**DOE/OR/07-2179&D2/A1/R2**
**Primary Document**

# Addendum to the Work Plan for the Burial Grounds Operable Unit Remedial Investigation/Feasibility Study at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky–Solid Waste Management Unit (SWMU) 13 Field Sampling Plan


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# Addendum to the Work Plan for the Burial Grounds Operable Unit Remedial Investigation/Feasibility Study at the Paducah Gaseous Diffusion Plant, Paducah, Kentucky–Solid Waste Management Unit (SWMU) 13 Field Sampling Plan

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Prepared for the
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Office of Environmental Management

Prepared by
PADUCAH REMEDIATION SERVICES, LLC
managing the
Environmental Remediation Activities at the
Paducah Gaseous Diffusion Plant
under contract DE-AC30-06EW05001

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collected using a flow rate of 200 mL/minute or less after sufficient water has been purged to allow geochemical parameters (i.e., pH, dissolved oxygen, conductivity, and temperature) to stabilize within the boring. Aliquots will be collected for the parameters listed in Table 9.9 of the BGOU RI/FS Work Plan. If the sample volume is not sufficient to collect aliquots for all analyses, then aliquots for analysis of filtered water will take precedence (0.45 micron filter). For both unfiltered and filtered water analyses, the preferred order of analyses will be metals, radionuclides, PCBs, PAHs, and volatiles. After sampling is completed, the sample tubing and pump will be removed from the boring and decontaminated in accordance with DOE Prime Contractor-approved procedures.

**Table 4. SWMU 13 Soil Analytes and Reporting Limits**

| Reporting Limit[a] (mg/kg) | Metals SW-846, 6010 | | |
|---|---|---|---|
| 20 | Aluminum | | |
| 20 | Antimony | | |
| 0.5 | Beryllium | | |
| 2 | Cadmium | | |
| 100 | Calcium | | |
| 2.5 | Chromium | | |
| 2.5 | Copper | | |
| 20 | Iron | | |
| 2.5 | Manganese | | |
| 5 | Molybdenum | | |
| 5 | Nickel | | |
| 2.5 | Silver | | |
| 2.5 | Vanadium | | |
| 20 | Zinc | | |
| **(mg/kg)** | **Metals SW-846, 6020** | | |
| 1 | Arsenic | | |
| 20 | Selenium | | |
| 2 | Thallium | | |
| 1 | Uranium | | |
| **(µg/kg)** | **TCL PAHs SW-846, 8270** | | |
| 660 | Acenapthene | Benzo(g,h,i)perylene | Fluoranthene |
| | Acenaphthylene | Benzo(k)fluoranthene | Fluorene |
| | Anthracene | Chrysene | Indeno(1,2,3-cd)pyrene |
| | Benz(a)anthracene | Dibenz(a,h)anthracene | Naphthalene |
| | Benzo(a)pyrene | | Phenanthrene |
| | Benzo(b)fluoranthene | | Pyrene |
| **(µg/kg)** | **TCL Other Semivolatiles SW-846, 8270** | | |
| 660 | di-N-butylphthalate | | |
| **(mg/kg)** | **TCL PCBs SW-846, 8082** | | |
| 0.1 | Aroclor-1016 | Aroclor-1242 | Aroclor-1254 |
| | Aroclor-1221 | Aroclor-1248 | Aroclor-1260 |
| | Aroclor-1232 | | Total PCBs |

**Table 4. SWMU 13 Soil Analytes and Reporting Limits (Continued)**

| Reporting Limit[a] (µg/kg) | TCL Volatiles SW-846, 8260 | | |
|---|---|---|---|
| 10 | Acetone | *trans*-1,2 Dichloroethene | Methylene chloride |
| | Acrolein | *cis*-1,3-Dichloropropene | Styrene |
| | Acrylonitrile | *trans*-1,3-Dichloropropene | 1,1,2,2-Tetrachloroethane |
| | Benzene | Dibromochloromethane | 1,1,1,2-Tetrachloroethane |
| | Bromodichloromethane | Dibromomethane | Tetrachloroethene |
| | Bromoform | Dichlorodifluoromethane | Toluene |
| | Bromomethane | 1,1-Dichloroethane | 1,1,1-Trichloroethane |
| | 2-Butanone | 1,2-Dichloroethane | 1,1,2-Trichloroethane |
| | Carbon disulfide | 1,1-Dichlorethene | Trichloroethene |
| | Carbon tetrachloride | *cis*-1,2-Dichloroethene | Trichlorofluoromethane |
| | Chlorobenzene | 1,2-Dichloropropane | 1,2,3-Trichloropropane |
| | Chloroethane | Ethyl benzene | *m,p*- xylene (20 µg/kg) |
| | 2-Chloroethyl vinyl ether | Ethyl methacrylate | *o*- xylene |
| | Chloroform | 2-Hexanone | Vinyl acetate |
| | Chloromethane | Iodomethane | Vinyl chloride |
| | *trans*-1,4-Dichloro-2-butene (100 µg/kg) | 4-Methyl-2-pentanone | |
| **(pCi/g)** | **Radionuclides EPA-900** | | |
| 5 | Gross alpha | | |
| | Gross beta | | |
| **(pCi/g)** | **Radionuclides Alpha Spec[b]** | | |
| 0.05 | Americium-241 | | |
| 0.05 | Neptunium-237 | | |
| 0.05 | Plutonium-238 | | |
| 0.05 | Plutonium-239/240 | | |
| 0.05 | Thorium-228 | | |
| 0.05 | Throium-230 | | |
| 0.05 | Thorium-232 | | |
| 0.15 | Uranium-234 | | |
| 0.05 | Uranium-235 | | |
| 0.15 | Uranium-238 | | |
| **(pCi/g)** | **Radionuclides Gamma Spec[b]** | | |
| 0.1 | Cesium-137 | | |
| **(pCi/g)** | **Radionuclides Liquid Scintillation[b]** | | |
| 1 | Technetium-99 | | |

[a] With the exception of aluminum, the reporting limits match those of the BGOU RI/FS Work Plan (DOE 2006). The reporting limit for the aluminum analysis in the Field Sampling Plan of the BGOU RI/FS Work Plan is 10 mg/kg. Compared to the provisional background concentration for aluminum in subsurface soil at the PGDP (12,000 mg/kg), the increase in the reporting limit for aluminum to 20 mg/kg will not impact the conclusions reached using the results of this Field Sampling Plan Addendum.

[b] This procedure is derived from a variety of sources including, but not limited to, *Environmental Measurements Laboratory Procedures Manual* (HASL-300). Equivalent laboratory methods may be used for radiological analyses if the laboratory standard operating procedures have been approved by DOE.

TCL = target compound list

The acetate sleeve and any remaining soil will be handled as investigation-derived waste. Upon the completion of sampling in each borehole, except as discussed in Section 5.3, the field crew will abandon the boreholes by filling them with (dry) bentonite pellets. Available soil moisture will hydrate the pellets.

If obvious contamination (e.g., soil staining or the presence of oil) is observed in the 15 to 18-ft depth sample interval, contingency is available to collect deeper soil samples using the same methodology to further characterize the vertical extent of contamination, down to the top of the Regional Gravel Aquifer at an approximate depth of 55 ft at SWMU 13. The deeper soil sample intervals would be approximately 27 to 30 ft, 37 to 40 ft, and 52 to 55 ft.

**Table A.1. Screening of Sediment Analytical Results Against Background and No Action Level[1]**

| Analysis | Frequency of Detection | Maximum Detected Result | Reporting Limit | Background Value | No Action Level | Exceeds Background? | Exceeds NAL? |
|---|---|---|---|---|---|---|---|
| **Anion (mg/kg)** | | | | | | | |
| Cyanide | 0/1 | ND | 1.40E-01 | NA | 9.18E+01 | NA | 0/1 |
| **Metals (mg/kg)** | | | | | | | |
| Aluminum | 1/1 | 1.40E+04 | NP | 1.30E+04 | 5.25E+03 | 1/1 | 1/1 |
| Antimony | 1/1 | 8.20E-01 | NP | 2.10E-01 | 4.92E-01 | 1/1 | 1/1 |
| Arsenic | 1/1 | 4.20E+00 | NP | 1.20E+01 | 3.24E-01 | 0/1 | 1/1 |
| Barium | 1/1 | 1.20E+02 | NP | 2.00E+02 | 2.72E+02 | 0/1 | 0/1 |
| Beryllium | 1/1 | 5.50E-01 | NP | 6.70E-01 | 1.26E+00 | 0/1 | 0/1 |
| Cadmium | 1/1 | 1.20E+00 | NP | 2.10E-01 | 1.52E+01 | 1/1 | 0/1 |
| Calcium | 1/1 | 3.00E+03 | NP | 2.00E+05 | NA | 0/1 | NA |
| Chromium | 1/1 | 1.90E+01 | NP | 1.60E+01 | 4.76E+02 | 1/1 | 0/1 |
| Cobalt | 1/1 | 3.10E+00 | NP | 1.40E+01 | 1.11E+03 | 0/1 | 0/1 |
| Copper | 1/1 | 4.60E+01 | NP | 1.90E+01 | 4.27E+02 | 1/1 | 0/1 |
| Iron | 1/1 | 1.40E+04 | NP | 2.80E+04 | 2.17E+03 | 0/1 | 1/1 |
| Lead | 1/1 | 3.10E+01 | NP | 3.60E+01 | 5.00E+01 | 0/1 | 0/1 |
| Magnesium | 1/1 | 1.60E+03 | NP | 7.70E+03 | NA | 0/1 | NA |
| Manganese | 1/1 | 2.20E+02 | NP | 1.50E+03 | 5.66E+01 | 0/1 | 1/1 |
| Mercury | 0/1 | ND | 3.40E-02 | 2.00E-01 | 1.17E+00 | 0/1 | 0/1 |
| Molybdenum | 0/1 | ND | 4.10E-01 | NA | 6.60E+01 | NA | 0/1 |
| Nickel | 1/1 | 1.40E+02 | NP | 2.10E+01 | 2.16E+02 | 1/1 | 0/1 |
| Potassium | 0/1 | ND | 8.70E+02 | 1.30E+03 | NA | 0/1 | NA |
| Selenium | 0/1 | ND | 3.90E-01 | 8.00E-01 | 7.13E+01 | 0/1 | 0/1 |
| Silver | 0/1 | ND | 1.60E-01 | 2.30E+00 | 4.12E+01 | 0/1 | 0/1 |
| Sodium | 0/1 | ND | 7.50E+01 | 3.20E+02 | NA | 0/1 | NA |
| Thallium | 0/1 | ND | 1.00E+00 | 2.10E-01 | NA | 0/1 | NA |
| Tin | 0/1 | ND | 1.50E+01 | NA | 3.15E+03 | NA | 0/1 |
| Uranium | 1/1 | 1.30E+02 | NP | 4.90E+00 | 1.13E+01 | 1/1 | 1/1 |
| Vanadium | 1/1 | 2.70E+01 | NP | 3.80E+01 | 4.40E+00 | 0/1 | 1/1 |
| Zinc | 1/1 | 2.40E+02 | NP | 6.50E+01 | 2.66E+03 | 1/1 | 0/1 |
| **Pesticides/PCBs (mg/kg)** | | | | | | | |
| 4,4'-DDD | 0/1 | ND | 1.40E-02 | NA | 2.43E+00 | NA | 0/1 |
| 4,4'-DDE | 0/1 | ND | 1.20E-02 | NA | 1.71E+00 | NA | 0/1 |
| 4,4'-DDT | 0/1 | ND | 8.00E-03 | NA | 1.71E+00 | NA | 0/1 |
| Aldrin | 0/1 | ND | 1.00E-02 | NA | 1.70E-02 | NA | 0/1 |
| alpha-BHC | 0/1 | ND | 8.00E-03 | NA | 9.34E-02 | NA | 0/1 |
| beta-BHC | 0/1 | ND | 1.60E-02 | NA | 3.21E-01 | NA | 0/1 |
| delta-BHC | 0/1 | ND | 1.80E-02 | NA | NA | NA | NA |
| Dieldrin | 0/1 | ND | 1.70E-02 | NA | 1.80E-02 | NA | 0/1 |
| Heptachlor | 0/1 | ND | 7.00E-03 | NA | 7.98E-02 | NA | 0/1 |
| Lindane | 0/1 | ND | 8.00E-03 | NA | 4.53E-01 | NA | 0/1 |
| Methoxychlor | 0/1 | ND | 4.00E-03 | NA | 5.15E+01 | NA | 0/1 |
| PCB-1016 | 1/1 | 5.10E-02 | NP | NA | 1.68E-01 | NA | 0/1 |
| PCB-1221 | 0/1 | ND | 9.00E-03 | NA | 1.68E-01 | NA | 0/1 |
| PCB-1232 | 0/1 | ND | 3.70E-03 | NA | 1.68E-01 | NA | 0/1 |
| PCB-1242 | 0/1 | ND | 2.40E-03 | NA | 1.68E-01 | NA | 0/1 |
| PCB-1248 | 0/1 | ND | 7.40E-04 | NA | 1.68E-01 | NA | 0/1 |
| PCB-1254 | 0/1 | ND | 7.10E-04 | NA | 1.68E-01 | NA | 0/1 |
| PCB-1260 | 1/1 | 1.20E+00 | NP | NA | 1.68E-01 | NA | 1/1 |

**Table A.1. Screening of Sediment Analytical Results Against Background and No Action Level[1] (Continued)**

| Analysis | Frequency of Detection | Maximum Detected Result | Reporting Limit | Background Value | No Action Level | Exceeds Background? | Exceeds NAL? |
|---|---|---|---|---|---|---|---|
| **Radionuclides (pCi/g)** | | | | | | | |
| Alpha activity | 1/2 | 1.02E+02 | NP | NA | NA | NA | NA |
| Beta activity | 1/2 | 2.34E+02 | NP | NA | NA | NA | NA |
| Neptunium-237 | 1/1 | 5.30E-01 | NP | 1.00E-01 | 3.28E-01 | 1/1 | 1/1 |
| Plutonium-239 | 1/1 | 3.00E-02 | NP | 2.50E-02 | 1.63E+00 | 1/1 | 0/1 |
| Technetium-99 | 1/1 | 1.50E+02 | NP | 2.50E+00 | 5.79E+01 | 1/1 | 1/1 |
| Thorium-230 | 1/1 | 1.16E+00 | NP | 1.50E+00 | 2.22E+00 | 0/1 | 0/1 |
| Uranium-234 | 1/1 | 3.57E+01 | NP | 2.50E+00 | 2.84E+00 | 1/1 | 1/1 |
| Uranium-235/236 | 1/1 | 4.12E+00 | NP | 1.40E-01 | 4.55E-01 | 1/1 | 1/1 |
| Uranium-238 | 1/1 | 6.41E+01 | NP | 1.20E+00 | 1.17E+00 | 1/1 | 1/1 |
| **Semivolatile Organics (mg/kg)** | | | | | | | |
| 1,2,4,5-Tetrachlorobenzene | 0/1 | ND | 8.00E-03 | NA | 4.07E+00 | NA | 0/1 |
| 1,2,4-Trichlorobenzene | 0/1 | ND | 1.00E-02 | NA | 8.30E+01 | NA | 0/1 |
| 1,2-Dichlorobenzene | 0/1 | ND | 9.00E-03 | NA | 3.22E+02 | NA | 0/1 |
| 1,2-Diphenylhydrazine | 0/1 | ND | 7.00E-03 | NA | 3.61E-01 | NA | 0/1 |
| 1,3-Dichlorobenzene | 0/1 | ND | 1.00E-02 | NA | 6.82E+00 | NA | 0/1 |
| 1,4-Dichlorobenzene | 0/1 | ND | 9.00E-03 | NA | 5.35E+00 | NA | 0/1 |
| 1-Chloronaphtalene | 0/1 | ND | 1.00E-02 | NA | NA | NA | NA |
| 1-Naphthalenamine | 0/1 | ND | 3.80E-02 | NA | NA | NA | NA |
| 2,3,4,6-Tetrachlorophenol | 0/1 | ND | 1.20E-02 | NA | 3.09E+02 | NA | 0/1 |
| 2,4,5-Trichlorophenol | 0/1 | ND | 9.00E-03 | NA | 1.03E+03 | NA | 0/1 |
| 2,4,6-Trichlorophenol | 0/1 | ND | 1.00E-02 | NA | 2.62E+01 | NA | 0/1 |
| 2,4-Dichlorophenol | 0/1 | ND | 9.00E-03 | NA | 4.13E+01 | NA | 0/1 |
| 2,4-Dimethylphenol | 0/1 | ND | 2.30E-02 | NA | 2.06E+02 | NA | 0/1 |
| 2,4-Dinitrophenol | 0/1 | ND | 4.90E-02 | NA | 3.04E+01 | NA | 0/1 |
| 2,4-Dinitrotoluene | 0/1 | ND | 1.50E-02 | NA | 5.77E-01 | NA | 0/1 |
| 2,6-Dichlorophenol | 0/1 | ND | 1.00E-02 | NA | NA | NA | NA |
| 2,6-Dinitrotoluene | 0/1 | ND | 8.00E-03 | NA | 5.77E-01 | NA | 0/1 |
| 2-Chloronaphthalene | 0/1 | ND | 4.00E-03 | NA | 2.67E+02 | NA | 0/1 |
| 2-Chlorophenol | 0/1 | ND | 1.10E-02 | NA | 2.12E+01 | NA | 0/1 |
| 2-Methyl-4,6-dinitrophenol | 0/1 | ND | 5.20E-02 | NA | NA | NA | NA |
| 2-Methylnaphthalene | 0/1 | ND | 9.00E-03 | NA | NA | NA | NA |
| 2-Methylphenol | 0/1 | ND | 8.00E-03 | NA | 5.15E+02 | NA | 0/1 |
| 2-Methylpyridine | 0/1 | ND | 6.70E-02 | NA | NA | NA | NA |
| 2-Naphthalenamine | 0/1 | ND | 6.60E-02 | NA | NA | NA | NA |
| 2-Nitrobenzenamine | 0/1 | ND | 1.00E-02 | NA | 5.89E-01 | NA | 0/1 |
| 2-Nitrophenol | 0/1 | ND | 9.00E-03 | NA | NA | NA | NA |
| 3,3'-Dichlorobenzidine | 0/1 | ND | 3.60E-02 | NA | 6.41E-01 | NA | 0/1 |
| 3-Methylcholanthrene | 0/1 | ND | 2.00E-02 | NA | NA | NA | NA |
| 3-Nitrobenzenamine | 0/1 | ND | 2.50E-02 | NA | NA | NA | NA |
| 4-Aminobiphenyl | 0/1 | ND | 5.70E-02 | NA | NA | NA | NA |
| 4-Bromophenyl phenyl ether | 0/1 | ND | 8.00E-03 | NA | NA | NA | NA |
| 4-Chloro-3-methylphenol | 0/1 | ND | 1.00E-02 | NA | NA | NA | NA |

**Table A.1. Screening of Sediment Analytical Results Against Background and No Action Level[1] (Continued)**

| Analysis | Frequency of Detection | Maximum Detected Result | Reporting Limit | Background Value | No Action Level | Exceeds Background? | Exceeds NAL? |
|---|---|---|---|---|---|---|---|
| **Semivolatile Organics (mg/kg) (Continued)** | | | | | | | |
| 4-Chlorobenzenamine | 0/1 | ND | 4.70E-02 | NA | 4.12E+01 | NA | 0/1 |
| 4-Chlorophenyl phenyl ether | 0/1 | ND | 7.00E-03 | NA | NA | NA | NA |
| 4-Methylphenol | 0/1 | ND | 8.00E-03 | NA | 6.05E+01 | NA | 0/1 |
| 4-Nitrobenzenamine | 0/1 | ND | 6.60E-02 | NA | NA | NA | NA |
| 4-Nitrophenol | 0/1 | ND | 2.20E-02 | NA | 1.21E+02 | NA | 0/1 |
| 7,12-Dimethy-lbenz(a)anthracene | 0/1 | ND | 8.50E-02 | NA | NA | NA | NA |
| a,a-Dimethy-lphenethylamine | 0/1 | ND | 1.30E-02 | NA | NA | NA | NA |
| Acenaphthene | 0/1 | ND | 8.00E-03 | NA | 3.50E+02 | NA | 0/1 |
| Acenaphthylene | 0/1 | ND | 8.00E-03 | NA | NA | NA | NA |
| Acetophenone | 0/1 | ND | 8.00E-03 | NA | 2.25E-01 | NA | 0/1 |
| Aniline | 0/1 | ND | 5.10E-02 | NA | 5.06E+01 | NA | 0/1 |
| Anthracene | 1/1 | 1.50E-02 | NP | NA | 3.34E+03 | NA | 0/1 |
| Benz(a)anthracene | 1/1 | 5.60E-02 | NP | NA | 2.32E-01 | NA | 0/1 |
| Benzenemethanol | 0/1 | ND | 1.00E-02 | NA | 3.66E+03 | NA | 0/1 |
| Benzidine | 0/1 | ND | 3.27E-01 | NA | 1.65E-03 | NA | 0/1 |
| Benzo(a)pyrene | 1/1 | 5.10E-02 | NP | NA | 2.32E-02 | NA | 1/1 |
| Benzo(b)fluoranthene | 1/1 | 9.60E-02 | NP | NA | 2.32E-01 | NA | 0/1 |
| Benzo(ghi)perylene | 0/1 | ND | 1.90E-02 | NA | NA | NA | NA |
| Benzo(k)fluoranthene | 1/1 | 2.10E-02 | NP | NA | 2.32E+00 | NA | 0/1 |
| Benzoic acid | 0/1 | ND | 1.20E-01 | NA | 6.07E+04 | NA | 0/1 |
| Bis(2-chloroethoxy) methane | 0/1 | ND | 9.00E-03 | NA | NA | NA | NA |
| Bis(2-chloroethyl) ether | 0/1 | ND | 1.10E-02 | NA | 1.09E-01 | NA | 0/1 |
| Bis(2-chloroisopropyl) ether | 0/1 | ND | 5.60E-02 | NA | 4.12E+00 | NA | 0/1 |
| Bis(2-ethylhexyl) phthalate | 1/1 | 2.30E-01 | NP | NA | 1.01E+01 | NA | 0/1 |
| Butyl benzyl phthalate | 0/1 | ND | 1.28E-01 | NA | 2.33E+03 | NA | 0/1 |
| Chrysene | 1/1 | 6.00E-02 | NP | NA | 2.32E+01 | NA | 0/1 |
| Dibenz(a,h)anthracene | 0/1 | ND | 1.20E-02 | NA | 2.32E-02 | NA | 0/1 |
| Dibenzofuran | 0/1 | ND | 4.00E-03 | NA | 2.10E+01 | NA | 0/1 |
| Diethyl phthalate | 0/1 | ND | 1.10E-02 | NA | 1.15E+04 | NA | 0/1 |
| Dimethyl phthalate | 0/1 | ND | 9.00E-03 | NA | 1.00E+05 | NA | 0/1 |
| Di-n-butyl phthalate | 0/1 | ND | 5.90E-02 | NA | 1.52E+03 | NA | 0/1 |
| Di-n-octylphthalate | 0/1 | ND | 1.10E-02 | NA | 2.88E+02 | NA | 0/1 |
| Ethyl methane-sulfonate | 0/1 | ND | 8.00E-03 | NA | NA | NA | NA |
| Fluoranthene | 1/1 | 1.40E-01 | NP | NA | 2.42E+02 | NA | 0/1 |
| Fluorene | 0/1 | ND | 9.00E-03 | NA | 3.38E+02 | NA | 0/1 |
| Hexachlorobenzene | 0/1 | ND | 7.00E-03 | NA | 1.80E-01 | NA | 0/1 |
| Hexachlorobutadiene | 0/1 | ND | 8.00E-03 | NA | 2.06E+00 | NA | 0/1 |
| Hexachlorocyclo-pentadiene | 0/1 | ND | 6.00E-03 | NA | 6.18E+01 | NA | 0/1 |

**Table A.1. Screening of Sediment Analytical Results Against Background and No Action Level[1] (Continued)**

| Analysis | Frequency of Detection | Maximum Detected Result | Reporting Limit | Background Value | No Action Level | Exceeds Background? | Exceeds NAL? |
|---|---|---|---|---|---|---|---|
| **Semivolatile Organics (mg/kg) (Continued)** | | | | | | | |
| Hexachloroethane | 0/1 | ND | 9.00E-03 | NA | 1.03E+01 | NA | 0/1 |
| Indeno(1,2,3-cd)pyrene | 0/1 | ND | 1.30E-02 | NA | 2.32E-01 | NA | 0/1 |
| Isophorone | 0/1 | ND | 9.00E-03 | NA | 3.04E+02 | NA | 0/1 |
| Methyl methane-sulfonate | 0/1 | ND | 6.80E-02 | NA | NA | NA | NA |
| Naphthalene | 0/1 | ND | 1.00E-02 | NA | 3.04E+01 | NA | 0/1 |
| Nitrobenzene | 0/1 | ND | 3.40E-02 | NA | 3.52E+00 | NA | 0/1 |
| N-Nitroso-dimethylamine | 0/1 | ND | 1.70E-02 | NA | 5.66E-03 | NA | 0/1 |
| N-Nitroso-di-n-propylamine | 0/1 | ND | 1.20E-02 | NA | 2.51E-02 | NA | 0/1 |
| N-Nitroso-diphenylamine | 0/1 | ND | 4.00E-03 | NA | 3.59E+01 | NA | 0/1 |
| N-Nitrosopiperidine | 0/1 | ND | 8.00E-03 | NA | NA | NA | NA |
| p-Dimethyl-aminoazobenzene | 0/1 | ND | 2.00E-02 | NA | NA | NA | NA |
| Pentachlorobenzene | 0/1 | ND | 9.00E-03 | NA | 1.09E+01 | NA | 0/1 |
| Pentachloronitrobenzene | 0/1 | ND | 1.30E-02 | NA | 1.46E+00 | NA | 0/1 |
| Pentachlorophenol | 0/1 | ND | 9.00E-03 | NA | 2.07E+00 | NA | 0/1 |
| Phenacetin | 0/1 | ND | 1.40E-02 | NA | NA | NA | NA |
| Phenanthrene | 1/1 | 8.40E-02 | NP | NA | NA | NA | NA |
| Phenol | 0/1 | ND | 9.00E-03 | NA | 8.65E+03 | NA | 0/1 |
| Pronamide | 0/1 | ND | 1.20E-02 | NA | 7.73E+02 | NA | 0/1 |
| Pyrene | 1/1 | 1.10E-01 | NP | NA | 1.81E+02 | NA | 0/1 |
| Pyridine | 0/1 | ND | 5.30E-02 | NA | 1.03E+01 | NA | 0/1 |

[1] Background and No Action (excavation worker scenario) values are derived from the PGDP Risk Methods Document (DOE 2001). The listed background values are for soil as there are no background values for sediment in the referenced document.
ND = not detected
NA = not applicable
NAL = no action level
NP = not provided (Reporting limits were not provided by the analytical laboratory when a detection was reported.)