4	0.00169 J	0.00268 J	0.0107	0.029	0.00584 U	0.00864 U	0.0173 U	0.0173 U	0.00346 U	0.0346 U	0.0173 U	0.00346 U	0.00346 U	0.00346 U	0.00346 U	0.00346 U	0.00346 U	0.00346 U	0.00346 U	0.0173 U	0.00346 U	0.00346 U	0.00346 U	10.3
	11/5/03	4	0.00548 U	0.00548 U	0.00548 U	0.00165 J	0.00548 U	0.00939 U	0.0377 U	0.0377 U	0.0377 U	0.0377 U	0.00373 U	0.00373 U	0.00373 U	0.00373 U	0.00373 U	0.00373 U	0.00373 U	0.00939 U	0.00373 U	0.0189 U	0.00373 U	0.00373 U	0.00373 U	37.7
	12/7/04	4	0.00495 U	0.00495 U	0.00495 U	0.00989 U	0.00495 U	0.00872 U	0.035 U	0.035 U	0.035 U	0.035 U	0.00347 U	0.0351	0.00347 U	0.00347 U	0.00347 U	0.00347 U	0.00347 U	0.00872 U	0.00347 U	0.0175 U	0.00347 U	0.00347 U	0.00347 U	12.6 JB

TABLE A-1

South Fuel Farm Historical Soil Analytical Results

Soil Boring Number	Sample Date	Sample Depth (feet bls)	Benzene	Ethyl Benzene	Toluene	Xylene	Methyl tert-butyl ether	Naphthalene	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (k) fluoranthene	Benzo (g,h,i) perylene	Chrysene	Indeno (1, 2, 3-cd) pyrene	Dibenzo (a,h) anthracene	Fluorene	Fluoranthene	Phenanthrene	Pyrene	TRPH (mg/kg)
Leachability to GW Criteria[1]			0.007	0.6	0.5	0.2	0.09	1.2	2.2	6.1	2.1	27	2500	0.8	8	2.4	25	32000	77	6.6	0.7	160	1200	250	880	340
Direct Exposure Residential[1]			1.2	1500	7500	130	4200	55	200	210	2400	1800	21000	1.3	0.1	1.3	13	2500	130	1.3	0.1	2600	3200	2200	2400	460
Direct Exposure Industrial[1]			1.7	9200	60000	700	24000	300	1800	2100	20000	20000	300000	6.6	0.7	6.5	66	52000	640	6.6	0.7	33000	59000	36000	45000	2700
B-106	3/22/99	N/A	0.12 U	0.12 U	0.12 U	0.37 U	0.75 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	3200
	9/13/00	N/A	0.001 U	0.001	0.002	0.0145	0.002 U	0.19 U	2.4	0.38 U	0.47	0.38 U	0.019 U	0.62	0.68	0.97	0.62	0.5	0.89	0.31	0.34	0.038 U	0.93	0.38 U	2.8	1000
	10/18/01	4	0.0011 U	0.0011 U	0.0011 U	0.0033 U	0.0011 U	0.55 U0	0.055 U	0.055 U	0.055 U	0.055 U	0.055 U	0.023J	0.040J	0.037J	0.055 U	0.040J	0.034J	0.038J	0.055 U	0.055 U	0.055 U	0.023J	0.019J	37
	10/10/02	4	0.00479 U	0.00132 J	0.00494	0.0122	0.00479 U	0.125	0.0167 U	0.0167 U	0.00334 U	0.0334 U	0.0167 U	0.00334 U	0.0197	0.0309	0.00334 U	0.0395	0.0303	0.00334 U	0.00334 U	0.0167 U	0.0781	0.00334 U	0.0409	483
	11/5/03	4	0.00522 U	0.00522 U	0.00349 B	0.00151 J	0.00522 U	0.00917 U	0.0368 U	0.0368 U	0.0368 U	0.0368 U	0.00365 U	0.00365 U	0.00497	0.0134	0.0107	0.00365 U	0.0282	0.00917 U	0.00365 U	0.0185 U	0.00565	0.00365 U	0.00365 U	401
	12/7/04	4	0.00447 U	0.00447 U	0.00447 U	0.00895 U	0.00447 U	0.00854 U	0.0343 U	0.0343 U	0.0343 U	0.0343 U	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.0034 U	0.00854 U	0.0034 U	0.0172 U	0.0034 U	0.0034 U	0.0034 U	6.91 JB
B-110	3/22/99	N/A	0.13 U	0.13 U	0.13 U	0.39 U	0.78 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1000
	9/13/00	N/A	0.097 U	0.097 U	0.097 U	0.286 U	0.2 U	0.97 U	1.9 U	1.9 U	3.7	4.3	0.097 U	0.097 U	0.098 U	0.19 U	0.097 U	0.19 U	1.6	0.097 U	0.19 U	0.23	0.19 U	1.9 U	0.097 U	530
	10/18/01	4	0.001 U	0.001 U	0.001 U	0.003 U	0.001 U	0.575 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	17 U
	10/10/02	4	0.248 U	0.248 U	0.248 U	0.495 U	0.248 U	0.00857 U	0.0171 U	0.0171 U	0.00343 U	0.0343 U	0.0171 U	0.00343 U	0.00343 U	0.00343 U	0.00343 U	0.00343 U	0.00343 U	0.00343 U	0.00343 U	0.0171 U	0.00343 U	0.00343 U	0.00343 U	9.14 U
	11/5/03	2	0.00523 U	0.00523 U	0.00523 U	0.0105 U	0.00523 U	0.00888 U	0.0356 U	0.0356 U	0.0356 U	0.0356 U	0.00353 U	0.00353 U	0.00353 U	0.00353 U	0.00353 U	0.00353 U	0.00353 U	0.00888 U	0.00353 U	0.0179 U	0.00353 U	0.00353 U	0.00353 U	95.1
	12/7/04	2	0.00466 U	0.00466 U	0.00466 U	0.00932 U	0.00466 U	0.00867 U	0.0348 U	0.0348 U	0.0348 U	0.0348 U	0.00345 U	0.00345 U	0.00345 U	0.00345 U	0.00345 U	0.00345 U	0.00345 U	0.00867 U	0.00345 U	0.0174 U	0.00345 U	0.00345 U	0.00345 U	7.85 JB
B-137	3/22/99	N/A	0.1 U	0.1 U	0.1 U	0.52	0.63 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1200
	9/13/00	N/A	0.001 U3	0.001 U3	0.001 U3	0.008	0.002 U	0.02 U	0.04 U	0.04 U	0.02 U	0.04 U	0.002 U	0.002 U	0.002 U	0.004 U	0.002 U	0.004 U	0.002 U	0.002 U	0.003 U9	0.004 U	0.004 U	0.04 U	0.002 U	8
	10/18/01	2	0.001 2 U	0.001 2 U	0.001 2 U	0.0037 U	0.001 2 U	0.563 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	0.056 U	17 U
	10/10/02	4	0.00161 J	0.00108 J	0.00414 J	0.0111	0.00497 U	0.00811 U	0.0162 U	0.0162 U	0.00325 U	0.0325 U	0.0162 U	0.00325 U	0.00325 U	0.00325 U	0.00325 U	0.00325 U	0.00325 U	0.00325 U	0.00325 U	0.0162 U	0.00325 U	0.00325 U	0.00325 U	127
	11/5/03	4	0.0012 J	0.00533 U	0.00226 B	0.00337 J	0.00533 U	0.00917 U	0.0368 U	0.0368 U	0.0368 U	0.0368 U	0.00364 U	0.00364 U	0.00364 U	0.00364 U	0.00364 U	0.00364 U	0.00364 U	0.00917 U	0.00364 U	0.0184 U	0.00364 U	0.0155	0.00364 U	22.9
	12/7/04	4	0.255 U	0.255 U	0.255 U	0.51 U	0.255 U	0.00891 U	0.0358 U	0.0358 U	0.0358 U	0.0358 U	0.00354 U	0.00354 U	0.00354 U	0.00354 U	0.00354 U	0.00354 U	0.00354 U	0.00891 U	0.00354 U	0.0179 U	0.00354 U	0.00354 U	0.103	14.9 JB
B-146	3/22/99	N/A	0.1 U	0.1 U	0.1 U	0.31 U	0.63 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	1000
	9/13/00	N/A	0.001 U3	0.001 U3	0.002	0.006	0.002 U	0.028	0.041 U	0.041 U	0.02 U1	0.041 U	0.002 U	0.002 U	0.008	0.0041 U	0.002 U	0.004 U	0.002 U	0.002 U	0.004 U	0.005	0.0041 U	0.041 U	0.002 U	13
	10/18/01	4	0.001 U2	0.001 U2	0.001 U2	0.0037 U	0.001 U2	0.541 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.054 U	0.0059	0.0099	0.017	0.054 U	0.184	0.0092	0.054 U	0.012	0.185	0.054 U	0.029	1640
	10/10/02	4	0.239 U	0.616	0.239 U	3.22	0.239 U	0.392 U	0.783 U	0.783 U	0.157 U	1.57 U	0.783 U	0.157 U	0.157 U	0.157 U	0.157 U	0.157 U	0.157 U	0.157 U	0.157 U	0.783 U	1.04	0.157 U	3.18	4180
	11/5/03	4	0.00514 U	0.00514 U	0.00514 U	0.0103 U	0.00514 U	0.00886 U	0.0356 U	0.0356 U	0.0356 U	0.0356 U	0.00352 U	0.00352 U	0.00352 U	0.00352 U	0.00352 U	0.00352 U	0.00352 U	0.00886 U	0.00352 U	0.0178 U	0.00352 U	0.00352 U	0.00352 U	365
	12/8/04	4	0.0047 U	0.0047 U	0.0047 U	0.00362 J	0.0047 U	0.00871 U	0.0349 U	0.0349 U	0.0349 U	0.0349 U	0.00346 U	0.0178	0.00346 U	0.00346 U	0.00567	0.0074	0.00346 U	0.00991	0.026	0.0175 U	0.00346 U	0.00346 U	0.00346 U	43.5 JB
B-158	3/22/99	N/A	0.12 U	0.12 U	0.12 U	0.36 U	0.7 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	9.5
	9/13/00	N/A	0.0016	0.003	0.002	0.0342	0.002 U	0.13	0.041 U	0.041 U	0.02 U1	0.041 U	0.002 U	0.002 U	0.004	0.0041 U	0.0028	0.01	0.002 U	0.002 U	0.005	0.01	0.0041 U	0.041 U	0.002 U	8.2 U
	10/18/01	4	0.001 U2	0.001 U2	0.001 U2	0.0037 U	0.001 U2	0.596 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	18 U
	10/10/02	2	0.00341 J	0.00268 J	0.00622	0.0252	0.00189 J	0.00825 U	0.0165 U	0.0165 U	0.0033 U	0.033 U	0.0165 U	0.0033 U	0.00678	0.00766	0.00396	0.0202	0.0033 U	0.0033 U	0.0033 U	0.0165 U	0.0129	0.0033 U	0.0033 U	5.9 J
	11/5/03	2	0.00537 U	0.00108 J	0.00537 U	0.00233 J	0.00537 U	0.00908 U	0.0364 U	0.0364 U	0.0364 U	0.0364 U	0.00361 U	0.0552	0.084	0.00361 U	0.0558	0.0802	0.0976	0.062	0.0669	0.0183 U	0.00361 U	0.00361 U	0.108	19.6
	12/8/04	2	0.00469 U	0.00111 J	0.00469 U	0.00333 J	0.00469 U	0.00862 U	0.0346 U	0.0346 U	0.0325 J	0.0346 U	0.00354	0.204	**0.113**	0.0867	0.145	0.0493	0.057	0.0518	0.048	0.0173 U	0.0344	0.0101	0.0701	63.5 JB
B-167	3/22/99	N/A	0.12 U	0.45	0.29	2.8	0.72 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	4200
	9/13/00	N/A	0.0011 U	0.0011 U	0.0011 U	0.0031 U	0.002 U	0.02 U	0.04 U	0.04 U	0.02 U	0.04 U0	0.002 U	0.002 U	0.002 U	0.004 U	0.002 U	0.004 U	0.002 U	0.002 U	0.004 U	0.004 U	0.004 U	0.04 U	0.002 U	8.1 U
	10/18/01	4	0.029	3.84	0.019	5.334	0.0034	10.3	22.3	26.3	0.188	0.573 U	0.573 U	0.573 U	0.573 U	0.573 U	0.573 U	0.573 U	0.351	0.573 U	0.573 U	1.71	2.07	2.37	0.573 U	11400
	10/10/02	4	0.219 U	0.219 U	0.219 U	0.439 U	0.219 U	9.05	21	34.9	0.334 U	3.34 U	1.67 U	0.334 U	0.334 U	0.334 U	0.334 U	0.334 U	0.334 U	0.334 U	0.334 U	1.67 U	0.334 U	0.334 U	0.334 U	13800
	11/5/03	2	0.00501 U	0.00501 U	0.00501 U	0.01 U	0.00501 U	0.00869 U	0.0349 U	0.0349 U	0.0349 U	0.0349 U	0.00346 U	0.00346 U	0.0015 J	0.00194 J	0.00232 J	0.00346 U	0.00346 U	0.00869 U	0.00346 U	0.0175 U	0.00346 U	0.00346 U	0.00346 U	8.38 U
	12/8/04	2	0.235 U	0.235 U	0.235 U	0.469 U	0.235 U	0.533 J	5.91 J	1.98 J	0.0362 U	0.0362 U	0.00359 U	0.00359 U	0.00359 U	0.00359 U	0.00359 U	0.00359 U	0.00359 U	0.00903 U	0.00359 U	0.0182 U	0.00359 U	0.233 J	0.00359 U	1840 JB
B-189	3/22/99	N/A	0.11 U	0.11 U	0.11 U	0.33 U	0.67 U	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	7.4 U
	9/13/00	N/A	0.0018	0.0011 U	0.0038	0.0061	0.002 U	0.02 U	0.041 U	0.041 U	0.02 U1	0.041 U	0.002 U	0.002 U	0.004	0.0041 U	0.0021	0.005	0.002 U	0.002	0.004 U	0.006	0.0041 U	0.041 U	0.004	8.2 U
	10/18/01	4	0.001 U2	0.00062J	0.001 U2	0.0042	0.001 U2	<0.570	0.057 U	0.013J	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	0.057 U	18
	10/10/02	2	0.285 U	0.285 U	0.285 U	0.57 U	0.285 U	0.00953 U	0.0191 U	0.0191 U	0.00381 U	0.0381 U	0.0191 U	0.00381 U	0.00686	0.00593	0.00606	0.00381 U	0.00381 U	0.00381 U	0.00381 U	0.0191 U	0.014	0.00381 U	0.00932	10.2 U
	11/5/03	4	0.00583 U	0.00583 U	0.00583 U	0.0117 U	0.00583 U	0.00967 U	0.0388 U	0.0388 U	0.0388 U	0.0388 U	0.00385 U	0.00385 U	0.00385 U	0.00387	0.00385 U	0.00385 U	0.00385 U	0.00967 U	0.00385 U	0.0195 U	0.00385 U	0.00385 U	0.00385 U	11
	12/8/04	4	0.00174 J	0.00106 J	0.00333 J	0.0118	0.00497 U	0.00874 U	0.0351 U	0.0351 U	0.0351 U	0.0351 U	0.00348 U	0.00348 U	0.00348 U	0.00348 U	0.00348 U	0.00348 U	0.00348 U	0.00874 U	0.00348 U	0.0176 U	0.00348 U	0.00348 U	0.00348 U	57.9 JB

All values reported in milligram per kilogram (mg/kg)

1 - Ch 62-777 F.A.C Soil cleanup Target Level (SCTLs) reported in mg/kg

bgs - below ground surface

U - result was not detected

N/A - not available

NS - not sampled for compound

J - concentration is less than the reporting limit but greater than the method detection limit

JB- Estimate value. The analyte was detected in the associated method and/or calibration blank.

Bolded values indicate the compounds that exceed either the Residential or Industustrial Direct Exposure SCTLs

Shaded values indicate the compounds that exceed the Leachability to groundwater SCTLs

Sampling events dated prior to 10/18/01 were performed by previous CONTRACTOR.