

APPENDIX F.

**Letter Report for Well Cuttings, Drilling Decontamination Water and
Recovered Drilling Water and Ohio EPA Approval Form**



SAIC Engineering of Ohio, Inc.
A subsidiary of Science Applications International Corporation

June 4, 2009

Mr. Mark Nichter
U.S. Army Corps of Engineers, Louisville District
ATTN: CELRL-PM-P-E
600 Martin Luther King, Jr. Place
Louisville, Kentucky 40202-0059

Reference: Contract No. W912QR-04-D-0028, Delivery Order 0001, 2008 Performance-Based Acquisition (PBA) for Environmental Investigation and Remediation at the Ravenna Army Ammunition Plant (RVAAP), Ravenna, Ohio

Subject: Contract Line Item (CLIN) 3.2– Implementation of Well Installation Work Plan into the Basal Sharon Conglomerate, Characterization and Disposal Letter Report for Well Cuttings, Drilling Decontamination Water, and Recovered Drilling Water

Dear Mr. Nichter:

Drilling activities for the Deep Bedrock Wells for the Sharon Conglomerate (installation of monitoring wells SCFmw-001 through SCFmw-006) were completed on March 27, 2009. These activities resulted in the generation of IDW consisting of soil and rock cuttings, recovered groundwater from the wells, and decontamination water from drilling operations. The purpose of this letter is to characterize and classify IDW for disposal and to propose methods for disposing the IDW.

This report includes a summary of IDW generated and its origin (Table 1) and classification of the IDW and recommendations for disposal (Table 4). IDW streams include:

- Ninety-seven (97), 55-gallon drums containing soil and rock cuttings;
- One (1), 10,000-gallon Frac tank containing recovered groundwater from drilling operations, drill rig decontamination water, and well development water; and
- Two (2), 21,000-gallon Frac tanks containing recovered groundwater during drilling operations and well development water.

Table 1. Summary of Investigation-Derived Wastes from Deep Bedrock Wells Installation In The Basal Sharon Conglomerate.

Container Number	Container Type	Contents	Generation Date
Fractank-L1	10000 Gallon Steel Frac Tank	Drilling Recovery Water, Well Development Water, and Decontamination Water	02/11/09 – 03/05/09
Fractank-L2	21000 Gallon Steel Frac Tank	Drilling Recovery Water and Well Development Water	03/05/09 – 03/28/09
Fractank-L3	21000 Gallon Steel Frac Tank	Drilling Recovery Water and Well Development Water	03/11/09 – 03/28/09
SCFmw-001-S1	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/17/09
SCFmw-001-S2	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/17/09
SCFmw-001-S3	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/17/09
SCFmw-001-S4	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/17/09
SCFmw-001-S5	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/17/09
SCFmw-001-S6	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/17/09
SCFmw-001-S7	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/17/09
SCFmw-001-S8	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/17/09
SCFmw-001-S9	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/17/09
SCFmw-001-S10	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/17/09
SCFmw-001-S11	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/17/09 – 03/18/09
SCFmw-001-S12	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/17/09
SCFmw-001-S13	55- Gallon Open Top Drum	Soil - Rock Cuttings	03/18/09
SCFmw-001-S14	55- Gallon Open Top Drum	Soil - Rock Cuttings	03/18/09 – 03/19/09
SCFmw-001-S15	55- Gallon Open Top Drum	Soil - Rock Cuttings	03/19/09
SCFmw-002-S1	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/10/09
SCFmw-002-S2	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/10/09
SCFmw-002-S3	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/10/09
SCFmw-002-S4	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/10/09
SCFmw-002-S5	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/10/09
SCFmw-002-S6	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/10/09
SCFmw-002-S7	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/10/09 – 02/11/09
SCFmw-002-S8	55- Gallon Open Top Drum	Soil - Rock Cuttings	03/16/09
SCFmw-003-S1	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/16/09
SCFmw-003-S2	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/16/09
SCFmw-003-S3	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/16/09
SCFmw-003-S4	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/16/09
SCFmw-003-S5	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/16/09
SCFmw-003-S6	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/16/09 – 03/12/09
SCFmw-003-S7	55- Gallon Open Top Drum	Soil - Rock Cuttings	03/12/09
SCFmw-003-S8	55- Gallon Open Top Drum	Soil - Rock Cuttings	03/12/09
SCFmw-004-01	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/11/09
SCFmw-004-02	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/11/09
SCFmw-004-03	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/11/09
SCFmw-004-04	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/11/09

Table 1. Summary of Investigation-Derived Wastes from Deep Bedrock Wells Installation In The Basal Sharon Conglomerate (continued)

Container Number	Container Type	Contents	Generation Date
SCFmw-004-05	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/11/09
SCFmw-004-06	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/11/09
SCFmw-004-07	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/12/09
SCFmw-004-08	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/12/09
SCFmw-004-09	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/12/09
SCFmw-004-10	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/12/09
SCFmw-004-11	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/12/09
SCFmw-004-12	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/12/09
SCFmw-004-13	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/12/09
SCFmw-004-14	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/11/09 – 02/20/09
SCFmw-004-15	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/20/09
SCFmw-004-16	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/20/09
SCFmw-004-17	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/20/09
SCFmw-004-18	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/24/09
SCFmw-004-19	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/24/09
SCFmw-004-20	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/24/09
SCFmw-004-21	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/25/09
SCFmw-004-22	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/25/09
SCFmw-004-23	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/25/09
SCFmw-004-24	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/25/09
SCFmw-004-25	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/26/09
SCFmw-004-26	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/26/09
SCFmw-004-27	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/26/09
SCFmw-004-28	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/26/09
SCFmw-004-29	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/26/09
SCFmw-004-30	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/26/09
SCFmw-004-31	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/26/09
SCFmw-004-32	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/26/09
SCFmw-004-33	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/26/09
SCFmw-004-34	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/26/09
SCFmw-004-35	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/26/09
SCFmw-004-36	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/26/09
SCFmw-004-37	55- Gallon Open Top Drum	Soil - Rock Cuttings	03/06/09 – 03/09/09
SCFmw-004-38	55- Gallon Open Top Drum	Soil - Rock Cuttings	03/06/09 – 03/09/09
SCFmw-005-S1	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/13/09
SCFmw-005-S2	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/13/09
SCFmw-005-S3	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/13/09
SCFmw-005-S4	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/13/09
SCFmw-005-S5	55- Gallon Open Top Drum	Soil - Rock Cuttings	03/04/09 – 03/05/09
SCFmw-005-S6	55- Gallon Open Top Drum	Soil - Rock Cuttings	03/04/09 – 03/05/09

Table 1. Summary of Investigation-Derived Wastes from Deep Bedrock Wells Installation In The Basal Sharon Conglomerate (continued)

Container Number	Container Type	Contents	Generation Date
SCFmw-005-07	55- Gallon Open Top Drum	Soil - Rock Cuttings	03/09/09
SCFmw-005-08	55- Gallon Open Top Drum	Soil - Rock Cuttings	03/10/09
SCFmw-005-09	55- Gallon Open Top Drum	Soil - Rock Cuttings	03/10/09
SCFmw-005-10	55- Gallon Open Top Drum	Soil - Rock Cuttings	03/10/09
SCFmw-005-11	55- Gallon Open Top Drum	Soil - Rock Cuttings	03/10/09
SCFmw-005-12	55- Gallon Open Top Drum	Soil - Rock Cuttings	03/10/09
SCFmw-006-01	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/18/09
SCFmw-006-02	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/18/09
SCFmw-006-03	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/18/09
SCFmw-006-04	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/19/09 – 02/23/09
SCFmw-006-05	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/19/09 – 02/23/09
SCFmw-006-06	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/19/09 – 02/23/09
SCFmw-006-07	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/19/09 – 02/23/09
SCFmw-006-08	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/19/09 – 02/23/09
SCFmw-006-09	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/19/09 – 02/23/09
SCFmw-006-10	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/19/09 – 02/23/09
SCFmw-006-11	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/23/09
SCFmw-006-12	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/23/09
SCFmw-006-13	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/23/09
SCFmw-006-14	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/26/09
SCFmw-006-15	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/26/09
SCFmw-006-16	55- Gallon Open Top Drum	Soil - Rock Cuttings	02/26/09

This document follows guidance established by the Facility-Wide Sampling and Analysis Plan (SAP) (USACE 2001), the Sampling and Analysis Plan Addendum No. 1 for the Deep Bedrock Well Installation in the Basal Sharon Conglomerate (December 2008), and Ohio Environmental Protection Agency (Ohio EPA) guidance (November 1997) regarding IDW disposition at RVAAP.

Liquid IDW Discussion

Table 2 presents details of the sample identifier and the location of the three Frac Tanks.

Table 2. Frac Tank Sample Identifier and Location

Frac Tank	Sample ID	Location of Frac Tank
Frac Tank 1	SCFww-001-0004-WW	Behind Building 1036
Frac Tank 2	SCFww-002-0005-WW	South Service Road Near Building 28-808
Frac Tank 3	SCFww-003-0006-WW	Atlas Scrap Yard

Per Section 7 of the Facility-Wide SAP, non-indigenous IDW is characterized for disposal on the basis of composite samples collected from segregated waste stream storage containers. In addition, Ohio EPA allows for the characterization of indigenous IDW (groundwater) to be characterized for

disposal on the basis of composite samples collected from segregated waste stream storage containers. Composite waste samples were collected and submitted for laboratory analysis to characterize each waste stream for disposal.

Each sample was submitted for TCLP analysis and for the RVAAP full suite analysis. Upon receipt of analytical results from the laboratory, the analytical results were reviewed to determine if any potentially hazardous waste existed and to compare the results to drinking water standards. This review consisted of a comparison of the analytical results against the Toxicity Characteristic Leaching Procedure (TCLP) criteria presented in Table 7-1, Maximum Concentration of Contaminants for the Toxicity Characteristic (40 *CFR* 261.24), as presented in the Facility-Wide SAP (USACE 2001) and against Maximum Contaminant Levels (MCLs), USEPA Risk Screening Levels (RSLs) for tap water and/or site specific background levels for RVAAP.

Attachment 1 presents the analytical laboratory data for direct analysis of TCLP parameters and the RVAAP full suite parameters in IDW water generated during the field activities. The following bullets summarize these sample results:

- All TCLP analytical results were below reporting limits for the IDW liquid samples (SCFww-001-0004-WW, SCFww-002-0005-WW and SCFww-003-0006-WW). Reactive sulfide and reactive cyanide were not present in any of the three samples.
- For the RVAAP full suite analysis, minor detects for organic chemicals exceeding the reporting limits were found in two (SCFww-001-0004-WW and SCFww-003-0006-WW) of the three IDW liquid samples. The concentrations of detected organic chemicals relative to the MCLs or RSLs are presented in Table 3.

Table 3. Concentrations and Screening Criterion of Detectable Organic Chemicals in Liquid IDW

Chemical	Concentration (mg/L)	Reporting Limit (mg/L)	Screening Level (mg/L)	MCL or RSL?	Concentration Above Screening Level (Y/N)?
<i>Sample SCFww-001-0004-WW (Frac Tank 1)</i>					
Toluene	0.0031	0.001	1.0	MCL	No
Acetone	0.015	0.01	2.2	RSL	No
Di-n-butyl phthalate	0.0024	0.001	0.37	RSL	No
<i>Sample SCFww-003-0006-WW (Frac Tank 3)</i>					
Total Xylenes	0.0023	0.001	0.02	RSL	No
Bis (2-ethylhexyl) phthalate	0.0017	0.001	0.0048	RSL	No
2-Methylnaphthalene	0.00043	0.0002	0.015	RSL	No
Naphthalene	0.00027	0.0002	0.00014	RSL	Yes

- Numerous metals results for all three samples exceeded the laboratory reporting limits. Those metals exceeding the MCLs and/or RSLs, if a standard existed were: Aluminum (0.114-8.67 mg/L), Arsenic (0.005-0.0234 mg/L), Calcium (44.7-53.3 mg/L), Cobalt (0.0095-0.0178 mg/L), Potassium (3.6-18.2 mg/L), Magnesium (19.6-36.0 mg/L), Manganese (0.335-1.51 mg/L), Sodium (13.6-15.7 mg/L), and Iron (30.1 mg/L). However, calcium, potassium, magnesium, sodium, and iron are considered essential nutrients and not indicative of contamination. Aluminum exceeded the RSL but was below the RVAAP background value of 9.41 mg/L. Arsenic concentrations only in Tank# Fractank-L1 (0.0234 mg/L) slightly

exceeded the RVAAP background value for groundwater (0.0191 mg/L). The RVAAP background value for manganese in groundwater is 1.26 mg/L and only the result from Tank # Fractank-L1 slightly exceeded this value (1.51J mg/L).

Although the arsenic concentration (0.0235 mg/L J) and the manganese concentration (1.51 mg/L J) exceeded RSL and/or MCLs in Fractank-L1, the estimated concentrations in the unfiltered IDW sample only slightly exceeded background concentrations (0.0191 mg/L for arsenic and 1.26 mg/L for manganese). Although, naphthalene slightly exceeded the Tap Water RSL in Tank# Fractank-L3, it was not identified as RVAAP facility-wide COPC in groundwater because it had not been previously detected above EPA RSLs and; therefore, it does not have a RVAAP-specific CUG. Given the observed analytical results, it is recommended that the liquid IDW be classified as non-hazardous, non-contaminated.

Soil IDW Discussion

Per Section 7 of the Facility-Wide SAP, indigenous IDW contained in drums are characterized for disposal on the basis of composite samples collected and submitted for TCLP analysis and the RVAAP full suite analysis. One composite sample was collected from the drums of soil and rock cuttings at each well site and/or boring. A total of 7 composite samples were collected, SCFmw-001-0008-WS, SCFmw-002-0009-WS, SCFmw-003-0010-WS, SCFmw-004-0011-WS, SCFmw-004-0012-WS, SCFmw-005-0013-WS, and SCFmw-006-0014-WS. The composite sample was collected from all of the drums located at each well site. Two composite samples were collected at SCFmw-004 because the first boring had to be abandoned due to site conditions and a second boring was needed to complete the well installation. A composite sample was collected from the drums for each borehole at SCFmw-004. Attachment 2 presents the analytical laboratory data for TCLP and RVAAP full suite analysis for IDW soil cuttings. Upon receipt from the laboratory, the analytical results were compared to the TCLP criteria presented in Table 7-1, Maximum Concentration of Contaminants for the Toxicity Characteristic (40 *CFR* 261.24), as presented in the Facility-Wide SAP (USACE 2001) and USEPA Risk Screening Levels (RSLs) for residential soils and/or site specific background levels for RVAAP.

Samples for all solid IDW containers showed that none of the concentrations exceeded the TCLP regulatory levels for characteristically hazardous wastes (Attachment 2). The flashpoint was above 180 degrees F in each sample. Reactive sulfide was not detected in any sample. Reactive cyanide was detected in only one sample (sample SCFmw-003-0010-WS) at a concentration of 0.31B mg/kg, which is below the reporting limit.

For the RVAAP full suite composite samples many metals were detected above EPA RSLs, however, only 3 metals exceeded background: Chromium in SCFmw-004, Iron in SCFmw-001, and Mercury in SCFmw-003, although this result was less than EPA RSL. No organics detections were above RSLs, although there were two SVOCs detected that did not have RSLs, Benzo(G,H,I)perylene and Phenanthrene.

Based on these data, IDW contained in these containers are considered non-hazardous, non-contaminated solid waste.

Recommended Disposal Pathways for IDW

Table 4 presents the disposal pathway determined as a result of IDW characterization data. Please note that this IDW has been characterized under provisions of the Facility-Wide SAP using TCLP analysis for liquid and solids and RVAAP full suite analysis for liquid and solids. Unless RVAAP has additional information that would result in the IDW meeting, or containing materials that meet the definition of a listed hazardous waste as defined in 40 *CFR* Part 261 Subpart D, it is recommended that the liquid IDW, as presently characterized, be disposed as non-hazardous, non-contaminated waste and the solid IDW be disposed as non-hazardous, non-contaminated waste.

The soil drums will be removed from the site by a waste hauling contractor to a permitted facility. SAIC proposes to contract for the removal of the IDW solid drums from RVAAP provided that RVAAP and Ohio EPA concur with the preliminary characterization and that no Resource Conservation and Recovery Act (RCRA) listings apply.

SAIC proposes to land apply the liquid IDW near the locations where the Frac tanks are currently staged provided that RVAAP and Ohio EPA concur with the preliminary characterization and that no Resource Conservation and Recovery Act (RCRA) listings apply. The liquid IDW will be pumped or gravity fed from the Frac tanks through a series of bag filters at the end of each outlet hose. Liquid IDW will pass through a 100 µm bag filter then through a 10 µm bag filter before being discharged to a well vegetated area. Bales of straw may also be employed as a further filtering mechanism and to prevent erosion. The IDW liquid will be released at a rate that will prevent ponding of water and/or runoff and will not be released directly to surface water features, such as creeks, ditches, or streams, or to storm/sanitary sewer lines. Prior to initiating land application of the liquid IDW, the procedure and setup will be reviewed by the RVAAP Facility Manager or designee for final approval.

Since RVAAP, under RCRA, is the generator of this material, SAIC requests concurrence or direction on the waste classification and recommended disposal pathways prior to actual disposal to ensure that the materials are properly disposed. Following your direction and immediate approval, we will proceed with the appropriate waste disposal.

If you have any questions, or require additional information, please do not hesitate to contact me at (614) 439-1812

Sincerely,

SCIENCE APPLICATIONS INTERNATIONAL CORPORATION



Paul Parrish
Task Manager

Mr. Mark Nichter

June 4, 2009

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cc: Vicki Deppisch – Ohio EPA
Katie Elgin - OHARNG
Eileen Mohr – Ohio EPA
Mark Nichter – USACE
Mark Patterson – RVAAP
Kevin Jago – SAIC
Jed Thomas – SAIC
SAIC Contract No. W912QR-04-D-0028 Project File
SAIC Central Records Facility

Table 4. Summary of Final Waste Classification and Recommended Disposal

NON-HAZARDOUS WASTE			
Container Number	Medium	Waste Criterion	Disposal Recommendation
Fractank-L1	Water	Inorganics, organics	Land Application
Fractank-L2	Water	Inorganics, organics	Land Application
Fractank-L3	Water	Inorganics, organics	Land Application
SCFmw-001-S1	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-001-S2	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-001-S3	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-001-S4	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-001-S5	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-001-S6	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-001-S7	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-001-S8	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-001-S9	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-001-S10	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-001-S11	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-001-S12	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-001-S13	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-001-S14	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-001-S15	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-002-S1	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-002-S2	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-002-S3	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-002-S4	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-002-S5	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-002-S6	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-002-S7	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-002-S8	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-003-S1	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-003-S2	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-003-S3	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-003-S4	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-003-S5	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-003-S6	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-003-S7	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-003-S8	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S1	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S2	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S3	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S4	Solid	Inorganics, organics	Permitted Solid Waste Facility

Table 4. Summary of Final Waste Classification and Recommended Disposal (continued)

NON-HAZARDOUS WASTE			
Container Number	Medium	Waste Criterion	Disposal Recommendation
SCFmw-004-S5	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S6	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S7	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S8	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S9	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S10	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S11	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S12	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S13	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S14	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S15	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S16	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S17	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S18	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S19	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S20	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S21	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S22	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S23	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S24	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S25	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S26	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S27	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S28	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S29	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S30	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S31	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S32	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S33	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S34	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S35	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S36	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S37	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-004-S38	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-005-S1	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-005-S2	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-005-S3	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-005-S4	Solid	Inorganics, organics	Permitted Solid Waste Facility

Table 4. Summary of Final Waste Classification and Recommended Disposal (continued)

NON-HAZARDOUS WASTE			
Container Number	Medium	Waste Criterion	Disposal Recommendation
SCFmw-005-S5	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-005-S6	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-005-S7	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-005-S8	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-005-S9	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-005-S10	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-005-S11	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-005-S12	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-006-S1	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-006-S2	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-006-S3	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-006-S4	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-006-S5	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-006-S6	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-006-S7	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-006-S8	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-006-S9	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-006-S10	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-006-S11	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-006-S12	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-006-S13	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-006-S14	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-006-S15	Solid	Inorganics, organics	Permitted Solid Waste Facility
SCFmw-006-S16	Solid	Inorganics, organics	Permitted Solid Waste Facility

ATTACHMENT 1
ANALYTICAL RESULTS FOR LIQUID IDW
DEEP BEDROCK WELL INSTALLATION IN THE SHARON CONGLOMERATE
FIELD ACTIVITIES
FEBRUARY - MARCH 2009

Results for Liquid IDW Samples from Sharon Conglomerate Well Installation

Area Station Sample Id Collection Date	CAS Number	Units	USEPA Regional Screening Level	MCL	Background Criteria	Maximum Concentration of Contaminants for the Toxicity Characteristic	SCF Fractank - L1 SCF _{ww-001-0004-WW} 03/27/2009	SCF Fractank - L2 SCF _{ww-002-0005-WW} 03/27/2009	SCF Fractank - L3 SCF _{ww-003-0006-WW} 03/27/2009
<i>Anions</i>									
NITROGEN, NITRATE-NITRITE	NO3NO2N	mg/L	-	-		NA	0.07 J	0.04 J	<0.1 U
<i>Metals</i>									
Aluminum	7429905	mg/L	3.7	-	9.41	NA	8.67	0.337	0.114
Antimony	7440360	mg/L	0.0015	0.006	0	NA	0.00086 J	0.00079 J	0.0015 J
Arsenic	7440382	mg/L	0.000045	0.01	0.0191	NA	0.0234	0.005	0.0032 J
Barium	7440393	mg/L	0.73	2	0.241	NA	0.0765 J	0.0319 J	0.0438 J
Beryllium	7440417	mg/L	0.0073	0.004	0	NA	0.001	<0.001 U	<0.001 U
Cadmium	7440439	mg/L	0.0018	0.005	0	NA	0.00067 J	<0.001 U	<0.001 U
Calcium	7440702	mg/L	-	-	48.2	NA	44.7 J	53.3 J	51.4 J
Chromium	7440473	mg/L	0.011	0.1	0.0195	NA	0.0176	<0.005 U	<0.005 U
Cobalt	7440484	mg/L	0.0011	-	0	NA	0.0178	0.0095	<0.005 U
Copper	7440508	mg/L	0.15	1.3	0.017	NA	0.0166	<0.005 U	<0.005 U
Iron	7439896	mg/L	2.6	-	21.5	NA	30.1 J	0.95 J	0.244 J
Lead	7439921	mg/L	0.015	0.015	0.023	NA	0.0139	<0.003 U	<0.003 U
Magnesium	7439954	mg/L	-	-	13.7	NA	36 J	33.8 J	19.6 J
Manganese	7439965	mg/L	0.088	-	1.26	NA	1.51 J	0.958 J	0.335 J
Mercury	7439976	mg/L	0.000063	0.002	0	NA	<0.0002 U	<0.0002 U	<0.0002 U
Nickel	7440020	mg/L	0.073	-	0.0853	NA	0.0601	0.0309 J	0.0069 J
Potassium	7440097	mg/L	-	-	6.06	NA	6.4 J	18.2 J	3.6 J
Selenium	7782492	mg/L	0.018	0.05	0	NA	<0.005 U	<0.005 U	<0.005 U
Silver	7440224	mg/L	0.018	-	0	NA	<0.005 U	<0.005 U	<0.005 U
Sodium	7440235	mg/L	-	-	49.7	NA	13.6	14.5	15.7
Thallium	7440280	mg/L	0.00024	0.002	0	NA	0.00028 J	<0.002 U	<0.002 U
Vanadium	7440622	mg/L	0.026	-	0.0155	NA	0.0248 J	0.00087 J	<0.05 U
Zinc	7440666	mg/L	1.1	-	0.193	NA	0.0955 J	0.0097 J	0.0024 J
<i>Miscellaneous</i>									
CYANIDE	57125	mg/L	0.073	0.2		NA	<0.01 U	<0.01 U	<0.01 U
SULFIDE	18496258	mg/L	-	-		NA	<3 U	<3 U	<3 U
<i>Organics - Explosives</i>									
1,3,5-Trinitrobenzene	99354	mg/L	0.11	-	*	NA	<0.0002 U	<0.00021	<0.0002 U
1,3-Dinitrobenzene	99650	mg/L	0.00037	-	*	NA	<0.0002 U	<0.00021	<0.0002 U
2,4,6-TNT	118967	mg/L	0.0018	-	*	NA	<0.0002 U	<0.00021	<0.0002 U
2,4-Dinitrotoluene	121142	mg/L	0.0073	-	*	NA	<0.0001 U	<0.0001 U	<0.0001 U

Results for Liquid IDW Samples from Sharon Conglomerate Well Installation (continued)

Area Station Sample Id Collection Date	CAS Number	Units	USEPA Regional Screening Level	MCL	Background Criteria	Maximum Concentration of Contaminants for the Toxicity Characteristic	SCF Fractank - L1 SCF_{ww}-001-0004-WW 03/27/2009	SCF Fractank - L2 SCF_{ww}-002-0005-WW 03/27/2009	SCF Fractank - L3 SCF_{ww}-003-0006-WW 03/27/2009
2,6-Dinitrotoluene	606202	mg/L	0.0037	-	*	NA	<0.0001 U	<0.0001 U	<0.0001 U
2-Amino-4,6-dinitrotoluene	35572782	mg/L	0.0073	-	*	NA	<0.0002 U	<0.00021	<0.0002 U
2-Nitrotoluene	88722	mg/L	0.00031	-	*	NA	<0.0005 U	<0.00052	<0.0005 U
3-Nitrotoluene	99081	mg/L	0.073	-	*	NA	<0.0005 U	<0.00052	<0.0005 U
4-Amino-2,6-dinitrotoluene	1946510	mg/L	-	-	*	NA	<0.0002 U	<0.00021	<0.0002 U
4-Nitrotoluene	99990	mg/L	0.0042	-	*	NA	<0.0005 U	<0.00052	<0.0005 U
HMX	2691410	mg/L	0.18	-	*	NA	<0.0005 U	<0.00052	0.00004 J
NITROGLYCERINE	55630	mg/L	0.00037	-	*	NA	<0.003 U	<0.0031 U	0.00047 J
Nitrobenzene	98953	mg/L	0.00034	-	*	NA	<0.0002 U	<0.00021	0.0002
Nitrocellulose	9004700	mg/L	-	-	*	NA	<0.5 U	<0.5 U	<0.5 U
Nitroguanidine	556887	mg/L	0.37	-	*	NA	<0.02 U	<0.02 U	<0.02 U
Pentaerythritol Tetranitrate (PETN)	78115	mg/L	-	-	*	NA	<0.003 U	<0.0031 U	<0.003 U
RDX	121824	mg/L	0.00061	-	*	NA	<0.0005 U	<0.00052	<0.0005 U
Tetryl	479458	mg/L	0.015	-	*	NA	<0.0002 U	<0.00021	<0.0002 U
Organics - Pesticide/PCB									
4,4'-DDD	72548	mg/L	0.00028	-	*	NA	<0.00005	<0.00005	<0.00005
4,4'-DDE	72559	mg/L	0.0002	-	*	NA	<0.00005	<0.00005	<0.00005
4,4'-DDT	50293	mg/L	0.0002	-	*	NA	<0.00005	<0.00005	<0.00005
AROCLOR 1016	12674112	mg/L	0.00026	-	*	NA	<0.0005 U	<0.0005 U	<0.0005 U
AROCLOR 1221	11104282	mg/L	0.0000068	0.0005	*	NA	<0.0005 U	<0.0005 U	<0.0005 U
AROCLOR 1232	11141165	mg/L	0.0000068	0.0005	*	NA	<0.0005 U	<0.0005 U	<0.0005 U
AROCLOR 1248	12672296	mg/L	0.000034	0.0005	*	NA	<0.0005 U	<0.0005 U	<0.0005 U
AROCLOR 1254	11097691	mg/L	0.000034	0.0005	*	NA	<0.0005 U	<0.0005 U	<0.0005 U
AROCLOR 1260	11096825	mg/L	0.000034	0.0005	*	NA	<0.0005 U	<0.0005 U	<0.0005 U
Aldrin	309002	mg/L	0.000004	-	*	NA	<0.00005	<0.00005	<0.00005
Aroclor 1242	53469219	mg/L	0.000034	0.0005	*	NA	<0.0005 U	<0.0005 U	<0.0005 U
Dieldrin	60571	mg/L	0.0000042	-	*	NA	<0.00005	<0.00005	<0.00005
Endosulfan I	959988	mg/L	0.022	-	*	NA	<0.00005	<0.00005	<0.00005
Endosulfan II	33213659	mg/L	0.022	-	*	NA	<0.00005	<0.00005	<0.00005
Endosulfan sulfate	1031078	mg/L	0.022	-	*	NA	<0.00005	<0.00005	<0.00005
Endrin	72208	mg/L	0.0011	0.002	*	NA	<0.00005	<0.00005	<0.00005
Endrin aldehyde	7421934	mg/L	0.0011	0.002	*	NA	<0.00005	<0.00005	<0.00005
Endrin ketone	53494705	mg/L	0.0011	0.002	*	NA	<0.00005	<0.00005	<0.00005
GAMMA-BHC	58899	mg/L	0.000061	0.0002	*	NA	<0.00005	<0.00005	<0.00005

Results for Liquid IDW Samples from Sharon Conglomerate Well Installation (continued)

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Heptachlor	76448	mg/L	0.000015	0.0004	*	NA	<0.00005	<0.00005	<0.00005
Heptachlor epoxide	1024573	mg/L	0.0000074	0.0002	*	NA	<0.00005	<0.00005	<0.00005
Methoxychlor	72435	mg/L	0.018	0.04	*	NA	<0.0001 U	<0.0001 U	<0.0001 U
Toxaphene	8001352	mg/L	0.000061	0.003	*	NA	<0.002 U	<0.002 U	<0.002 U
alpha-BHC	319846	mg/L	0.000011	-	*	NA	<0.00005	<0.00005	<0.00005
alpha-Chlordane	5103719	mg/L	0.00019	0.002	*	NA	<0.00005	<0.00005	<0.00005
beta-BHC	319857	mg/L	0.000037	-	*	NA	<0.00005	0.00001 J	0.00002 J
delta-BHC	319868	mg/L	-	-	*	NA	<0.00005	<0.00005	<0.00005
gamma-Chlordane	5103742	mg/L	0.00019	0.002	*	NA	<0.00005	<0.00005	<0.00005
Organics - Semivolatile									
1,2,4-Trichlorobenzene	120821	mg/L	0.00082	0.07	*	NA	<0.001 U	<0.001 U	<0.001 U
1,2-Dichlorobenzene	95501	mg/L	0.037	0.6	*	NA	<0.001 U	<0.001 U	<0.001 U
1,3-Dichlorobenzene	541731	mg/L	-	-	*	NA	<0.001 U	<0.001 U	<0.001 U
1,4-Dichlorobenzene	106467	mg/L	0.00043	0.075	*	NA	<0.001 U	<0.001 U	<0.001 U
2,2-OXYBIS (1-CHLOROPROPANE)	108601	mg/L	0.00032	-	*	NA	<0.001 U	<0.001 U	<0.001 U
2,4,5-Trichlorophenol	95954	mg/L	0.37	-	*	NA	<0.005 U	<0.005 U	<0.005 U
2,4,6-Trichlorophenol	88062	mg/L	0.0037	-	*	NA	<0.005 U	<0.005 U	<0.005 U
2,4-Dichlorophenol	120832	mg/L	0.011	-	*	NA	<0.002 U	<0.002 U	<0.002 U
2,4-Dimethylphenol	105679	mg/L	0.073	-	*	NA	<0.002 U	<0.002 U	<0.002 U
2,4-Dinitrophenol	51285	mg/L	0.0073	-	*	NA	<0.005 U	<0.005 U	<0.005 U
2,4-Dinitrotoluene	121142	mg/L	0.0073	-	*	NA	<0.005 U	<0.005 U	<0.005 U
2,6-Dinitrotoluene	606202	mg/L	0.0037	-	*	NA	<0.005 U	<0.005 U	<0.005 U
2-Chloronaphthalene	91587	mg/L	0.29	-	*	NA	<0.001 U	<0.001 U	<0.001 U
2-Chlorophenol	95578	mg/L	0.018	-	*	NA	<0.001 U	<0.001 U	<0.001 U
2-METHYLPHENOL	95487	mg/L	0.18	-	*	NA	<0.001 U	<0.001 U	<0.001 U
2-Methylnaphthalene	91576	mg/L	0.015	-	*	NA	<0.0002 U	<0.0002 U	0.00043
2-Nitroaniline	88744	mg/L	-	-	*	NA	<0.002 U	<0.002 U	<0.002 U
2-Nitrophenol	88755	mg/L	-	-	*	NA	<0.002 U	<0.002 U	<0.002 U
3,3'-Dichlorobenzidine	91941	mg/L	0.00015	-	*	NA	<0.005 U	<0.005 U	<0.005 U
3-Nitroaniline	99092	mg/L	0.0011	-	*	NA	<0.002 U	<0.002 U	<0.002 U
3-methylphenol/4-methylphenol	65794969	mg/L	-	-	*	NA	<0.002 U	<0.002 U	<0.002 U
4,6-Dinitro-2-methylphenol	534521	mg/L	0.00037	-	*	NA	<0.005 U	<0.005 U	<0.005 U
4-BROMOPHENYL-PHENYLEETHER	101553	mg/L	-	-	*	NA	<0.002 U	<0.002 U	<0.002 U
4-CHLOROPHENYL-PHENYLEETHER	7005723	mg/L	-	-	*	NA	<0.002 U	<0.002 U	<0.002 U

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4-Chloro-3-methylphenol	59507	mg/L	-	-	*	NA	<0.002 U	<0.002 U	<0.002 U
4-Chloroaniline	106478	mg/L	0.0012	-	*	NA	<0.002 U	<0.002 U	<0.002 U
4-Nitroaniline	100016	mg/L	0.0032	-	*	NA	<0.002 U	<0.002 U	<0.002 U
4-Nitrophenol	100027	mg/L	-	-	*	NA	<0.005 U	<0.005 U	<0.005 U
Acenaphthene	83329	mg/L	0.22	-	*	NA	<0.0002 U	<0.0002 U	<0.0002 U
Acenaphthylene	208968	mg/L	-	-	*	NA	<0.0002 U	<0.0002 U	<0.0002 U
Anthracene	120127	mg/L	1.1	-	*	NA	<0.0002 U	<0.0002 U	<0.0002 U
BENZO(G,H,I)PERYLENE	191242	mg/L	-	-	*	NA	<0.0002 U	<0.0002 U	<0.0002 U
BUTYLBENZYL PHTHALATE	85687	mg/L	0.035	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Benzo(a)anthracene	56553	mg/L	0.000029	-	*	NA	<0.0002 U	<0.0002 U	<0.0002 U
Benzo(a)pyrene	50328	mg/L	0.0000029	0.0002	*	NA	<0.0002 U	<0.0002 U	<0.0002 U
Benzo(b)fluoranthene	205992	mg/L	0.000029	-	*	NA	<0.0002 U	<0.0002 U	<0.0002 U
Benzo(k)fluoranthene	207089	mg/L	0.00029	-	*	NA	<0.0002 U	<0.0002 U	<0.0002 U
Benzoic acid	65850	mg/L	15	-	*	NA	<0.025 UJ	<0.025 UJ	<0.025 UJ
Benzyl alcohol	100516	mg/L	1.8	-	*	NA	0.00045 J	<0.005 U	<0.005 U
Carbazole	86748	mg/L	-	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Chrysene	218019	mg/L	0.0029	-	*	NA	<0.0002 U	<0.0002 U	<0.0002 U
DIBENZO(A,H)ANTHRACENE	53703	mg/L	0.0000029	-	*	NA	<0.0002 U	<0.0002 U	<0.0002 U
Di-n-butyl phthalate	84742	mg/L	0.37	-	*	NA	0.0024	<0.001 U	<0.001 U
Di-n-octyl phthalate	117840	mg/L	-	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Dibenzofuran	132649	mg/L	-	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Diethyl phthalate	84662	mg/L	2.9	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Dimethyl phthalate	131113	mg/L	-	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Fluoranthene	206440	mg/L	0.15	-	*	NA	<0.0002 U	<0.0002 U	<0.0002 U
Fluorene	86737	mg/L	0.15	-	*	NA	<0.0002 U	<0.0002 U	<0.0002 U
Hexachlorobenzene	118741	mg/L	0.000042	0.001	*	NA	<0.0002 U	<0.0002 U	<0.0002 U
Hexachlorobutadiene	87683	mg/L	0.00086	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Hexachlorocyclopentadiene	77474	mg/L	0.022	0.05	*	NA	<0.01 U	<0.01 U	<0.01 U
Hexachloroethane	67721	mg/L	0.0037	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Indeno(1,2,3-cd)pyrene	193395	mg/L	0.000029	-	*	NA	<0.0002 U	<0.0002 U	<0.0002 U
Isophorone	78591	mg/L	0.071	-	*	NA	<0.001 U	<0.001 U	<0.001 U
N-NITROSO-DI-N-PROPYLAMINE	621647	mg/L	0.0000096	-	*	NA	<0.001 U	<0.001 U	<0.001 U
N-Nitrosodiphenylamine	86306	mg/L	0.014	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Naphthalene	91203	mg/L	0.00014	-	*	NA	<0.0002 U	<0.0002 U	0.00027
Nitrobenzene	98953	mg/L	0.00034	-	*	NA	<0.001 U	<0.001 U	<0.001 U

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Pentachlorophenol	87865	mg/L	0.00056	0.001	*	NA	<0.005 U	<0.005 U	<0.005 U
Phenanthrene	85018	mg/L	-	-	*	NA	<0.0002 U	<0.0002 U	<0.0002 U
Phenol	108952	mg/L	1.1	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Pyrene	129000	mg/L	0.11	-	*	NA	<0.0002 U	<0.0002 U	<0.0002 U
bis(2-Chloroethoxy)methane	111911	mg/L	0.011	-	*	NA	<0.001 U	<0.001 U	<0.001 U
bis(2-Chloroethyl) ether	111444	mg/L	0.000012	-	*	NA	<0.001 U	<0.001 U	<0.001 U
bis(2-Ethylhexyl) phthalate	117817	mg/L	0.0048	0.006	*	NA	0.00092 J	<0.001 U	0.0017
Organics - Volatile									
1,1,1-Trichloroethane	71556	mg/L	0.91	0.2	*	NA	<0.001 U	<0.001 U	<0.001 U
1,1,2,2-Tetrachloroethane	79345	mg/L	0.000067	-	*	NA	<0.001 U	<0.001 U	<0.001 U
1,1,2-Trichloroethane	79005	mg/L	0.00024	0.005	*	NA	<0.001 U	<0.001 U	<0.001 U
1,1-DICHLOROETHENE	75354	mg/L	0.034	0.007	*	NA	<0.001 U	<0.001 U	<0.001 U
1,1-Dichloroethane	75343	mg/L	0.0024	-	*	NA	<0.001 U	<0.001 U	<0.001 U
1,2-Dibromoethane	106934	mg/L	0.0000065	0.00005	*	NA	<0.001 U	<0.001 U	<0.001 U
1,2-Dichloroethane	107062	mg/L	0.00015	0.005	*	NA	<0.001 U	<0.001 U	<0.001 U
1,2-Dichloroethene (total)	540590	mg/L	0.033	0.07	*	NA	<0.001 U	<0.001 U	<0.001 U
1,2-Dichloropropane	78875	mg/L	0.00039	0.005	*	NA	<0.001 U	<0.001 U	<0.001 U
2-BUTANONE	78933	mg/L	0.71	-	*	NA	0.0024 J	0.0013 J	0.008 J
2-Hexanone	591786	mg/L	-	-	*	NA	<0.01 U	<0.01 U	<0.01 U
4-Methyl-2-pentanone	108101	mg/L	0.2	-	*	NA	0.0004 J	<0.01 U	<0.01 U
Acetone	67641	mg/L	2.2	-	*	NA	0.015	<0.01 U	<0.01 U
Benzene	71432	mg/L	0.00041	0.005	*	NA	<0.001 U	<0.001 U	<0.001 U
Bromochloromethane	74975	mg/L	-	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Bromodichloromethane	75274	mg/L	0.0011	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Bromoform	75252	mg/L	0.0085	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Bromomethane	74839	mg/L	0.00087	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Carbon disulfide	75150	mg/L	0.1	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Carbon tetrachloride	56235	mg/L	0.0002	0.005	*	NA	<0.001 U	<0.001 U	<0.001 U
Chlorobenzene	108907	mg/L	0.0091	0.1	*	NA	<0.001 U	<0.001 U	<0.001 U
Chloroethane	75003	mg/L	2.1	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Chloroform	67663	mg/L	0.00019	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Chloromethane	74873	mg/L	0.0018	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Dibromochloromethane	124481	mg/L	0.0008	-	*	NA	<0.001 U	<0.001 U	<0.001 U
Ethylbenzene	100414	mg/L	0.0015	0.7	*	NA	0.0002 J	<0.001 U	0.00048 J
Methylene chloride	75092	mg/L	0.0048	0.005	*	NA	<0.001 U	<0.001 U	<0.001 U

Results for Liquid IDW Samples from Sharon Conglomerate Well Installation (continued)

Area Station Sample Id Collection Date	CAS Number	Units	USEPA Regional Screening Level	MCL	Background Criteria	Maximum Concentration of Contaminants for the Toxicity Characteristic	SCF Fractank - L1 SCFww-001-0004-WW 03/27/2009	SCF Fractank - L2 SCFww-002-0005-WW 03/27/2009	SCF Fractank - L3 SCFww-003-0006-WW 03/27/2009
Styrene	100425	mg/L	0.16	0.1	*	NA	<0.001 U	<0.001 U	<0.001 U
TETRACHLOROETHENE	127184	mg/L	0.00011	0.005	*	NA	<0.001 U	<0.001 U	<0.001 U
TOTAL XYLENES	1330207	mg/L	0.02	10	*	NA	0.00035 J	<0.002 U	0.0023
TRICHLOROETHENE	79016	mg/L	0.0017	0.005	*	NA	<0.001 U	<0.001 U	<0.001 U
Toluene	108883	mg/L	0.23	1	*	NA	0.0031	<0.001 U	0.00061 J
Vinyl chloride	75014	mg/L	0.000016	0.002	*	NA	<0.001 U	<0.001 U	<0.001 U
cis-1,3-Dichloropropene	10061015	mg/L	0.00043	-	*	NA	<0.001 U	<0.001 U	<0.001 U
trans-1,3-Dichloropropene	10061026	mg/L	0.00043	-	*	NA	<0.001 U	<0.001 U	<0.001 U
<i>TCLP - Herbicides</i>									
2,4-D	94757	mg/L	NA	NA	NA	10	<0.5U	<0.5U	<0.5U
SILVEX	93721	mg/L	NA	NA	NA	1	<0.1U	<0.1U	<0.1U
<i>TCLP - Metals</i>									
Arsenic	7440382	mg/L	NA	NA	NA	5	<0.5U	0.0055J	<0.5U
Barium	7440393	mg/L	NA	NA	NA	100	0.028J	0.028J	0.043J
Cadmium	7440439	mg/L	NA	NA	NA	1	<0.1U	<0.1U	<0.1U
Chromium	7440473	mg/L	NA	NA	NA	5	<0.5U	<0.5U	<0.5U
Lead	7439921	mg/L	NA	NA	NA	5	<0.5U	<0.5U	<0.5U
Mercury	7439976	mg/L	NA	NA	NA	0.2	<0.002U	<0.002U	<0.002U
Selenium	7782492	mg/L	NA	NA	NA	1	0.0053J	<0.25U	<0.25U
Silver	7440224	mg/L	NA	NA	NA	5	<0.5U	<0.5U	<0.5U
<i>TCLP - Miscellaneous</i>									
Corrosivity	Corrosivity	NO UNITS	NA	NA	NA	-	7.5	8.2	7.8
Flashpoint	FLASHPT	DEG F	NA	NA	NA	-	>180	>180	>180
<i>TCLP - Pesticides</i>									
Chlordane (technical)	57749	mg/L	NA	NA	NA	0.03	<0.005U	<0.005U	<0.005U
Endrin	72208	mg/L	NA	NA	NA	0.02	<0.0005U	<0.0005U	<0.0005U
GAMMA-BHC	58899	mg/L	NA	NA	NA	0.4	<0.0005U	<0.0005U	<0.0005U
Heptachlor	76448	mg/L	NA	NA	NA	0.008	<0.0005U	<0.0005U	<0.0005U
Heptachlor epoxide	1024573	mg/L	NA	NA	NA	0.008	<0.0005U	<0.0005U	<0.0005U
Methoxychlor	72435	mg/L	NA	NA	NA	10	<0.001U	<0.001U	<0.001U
Toxaphene	8001352	mg/L	NA	NA	NA	0.5	<0.02U	<0.02U	<0.02U
<i>TCLP - Semi-Volatile Organics</i>									
1,4-Dichlorobenzene	106467	mg/L	NA	NA	NA	7.5	<0.004U	<0.004U	<0.004U
2,4,5-Trichlorophenol	95954	mg/L	NA	NA	NA	400	<0.02U	<0.02U	<0.02U

Results for Liquid IDW Samples from Sharon Conglomerate Well Installation (continued)

Area Station Sample Id Collection Date	CAS Number	Units	USEPA Regional Screening Level	MCL	Background Criteria	Maximum Concentration of Contaminants for the Toxicity Characteristic	SCF Fractank - L1 SCFww-001-0004-WW 03/27/2009	SCF Fractank - L2 SCFww-002-0005-WW 03/27/2009	SCF Fractank - L3 SCFww-003-0006-WW 03/27/2009
2,4,6-Trichlorophenol	88062	mg/L	NA	NA	NA	2	<0.02U	<0.02U	<0.02U
2,4-Dinitrotoluene	121142	mg/L	NA	NA	NA	0.13	<0.02U	<0.02U	<0.02U
2-METHYLPHENOL	95487	mg/L	NA	NA	NA	200	<0.004U	<0.004U	<0.004U
3-methylphenol/4-methylphenol	65794969	mg/L	NA	NA	NA	200	<0.04U	<0.04U	<0.04U
Hexachlorobenzene	118741	mg/L	NA	NA	NA	0.13	<0.02U	<0.02U	<0.02U
Hexachlorobutadiene	87683	mg/L	NA	NA	NA	0.5	<0.02U	<0.02U	<0.02U
Hexachloroethane	67721	mg/L	NA	NA	NA	3	<0.02U	<0.02U	<0.02U
Nitrobenzene	98953	mg/L	NA	NA	NA	2	<0.004U	<0.004U	<0.004U
Pentachlorophenol	87865	mg/L	NA	NA	NA	100	<0.04U	<0.04U	<0.04U
Pyridine	110861	mg/L	NA	NA	NA	5	0.002J	<0.02U	<0.02U
<i>TCLP - Volatile Organics</i>									
1,1-DICHLOROETHENE	75354	mg/L	NA	NA	NA	0.7	<0.07U	<0.07U	<0.07U
1,2-Dichloroethane	107062	mg/L	NA	NA	NA	0.5	<0.025U	<0.025U	<0.025U
2-BUTANONE	78933	mg/L	NA	NA	NA	200	<0.25U	<0.25U	<0.25U
Benzene	71432	mg/L	NA	NA	NA	0.5	<0.025U	<0.025U	<0.025U
Carbon tetrachloride	56235	mg/L	NA	NA	NA	0.5	<0.025U	<0.025U	<0.025U
Chlorobenzene	108907	mg/L	NA	NA	NA	100	<0.025U	<0.025U	<0.025U
Chloroform	67663	mg/L	NA	NA	NA	6	<0.025U	<0.025U	<0.025U
TETRACHLOROETHENE	127184	mg/L	NA	NA	NA	0.7	<0.07U	<0.07U	<0.07U
TRICHLOROETHENE	79016	mg/L	NA	NA	NA	0.5	<0.05U	<0.05U	<0.05U
Vinyl chloride	75014	mg/L	NA	NA	NA	0.2	<0.025U	<0.025U	<0.025U

Shaded Results = Result exceeds background.

Bolded Results = Result exceeds USEPA Regional Screening Level.

J = Estimated Result - Lab Qualifer

MCL = Drinking Water Standard - Maximum Concentration Limit

NA = Not Applicable

RSL = USEPA Regional Screening Levels - Tap Water SL 10E-6, HQ 0.1

U = Non-Detect

- = No Standard Exists

* = No Background levels for organic

ATTACHMENT 2
ANALYTICAL RESULTS FOR SOLID IDW
DEEP BEDROCK WELL INSTALLATION IN THE SHARON CONGLOMERATE
FIELD ACTIVITIES
FEBRUARY - MARCH 2009

Results for IDW Soil from Sharon Conglomerate Well Installation

Area Station Sample Id Date	CAS Number	Units	USEPA Regional Screening Level	Background Criteria	Maximum Concentration of Contaminants for the Toxicity Characteristic	SCF SCFmw-001 SCFmw-001-0008-WS 03/27/09	SCF SCFmw-002 SCFmw-002-0009-WS 03/27/09	SCF SCFmw-003 SCFmw-003-0010-WS 03/27/09	SCF SCFmw-004 SCFmw-004-0011-WS 03/27/09	SCF SCFmw-004 SCFmw-004-0012-WS 03/27/09	SCF SCFmw-005 SCFmw-005-0013-WS 03/27/09	SCF SCFmw-006 SCFmw-006-0014-WS 03/27/09
Anions												
NITROGEN, NITRATE-NITRITE	NO3NO2N	mg/kg	-	-	NA	0.6 J	0.7 J	0.7 J	0.8 J	0.9 J	<1.2 U	<1.2 U
Metals												
Aluminum	7429905	mg/kg	7700	19500	NA	8240	4690	4770	5970	9340	982	5790
Antimony	7440360	mg/kg	3.1	0.96	NA	<0.57 UJ	<0.62 UJ	<0.59 UJ	<0.68 UJ	<0.68 UJ	<0.6 UJ	<0.62 UJ
Arsenic	7440382	mg/kg	0.39	19.8	NA	8.7	10.9	8.5	13.4	13.6	4.3	13.3
Barium	7440393	mg/kg	1500	124	NA	55.7 J	43.3 J	20.8 J	21.9 J	44.4 J	9.1 J	24.7 J
Beryllium	7440417	mg/kg	16	0.88	NA	0.56	0.48	0.33	0.34	0.54	0.16	0.39
Cadmium	7440439	mg/kg	7	0	NA	0.084 J	0.057 J	<0.12 U	<0.14 U	<0.14 U	<0.12 U	0.071 J
Calcium	7440702	mg/kg	1000000	35500	NA	18400 J	5000 J	1440 J	3320 J	7460 J	1160 J	11000 J
Chromium	7440473	mg/kg	23	27.2	NA	14	9.8	10.3	11.7	33.6	2.7	11.3
Cobalt	7440484	mg/kg	2.3	23.2	NA	8.3	6.6	6	7.4	12	1.7	7
Copper	7440508	mg/kg	310	32.3	NA	14.5	13.2	9.2	15.6	18.2	2 J	16
Iron	7439896	mg/kg	5500	35200	NA	36500 J	20500 J	14100 J	19900 J	25100 J	4580 J	17000 J
Lead	7439921	mg/kg	400	19.1	NA	8.4 J	11 J	7.7 J	8 J	10.9 J	3.1 J	9.5 J
Magnesium	7439954	mg/kg	1000000	8790	NA	4950	2830	1640	4160	4690	535	3820
Manganese	7439965	mg/kg	180	3030	NA	833 J	513 J	345 J	295 J	419 J	120 J	329 J
Mercury	7439976	mg/kg	0.67	0.044	NA	0.017 J	0.03 J	0.06 J	<0.14 U	0.02 J	<0.12 U	<0.12 U
Nickel	7440020	mg/kg	160	60.7	NA	24.1	21.6	13.8	18.4	30.4	5.4	17.2
Potassium	7440097	mg/kg	1000000	3350	NA	1530 J	1040 J	647 J	926 J	1050 J	214 J	992 J
Selenium	7782492	mg/kg	39	1.5	NA	<0.57 U	0.62	0.7	<0.68 U	<0.68 U	<0.6 U	<0.62 U
Silver	7440224	mg/kg	39	0	NA	<0.57 U	<0.62 U	<0.59 U	<0.68 U	<0.68 U	<0.6 U	<0.62 U
Sodium	7440235	mg/kg	1000000	145	NA	<114 U	<125 U	<118 U	<136 U	<137 U	<120 U	<124 U
Thallium	7440280	mg/kg	0.51	0.91	NA	0.13	0.11 J	0.078 J	0.11 J	0.16	0.024 J	0.1 J
Vanadium	7440622	mg/kg	55	37.6	NA	15	8.5	8.5	9.5	14.6	2.9	10.9
Zinc	7440666	mg/kg	2300	93.3	NA	46.6	55.1	32.9	45.9	54.2	39.8	54.3
Miscellaneous												
CYANIDE	57125	mg/kg	160	0	NA	<0.57 U	<0.62 U	0.31 J	<0.68 U	<0.68 U	<0.6 U	<0.62 U
SULFIDE	18496258	mg/kg	-	-	NA	<34.1 U	<37.4 U	<35.5 U	<40.7 U	<41 U	<36.1 U	<37.1 U
Explosives												
1,3,5-Trinitrobenzene	99354	mg/kg	220	*	NA	<0.25 U	<0.25 U	<0.25 U	<0.24 U	0.022 J	<0.24 U	<0.24 U
1,3-Dinitrobenzene	99650	mg/kg	0.61	*	NA	<0.25 U	<0.25 U	<0.25 U	<0.24 U	<0.25 U	<0.24 U	<0.24 U
2,4,6-TNT	118967	mg/kg	3.6	*	NA	<0.25 U	<0.25 U	<0.25 U	<0.24 U	<0.25 U	<0.24 U	<0.24 U
2,4-Dinitrotoluene	121142	mg/kg	12	*	NA	<0.25 U	<0.25 U	<0.25 U	<0.24 U	<0.25 U	<0.24 U	<0.24 U
2,6-Dinitrotoluene	606202	mg/kg	6.1	*	NA	<0.25 U	<0.25 U	<0.25 U	<0.24 U	<0.25 U	<0.24 U	<0.24 U
2-Amino-4,6-dinitrotoluene	35572782	mg/kg	15	*	NA	<0.3 U	<0.3 U	<0.3 U	<0.29 U	<0.3 U	<0.29 U	<0.29 U
2-Nitrotoluene	88722	mg/kg	2.9	*	NA	<0.25 U	<0.25 U	<0.25 U	<0.24 U	<0.25 U	<0.24 U	<0.24 U
3-Nitrotoluene	99081	mg/kg	120	*	NA	<0.25 U	<0.25 U	<0.25 U	<0.24 U	<0.25 U	<0.24 U	<0.24 U
4-Amino-2,6-dinitrotoluene	1946510	mg/kg	-	*	NA	<0.25 U	<0.25 U	<0.25 U	<0.24 U	<0.25 U	<0.24 U	<0.24 U
4-Nitrotoluene	99990	mg/kg	24	*	NA	<0.25 U	<0.25 U	<0.25 U	<0.24 U	<0.25 U	<0.24 U	<0.24 U

Results for IDW Soil from Sharon Conglomerate Well Installation (continued)

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HMX	2691410	mg/kg	380	*	NA	<0.25 U	<0.25 U	<0.25 U	<0.24 U	<0.25 U	<0.24 U	<0.24 U
NITROGLYCERINE	55630	mg/kg	0.61	*	NA	<0.5 U	<0.5 U	<0.5 U	<0.49 U	<0.5 U	<0.49 U	<0.49 U
Nitrobenzene	98953	mg/kg	3.1	*	NA	<0.25 U	<0.25 U	<0.25 U	<0.24 U	<0.25 U	<0.24 U	<0.24 U
Nitrocellulose	9004700	mg/kg	-	*	NA	<5.7 U	<6.2 U	<5.9 U	<6.8 U	<6.8 U	<6 U	<6.2 U
Nitroguanidine	556887	mg/kg	610	*	NA	<0.25 U	<0.25 U	<0.25 U	<0.25 U	<0.25 U	<0.25 U	<0.25 U
Pentaerythritol Tetranitrate (PETN)	78115	mg/kg	-	*	NA	<0.5 U	<0.5 U	<0.5 U	<0.49 U	<0.5 U	<0.49 U	<0.49 U
RDX	121824	mg/kg	5.5	*	NA	<0.25 U	<0.25 U	<0.25 U	<0.24 U	<0.25 U	<0.24 U	<0.24 U
Tetryl	479458	mg/kg	24	*	NA	<0.25 U	<0.25 U	<0.25 U	<0.24 U	<0.25 U	<0.24 U	<0.24 U
<i>Pesticides/PCBs</i>												
4,4'-DDD	72548	mg/kg	2	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
4,4'-DDE	72559	mg/kg	1.4	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
4,4'-DDT	50293	mg/kg	1.7	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
AROCLOR 1016	12674112	mg/kg	0.39	*	NA	<0.038 U	<0.041 U	<0.039 U	<0.045 U	<0.045 U	<0.04 U	<0.041 U
AROCLOR 1221	11104282	mg/kg	0.17	*	NA	<0.038 U	<0.041 U	<0.039 U	<0.045 U	<0.045 U	<0.04 U	<0.041 U
AROCLOR 1232	11141165	mg/kg	0.17	*	NA	<0.038 U	<0.041 U	<0.039 U	<0.045 U	<0.045 U	<0.04 U	<0.041 U
AROCLOR 1248	12672296	mg/kg	0.22	*	NA	<0.038 U	<0.041 U	<0.039 U	<0.045 U	<0.045 U	<0.04 U	<0.041 U
AROCLOR 1254	11097691	mg/kg	0.11	*	NA	<0.038 U	<0.041 U	<0.039 U	<0.045 U	<0.045 U	<0.04 U	<0.041 U
AROCLOR 1260	11096825	mg/kg	0.22	*	NA	<0.038 U	<0.041 U	<0.039 U	<0.045 U	<0.045 U	<0.04 U	<0.041 U
Aldrin	309002	mg/kg	0.029	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
Aroclor 1242	53469219	mg/kg	0.22	*	NA	<0.038 U	<0.041 U	<0.039 U	<0.045 U	<0.045 U	<0.04 U	<0.041 U
Dieldrin	60571	mg/kg	0.03	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
Endosulfan I	959988	mg/kg	37	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
Endosulfan II	33213659	mg/kg	37	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
Endosulfan sulfate	1031078	mg/kg	37	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
Endrin	72208	mg/kg	1.8	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
Endrin aldehyde	7421934	mg/kg	1.8	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
Endrin ketone	53494705	mg/kg	1.8	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
GAMMA-BHC	58899	mg/kg	0.52	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
Heptachlor	76448	mg/kg	0.11	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
Heptachlor epoxide	1024573	mg/kg	0.053	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
Methoxychlor	72435	mg/kg	31	*	NA	<0.0038 U	<0.0041 U	<0.0039 U	<0.0045 U	<0.0045 U	<0.004 U	<0.0041 U
Toxaphene	8001352	mg/kg	0.44	*	NA	<0.076 U	<0.084 U	<0.079 U	<0.091 U	<0.092 U	<0.081 U	<0.083 U
alpha-BHC	319846	mg/kg	0.077	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
alpha-Chlordane	5103719	mg/kg	1.6	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
beta-BHC	319857	mg/kg	0.27	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
delta-BHC	319868	mg/kg	-	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
gamma-Chlordane	5103742	mg/kg	1.6	*	NA	<0.0019 U	<0.0021 U	<0.002 U	<0.0023 U	<0.0023 U	<0.002 U	<0.0021 U
<i>Semi-Volatile Organic Compounds</i>												
1,2,4-Trichlorobenzene	120821	mg/kg	8.7	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
1,2-Dichlorobenzene	95501	mg/kg	200	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
1,3-Dichlorobenzene	541731	mg/kg	-	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U

Results for IDW Soil from Sharon Conglomerate Well Installation (continued)

Area Station Sample Id Date	CAS Number	Units	USEPA Regional Screening Level	Background Criteria	Maximum Concentration of Contaminants for the Toxicity Characteristic	SCF SCFmw-001 SCFmw-001-0008-WS 03/27/09	SCF SCFmw-002 SCFmw-002-0009-WS 03/27/09	SCF SCFmw-003 SCFmw-003-0010-WS 03/27/09	SCF SCFmw-004 SCFmw-004-0011-WS 03/27/09	SCF SCFmw-004 SCFmw-004-0012-WS 03/27/09	SCF SCFmw-005 SCFmw-005-0013-WS 03/27/09	SCF SCFmw-006 SCFmw-006-0014-WS 03/27/09
1,4-Dichlorobenzene	106467	mg/kg	2.6	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
2,2-OXYBIS (1-CHLOROPROPANE)	108601	mg/kg	3.5	*	NA	<0.11 U	<0.12 U	<0.12 U	<0.14 U	<0.14 U	<0.12 U	<0.12 U
2,4,5-Trichlorophenol	95954	mg/kg	610	*	NA	<0.17 U	<0.19 U	<0.18 U	<0.2 U	<0.2 U	<0.18 U	<0.19 U
2,4,6-Trichlorophenol	88062	mg/kg	6.1	*	NA	<0.17 U	<0.19 U	<0.18 U	<0.2 U	<0.2 U	<0.18 U	<0.19 U
2,4-Dichlorophenol	120832	mg/kg	18	*	NA	<0.17 U	<0.19 U	<0.18 U	<0.2 U	<0.2 U	<0.18 U	<0.19 U
2,4-Dimethylphenol	105679	mg/kg	120	*	NA	<0.17 U	<0.19 U	<0.18 U	<0.2 U	<0.2 U	<0.18 U	<0.19 U
2,4-Dinitrophenol	51285	mg/kg	12	*	NA	<0.38 UJ	<0.41 UJ	<0.39 UJ	<0.45 UJ	<0.45 UJ	<0.4 UJ	<0.41 UJ
2,4-Dinitrotoluene	121142	mg/kg	12	*	NA	<0.23 U	<0.25 U	<0.24 U	<0.27 U	<0.27 U	<0.24 U	<0.25 U
2,6-Dinitrotoluene	606202	mg/kg	6.1	*	NA	<0.23 U	<0.25 U	<0.24 U	<0.27 U	<0.27 U	<0.24 U	<0.25 U
2-Chloronaphthalene	91587	mg/kg	210	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
2-Chlorophenol	95578	mg/kg	39	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
2-METHYLPHENOL	95487	mg/kg	310	*	NA	<0.23 U	<0.25 U	<0.24 U	<0.27 U	<0.27 U	<0.24 U	<0.25 U
2-Methylnaphthalene	91576	mg/kg	31	*	NA	0.014	0.031	<0.0079 U	<0.009 U	0.016	<0.008 U	0.0094
2-Nitroaniline	88744	mg/kg	-	*	NA	<0.23 U	<0.25 U	<0.24 U	<0.27 U	<0.27 U	<0.24 U	<0.25 U
2-Nitrophenol	88755	mg/kg	-	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
3,3'-Dichlorobenzidine	91941	mg/kg	1.1	*	NA	<0.11 U	<0.12 U	<0.12 U	<0.14 U	<0.14 U	<0.12 U	<0.12 U
3-Nitroaniline	99092	mg/kg	1.8	*	NA	<0.23 U	<0.25 U	<0.24 U	<0.27 U	<0.27 U	<0.24 U	<0.25 U
3-methylphenol/4-methylphenol	65794969	mg/kg	-	*	NA	<0.45 U	<0.5 U	<0.47 U	<0.54 U	<0.55 U	<0.48 U	<0.49 U
4,6-Dinitro-2-methylphenol	534521	mg/kg	0.61	*	NA	<0.17 U	<0.19 U	<0.18 U	<0.2 U	<0.2 U	<0.18 U	<0.19 U
4-BROMOPHENYL-PHENYLETHER	101553	mg/kg	-	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
4-CHLOROPHENYL-PHENYLETHER	7005723	mg/kg	-	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
4-Chloro-3-methylphenol	59507	mg/kg	-	*	NA	<0.17 U	<0.19 U	<0.18 U	<0.2 U	<0.2 U	<0.18 U	<0.19 U
4-Chloroaniline	106478	mg/kg	9	*	NA	<0.17 U	<0.19 U	<0.18 U	<0.2 U	<0.2 U	<0.18 U	<0.19 U
4-Nitroaniline	100016	mg/kg	18	*	NA	<0.23 U	<0.25 U	<0.24 U	<0.27 U	<0.27 U	<0.24 U	<0.25 U
4-Nitrophenol	100027	mg/kg	-	*	NA	<0.38 U	<0.41 U	<0.39 U	<0.45 U	<0.45 U	<0.4 U	<0.41 U
Acenaphthene	83329	mg/kg	340	*	NA	<0.0076 U	<0.0083 U	<0.0079 U	<0.009 U	<0.0091 U	<0.008 U	<0.0082 U
Acenaphthylene	208968	mg/kg	-	*	NA	<0.0076 U	<0.0083 U	<0.0079 U	<0.009 U	<0.0091 U	<0.008 U	<0.0082 U
Anthracene	120127	mg/kg	1700	*	NA	<0.0076 U	<0.0083 U	<0.0079 U	<0.009 U	<0.0091 U	<0.008 U	<0.0082 U
BENZO(G,H,I)PERYLENE	191242	mg/kg	-	*	NA	0.011	0.022	<0.0079 U	<0.009 U	0.015	0.012	0.0097
BUTYLBENZYL PHTHALATE	85687	mg/kg	260	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
Benzo(a)anthracene	56553	mg/kg	0.15	*	NA	0.0087	<0.0083 U	<0.0079 U	<0.009 U	0.012	0.009	<0.0082 U
Benzo(a)pyrene	50328	mg/kg	0.015	*	NA	0.0088	0.0085	<0.0079 U	<0.009 U	0.0098	0.011	<0.0082 U
Benzo(b)fluoranthene	205992	mg/kg	0.15	*	NA	0.011	0.012	<0.0079 U	<0.009 U	0.024	0.022	<0.0082 U
Benzo(k)fluoranthene	207089	mg/kg	1.5	*	NA	0.011	<0.0083 U	<0.0079 U	<0.009 U	<0.0091 U	0.0087	<0.0082 U
Benzoic acid	65850	mg/kg	24000	*	NA	<0.75 U	<0.82 U	<0.78 U	<0.89 U	<0.9 U	<0.79 U	<0.82 U
Benzyl alcohol	100516	mg/kg	3100	*	NA	<0.38 U	<0.41 U	<0.39 U	<0.45 U	<0.45 U	<0.4 U	<0.41 U
Carbazole	86748	mg/kg	-	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
Chrysene	218019	mg/kg	15	*	NA	0.012	0.0096	<0.0079 U	<0.009 U	0.02	0.016	<0.0082 U
DIBENZO(A,H)ANTHRACENE	53703	mg/kg	0.015	*	NA	<0.0076 U	<0.0083 U	<0.0079 U	<0.009 U	<0.0091 U	<0.008 U	<0.0082 U
Di-n-butyl phthalate	84742	mg/kg	610	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U

Results for IDW Soil from Sharon Conglomerate Well Installation (continued)

Area Station Sample Id Date	CAS Number	Units	USEPA Regional Screening Level	Background Criteria	Maximum Concentration of Contaminants for the Toxicity Characteristic	SCF SCFmw-001 SCFmw-001-0008-WS 03/27/09	SCF SCFmw-002 SCFmw-002-0009-WS 03/27/09	SCF SCFmw-003 SCFmw-003-0010-WS 03/27/09	SCF SCFmw-004 SCFmw-004-0011-WS 03/27/09	SCF SCFmw-004 SCFmw-004-0012-WS 03/27/09	SCF SCFmw-005 SCFmw-005-0013-WS 03/27/09	SCF SCFmw-006 SCFmw-006-0014-WS 03/27/09
Di-n-octyl phthalate	117840	mg/kg	-	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
Dibenzofuran	132649	mg/kg	-	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
Diethyl phthalate	84662	mg/kg	4900	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
Dimethyl phthalate	131113	mg/kg	-	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
Fluoranthene	206440	mg/kg	230	*	NA	0.014	<0.0083 U	0.01	<0.009 U	0.022	<0.008 U	<0.0082 U
Fluorene	86737	mg/kg	230	*	NA	<0.0076 U	<0.0083 U	<0.0079 U	<0.009 U	<0.0091 U	<0.008 U	<0.0082 U
Hexachlorobenzene	118741	mg/kg	0.3	*	NA	<0.0076 U	<0.0083 U	<0.0079 U	<0.009 U	<0.0091 U	<0.008 U	<0.0082 U
Hexachlorobutadiene	87683	mg/kg	6.1	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
Hexachlorocyclopentadiene	77474	mg/kg	37	*	NA	<0.38 UJ	<0.41 UJ	<0.39 UJ	<0.45 UJ	<0.45 UJ	<0.4 UJ	<0.41 UJ
Hexachloroethane	67721	mg/kg	6.1	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
Indeno(1,2,3-cd)pyrene	193395	mg/kg	0.15	*	NA	<0.0076 U	0.012	<0.0079 U	<0.009 U	<0.0091 U	0.0087	<0.0082 U
Isophorone	78591	mg/kg	510	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
N-NITROSO-DI-N-PROPYLAMINE	621647	mg/kg	0.069	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
N-Nitrosodiphenylamine	86306	mg/kg	99	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
Naphthalene	91203	mg/kg	3.9	*	NA	0.0086	0.019	<0.0079 U	<0.009 U	<0.0091 U	<0.008 U	<0.0082 U
Nitrobenzene	98953	mg/kg	3.1	*	NA	<0.11 U	<0.12 U	<0.12 U	<0.14 U	<0.14 U	<0.12 U	<0.12 U
Pentachlorophenol	87865	mg/kg	3	*	NA	<0.17 U	<0.19 U	<0.18 U	<0.2 U	<0.2 U	<0.18 U	<0.19 U
Phenanthrene	85018	mg/kg	-	*	NA	0.01	<0.0083 U	<0.0079 U	<0.009 U	0.012	<0.008 U	0.011
Phenol	108952	mg/kg	1800	*	NA	<0.057 U	<0.062 U	<0.059 U	<0.068 U	<0.068 U	<0.06 U	<0.062 U
Pyrene	129000	mg/kg	170	*	NA	0.013	0.012	0.0092	<0.009 U	0.02	<0.008 U	0.0083
bis(2-Chloroethoxy)methane	111911	mg/kg	18	*	NA	<0.11 U	<0.12 U	<0.12 U	<0.14 U	<0.14 U	<0.12 U	<0.12 U
bis(2-Chloroethyl) ether	111444	mg/kg	0.19	*	NA	<0.11 U	<0.12 U	<0.12 U	<0.14 U	<0.14 U	<0.12 U	<0.12 U
bis(2-Ethylhexyl) phthalate	117817	mg/kg	35	*	NA	0.025 J	0.055 J	<0.059 U	<0.068 U	0.03 J	0.024 J	0.028 J
Volatile Organic Compounds												
1,1,1-Trichloroethane	71556	mg/kg	680	*	NA	<0.0057 U	<0.0062 U	<0.0059 U	<0.0068 U	<0.0068 U	<0.006 U	<0.0062 U
1,1,2,2-Tetrachloroethane	79345	mg/kg	0.59	*	NA	<0.0057 U	<0.0062 U	<0.0059 U	<0.0068 U	<0.0068 U	<0.006 U	<0.0062 U
1,1,2-Trichloroethane	79005	mg/kg	1.1	*	NA	<0.0057 U	<0.0062 U	<0.0059 U	<0.0068 U	<0.0068 U	<0.006 U	<0.0062 U
1,1-DICHLOROETHENE	75354	mg/kg	25	*	NA	<0.0057 U	<0.0062 U	<0.0059 U	<0.0068 U	<0.0068 U	<0.006 U	<0.0062 U
1,1-Dichloroethane	75343	mg/kg	3.4	*	NA	<0.0057 U	<0.0062 U	<0.0059 U	<0.0068 U	<0.0068 U	<0.006 U	<0.0062 U
1,2-Dibromoethane	106934	mg/kg	0.034	*	NA	<0.0057 U	<0.0062 U	<0.0059 U	<0.0068 U	<0.0068 U	<0.006 U	<0.0062 U
1,2-Dichloroethane	107062	mg/kg	0.45	*	NA	<0.0057 U	<0.0062 U	<0.0059 U	<0.0068 U	<0.0068 U	<0.006 U	<0.0062 U
1,2-Dichloroethene (total)	540590	mg/kg	70	*	NA	<0.0057 U	<0.0062 U	<0.0059 U	<0.0068 U	<0.0068 U	<0.006 U	<0.0062 U
1,2-Dichloropropane	78875	mg/kg	0.93	*	NA	<0.0057 U	<0.0062 U	<0.0059 U	<0.0068 U	<0.0068 U	<0.006 U	<0.0062 U
2-BUTANONE	78933	mg/kg	2800	*	NA	<0.023 U	<0.025 U	<0.024 U	<0.027 U	0.0082 J	<0.024 U	<0.025 U
2-Hexanone	591786	mg/kg	-	*	NA	<0.023 U	<0.025 U	<0.024 U	<0.027 U	<0.027 U	<0.024 U	<0.025 U
4-Methyl-2-pentanone	108101	mg/kg	530	*	NA	<0.023 U	<0.025 U	<0.024 U	<0.027 U	<0.027 U	<0.024 U	<0.025 U
Acetone	67641	mg/kg	6100	*	NA	<0.023 U	<0.025 U	<0.024 U	0.0085 J	0.087	<0.024 U	0.0083 J
Benzene	71432	mg/kg	1.1	*	NA	<0.0057 U	<0.0062 U	<0.0059 U	<0.0068 U	<0.0068 U	<0.006 U	<0.0062 U
Bromochloromethane	74975	mg/kg	-	*	NA	<0.0057 U	<0.0062 U	<0.0059 U	<0.0068 U	<0.0068 U	<0.006 U	<0.0062 U
Bromodichloromethane	75274	mg/kg	10	*	NA	<0.0057 U	<0.0062 U	<0.0059 U	<0.0068 U	<0.0068 U	<0.006 U	<0.0062 U
Bromoform	75252	mg/kg	61	*	NA	<0.0057 U	<0.0062 U	<0.0059 U	<0.0068 U	<0.0068 U	<0.006 U	<0.0062 U

Results for IDW Soil from Sharon Conglomerate Well Installation (continued)

Area Station Sample Id Date	CAS Number	Units	USEPA Regional Screening Level	Background Criteria	Maximum Concentration of Contaminants for the Toxicity Characteristic	SCF SCFmw-001 SCFmw-001-0008-WS 03/27/09	SCF SCFmw-002 SCFmw-002-0009-WS 03/27/09	SCF SCFmw-003 SCFmw-003-0010-WS 03/27/09	SCF SCFmw-004 SCFmw-004-0011-WS 03/27/09	SCF SCFmw-004 SCFmw-004-0012-WS 03/27/09	SCF SCFmw-005 SCFmw-005-0013-WS 03/27/09	SCF SCFmw-006 SCFmw-006-0014-WS 03/27/09
<i>TCLP - Semi-Volatile Organic Compounds</i>												
1,4-Dichlorobenzene	106467	mg/L	NA	NA	7.5	<0.004U	<0.004U	<0.004U	<0.004U	<0.004U	<0.004U	<0.004U
2,4,5-Trichlorophenol	95954	mg/L	NA	NA	400	<0.02UJ	<0.02UJ	<0.02UJ	<0.02UJ	<0.02U	<0.02U	<0.02U
2,4,6-Trichlorophenol	88062	mg/L	NA	NA	2	<0.02UJ	<0.02UJ	<0.02UJ	<0.02UJ	<0.02U	<0.02U	<0.02U
2,4-Dinitrotoluene	121142	mg/L	NA	NA	0.13	<0.02U	<0.02U	<0.02U	<0.02U	<0.02U	<0.02U	<0.02U
2-METHYLPHENOL	95487	mg/L	NA	NA	200	<0.004UJ	<0.004UJ	<0.004UJ	<0.004UJ	<0.004U	<0.004U	<0.004U
3-methylphenol/4-methylphenol	65794969	mg/L	NA	NA	200	<0.04U	<0.04U	<0.04U	<0.04U	0.0019J	<0.04U	<0.04U
Hexachlorobenzene	118741	mg/L	NA	NA	0.13	<0.02U	<0.02U	<0.02U	<0.02U	<0.02U	<0.02U	<0.02U
Hexachlorobutadiene	87683	mg/L	NA	NA	0.5	<0.02U	<0.02U	<0.02U	<0.02U	<0.02U	<0.02U	<0.02U
Hexachloroethane	67721	mg/L	NA	NA	3	<0.02U	<0.02U	<0.02U	<0.02U	<0.02U	<0.02U	<0.02U
Nitrobenzene	98953	mg/L	NA	NA	2	<0.004U	<0.004U	<0.004U	<0.004U	<0.004U	<0.004U	<0.004U
Pentachlorophenol	87865	mg/L	NA	NA	100	<0.04UJ	<0.04UJ	<0.04UJ	<0.04UJ	<0.04U	<0.04U	<0.04U
Pyridine	110861	mg/L	NA	NA	5	<0.02U	<0.02U	<0.02U	0.0022J	<0.02U	<0.02U	<0.02U
<i>TCLP - Volatile Organic Compounds</i>												
1,1-DICHLOROETHENE	75354	mg/L	NA	NA	0.7	<0.07U	<0.07U	<0.07U	<0.07U	<0.07U	<0.07U	<0.07U
1,2-Dichloroethane	107062	mg/L	NA	NA	0.5	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U
2-BUTANONE	78933	mg/L	NA	NA	200	<0.25U	<0.25U	<0.25U	<0.25U	<0.25U	<0.25U	<0.25U
Benzene	71432	mg/L	NA	NA	0.5	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U
Carbon tetrachloride	56235	mg/L	NA	NA	0.5	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U
Chlorobenzene	108907	mg/L	NA	NA	100	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U
Chloroform	67663	mg/L	NA	NA	6	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U
TETRACHLOROETHENE	127184	mg/L	NA	NA	0.7	<0.07U	<0.07U	<0.07U	<0.07U	<0.07U	<0.07U	<0.07U
TRICHLOROETHENE	79016	mg/L	NA	NA	0.5	<0.05U	<0.05U	<0.05U	<0.05U	<0.05U	<0.05U	<0.05U
Vinyl chloride	75014	mg/L	NA	NA	0.2	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U	<0.025U

Shaded Results = Result exceeds background.

Bolded Results = Result exceeds USEPA Regional Screening Level.

J = Estimated Result - Lab Qualifier

NA = Not Applicable

RSL = USEPA Regional Screening Levels - Residential Soil with lower of cancer risk 1E-6 or HQ=0.1

TCLP = Toxicity Characteristic Leaching Procedure

U = Non-Detect

- = No Standard Exists

* = No Background levels for organics



State of Ohio Environmental Protection Agency

Northeast District Office

2110 East Aurora Rd.
Twinsburg, Ohio 44087

TELE: (330) 963-1200 FAX: (330) 487-0769
www.epa.state.oh.us

Ted Strickland, Governor
Lee Fisher, Lieutenant Governor
Chris Korleski, Director

June 11, 2009

RE: RAVENNA ARMY AMMUNITION PLANT,
PORTAGE/TRUMBULL COUNTIES,
FWGWMP, REVISED, CHARACTERIZATION
AND DISPOSAL LETTER REPORT FOR
WELL CUTTINGS, DRILLING
DECONTAMINATION WATER, AND
RECOVERED DRILLING WATER, DATED
JUNE 4, 2009

Mr. Mark Patterson
Installation Manager
Ravenna Army Ammunition Plant
8451 State Route 5
Ravenna, OH 44266

CERTIFIED MAIL
7008 2810 0000 5304 9821

Dear Mr. Patterson:

The Ohio Environmental Protection Agency (Ohio EPA) has received and reviewed the "Revised, Characterization and Disposal Letter Report for Well Cuttings, Drilling Decontamination Water, and Recovered Drilling Water" document, dated June 4, 2009, for the Ravenna Army Ammunition Plant, Ravenna, OH. This document was received at Ohio EPA, Northeast District Office (NEDO), Division of Emergency and Remedial response (DERR), on June 4, 2009. The document was prepared for the U.S. Army Corps of Engineers (USACE) – Louisville District, by SAIC, under contract no. W912QR-04-D-0028.

All Investigative Derived Waste (IDW) occurred during drilling activities for the deep bedrock wells installed in the Sharon Conglomerate (monitoring wells SCFmw-001 through SCFmw-006) that were completed on March 27, 2009. According to the presented analytical results, all IDW was classified as non-hazardous, non-contaminated for disposal. The document proposes to dispose of (1) ninety-seven 55-gallon drums containing soil and rock cuttings at a permitted solid waste facility, (2) one 10,000 gallon Frac tank containing recovered groundwater from drilling operations, drill rig decontamination water, and well development water via land application, and (3) two 21,000 gallon Frac tanks containing recovered groundwater during drilling operations and well development water via land application.

All Ohio EPA comments (comment letter dated May 28, 2009) have been adequately addressed and the document is approved. If you have any questions, please call me at (330) 963-1207.

Sincerely,

Vicki Deppisch, Project Coordinator
Division of Emergency and Remedial Response

VD/kss

cc: Bonnie Buthker, Ohio EPA, DERR, SWDO
Eileen Mohr, Ohio EPA, NEDO, DERR
Glen Beckham, USACE Louisville
Mark Nichter, USACE Louisville

Jed Thomas, SAIC
Katie Elgin, OHARNG RTLS
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Todd Fisher, Ohio EPA, NEDO, DERR



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