Construction Contingency Plan

Former Twin Cities Army Ammunition Plant (TCAAP)
427-acre Transfer Property,
Sections 9 and 16, Township 30 North,
Range 23 West
Arden Hills, Minnesota

Prepared for:

RAMSEY COUNTY
2015 North Van Dyke Street
Maplewood, Minnesota  55109-3796

Prepared by:

WENCK ASSOCIATES, INC.
1802 Wooddale Drive
Suite 100
Woodbury, Minnesota  55125-2937
(651) 294-4580
## Table of Contents

1.0 PURPOSE AND SCOPE ........................................................................................................... 1-1

2.0 SITE DESCRIPTION ............................................................................................................ 2-1
   2.1 Site Description ................................................................................................................... 2-1
   2.2 Physical Setting ................................................................................................................... 2-1
       2.2.1 Topography ................................................................................................................. 2-1
       2.2.2 Site Soils ...................................................................................................................... 2-1
       2.2.3 Hydrogeology .............................................................................................................. 2-1
   2.3 Past and Current Land Use ................................................................................................ 2-2

3.0 PRIOR ASSESSMENTS ....................................................................................................... 3-1
   3.1 Prior Assessments: Summary of Conclusions ..................................................................... 3-1
   3.2 Phase I and Phase II Final Report Prepared for U.S. Army Base Realignment and Closure
       Office, Contract No. DAA09-02-D-0010 .............................................................................. 3-2
   3.3 Supplemental Remedial Investigation, Field Sampling Plan, TCAAP, 585-Acre Transfer
       Property, September, 2008... ................................................................................................. 3-2

4.0 CONSTRUCTION CONTINGENCY PLAN ......................................................................... 4-1
   4.1 General ................................................................................................................................ 4-1
   4.2 Recognition of Potential Waste and/or Contaminated Soils .............................................. 4-1
   4.3 Waste Evaluation ................................................................................................................ 4-2
       4.3.1 Petroleum Impacts ...................................................................................................... 4-3
       4.3.2 Building Materials ....................................................................................................... 4-3
       4.3.3 Refuse ........................................................................................................................ 4-3
       4.3.4 Free Product ................................................................................................................ 4-4
       4.3.5 Underground Storage Tanks ....................................................................................... 4-4
       4.3.6 Barreled Wastes .......................................................................................................... 4-4
       4.3.7 Electrical Transformers ............................................................................................... 4-4
       4.3.8 Creosote Timbers ........................................................................................................ 4-4
       4.3.9 Batteries ....................................................................................................................... 4-5
       4.3.10 Oil Filters ..................................................................................................................... 4-5
       4.3.11 Waste Tires ................................................................................................................. 4-5
       4.3.12 Ash or Clinkers .......................................................................................................... 4-5
       4.3.13 Stained Soils or Soil Exhibiting Strong or Unusual Odors ............................................ 4-5
       4.3.14 Munitions or Explosives of Concern .......................................................................... 4-6
       4.3.15 Nuclear, Biological and Chemical Items ..................................................................... 4-6
       4.3.16 Small Arms Ammunition ............................................................................................ 4-6
   4.4 Anticipated Scopes of Work ................................................................................................ 4-6
       4.4.1 Building Foundation Slab and Foundation footing Removals ..................................... 4-7
       4.4.2 Storm Sewer Removals ............................................................................................... 4-7
       4.4.3 Sanitary Sewer Removals ............................................................................................ 4-8
# Table of Contents (Cont.)

4.4.4 Water Main Removals ........................................................................................................ 4-8  
4.4.5 Natural Gas Line Removals ........................................................................................... 4-9  
4.4.6 Steam Line Removals ...................................................................................................... 4-9  
4.4.7 Railroad Track and Ballast Removals .............................................................................. 4-9  
4.4.8 Power Pole Removals ........................................................................................................ 4-10  
4.4.9 Removal of Fence, Paved Surfaces, and other Structures ................................................. 4-11  
4.5 Incident Notification .................................................................................................................. 4-11  
4.6 Project Contact Information .................................................................................................. 4-12  
4.6.1 Property Owner – Ramsey County .................................................................................... 4-12  
4.6.2 Construction Contractor Information ............................................................................... 4-12  
4.6.3 Contractor’s Environmental Consultant – Wenck Associates, Inc .................................. 4-13  
4.6.4 Owner’s Environmental Consultant ............................................................................... 4-13  
4.6.5 Regulatory Agency – Minnesota Pollution Control Agency ............................................. 4-14  
4.6.6 Regulatory Agency – U. S. Environmental Protection Agency (EPA) .............................. 4-14  
4.6.7 Groundwater systems, discovery of MEC or NBC ......................................................... 4-14  
4.7 Site Control ............................................................................................................................ 4-15  
4.8 Description of Potential Hazards ......................................................................................... 4-15  
4.8.1 Chemical Vapor Hazards ................................................................................................. 4-15  
4.8.2 Particulate Hazards .......................................................................................................... 4-16  
4.8.3 Physical Hazards ............................................................................................................. 4-16  
4.8.4 MEC and NBC .................................................................................................................. 4-16  
4.9 Field Screening and Sampling of Contaminated Soil ............................................................ 4-17  
4.9.1 Headspace Screening Procedure .................................................................................... 4-17  
4.9.2 Soil Segregation and Sampling ....................................................................................... 4-18  
4.9.3 Action Levels ................................................................................................................. 4-19  
4.10 General Soil Sampling Procedures ....................................................................................... 4-19  
4.10.1 Stockpile Sampling Parameters ...................................................................................... 4-20  
4.10.2 Typical Laboratory Methodologies ............................................................................... 4-20  
4.11 Disposition Requirements .................................................................................................... 4-21  
4.12 General Field Documentation Procedures ............................................................................ 4-21  
4.13 Excavation Backfill Material ................................................................................................. 4-21  

5.0 IMPLEMENTATION REPORTING ..................................................................................... 5-1  

6.0 REFERENCES ......................................................................................................................... 6-1
Table of Contents (Cont.)

TABLES

Table 4-1: General Stockpile Soil Sampling Rates ................................................................. 4-18
Table 4-2: Typical Laboratory Methodologies ................................................................. 4-20

FIGURES

Figure 1: Site Location
Figure 2: Site Detail Map
Figure 3A Soil Sample Locations Exceeding Applicable Residential Cleanup Goals
Figure 3B Soil Sample Locations Exceeding Applicable Residential Cleanup Goals
Figure 4: ESA Sections (after Plexus, 2004)
Figure 5: Building and Foundation Removal
Figure 6: Storm Sewer Removals
Figure 7: Sanitary Sewer Removals
Figure 8: Water Main Removals
Figure 9: Natural Gas Line Removals
Figure 10: Steam Line Removals
Figure 11: Railroad Removals
Figure 12: Fence Removals
Figure 13: Recycled Aggregate Pavement Storage Locations

APPENDICES

Appendix A: Historical Soil Analytical Databases
Appendix B: Screen Deck Specifications
1.0 Purpose and Scope

This Site Development Construction Contingency Plan (CCP) is to be reviewed and followed by all Ramsey County (County) personnel and all contractors and subcontractors assigned to work at the former Twin Cities Army Ammunition Plant (TCAAP) 427-acre transfer property, located within portions of Sections 9 and 16, Township 30 North, Range 23 West of the 5th Principal Meridian, (the Site). The Site boundaries are identified in Figure 1 to this CCP. This CCP sets forth the procedures to be followed during all below grade project activities at the Site and is designed to identify the presence of hazardous materials or releases or threatened releases of hazardous substances or petroleum, and provides guidance to Site personnel in the event that hazardous materials, hazardous substances or petroleum are encountered. A copy of the CCP will be kept on-Site in the project field superintendent’s office, in order to be readily available during construction activities.

The County now owns 397 of the 427 acres comprising the Site. The County has leased the remaining 30 acres of the Site from the United States (Leased Property). Figure 2 shows the locations of the Leased Property. The Leased Property is known to contain areas of impacts in excess of the Minnesota Pollution Control Agency (MPCA) Tier II Soil Reference Values for industrial land use (Tier II SRVs). The County will function as a response action contractor to complete the soil response action activities in the Leased Property on behalf of the United States Army (Army). This CCP is not intended to be applied to planned response action activities to address the known releases of hazardous substances in excess of the Tier II SRVs within the Leased Property. Those releases will be addressed under separate MPCA-approved investigation work plans and response action plans. Site clearance activities will not be performed in the Leased Property until the response actions are complete. Once response actions are complete in the Leased Property, this CCP will apply to all further subsurface activities conducted in those areas.

The County has contracted with Carl Bolander & Sons Co. (Bolander) to complete all Site demolition and response action activities at the Site. Bolander has subcontracted with Wenck Associates, Inc. (Wenck) to provide environmental engineering services to support the project. Bolander will complete the Site clearance activities to satisfy the Army’s obligation to remediate soil in the Leased Property to Tier II SRVs, additional remediation required under its contract with the County to remediate all Site soil to MPCA Tier I Soil Reference Values for residential use (Tier I SRVs), and perform environmental response actions to obtain a Commissioner’s Certificate of Completion for Site soil. As part of this process, the County will seek complete or partial removal of the Site from the state and federal Superfund lists and modification of the environmental covenant and existing land use restrictions to allow residential redevelopment throughout the Site.

The project activities contemplated by this CCP include the following, Site-specific, pre-development Site clearance, including:

- Building demolition activities, including slab and footing removals
- Storm sewer line and storm sewer structures removal
• Sanitary sewer line and sanitary sewer structures removal
• Water main removal
• Natural gas line removal, some of which is asbestos wrapped
• Utility pole removal
• Asbestos-wrapped steam line removal
• Railroad track, railroad ties, tie-plates, and ballast removal and reclamation
• Removal of fences, paved surfaces and other at-grade or below-grade structures

This CCP is a companion document to other Site-specific and project-specific Site Health and Safety Plans (SHSPs). The reader should also be familiar with the contents of the applicable SHSP(s) for a more complete understanding of the project activities, potential hazards, and safety procedures.

In the event that hazardous materials, including but not limited to asbestos-containing waste, lead paint, munitions or explosives of concern (MEC), nuclear, biological or chemical contamination (NBC), or previously unidentified releases of hazardous substances or petroleum, are encountered at the Site during project activities, the incident notice and other provisions of this CCP will be implemented.

This CCP has been prepared for the exclusive use of Ramsey County, Bolander and Wenck, and other contractors and subcontractors working at their direction and having a specific, contractual relationship with Ramsey County, Bolander or Wenck.
2.0 Site Description

2.1 SITE DESCRIPTION

The Site is identified by the address 2020 Highway Avenue, Arden Hills, Minnesota. The Site is located within portions of Sections 9 and 16, Township 30 North, Range 23 West of the 5th Principal Meridian. The Site is unplatted real property.

The 427-acre Site is located in the west-southwest portion of the larger, nearly four square mile (2,370-acre) former TCAAP facility. The Site is bounded to the west by Interstate 35, to the southwest by Highway 10, to the east by the Arden Hills Army Training Site (AHATS), and to the south by Highway 96 West (see Figure 1.)

2.2 PHYSICAL SETTING

2.2.1 Topography

The Site is characterized by gently rolling topography with surface elevations ranging from approximately 890 feet to approximately 930 feet above mean sea level.

2.2.2 Site Soils

Geology at the Site consists of approximately 0 to 50 feet of recent alluvium of the New Brighton Formation, consisting of fine sands overlying lacustrine silts, and is the local water table aquifer (referred to in former TCAAP property studies as the Unit 1 aquifer). The Twin Cities Formation, a reddish brown to gray silty clay and clayey sand till, underlies the New Brighton Formation and is considered the local aquitard (referred to as the Unit 2 till). Regionally it ranges up to 150 feet thick, where present. The Unit 2 till is present throughout the Site. Beneath the Twin Cities Formation is the Hillside Sand, a reddish brown medium-to coarse-sand with some gravel, silty sand and red sandy till (referred to as Unit 3). The Hillside Sand is up to 500 feet thick in areas of the TCAAP facility and is hydrologically connected with the underlying bedrock regional aquifer.

The bedrock present at the Site (Unit 4) consists of dolomite, and sandy dolomite of the Lower Ordovician aged Prairie du Chien Group. Below this is the Cambrian aged Jordan Sandstone, which is underlain by the St. Lawrence siltstone, a regional aquitard. The Jordan is the bottom of the flow regime studied as part of the Remedial Investigation activities at TCAAP.

2.2.3 Hydrogeology

Groundwater flow in the deep regional aquifer (Unit 3 and Unit 4) is well characterized and known to flow generally southwest based on the extensive network of monitoring wells, pumping wells, and
hydrologic investigations. Flow in the deep aquifers is controlled by a deep groundwater extraction and treatment system along the southwest boundary of the former TCAAP property.

Groundwater flow in the shallow water table aquifer (Unit 1) is controlled by surface water features such as ditches and wetlands on TCAAP. In the northern area of the Site, flow is generally toward Rice Creek and its local tributaries. In the southern portion flow is less well understood but has been found to not flow off of the former TCAAP property.

2.3 PAST AND CURRENT LAND USE

Much of the former TCAAP was constructed in a nine-month time frame beginning August 28, 1941. The TCAAP was established for the production of small arms ammunition, and was a federal government owned, contractor operated facility.

Production of ammunition occurred at TCAAP from February 1942 until the late 1970s. Production of .30- and .50-caliber ammunition during World War II and continued for 42 months until the facility was put on standby status near the end of World War II. The TCAAP facility was reactivated in August 1950 to support the Korean Conflict. Ammunition was produced until December 1957 when the facility was again placed on standby status. In December 1965, TCAAP was again reactivated during the Viet Nam Conflict. 7.62mm and 5.56mm ammunition was produced until approximately 1976. Limited munitions manufacturing by government contractors also occurred in some TCAAP buildings from the 1950s through the 1980s, and on a more limited basis, in the 1990s. All munitions production ceased at the Site in the early 2000s.

The Site is presently a mixture of open space, rail beds, roadways, parking lots, and abandoned industrial facility buildings (and foundations of former buildings) no longer in active use. The Site was most recently in “caretaker status,” meaning the Army is maintaining the property, but not with the intention of operating the facility. Many of the buildings formerly existing at the TCAAP facility have been razed in an effort to minimize potential problems due to vandalism, vagrants or fire. In some cases, the foundations of these former buildings remain in place. These remaining buildings have been subject to significant damage by vandals scavenging scrap metals, primarily copper.

On April 15, 2013, the County acquired title to 397 acres of the Site and entered into a Lease Agreement with the United States for the Leased Property (30 acres). Figures 2 through 13 show the lease areas. As part of the transaction with the County, the United States retained responsibility for Site groundwater, including for operation and maintenance of the groundwater remediation and monitoring well systems located on the Site, and certain other environmental conditions. The Army will continue to conduct all required groundwater sampling and the maintenance and monitoring of a groundwater treatment facility and associated wells, well houses, and other remediation infrastructure.
3.0 Prior Assessments

3.1 PRIOR ASSESSMENTS: SUMMARY OF CONCLUSIONS

The Site has been subject to on-going environmental investigations since 1978. Most significantly, the Site lies within Operable Unit 2 (OU2) of the New Brighton/Arden Hills Superfund Site. OU2 is defined as the area occupied by TCAAP in 1983, when the TCAAP site was placed on the National Priorities List and the Permanent List of Priorities (federal and Minnesota “Superfunds”). The remedial action requirements were set forth in the OU2 ROD (1997). ROD Amendment #1 related to Site C-2 (2007); ROD Amendment #2 related to Site I groundwater (2009); ROD Amendment #3 related to various soil sites (2009); Explanation of Significant Differences #1 related to groundwater (2009); and Explanation of Significant Differences #2 related to various soil sites (2009).

The cleanup program is referred to as the Installation Restoration Program (IRP) based on a Federal Facilities Agreement (FFA) signed in 1987 between the Army, the MPCA and the United States Environmental Protection Agency (EPA). The ROD and amendments describe the remedial requirements for fourteen identified sites within the 1983 TCAAP boundary. The progress of remediation and other activities are reported annually in a performance assessment report subject to USEPA and MPCA approval.

In 2004, 774 acres in the western portion of the former TCAAP facility (including the Site) were the subject of an extensive Phase I/Phase II ESA investigation as part of a potential land transfer. The Phase I/Phase II ESA report was entitled, Environmental Site Assessment, for 774-Acre Parcel, Phase I and Phase II Final Report, Prepared for U.S. Army Base Realignment and Closure Office, Contract No. DAA09-02-D-0010. It was prepared by Plexus Scientific, and dated February 20, 2004. (The Plexus report will be referred to in this document as the “2004 ESA.”)

Wenck prepared an addendum report to the 2004 ESA performed by Plexus. The report included some corrections of minor documentation errors, as well as some additional sampling conducted at the request of the EPA and MPCA. The report, entitled, Addendum Report for Phase I and Phase II Environmental Site Assessment, Twin City Army Ammunition Plant, was prepared by Tecumseh/Wenck Installation Support Services, and dated May 2005.

Another investigation was performed by Tetra Tech in June and July 2007, on behalf of RRLD, LLC, a private development firm assessing the feasibility of purchasing and redeveloping TCAAP for mixed use. Tetra Tech conducted additional investigations within the 2004 ESA subsections as part of this potential land transfer. The results of the assessment were never submitted to the MPCA and never made public; however, a summary of the assessment work with recommendations for additional delineation were submitted to the MPCA in September 2008 in a document entitled: Supplemental Remedial Investigation, Field Sampling Plan, TCAAP, 585-Acre Transfer Property, September 2008, herein referred to as the “Tetra Tech RI.”
Finally, Wenck reviewed the results of investigations conducted as part of the IRP and other studies, the data for which has been compiled by Wenck as part of its scope of services to the Army (Wenck is part of a team of engineering firms serving the Army with ongoing base maintenance and remediation services).

Available soil analytical databases in the TCAAP records were combined and screened to evaluate the historical data for the Site. Nineteen data sources were identified for screening. Soil samples from areas that have been remediated (removed, capped, etc.) were eliminated from the database. A summary of data exceeding the Tier I SRVs is presented in Table 1, located in Appendix A of this report. The column labeled “source” on Table 1 refers to the nineteen sources of historical data presented in Table 2, also located in Appendix A. Table 2 provides documentation and the location of the nineteen data sources.

The combination of results the 2004 ESA, the Tetra Tech RI, and the historical database screening provides a comprehensive summary of the soil data applicable to the Site. Figures 3a and 3b show historical soil sample data points within the 2004 ESA subsections where the Tier I SRVs were exceeded. (The details of each sample are difficult to show on a single figure.)

3.2 PHASE I AND PHASE II FINAL REPORT PREPARED FOR U.S. ARMY BASE REALIGNMENT AND CLOSURE OFFICE, CONTRACT NO. DAA09-02-D-0010

As noted in Section 3.1, the 2004 ESA divided the 774-acre property into a series of smaller subsections as a management tool to make discussion of historical activities at the Site less cumbersome. The 2004 ESA subsections are shown on Figure 4. Each subsection corresponds to a historical land use and is used here in a similar fashion to evaluate the historical data in the context of the present Site. The 2004 ESA discussed each subsection with regard to buildings, historical use, chemicals managed, and observations made on historical aerial photographs. A Phase II scope of work was developed for each subsection and the investigation results for each subsection were presented in the 2004 ESA. As noted, the Site comprises all or parts of 27 of the 2004 ESA subsections as shown on Figure 2. Since the Site has not been used for manufacturing or other industrial activities since approximately 2000, there have been no substantial changes to the Site since the 2004 ESA that would affect the current Site condition.

3.3 SUPPLEMENTAL REMEDIAL INVESTIGATION, FIELD SAMPLING PLAN, TCAAP, 585-ACRE TRANSFER PROPERTY, SEPTEMBER, 2008

The Tetra Tech RI conducted an extensive subsurface investigation which included advancing 416 soil borings across portions of a larger 525-acre property that included the Site, and collected soil, groundwater and soil gas samples. The Tetra Tech RI identified AOCs and associated contaminants at the Site that are generally very consistent with prior studies. At least two new areas with soil contaminants exceeding Tier II SRVs were identified by Tetra Tech. In Wenck’s Proposed Actions Letter submitted to the MPCA on February 11, 2013, these sample locations are identified as RI-1013-06 with iron exceeding the industrial SRV of 75,000 mg/kg, and RI-4006-09 with benzo(a)pyrene equivalents exceeding the industrial SRV of 3 mg/kg.

Groundwater samples were collected at ten boring locations by Tetra Tech. Analytical results showed no results exceeding regulatory drinking water standards (i.e., Minnesota Department of Health Risk Levels (HRLs) or EPA Maximum Contaminant Levels (MCLs),) in any of the ten groundwater samples.
4.0 Construction Contingency Plan

4.1 GENERAL

As noted above in Section 1.0, the Site is comprised of 427 acres of former TCAAP property. Title to 397 acres of the Site was transferred in April 2013 by the United States to the County. The County is leasing the remaining 30 acres of the Site and will complete soil response actions on behalf of the Army, after which title will transfer to the County. Figure 2 shows location of the Leased Property.

This CCP will be employed for proposed Site clearance activities throughout the Site. Prior to initiating below grade Site clearance activities within the Leased Property, Bolander will first complete any additional required soil investigation and will develop and obtain MPCA approval of a response action plan or plans to address the identified releases present in those areas. Above-grade portions of buildings within the Leased Property will be removed (subsequent to hazardous building materials abatement). Once response actions are complete in the Leased Property, this CCP will apply to all subsurface Site clearance activities conducted in those areas.

This CCP has been prepared to address the identification and handling of suspected petroleum, or non-petroleum impacted contaminated soil, as well as any unanticipated MEC, NBC or other wastes encountered during the implementation of the proposed subsurface Site clearance activities. Categories of potential wastes that may be encountered during Site clearance activities are discussed in greater detail in Section 4.3, below. If encountered, these materials must be managed consistent with statutes, rules, regulations and guidance from applicable federal, state and local agencies governing the excavation, management, sampling, storage, transportation and disposal of this material.

4.2 RECOGNITION OF POTENTIAL WASTE AND/OR CONTAMINATED SOILS

In the event that an unanticipated waste or contaminated soil is encountered, Wenck will conduct a hazard assessment/evaluation to determine health and safety requirements (i.e., assessment of monitoring activities, personal protective equipment (PPE) requirements, etc.). If necessary, upon completion of the field assessment, the SHSP will be modified within 24-hours. Safety requirements will then be communicated to all contractors that may potentially be involved in handling the unanticipated waste or contaminated soils.

The following occurrences may be signs that hazardous materials have been encountered at the Site during the subsurface activities:

- Strong or unusual chemical odors of solvents, petroleum, etc. from the excavation;
- Encountering suspected industrial waste such as tars, sludges, semi-solids, powders, resins, or liquids in the excavation;
- Encountering suspected ACM material;
- Discolored soils in or from the excavation;
• Drums and/or containers (labeled or unlabeled), buried metal objects such as cans, jars, or tanks in the excavation;
• Persons who suddenly become ill;
• Encountering potential MEC items within excavations;
• Encountering small arms ammunition within excavation; and
• Indications of a release though the use of PID, XRF or other field screening methods.

If any of the above occurs indicating that a hazardous substance may have been encountered, activities will be suspended pending further evaluation. As mentioned above, the Wenck FT will assess the situation using the available field instrumentation, PPE, and his/her own knowledge and experience to determine the nature of the material and whether it should be segregated for special handling. The FT will then ensure that Site personnel follow the instructions provided.

4.3 WASTE EVALUATION

In general, excavated, graded and/or augured soils from within the Project area will be continuously inspected for the presence of:

• Petroleum impacts,
• Demolition debris,
• General refuse,
• Free product (chemical Dense Non-Aqueous Phase Liquid [DNAPL], oil residues, sludge, etc.),
• Underground Storage Tanks (USTs),
• Barreled wastes,
• Electrical transformers,
• Creosote timbers,
• Motor vehicle batteries,
• Oil filters,
• Waste tires,
• Soils containing visible ash or clinkers,
• Stained soils and/or soils exhibiting strong or unusual odors,
• Asbestos-containing materials (ACM),
• Small arms ammunition,
• NBC items,
• MEC items, or
• Any other unusual fill material.

If the above items are identified during excavation (with the exception of MEC and NBC items, see Sections 4.3.14, and 4.3.15 below), the material will be segregated based on waste type. Additional discussion on segregation and screening procedures is discussed below.
4.3.1 Petroleum Impacts

Historically, there were many petroleum storage tanks on the Site. It has been represented that, over time, the Army removed tanks as they became no longer necessary for the specific purposes they were intended to serve. Some of these tanks may have been removed prior to regulatory requirements for certified tank removal contractors, or appropriate release reporting requirements.

If petroleum impacts are identified during Site work, the identified, impacted soil will be completely excavated from the area down to at least 15 feet below grade or to groundwater. The intent will be to completely excavate the petroleum-impacted soil. Areas where petroleum impacts have been excavated will be sampled in accordance with the QAPP.

It is anticipated that this soil will be stockpiled on-site until much of the Site excavation work has been completed. The stockpiled soil may be disposed of off-site, or, potentially, subject to MPCA and Ramsey County approval, treated on-Site. The decision will be based on the quantity of impacted soil, and the degree to which it contains contaminants of potential concern. The decision to remove the material to an off-site disposal facility will remain with the Wenck/Bolander team, in consultation with Ramsey County’s environmental consultant. Any decision to treat the material on-Site would be made with specific, written MPCA and Ramsey County approval.

If on-Site treatment was selected as the preferred option, it would require that the impacted media not contain hazardous substances, pollutants or contaminants exceeding any applicable Tier I SRV, and that the impacted media be improved into organic topsoil through the addition of composted cow manure, other organic matter (i.e., wood chips) and other material to: 1) hasten natural attenuation of Diesel Range Organic (DRO) compounds, and 2) result in the stockpile meeting the Minnesota Department of Transportation (MnDOT) Select Topsoil Borrow mix 3877.2B.

4.3.2 Building Materials

Building Materials (if encountered) will be segregated from soils and stored in an area designated by the FT separately from soil that appears unimpacted. Building materials will be appropriately characterized and subsequently disposed at a permitted demolition solid waste disposal facility. If asbestos-containing materials (ACM) or asbestos-containing waste materials (ACWM) are observed work will be discontinued and an appropriately certified inspector will be sent to the site to sample the material. If ACM or ACWM is identified, a licensed asbestos removal contractor will be hired to remove the material from the site, and appropriate courses of action will be followed pursuant to MPCA guidance document “Asbestos Guidance on Excavation Projects.” All work including but not limited to; notification, air monitoring, waste handling and disposal will be conducted per 40 CFR Part 61, Subpart M.

4.3.3 Refuse

Excavated materials may include a mixture of decomposable organic materials (wood, paper, vegetation, etc.) and inorganic material such as concrete, glass, plastic, metal, etc. Excavated refuse materials mixed with soil will be segregated and placed in a designated area for testing followed by off-Site disposal. Wenck, in consultation with the MPCA, will determine appropriate testing requirements for disposal purposes.

May 2013
4.3.4 Free Product

If free-product is encountered, work will cease until appropriate collection measures can be assembled on the site and the MPCA representative notified. Wenck, in consultation with the MPCA, will determine appropriate handling, testing and disposal requirements.

4.3.5 Underground Storage Tanks

If unknown underground storage tanks (UST) are encountered, following determination of whether any product remains, an MPCA-certified UST contractor will remove the tanks. Residual products will be removed from the tank(s) and transported off-site for proper disposal. The tank(s), if of iron construction, will be hauled to a scrap facility to be recycled. Wenck, in consultation with the MPCA, will determine appropriate handling, testing and disposal requirements. Additional response and sampling for USTs should be conducted in accordance with MPCA Rules Chapter 7150, Underground Storage Tanks, and associated MPCA petroleum brownfield program guidance.

4.3.6 Barreled Wastes

DOT approved overpack drums will be used to contain buried barreled wastes if they are discovered. Wenck, in consultation with the MPCA, will determine appropriate testing requirements for disposal purposes. After approval from the MPCA, testing of the materials will be conducted for disposal purposes. Wenck will retain appropriate documentation for future reference. The contents of the drum will be sampled and characterized for disposal in accordance with appropriate state and federal requirements.

4.3.7 Electrical Transformers

If buried electrical transformers are encountered, it should be immediately determined whether they are still connected and energized. They should be sampled for the presence of PCBs and handled according to Toxic Substance Control Act (TSCA) and applicable MPCA regulations. It should be ascertained whether they need to be drained prior to transport and handled according to Minnesota Department of Transportation (MNDOT) regulations. If leakage is observed surrounding the transformers, soil sampling should be conducted according to MPCA guidance. Removal action and associated confirmation testing associated with a PCB release will need to be completed pursuant to the project’s approved QAPP.

4.3.8 Creosote Timbers

Materials such as treated railroad ties or wooden pavers will be removed from the subsurface and managed appropriately (i.e., recycled or disposed of off-site). Wenck in consultation with the MPCA, will determine appropriate handling, testing and disposal requirements. Wenck will retain appropriate documentation for future reference. Railroad ties suitable for re-use as railroad ties will be managed by a subcontractor who, in turn, will market the ties to railroad users.
4.3.9 Batteries

Batteries (if encountered) will be segregated from soils and placed in a corrosion-resistant box. Any recovered batteries will be collected by an approved vendor and hauled off-site for recycling. Wenck, in consultation with the MPCA, will determine appropriate handling, testing and disposal requirements. Wenck will retain appropriate documentation for future reference.

4.3.10 Oil Filters

Oil filters will be segregated from the soil and placed in a steel 55-gallon drum. When a sufficient number of filters are accumulated, they will be picked up by an approved vendor and hauled off-site for recycling. Wenck, in consultation with the MPCA, will determine appropriate handling, testing and disposal requirements. Wenck will retain appropriate documentation for future reference.

4.3.11 Waste Tires

Waste tires will be segregated from the soil and placed in a covered roll-off container. When a sufficient number of tires are accumulated, they will be collected by an approved vendor and hauled off-site for recycling. Wenck, in consultation with the MPCA, will determine appropriate handling, testing and disposal requirements. Wenck will retain appropriate documentation for future reference.

4.3.12 Ash or Clinkers

If encountered, ash material containing clinkers will be segregated from the excavated materials. Such material will be appropriately characterized to ensure that it meets appropriate landfill approval. Wenck, in consultation with the MPCA and the receiving landfill, will determine appropriate testing requirements for disposal purposes. Following appropriate sampling and analytical testing, the materials will be hauled off site for proper disposal. Wenck, in consultation with the MPCA, will determine appropriate handling, testing and disposal requirements. Wenck will retain appropriate documentation for future reference.

4.3.13 Stained Soils or Soil Exhibiting Strong or Unusual Odors

Soils revealing petroleum, solvents or unusual staining or odors will be segregated from the excavated materials. The materials will be placed in stockpiles and screened using the field screening procedures in Section 4.9, below. Wenck, in consultation with the MPCA and the receiving landfill, will determine appropriate testing requirements for disposal purposes. Following appropriate sampling and analytical testing, the materials will be hauled off site for proper disposal. Wenck will retain appropriate documentation for future reference. Post removal verification sampling will be performed in accordance with the approved QAPP.
4.3.14 Munitions or Explosives of Concern

In the event excavation activities unearth what appears to be a MEC item(s) (fuses, mines, hand grenades or 40 mm grenades), Wenck will observe the following protocol:

- Immediately cease excavation activities in the vicinity of the item.
- Evacuate all personnel to a minimum safe distance of 500 feet from the item.
- Contact Ramsey County for direction.
- Upon approval of Ramsey County, contact the US Army representative Mike Fix.
- Upon approval of Ramsey County, contact the Ramsey County Sheriff’s Department bomb squad.

4.3.15 Nuclear, Biological and Chemical Items

The potential to encounter nuclear, biological, or chemical items on the TCAAP Site is extremely remote. Although depleted uranium was machined in building 502, the wing of the building associated with these activities has been demolished and soil removal completed. In the event excavation activities unearth what appears to be an unknown item suspected of being an NBC item, Wenck will observe the following protocol:

- Immediately cease excavation activities in the vicinity of the item.
- Evacuate all personnel to a minimum safe distance of 500 feet from the item.
- Contact Ramsey County for direction.
- Upon approval of Ramsey County, contact the US Army representative [insert name of US Army representative].

4.3.16 Small Arms Ammunition

In the event small arms ammunition is encountered in the excavation, Wenck will observe the following protocol:

- Small arms ammunition will be segregated and containerized.
- Contact the Bay West project manager for guidance on recycling small arms ammunition.
- Arrange for recycling the small arms ammunition.

4.4 ANTICIPATED SCOPES OF WORK

As noted in Section 1.0, the scopes of work specifically anticipated by this CCP include the following:

- Building demolition activities, including slab and footing removals
- Storm sewer line and storm sewer structures removal
- Sanitary sewer line and sanitary sewer structures removal
- Water main removal
- Natural gas line removal, some of which is asbestos wrapped
- Utility pole removal
- Asbestos-wrapped steam line removal
- Railroad track and ballast removal
- Removal of fences, paved surfaces and other at-grade or below-grade structures
4.4.1 Building Foundation Slab and Foundation Footing Removals

A major portion of the scope of work contemplated by the Bolander/Wenck team includes the removal of above-grade portions of existing buildings (after final hazardous building materials abatement activities have been completed and buildings have been cleared by Ramsey County Department of Public Health). Additionally, many buildings have already been wrecked to grade. Once the slab and footing systems are all that remains of these facility buildings, the foundation slabs will be inspected for the presence of floor drains, trench drains, dry wells, sumps or other structures that may suggest the potential for past releases of hazardous substances or petroleum. Such locations will be noted to ensure that particular care is given to the removal of foundation components that historically had conduits for potential liquid migration to the subsurface. Foundation components displaying staining from oil and grease, hydraulic fluids, burning or other activities with the potential to create soil impacts through cracks or expansion joints will be treated with particular caution. Figure 5 shows the buildings and foundation slabs proposed to be removed under the protocols described in this CCP.

When buildings and slabs are removed, Wenck will document the condition of the at-grade level of the building, and will develop a generalized figure showing the points of interest, including utility service entry points, floor drains, trench drains, dry wells, sumps and other structures. GPS coordinates of the locations of the corners of the former building, as well as locations of significant features of interest, will be collected for the purpose of guiding subsequent field investigation activities necessary to document environmental conditions. At all significant features as well as other areas where field observations indicate a likely release has occurred beneath the removed slab of a structure, Wenck will observe the following protocol:

- Collect detailed field notes and photographs of the location;
- Collect positional data for the location either using a sub-meter GPS or survey equipment;
- Conduct headspace screening of soil from the location with a PID to record the presence or absence of elevated organic vapors; and

In each such area, follow-up sampling under the approved project QAPP and FSP will be required as part of the subsequent field investigation activities.

4.4.2 Storm Sewer Removals

Storm sewers and storm sewer structures are located at the Site as depicted in Figure 6. Where these systems and structures exist outside the 30 acres of lease area but within the area of the larger 427-acre Site, these systems will be removed prior to completion of required response action activities. Once those activities are complete, any remaining subsurface structures will be removed as directed by the protocols described herein. Particular care will be given to evaluating the contents of the storm sewers and storm sewer structures for the potential presence of tars, oily residues or chemical sludges. The Wenck field technician will pay special attention to soil conditions surrounding storm sewer joints, unions, and manholes, as these are likely locations for a potential contaminant release to the environment due to sewer exfiltration.
If field observations indicate a potential contaminant release has occurred due to exfiltration or a failed storm sewer line, Wenck will observe the following protocol:

- Collect detailed field notes and photographs of the location;
- Collect positional data for the location either using a sub-meter GPS or survey equipment;
- Conduct headspace screening of soil from the location with a PID to record the presence or absence of elevated organic vapors; and

In each such area, follow-up sampling under the approved project QAPP and FSP will be required as part of the subsequent field investigation activities.

### 4.4.3 Sanitary Sewer Removals

Sanitary sewers and sanitary sewer structures are located at the Site as depicted in Figure 7. Where these systems and structures exist outside the 30 acres of lease area but within the area of the larger 427-acre Site, these systems will be removed prior to completion of required response action activities. Once those activities are complete, any remaining subsurface structures will be removed as directed by the protocols described herein. Particular care will be given to evaluating the contents of the sanitary sewers and sanitary sewer structures for the potential presence of tars, oily residues or chemical sludges. If tars, oily residue, or chemical sludges are identified within sanitary sewer lines, the residue will be removed and segregated by Bolander for proper disposal characterization. Sections of sewer line containing tars, oil residue, or chemical sludges, will also be segregated for proper cleaning and disposal.

The Wenck field technician will pay special attention to soil conditions surrounding sanitary sewer joints, unions, and manholes as these are likely locations for a potential contaminant release to the environment due to sewer exfiltration. In the event field observations indicate a potential contaminant release has occurred due to exfiltration or a failed sanitary sewer line, Wenck will observe the following protocol:

- Collect detailed field notes and photographs of the location;
- Collect positional data for the location either using a sub-meter GPS or survey equipment;
- Conduct headspace screening of soil from the location with a PID to record the presence or absence of elevated organic vapors; and

In each such area, follow-up sampling under the approved project QAPP and FSP will be required as part of the subsequent field investigation activities.

### 4.4.4 Water Main Removals

Water main and water supply structures are located at the Site as depicted in Figure 8. Where these systems and structures exist outside the 30 acres of lease area but within the area of the larger 427-acre Site, these systems will be removed prior to completion of required response action activities. Once those activities are complete, any remaining subsurface structures will be removed as directed by the protocols described herein. It is not anticipated that the water mains will contain wastes, such as would be anticipated in sanitary or storm sewers.
4.4.5 Natural Gas Line Removals

Natural gas line is located at the Site as depicted in Figure 9. Portions of the natural gas line are known to be covered by asbestos material. A separate Emission Control Plan and an asbestos abatement plan will be developed to govern the asbestos removal and disposal of the natural gas line. Natural gas line will be exposed in an open trench in approximately 30 to 50 foot sections. The condition of the gas line will be inspected for the type and condition of corrosion protective wrap. Upon verification that no asbestos is in the surrounding soil, the gas line will be cut and that section removed. After removal the next section of gas line will be removed in the similar process. It is our understanding that the corrosion protective wrap is a category 1 non-friable product. The purpose of the CCP is to deal with the potential for the trench containing the natural gas line to be impacted by unknown releases or wastes. This CCP is not to replace the specific removal plan for asbestos containing materials.

4.4.6 Steam Line Removals

Underground steam line and condensate return lines, and steam line structures are located at the Site as depicted in Figure 10. These systems will be removed up to the eastern boundary of the Site. Additionally, in three locations a short distance north and east of the power plant building (Building 115), underground steam line and condensate return lines transect Leased Property areas containing impacts to be mitigated under MPCA-approved response action plans.

The underground steam line and condensate return lines are known to be wrapped in asbestos-insulating materials. A separate Emission Control Plan and an asbestos abatement plan will be developed to govern the asbestos removal and disposal of the underground steam line and condensate return lines. Steam line will be exposed in an open trench in approximately 10 to 30 foot sections. The condition of the steam line and condensate return line will be inspected for condition. If friable asbestos is observed in surrounding soil after removal of the steam and condensate lines, the impacted soil will be over-excavated and loaded into lined roll-off containers for transportation to a landfill permitted to accept asbestos-containing waste. The roll-off containers will be covered prior to transport. Excavation activities will be monitored in accordance with an approved emission control plan.

If no asbestos is observed in the surrounding soil, the steam and condensate return lines will be glove-bagged and removed and placed in a lined roll-off container for transportation to a landfill permitted to accept asbestos-containing waste. Roll-off containers will be covered prior to transport.

Where soil affected by friable asbestos has been removed, verification of removal efficacy will require sampling in accordance with MPCA guidance document w-sw4-03, “Asbestos Guidance on Excavation Projects.”

The purpose of the CCP is to deal with the potential for the trench containing the underground steam line and condensate return lines to be impacted by unknown releases or wastes. This CCP is not to replace the specific removal plan for asbestos containing materials.

4.4.7 Railroad Track and Ballast Removals

Railroad track is located at the Site as depicted in Figure 11. The railroad track, ties, tie plates and spikes will be removed by a railroad removal contractor. The railroad track and track systems are high-value
material suitable for re-use as railroad track. Once removed from the Site they will become the property of the railroad removal contractor. If railroad ties are removed that are unsuitable for re-use, either because they are rotten or damaged, they will be disposed in a permitted landfill by Bolander.

Upon completion of the removal of the track, Bolander will excavate the entire track bed (ballast) in an effort to re-claim the high-value rock used as railroad track base. The material will be excavated to the full width and depth of the rail bed and screened using a portable screen similar to that shown in Appendix A. Segregated rock will be sold or re-used off-site. Fines from the aggregate screening process (i.e., material that passes through the screen deck), will be profiled for potential off-Site disposal in accordance with SKB Environmental Landfill’s permit requirements.

If the fines from the screening process are well within applicable re-use criteria for metals, polynuclear aromatic hydrocarbons (PAHs), and DRO, the media will be amended with organic media and used as topsoil in areas of the Site requiring restoration for soil erosion stabilization, in accordance with the MPCA’s February 2012 guidance document “Best Management Practice for the Off-Site Reuse of unregulated fill.” If the total benzo(a)pyrene equivalents approach the residential criteria of 2.0 milligrams per kilogram (mg/kg), the media will be landfilled. Similarly, metal results will be compared to residential criteria to ensure the media does not contain antimony, arsenic, barium, cadmium, chromium, copper, lead, manganese, mercury, selenium, silver, thallium, or vanadium above concentrations of concern for a residential reuse setting. The soil must also comply with the MPCA’s guidance on management and reuse of petroleum contaminated soil as described in their 2012 guidance document “Best Management Practice for the Off-site Reuse of Unregulated Fill.”

4.4.8 Power Pole Removals

Approximately 300 power poles are located on the Site. This situation is similar to the concern relative to the railroad bed where there has been contact between soil and treated lumber. Bolander anticipates removing soil from the area where the soil may have been in contact with lumber treated by wood-treating chemicals (either creosote or, possibly, pentachlorophenol or chromated-copper arsenate) by augering out the soil from the footing area of the pole to a minimum depth of one foot below the pole (the depth to which the poles have been set will be field verified).

The poles will initially be removed by a pile-removing machine that will vibrate the pole from the soil. A tractor-mounted helical auger will be advanced, and soil purged from the footing area. The soil removed from the footing area of the poles will be stockpiled on a parking lot surface where it will be characterized. The soil will be covered by plastic during the period of time it is on-site awaiting profiling. As in Section 4.4.7, soil will be analyzed for the metals antimony, arsenic, barium, cadmium, chromium, copper, lead, manganese, mercury, selenium, silver, thallium, and vanadium. Unlike Section 4.4.7, the semi-volatile list will include phenolic compounds as well as PAHs. Additionally, the soil will be analyzed for polychlorinated biphenyls (PCBs), due to the potential for pole-mounted transformers to have contained dielectric fluids containing PCBs. Other analyses (e.g., TCLP, etc.), will be characterized per SKB Environmental’s facility permit for special waste disposal, after which the soil will be transported off-site for disposal.
4.4.9 Removal of Fence, Paved Surfaces, and other Structures

Fencing is located at the Site as depicted in Figure 12. Much of the perimeter fencing will remain at the Site for Site security. However, at or near the completion of the project activities, the remaining fencing will be removed. Screening of the fence removal activities will be conducted in accordance with the CCP activities described herein.

Within the 427-acre area are over 70 acres of pavement comprising parking lots or roads. Prior to removal and recycling of road surfaces and parking lots, the pavement section will be inspected to determine how much wear course, base course, and sub-base is present. The entire pavement section will be removed for recycling. Material will be processed using an onsite crusher. Recycled Asphalt Pavement will be stockpiled in locations shown on Figure 13. In all likelihood, the Recycled Asphalt Pavement will be purchased by Ramsey County for reuse on site.

4.5 INCIDENT NOTIFICATION

If unknown materials or unexpected conditions are encountered during Site activities, project staff will be notified in the following order:

IF THE INCIDENT REPRESENTS AN IMMEDIATE DANGER TO LIFE OR HEALTH, CALL EMERGENCY SERVICES: 911

Contact #1: Wenck Project Manager
Joe Otte
Cell: (651) 402-0841

Contact #2: Bolander Project Manager
Todd Planting
Cell: (612) 919-4112

Contact #3: Property Owner’s Representative (Ramsey County)
Jay Biedny
Cell: (651) 249-5071

Contact #4 (in the event of a reportable release): Minnesota State Duty Officer
800-422-0798
651-649-5451

Contact #5 Regulatory (non-petroleum contamination): MPCA Project Manager
Shanna Schmitt
Office: (651) 757-2753

Contact #6 Regulatory (petroleum contamination): MPCA Project Manager
Mark Koplitz
Office: (651) 757-2503
4.6  PROJECT CONTACT INFORMATION

4.6.1  Property Owner – Ramsey County

Contact 1:
Mr. Jay Biedny
Project Manager
Ramsey County
121 Seventh Place East
Suite 2200
St. Paul, MN 55101-2146
Phone: (651) 249-5071 (mobile)
Email: jay.biedny@co.ramsey.mn.us

Contact 2:
Ms. Heather Worthington
Deputy County Manager
Ramsey County
15 West Kellogg Boulevard
St. Paul, MN 55102
Phone: (651) 262-9896 (mobile)
Email: heather.worthington@co.ramsey.mn.us

4.6.2  Construction Contractor Information

Contact 1:
Mr. Todd Planting
Project Manager/Estimator
Carl Bolander & Sons
251 Starkey Street
PO Box 7216
St. Paul, MN 55107
Phone: (612) 919-4112 (mobile)
Email: todd@bolander.com

Contact 2:
Mr. Mark Ryan
President
Carl Bolander & Sons
251 Starkey Street
PO Box 7216
St. Paul, MN 55107
Phone: (612) 366-3800 (mobile)
Email: mark@bolander.com
4.6.3 **Contractor’s Environmental Consultant – Wenck Associates, Inc.**

**Contact 1:**
Mr. Joe Otte  
Principal  
Wenck Associates, Inc.  
1802 Wooddale Drive  
Suite 100  
Woodbury, MN 55125  
Phone: (651) 402-0841  
Email: jotte@wenck.com

**Contact 2:**
Mr. Tony Rohs  
Principal  
Wenck Associates, Inc.  
1800 Pioneer Creek Center  
P.O. Box 249  
Maple Plain, MN 55359-0259  
Phone: (612) 991-4261  
Email: trohs@wenck.com

4.6.4 **Owner’s Environmental Consultant**

**Contact 1:**
Mr. Rick Van Allen  
Project Manager  
Bay West, Inc.  
5 Empire Drive  
St. Paul, MN 55103  
Phone: (651) 785-7621  
Email: rickv@baywest.com

**Contact 2:**
Mr. Bryan Murdock  
Commercial and Industrial Services Manager  
Bay West, Inc.  
5 Empire Drive  
St. Paul, MN 55103  
Phone: (651) 248-4291  
Email: bryannm@baywest.com
4.6.5 Regulatory Agency – Minnesota Pollution Control Agency

**Contact 1 (if Non-Petroleum-Related Contamination is identified):**
Ms. Shanna Schmitt, Project Manager
Voluntary Investigation and Cleanup (VIC) Program
MPCA
520 Lafayette Avenue
St. Paul, MN  55155-4194
Phone: (651) 757-2753 (office)
Email: Shanna.Schmitt@state.mn.us

**Contact 2 (if Petroleum-Related Contamination is identified):**
Mr. Mark Koplitz, Project Manager
Petroleum Brownfield Program
MPCA
520 Lafayette Avenue
St. Paul, MN  55155-4194
Phone: (651) 757-2503 (office)
Email: mark.koplitz@state.mn.us

4.6.6 Regulatory Agency – U. S. Environmental Protection Agency (EPA)

**Contact:**
Mr. Tom Barounis
U.S. EPA - Region 5
Mailcode SR-6J
Ralph H. Metcalfe Building
77 West Jackson Boulevard
Chicago, IL   60604
Phone: (312) 353-5577 (office)
Email: Barounis.Thomas@epamail.epa.gov

4.6.7 Groundwater systems, discovery of MEC or NBC

**Contact:**
Mr. Mike Fix (or successor to be designated by the US Army)
US Army
470 West Highway 96, Suite 100
Shoreview MN, 55126
Phone: (651) 294-4930
Email: mike.fix@us.army.mil

**MEC Contact:**
Ramsey County Sheriff Bomb Squad
Phone: 911
4.7 SITE CONTROL

During all subsurface construction activities, Wenck will have an experienced field technician (FT) on-site to oversee the excavation and handling of the Site soil. The designated FT will likely supervise other field inspection personnel, depending on the number of field crews and the nature of the field activity. If during these activities, including the screening procedures required by this CCP, contaminated media is encountered the FT will respond immediately, and have Site control. The FT will provide on-Site hazard evaluation of the encountered wastes or contaminated soil and coordinate communication with the parties listed above as to the findings, recommended actions, or any change in status relative to the existing, approved work plans. Field activities shall not proceed until the situation is analyzed and Site health and safety considerations resolved.

While on-Site, the FT will monitor and collect samples for testing and disposition determination of any such wastes or contaminated soil, including maintaining the appropriate documentation throughout the project (i.e., chain-of-custody documentation, lab testing results, disposal manifests, etc.). The FT and other field technicians shall have, at a minimum, a 40-Hour Hazardous Site Worker Operator (HAZWOPER) Certification, including any and all 8-hour refreshers.

If wastes or contaminated soil is encountered during Site work, an exclusion zone will be designated on-site around the area of concern. The zone will be physically delineated by the FT with flagging, caution tape, or fencing, as appropriate.

The FT will direct the construction contractor to provide the necessary workers or subcontractors to perform any work within the exclusion zone. All personnel allowed entry into the exclusion zone shall be properly trained and certified. Prior to conducting the work the contractor will be required to provide copies of personnel 40-hour HAZWOPER certifications as well as a copy of the contractor’s Health and Safety Plan prior to conducting work. Only personnel who have proof of up-to-date certification (i.e., HAZWOPER) will be allowed to enter the exclusion zone.

Public access to the Site will be restricted, and any compromised perimeter fencing that may allow unauthorized access will be promptly repaired. In the event that an exclusion zone is needed, the FT will direct further response actions in conjunction with MPCA oversight.

4.8 DESCRIPTION OF POTENTIAL HAZARDS

4.8.1 Chemical Vapor Hazards

Based on investigation findings, it is possible that low concentrations of chemical vapors may be generated during invasive earthwork activities at site. The concentrations are not expected to pose a health risk to on-site workers or downwind personnel. Should the FT discover evidence of a potential vapor hazard, site activities will be temporarily discontinued. The area in question will be secured and evaluated. Work will continue only after the hazard has been thoroughly evaluated and mitigation and air monitoring plans have been generated.
4.8.2 Particulate Hazards

Particulate matter may be made airborne during excavation activities. Inhalation is the most rapid route of exposure to the body by immediately introducing substances to the respiratory tissue and bloodstream. Health hazards to on-site workers could also exist from ingestion and through dermal contact with compounds. Ingestion of substances should be significantly reduced by forbidding eating, drinking, smoking, and any other hand-to-mouth activities on-site. Hands and face should be washed after leaving the site and prior to any eating, drinking or smoking. Dermal contact will be minimized by hand washing, wearing proper protective clothing, and by using gloves during sampling activities. One or more water trucks containing non-potable water will be staged on-Site for dust suppression needs.

4.8.3 Physical Hazards

The project poses some physical hazards, which need to be addressed in order to perform the work in a safe manner. Potential physical hazards include but are not limited to the following:

- Operating or working near heavy equipment such as a cranes, excavators, front-end loaders, end-dumps and side-dump trucks, etc.
- Working within a confined space such as an excavation, tunnel, manhole, etc.
- Working within the vicinity of overhead power lines and underground utilities.
- Working in areas that are off the ground.
- Seasonal weather related problems.

Operating and working around heavy construction equipment shall conform to applicable OSHA standards. Safety around equipment must also be a consideration when traveling to and from the Site, moving equipment from location to location and performing maintenance work.

Excavations may represent a confined space, a confined space being deep enough where a standing person’s head is below grade/ground surface. Excavations shall not have side slopes in excess of 2 horizontal to 1 vertical unless properly shored. Due to the potential dangers of engulfment, presence of hazardous airborne constituents, lack of oxygen, or lack of entry/exit access, no worker will be allowed to enter a confined space without proper approval.

The Site has numerous underground utilities. The locations of these utilities are well-documented, and are generally depicted on the figures accompanying this report.

Overhead power lines are also present at the Site. A safe distance will be kept when working around overhead power lines. If necessary, power lines will be shrouded to increase visibility and worker awareness. Most transmission power lines are no longer energized, however, some electrical distribution power lines remain.

4.8.4 MEC and NBC

During World War II, and the Korean and Vietnam conflicts, TCAAP manufactured small arms ammunition (.50 caliber and smaller). US Army guidance does not consider small arms ammunition MEC, it is not considered hazardous and does not require special training to handle. In the event
quantities of small arms ammunition are encountered during excavation activities, the material must be segregated and containerized. Small arms ammunition can be disposed of as non-hazardous material if it is recycled. If small arms ammunition is disposed of as waste (i.e. landfilled), it must managed as hazardous waste.

More recent occupants of the buildings at TCAAP, primarily former building 103, building 502, and building 104, manufactured mines and fuzes. Although the likelihood of these items being present on the Site is remote, they do pose a potential explosive hazard.

Army Reserve training conducted on the eastern half of the former TCAAP property may have resulted in stray munitions on the Site, most likely hand grenades and 40 mm grenades. These items, although typically training munitions and not live munitions, may still pose an explosive hazard.

Previous occupants of TCAAP manufactured parts composed of depleted uranium (DU), a weakly radioactive uranium isotope considered a toxic heavy metal. Cleanup and decommissioning of the DU machining areas of building 502 was completed in approximately 2005 to 2006.

4.9 FIELD SCREENING AND SAMPLING OF CONTAMINATED SOIL

The following presents a general overview of the collection of soil samples for field screening and analytical testing. Field screening and soil sampling activities associated with petroleum and/or solvent-related impacts will follow the procedures outlined in MPCA Guidance Document 4-04.

4.9.1 Headspace Screening Procedure

Contaminated soils will first be screened for the presence of petroleum and solvent-related constituents using soil headspace methodology and sheen testing. The following equipment will be used to conduct headspace organic vapor screening: photoionization detector (PID), clean, pint-sized polyethylene bag baffles, log book, or record sheet, and approved personal protective equipment.

Photo-ionization detectors (PIDs) will be equipped with a 10.6 eV lamp source. Headspace screening will be performed using PID instrumentation. The PID calibration will be performed on-site and at least daily to yield “total organic vapors” in volume parts per million (ppm) of an isobutylene equivalent. Wenck will follow the manufacturer’s instructions for operation, maintenance, and calibration of the instrument. Wenck will keep calibration records in the field book.

Wenck will collect samples from excavation walls, soil piles, or backhoe buckets from freshly exposed surfaces. For consistency, only static headspace analysis for field screening of soil samples is to be used. Static headspace analysis must be performed using the following method:

1. Using a stainless steel spoon or gloved hand, half-fill a new polyethylene bag with sample (the volume ratio of soil to air is equal), then immediately seal it. Manually break up the soil clumps within the bag.
2. Allow headspace development for at least 15 minutes at approximate room temperature. Vigorously shake bags for 15 seconds at the beginning and end of the headspace development period. When temperatures are below the operating range of the instrument, perform headspace development and analysis in a heated vehicle or building. Keep the sample in a
shaded area out of direct sunlight. Record the ambient temperature during headspace screening. Complete headspace analysis within approximately 20 minutes of sample collection.

3. After headspace development, introduce the instrument sampling probe through a small opening in the bag to a point about one-half of the headspace depth. Keep the probe free of water droplets and soil particles.

4. Record the highest meter response on a sampling form. Maximum response usually occurs within about two seconds. Erratic meter response may occur if high organic vapor concentrations or moisture is present. Note any erratic headspace data in the field book.

Impacted soil exhibiting headspace results greater than 10 ppm will be segregated separately from impacted soil exhibiting a headspace result less than 10 ppm. Soil not exhibiting any of the evidence of petroleum impacts or waste types listed in Section 4.3 will not be sampled and will be re-used on-site as unrestricted fill.

4.9.2 Soil Segregation and Sampling

Soil exhibiting contamination not related to above-listed constituents will be segregated and stockpiled based on the waste characteristic or type. The FT will determine and secure a staging area for placement of contaminated soil. The FT will prepare the area by placing a 10-mil plastic on the ground and constructing a 1-foot high soil berm around the perimeter. The plastic will extend beyond the perimeter berm to prevent runoff from and run-on to the staging area. At the end of the day, and prior to leaving the site, the stockpile(s) will be covered with 10-mil plastic sheeting and properly secured. The cover will extend beyond the perimeter soil berm and will be maintained as necessary.

Soil will be sampled at the following rates:

<table>
<thead>
<tr>
<th>Stockpile Size (cubic yards)</th>
<th>Number of Samples</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 300</td>
<td>1 per 100 cubic yards</td>
</tr>
<tr>
<td>300 – 1,000</td>
<td>1 per 200 cubic yards</td>
</tr>
<tr>
<td>Greater than 1,000</td>
<td>1 per 500 cubic yards</td>
</tr>
</tbody>
</table>

Note: Sampling frequency will be determined in cooperation with landfill and MPCA representatives
4.9.3 Action Levels

<table>
<thead>
<tr>
<th>Parameter Monitored</th>
<th>Action Level</th>
<th>Action Taken</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Hydrocarbons</td>
<td>1 ppm increase of downwind over upwind concentrations sustained for 15 minutes or more</td>
<td>• Investigate source and extent of material generating odorous hydrocarbons &lt;br&gt;• If material is expected to be extensive, continue work with respirators equipped with combination activated carbon and high efficiency particulate air filters. &lt;br&gt;• Remove respirators when the hydrocarbon concentration difference is less than 1 ppm</td>
</tr>
<tr>
<td>Fugitive Dust</td>
<td>Visible Dust Plume</td>
<td>• Move personnel upwind of work &lt;br&gt;• Spray water on dust source &lt;br&gt;• If water is not effective due to high winds, stop work until wind speed is reduced to below 10 mph</td>
</tr>
<tr>
<td>Total Suspended Particulate (TSP)</td>
<td>0.1 mg/m³ increase of downwind over upwind concentrations sustained for 15 minutes or more</td>
<td>• Investigate source and extent of material generating fugitive particulate &lt;br&gt;• If material is expected to be extensive, continue work with respirators equipped with high efficiency particulate air filters. &lt;br&gt;• Remove respirators when the TSP concentration difference is less than 0.1 mg/m³</td>
</tr>
</tbody>
</table>

4.10 GENERAL SOIL SAMPLING PROCEDURES

Prior to collecting soil samples, each sample container label will be completed in the field using a waterproof permanent marker. Labels will include the following information:

- Site name
- Sample identification code
- Project number
- Date/time
- Sampler’s initials
- Preservation added (if any)
- Analysis to be performed

To minimize the possibility of cross-contamination a new pair of disposable (i.e., nitrile or latex) gloves will be used for each sample collected. When using a sampling tool (i.e., spade or coring device), wash the tool with a detergent solution (e.g. Liquinox®, Alconox® or equivalent), rinse it, and then dry it before each use.
Samples collected for laboratory analyses will be immediately placed in their appropriate lab-provided containers (with preservatives if applicable), placed on ice and shipped to the laboratory for analysis. When sampling excavation stockpiles, sidewalls or floors, the FT will remove at least one foot of exposed soil prior to collecting the sample to ensure the collection of a fresh sample. Samples previously used for soil screening or soil classification for analytical samples will not be used for laboratory analysis.

Quality control samples including blind field blanks, matrix spike (MS) and matrix spike duplicate (MSD) samples will be collected as part of the field sampling activities. Field duplicate samples will be collected at a ratio of 1:10. MS and MSD samples will be collected at a rate of 1:10 for the MS samples and 1:20 for the MSD samples. Laboratory-provided trip blanks will be sent with all sample coolers containing volatiles samples.

Where samples are collected for the purpose of supporting land use changes, sampling shall be conducted in accordance with the approved QAPP.

### 4.10.1 Stockpile Sampling Parameters

Soil stockpile sample parameters will be determined after consulting with the MPCA. In general, sample parameters will depend on field screening results and type of waste. Sampling parameters, at a minimum, shall comply with the selected waste disposal facility’s permit requirements. The waste disposal facility for non-hazardous impacted soil will be the SKB Environmental facility in Rosemount, Minnesota. Stockpiling of non-recyclable media is generally not anticipated, unless a waste stream not anticipated by historical investigation activities is discovered, or in the event of a large quantity of petroleum-impacted soil, which would require characterization to determine disposition.

### 4.10.2 Typical Laboratory Methodologies

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Method</th>
<th>Sample Container</th>
<th>Sample Volume</th>
<th>Field Preservation</th>
<th>Hold Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals</td>
<td>Method 6010/7471</td>
<td>4 oz. glass</td>
<td>150 grams</td>
<td>None</td>
<td>180 days</td>
</tr>
<tr>
<td>TCLP Metals</td>
<td>Method 6010/7471</td>
<td>4 oz. glass</td>
<td>250 grams</td>
<td>None</td>
<td>180 days</td>
</tr>
<tr>
<td>PCBs</td>
<td>Method 8082</td>
<td>4 oz. glass</td>
<td>250 grams</td>
<td>None</td>
<td>14 days</td>
</tr>
<tr>
<td>PAHs</td>
<td>Method 8270 by SIM</td>
<td>4 oz. glass</td>
<td>250 grams</td>
<td>None</td>
<td>14 days</td>
</tr>
<tr>
<td>DRO</td>
<td>8015</td>
<td>60 ml amber glass</td>
<td>25-35 grams</td>
<td>None (lab preserved w/methylene chloride)</td>
<td>14 days</td>
</tr>
<tr>
<td>GRO</td>
<td>8015</td>
<td>60 ml amber glass</td>
<td>25-35 grams</td>
<td>Methanol</td>
<td>14 days</td>
</tr>
<tr>
<td>Oil &amp; Grease</td>
<td>Method 9071</td>
<td>4 oz. glass</td>
<td>30 grams</td>
<td>None</td>
<td>28 days</td>
</tr>
<tr>
<td>Herbicides</td>
<td>Method 8151</td>
<td>4 oz. glass</td>
<td>250 grams</td>
<td>None</td>
<td>14 days</td>
</tr>
<tr>
<td>Pesticides (organophosphate compounds)</td>
<td>Method 8141</td>
<td>4 oz. glass</td>
<td>250 grams</td>
<td>None</td>
<td>14 days</td>
</tr>
<tr>
<td>Pesticides</td>
<td>Method 8081</td>
<td>4 oz. glass</td>
<td>250 grams</td>
<td>None</td>
<td>14 days</td>
</tr>
<tr>
<td>Nitrate + Nitrite, Nitrogen</td>
<td>353.2</td>
<td>2 oz. glass</td>
<td>30 grams</td>
<td>None</td>
<td>28 days</td>
</tr>
<tr>
<td>VOCs</td>
<td>Method 5030</td>
<td>2 oz. glass</td>
<td>30 grams</td>
<td>None</td>
<td>14 days</td>
</tr>
<tr>
<td>Asbestos fiber analysis for bulk samples - PLM Test Method</td>
<td>Method 7471</td>
<td>4 oz. glass</td>
<td>30 grams</td>
<td>Chilled between 2 and 6 degrees Celsius</td>
<td>28 days</td>
</tr>
</tbody>
</table>

| Mercury                  | Method 7471     | 4 oz. glass      | 30 grams       |                   |           |

May 2013
If through consultation with the MPCA it is determined samples not included in the above list are required for disposal or confirmation purposes laboratory, methodologies will be forwarded to the MPCA at that time.

4.11 DISPOSITION REQUIREMENTS

Waste generated during the project that has been determined to not meet the reuse scenarios discussed above will be appropriately profiled and disposed in a permitted landfill within thirty days of receiving landfill disposal approval.

4.12 GENERAL FIELD DOCUMENTATION PROCEDURES

General field documentation procedures include:

- The FT will maintain a daily field log which will contain the following information: date, time, temperature, wind direction, name of personnel on-site (contractors, regulatory officials, Ramsey County representatives, etc.) status of project, and monitoring results from the Contractor and Wenck.
- Photo-documentation of the field work.
- The FT will maintain all disposal documentation generated during the field activities.
- Organization and proper handling of any other necessary documentation generated during the field activities.

4.13 EXCAVATION BACKFILL MATERIAL

Site restoration activities are not contemplated in the overall scope of work. Rather, work areas or excavation areas will be stabilized with on-site borrow or soil, and all disturbed areas stabilized in accordance with the erosion control plan. Unsafe slopes, per OSHA Standard 29 CFR 1926, will be stabilized to ensure no physical hazard remains after completion of the various scopes of work.
5.0 Implementation Reporting

Upon completion of the Site grading and utility activities (i.e., all soil work) related to the construction project, an implementation report summarizing the CCP activities, and any laboratory analytical testing results necessary to document Site conditions, will be submitted to the MPCA for review.
6.0 References


Figures
For each of the red shaded points below, start at the X,Y coordinate, then due North 90 feet, due East 90 feet, due South 90 feet, and due West 90 feet. (Coordinates are in UTM, Zone 15N, NAD 83, Meters)

<table>
<thead>
<tr>
<th>ID</th>
<th>Description</th>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Site K Trench</td>
<td>484,505.37</td>
<td>4,993,079.81</td>
</tr>
<tr>
<td>1</td>
<td>Extraction Well</td>
<td>486,546.29</td>
<td>4,993,101.48</td>
</tr>
<tr>
<td>2</td>
<td>Monitoring Well</td>
<td>486,546.29</td>
<td>4,993,101.48</td>
</tr>
<tr>
<td>3</td>
<td>Groundwater Treatment Buildings</td>
<td>485,505.37</td>
<td>4,993,079.81</td>
</tr>
</tbody>
</table>

SLDG 502 (PCBs)

For each of the red shaded points below, start at the X,Y coordinate, then due North 270 feet, due East 90 feet, due South 270 feet, and due West 90 feet. (Coordinates are in UTM, Zone 15N, NAD 83, Meters)

<table>
<thead>
<tr>
<th>ID</th>
<th>Description</th>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Site K Trench</td>
<td>484,505.37</td>
<td>4,993,079.81</td>
</tr>
<tr>
<td>1</td>
<td>Extraction Well</td>
<td>486,546.29</td>
<td>4,993,101.48</td>
</tr>
<tr>
<td>2</td>
<td>Monitoring Well</td>
<td>486,546.29</td>
<td>4,993,101.48</td>
</tr>
<tr>
<td>3</td>
<td>Groundwater Treatment Buildings</td>
<td>485,505.37</td>
<td>4,993,079.81</td>
</tr>
</tbody>
</table>

SLDG 601 footprint starts at A and goes clockwise.

<table>
<thead>
<tr>
<th>ID</th>
<th>Description</th>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Site K Trench</td>
<td>484,505.37</td>
<td>4,993,079.81</td>
</tr>
<tr>
<td>1</td>
<td>Extraction Well</td>
<td>486,546.29</td>
<td>4,993,101.48</td>
</tr>
<tr>
<td>2</td>
<td>Monitoring Well</td>
<td>486,546.29</td>
<td>4,993,101.48</td>
</tr>
<tr>
<td>3</td>
<td>Groundwater Treatment Buildings</td>
<td>485,505.37</td>
<td>4,993,079.81</td>
</tr>
</tbody>
</table>

SLDG 701 footprint starts at A and goes clockwise.

<table>
<thead>
<tr>
<th>ID</th>
<th>Description</th>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Site K Trench</td>
<td>484,505.37</td>
<td>4,993,079.81</td>
</tr>
<tr>
<td>1</td>
<td>Extraction Well</td>
<td>486,546.29</td>
<td>4,993,101.48</td>
</tr>
<tr>
<td>2</td>
<td>Monitoring Well</td>
<td>486,546.29</td>
<td>4,993,101.48</td>
</tr>
<tr>
<td>3</td>
<td>Groundwater Treatment Buildings</td>
<td>485,505.37</td>
<td>4,993,079.81</td>
</tr>
</tbody>
</table>

Legend:
- Lease areas with soil contamination above MPCA Tier 2 Industrial Soil Reference Values (totaling approximately 4 acres)
- Lease areas of building or slab footprint based on request of MPCA in 2001 (totaling approximately 25 acres)
- Deed 1 (149 acres)
- Lease Area Deed 2 (205 acres)
- Deed Area 3 with Unrestricted Use (47 acres)
- TCAAP Groundwater Recovery System
- Extraction Well
- Monitoring Well
- Groundwater Treatment Buildings
- Site K Trench

SLDG 502 (PCBs)

Figure 2

Wenck
Engineers - Scientists
Business Professionals
www.wenck.com
1800 Pioneer Creek Center
Maple Plain, MN 55369-0429
1-800-472-2232
FEB 2013
Soil Sample Locations Exceeding Applicable Residential Cleanup Goals

Legend
- Subject Property
- Lease Areas
- ESA Sections (Source: Plexus)
- Site C Cover Management Area
- Exceeds the Applicable Industrial Cleanup Goals
- Soil Sample Locations Complying with Applicable Residential Cleanup Goals
- Soil Sample Locations Exceeding Applicable Residential Cleanup Goals
- Groundwater Treatment Buildings
- Extraction Well
- Monitoring Well

Figure 3A
2012 Aerial Photograph (Source: Bing Maps)

FEB 2013

RAMSEY COUNTY
Soil Sample Locations Exceeding Applicable Residential Cleanup Goals
Soil Sample Locations Exceeding Applicable Residential Cleanup Goals

Legend
- Subject Property
- Lease Areas
- Exceeds the Applicable Industrial Cleanup Goals
- Soil Sample Locations Complying with Applicable Residential Cleanup Goals
- Soil Sample Locations Exceeding Applicable Residential Cleanup Goals
- Extraction Well
- Monitoring Well
- Groundwater Treatment Buildings

ESA Sections (Source: Plexus)
Figure 5

2012 Aerial Photograph (Source: Bing Maps)

Legend
- Property Boundary
- Lease Areas
- Buildings and Foundations to be Removed
- Building Outlines
- Roads

RAMSEY COUNTY
Building and Foundation Removal

FEB 2013

Wenck
1800 Pioneer Creek Center
Maple Plain, MN 55369-0429
1-800-472-2232
www.wenck.com
Figure 9

2012 Aerial Photograph (Source: Bing Maps)
Figure 12

2012 Aerial Photograph (Source: Bing Maps)

Legend
- Property Boundary
- Lease Areas
- Fences to be Removed
- Fences
- Building Outlines
- Roads

FEB 2013

RAMSEY COUNTY
Fence Removals

Wenck
1800 Pioneer Creek Center
Maple Plain, MN 55359-0429
1-800-472-2232

Figure 12
Appendix A

Historical Soil Analytical Databases
<table>
<thead>
<tr>
<th>Sample ID</th>
<th>Sampler</th>
<th>Source ID</th>
<th>Sample Purpose</th>
<th>Comments</th>
<th>Sample Types</th>
<th>Sample Date</th>
<th>Analyte Category</th>
<th>Analyte</th>
<th>Converted Value</th>
<th>Units</th>
<th>Industrial Standard</th>
<th>Residential Standard</th>
<th>Recreational Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS1001-02</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/9/2003</td>
<td>Inorganic Copper</td>
<td>252.00 mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1001-08</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/16/2003</td>
<td>PCB Total PCBs</td>
<td>10.90 mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1001-10</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/9/2003</td>
<td>Inorganic Copper</td>
<td>241.00 mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1001-110</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>Duplicate of SS1001-10</td>
<td>SS</td>
<td>1/9/2003</td>
<td>Inorganic Copper</td>
<td>429.00 mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1001-110</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>Duplicate of SS1001-10</td>
<td>SS</td>
<td>1/9/2003</td>
<td>Inorganic Lead</td>
<td>11800.00 mg/kg</td>
<td>700</td>
<td>300</td>
<td>300</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SB1001-07 (5-7)</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SB</td>
<td>1/16/2003</td>
<td>Inorganic Copper</td>
<td>12500.00 mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1002-04</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/9/2003</td>
<td>Inorganic Lead</td>
<td>461.00 mg/kg</td>
<td>700</td>
<td>300</td>
<td>300</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1003-01</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/10/2003</td>
<td>Inorganic Copper</td>
<td>602.00 mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1003-01</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/10/2003</td>
<td>Inorganic Lead</td>
<td>884.00 mg/kg</td>
<td>700</td>
<td>300</td>
<td>300</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1003-09</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/16/2003</td>
<td>Inorganic Copper</td>
<td>389.00 mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1004-01</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/10/2003</td>
<td>PAH - BAP Benzo[a]pyrene</td>
<td>16.79 mg/kg</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1004-01</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/10/2003</td>
<td>Inorganic Mercury</td>
<td>1.60 mg/kg</td>
<td>1.5</td>
<td>0.5</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1004-02</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/31/2003</td>
<td>PAH - BAP Benzo[a]pyrene</td>
<td>3.20 mg/kg</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1005-01</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/9/2003</td>
<td>PAH - BAP Benzo[a]pyrene</td>
<td>16.79 mg/kg</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1005-02</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/9/2003</td>
<td>Inorganic Copper</td>
<td>241.00 mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1005-01</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/9/2003</td>
<td>Inorganic Copper</td>
<td>344.00 mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1005-01</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/9/2003</td>
<td>Inorganic Lead</td>
<td>11800.00 mg/kg</td>
<td>700</td>
<td>300</td>
<td>300</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1006-02</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/9/2003</td>
<td>PAH - BAP Benzo[a]pyrene</td>
<td>16.79 mg/kg</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1006-02</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/9/2003</td>
<td>Inorganic Copper</td>
<td>602.00 mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1006-02</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/9/2003</td>
<td>Inorganic Copper</td>
<td>389.00 mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1008-02</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/9/2003</td>
<td>Inorganic Antimony</td>
<td>172.00 mg/kg</td>
<td>100</td>
<td>12</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1008-02</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/9/2003</td>
<td>Inorganic Arsenic</td>
<td>10.50 mg/kg</td>
<td>20</td>
<td>9</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1009-02</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/9/2003</td>
<td>PAH - BAP Benzo[a]pyrene</td>
<td>2.28 mg/kg</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1009-02</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/9/2003</td>
<td>Inorganic Lead</td>
<td>15600.00 mg/kg</td>
<td>700</td>
<td>300</td>
<td>300</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1009-03</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/10/2003</td>
<td>PAH - BAP Benzo[a]pyrene</td>
<td>3.01 mg/kg</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1009-04</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>SS</td>
<td>1/10/2003</td>
<td>PAH - BAP Benzo[a]pyrene</td>
<td>6.69 mg/kg</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1009-103</td>
<td>Plexus 17</td>
<td>ESA</td>
<td>Duplicate of SS1009-03</td>
<td>SS</td>
<td>1/10/2003</td>
<td>PAH - BAP Benzo[a]pyrene</td>
<td>2.28 mg/kg</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1013-06 (5-6')</td>
<td>Tetra Tech 19</td>
<td>ESA</td>
<td>SB</td>
<td>2/9/2008</td>
<td>Inorganic Copper</td>
<td>200.00 mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS1013-16 (5-6')</td>
<td>Tetra Tech 19</td>
<td>ESA</td>
<td>SB</td>
<td>2/9/2008</td>
<td>Inorganic Arsenic</td>
<td>9.80 mg/kg</td>
<td>20</td>
<td>9</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SB1013-00 (8-10')</td>
<td>CRA 13</td>
<td>Site K</td>
<td>SB</td>
<td>2/2/1984</td>
<td>VOC Trichloroethylene</td>
<td>31.00 mg/kg</td>
<td>46</td>
<td>29</td>
<td>82</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>K07SB</td>
<td>CRA 14</td>
<td>Site K</td>
<td>SS</td>
<td>7/14/1992</td>
<td>Inorganic Copper</td>
<td>344.00 mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SL-C-83</td>
<td>CRA 12</td>
<td>Site K</td>
<td>SS</td>
<td>7/15/1983</td>
<td>Inorganic Copper</td>
<td>247.10 mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample ID</td>
<td>Sampler</td>
<td>Source ID</td>
<td>Sample Purpose</td>
<td>Comments</td>
<td>Sample Types</td>
<td>Sample Date</td>
<td>Analyte Category</td>
<td>Analyte</td>
<td>Converted Value</td>
<td>Units</td>
<td>Industrial Standard</td>
<td>Residential Standard</td>
<td>Recreational Standard</td>
</tr>
<tr>
<td>-------------</td>
<td>---------------</td>
<td>-----------</td>
<td>----------------</td>
<td>----------</td>
<td>--------------</td>
<td>-------------</td>
<td>------------------</td>
<td>--------------</td>
<td>-----------------</td>
<td>-------</td>
<td>----------------------</td>
<td>----------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>RI-3001-01</td>
<td>Tetra Tech</td>
<td>19</td>
<td>ESA</td>
<td></td>
<td>SB</td>
<td>8/16/2009</td>
<td>Inorganic</td>
<td>Copper</td>
<td>1300.00</td>
<td>mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Subsection 3001, Building 190</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS3002-01</td>
<td>Plexus</td>
<td>17</td>
<td>ESA</td>
<td></td>
<td>SS</td>
<td>1/24/2003</td>
<td>PAH - BAP</td>
<td>Benzo(a)pyrene</td>
<td>9.35</td>
<td>mg/kg</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Subsection 3002, Building 110</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SB4001-06</td>
<td>TWWISS</td>
<td>18</td>
<td>ESA</td>
<td></td>
<td>SB</td>
<td>12/17/2004</td>
<td>Inorganic</td>
<td>Arsenic</td>
<td>10.50</td>
<td>mg/kg</td>
<td>20</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Subsection 4001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subsection 4002, Former Buildings 645/646</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RI-4002-03</td>
<td>Tetra Tech</td>
<td>19</td>
<td>ESA</td>
<td></td>
<td>SB</td>
<td>9/18/2009</td>
<td>Inorganic</td>
<td>Arsenic</td>
<td>11.00</td>
<td>mg/kg</td>
<td>20</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Subsection 4005, Former Building 503</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS4005-02</td>
<td>Plexus</td>
<td>17</td>
<td>ESA</td>
<td></td>
<td>SS</td>
<td>1/7/2003</td>
<td>Inorganic</td>
<td>Copper</td>
<td>108.00</td>
<td>mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>SS4005-10</td>
<td>Plexus</td>
<td>17</td>
<td>ESA</td>
<td></td>
<td>SS</td>
<td>1/8/2003</td>
<td>Inorganic</td>
<td>Copper</td>
<td>1820.00</td>
<td>mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Subsection 4006, Former Buildings 557/557</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RI-4006-09</td>
<td>Tetra Tech</td>
<td>19</td>
<td>ESA</td>
<td></td>
<td>SB</td>
<td>3/6/2009</td>
<td>PAH - BAP</td>
<td>Benzo(a)pyrene</td>
<td>13.30</td>
<td>mg/kg</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Subsection 4007, Former Building 501</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RI-4007-22</td>
<td>Tetra Tech</td>
<td>19</td>
<td>ESA</td>
<td></td>
<td>SB</td>
<td>7/8/2009</td>
<td>Inorganic</td>
<td>Arsenic</td>
<td>11.00</td>
<td>mg/kg</td>
<td>20</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>RI-4007-25</td>
<td>Tetra Tech</td>
<td>19</td>
<td>ESA</td>
<td></td>
<td>SB</td>
<td>7/17/2009</td>
<td>Inorganic</td>
<td>Copper</td>
<td>1100.00</td>
<td>mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>RI-4007-25</td>
<td>Tetra Tech</td>
<td>19</td>
<td>ESA</td>
<td></td>
<td>SB</td>
<td>7/20/2009</td>
<td>Inorganic</td>
<td>Thallium</td>
<td>3.10</td>
<td>mg/kg</td>
<td>21</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>SS4007-01</td>
<td>Plexus</td>
<td>17</td>
<td>ESA</td>
<td></td>
<td>SS</td>
<td>1/7/2003</td>
<td>Inorganic</td>
<td>Copper</td>
<td>162.00</td>
<td>mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>SS4007-05</td>
<td>Plexus</td>
<td>17</td>
<td>ESA</td>
<td></td>
<td>SS</td>
<td>1/30/2003</td>
<td>PAH - BAP</td>
<td>Benzo(a)pyrene</td>
<td>18.53</td>
<td>mg/kg</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>SS4007-05</td>
<td>Plexus</td>
<td>17</td>
<td>ESA</td>
<td></td>
<td>SS</td>
<td>1/30/2003</td>
<td>Inorganic</td>
<td>Lead</td>
<td>388.00</td>
<td>mg/kg</td>
<td>700</td>
<td>300</td>
<td>300</td>
</tr>
<tr>
<td>SS4007-09</td>
<td>Plexus</td>
<td>17</td>
<td>ESA</td>
<td></td>
<td>SS</td>
<td>1/8/2003</td>
<td>Inorganic</td>
<td>Arsenic</td>
<td>12.30</td>
<td>mg/kg</td>
<td>20</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>SS4007-09</td>
<td>Plexus</td>
<td>17</td>
<td>ESA</td>
<td></td>
<td>SS</td>
<td>1/8/2003</td>
<td>Inorganic</td>
<td>Copper</td>
<td>55500.00</td>
<td>mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>SS4007-05</td>
<td>Plexus</td>
<td>17</td>
<td>ESA</td>
<td></td>
<td>SS</td>
<td>1/30/2003</td>
<td>PAH - BAP</td>
<td>Benzo(a)pyrene</td>
<td>2.33</td>
<td>mg/kg</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Subsection 4008, IRP Site 1 (Building 502)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RI-4008-40</td>
<td>Tetra Tech</td>
<td>19</td>
<td>ESA</td>
<td></td>
<td>SB</td>
<td>10/19/2008</td>
<td>PCB Total PCBs</td>
<td>6.02</td>
<td>mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>RI-4008-41</td>
<td>Tetra Tech</td>
<td>19</td>
<td>ESA</td>
<td></td>
<td>SB</td>
<td>10/29/2008</td>
<td>PCB Total PCBs</td>
<td>6.02</td>
<td>mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>RI-4008-42</td>
<td>Tetra Tech</td>
<td>19</td>
<td>ESA</td>
<td></td>
<td>SB</td>
<td>11/1/2008</td>
<td>Inorganic</td>
<td>Copper</td>
<td>250.00</td>
<td>mg/kg</td>
<td>9000</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>RI-4008-42</td>
<td>Tetra Tech</td>
<td>19</td>
<td>ESA</td>
<td></td>
<td>SB</td>
<td>11/5/2008</td>
<td>PCB Total PCBs</td>
<td>4.27</td>
<td>mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>RI-4008-42</td>
<td>Tetra Tech</td>
<td>19</td>
<td>ESA</td>
<td></td>
<td>SB</td>
<td>11/8/2008</td>
<td>PCB Total PCBs</td>
<td>5.16</td>
<td>mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>AG-1 (0-4')</td>
<td>CRA</td>
<td>10</td>
<td>Site I Fixed Lab</td>
<td>SB</td>
<td>2/25/1997</td>
<td>PCB Total PCBs</td>
<td>1.81</td>
<td>mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AG-19 (12-14')</td>
<td>CRA</td>
<td>10</td>
<td>Site I Fixed Lab</td>
<td>SB</td>
<td>3/3/1997</td>
<td>PCB Total PCBs</td>
<td>1.29</td>
<td>mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AH-1 (2-4')</td>
<td>CRA</td>
<td>10</td>
<td>Site I Fixed Lab</td>
<td>SB</td>
<td>2/25/1997</td>
<td>PCB Total PCBs</td>
<td>3290.01</td>
<td>mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AI-4 (3-5')</td>
<td>CRA</td>
<td>10</td>
<td>Site I Fixed Lab</td>
<td>SB</td>
<td>2/21/1997</td>
<td>PCB Total PCBs</td>
<td>291.01</td>
<td>mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AI-6 (1-5')</td>
<td>CRA</td>
<td>10</td>
<td>Site I Fixed Lab</td>
<td>SB</td>
<td>2/21/1997</td>
<td>PCB Total PCBs</td>
<td>526.01</td>
<td>mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BI1 (0-1')</td>
<td>CRA</td>
<td>7</td>
<td>Site I</td>
<td></td>
<td>SB</td>
<td>2/21/1997</td>
<td>PCB Total PCBs</td>
<td>2.06</td>
<td>mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BI14 (0-1')</td>
<td>CRA</td>
<td>7</td>
<td>Site I</td>
<td></td>
<td>SB</td>
<td>2/21/1997</td>
<td>PCB Total PCBs</td>
<td>8.15</td>
<td>mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BI16 (4-6')</td>
<td>CRA</td>
<td>7</td>
<td>Site I</td>
<td></td>
<td>SB</td>
<td>2/24/1997</td>
<td>PCB Total PCBs</td>
<td>7530.25</td>
<td>mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BI17 (9.5-10.5)</td>
<td>CRA</td>
<td>7</td>
<td>Site I</td>
<td></td>
<td>SB</td>
<td>3/13/1994</td>
<td>PCB Total PCBs</td>
<td>1.68</td>
<td>mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH23 (10-12')</td>
<td>CRA</td>
<td>7</td>
<td>Site I</td>
<td></td>
<td>SB</td>
<td>5/3/1994</td>
<td>PCB Total PCBs</td>
<td>1.85</td>
<td>mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample ID</td>
<td>Sampler</td>
<td>Source ID</td>
<td>Sample Purpose</td>
<td>Comments</td>
<td>Sample Types</td>
<td>Sample Date</td>
<td>Analyte Category</td>
<td>Analyte</td>
<td>Converted Value</td>
<td>Units</td>
<td>Industrial Standard</td>
<td>Residential Standard</td>
<td>Recreational Standard</td>
</tr>
<tr>
<td>-----------</td>
<td>---------</td>
<td>-----------</td>
<td>----------------</td>
<td>----------</td>
<td>--------------</td>
<td>-------------</td>
<td>------------------</td>
<td>---------</td>
<td>-----------------</td>
<td>-------</td>
<td>-------------------</td>
<td>----------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>BH24 (7-12.5') CRA</td>
<td>7</td>
<td>Site I</td>
<td>SB</td>
<td>12/5/1984</td>
<td>PCB Total PCBs</td>
<td>28.35 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH24 (2.7-4.7') CRA</td>
<td>7</td>
<td>Site I</td>
<td>SB</td>
<td>5/2/1984</td>
<td>PCB Total PCBs</td>
<td>3940.25 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH24 (5-6') CRA</td>
<td>7</td>
<td>Site I</td>
<td>SB</td>
<td>5/2/1984</td>
<td>PCB Total PCBs</td>
<td>1100.25 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BH24 (7-8.5') CRA</td>
<td>7</td>
<td>Site I</td>
<td>SB</td>
<td>5/2/1984</td>
<td>PCB Total PCBs</td>
<td>11.15 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXC-16 CRA</td>
<td>8</td>
<td>Site I</td>
<td>Fixed Lab</td>
<td>1/10/1986</td>
<td>PCB Total PCBs</td>
<td>3.40 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXC-18 CRA</td>
<td>8</td>
<td>Site I</td>
<td>Fixed Lab</td>
<td>1/10/1986</td>
<td>PCB Total PCBs</td>
<td>6.50 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXC-19 CRA</td>
<td>8</td>
<td>Site I</td>
<td>Fixed Lab</td>
<td>1/13/1986</td>
<td>PCB Total PCBs</td>
<td>3.90 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXC-26 CRA</td>
<td>8</td>
<td>Site I</td>
<td>Fixed Lab</td>
<td>1/23/1986</td>
<td>PCB Total PCBs</td>
<td>2.60 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXC-27 CRA</td>
<td>8</td>
<td>Site I</td>
<td>Fixed Lab</td>
<td>1/23/1986</td>
<td>PCB Total PCBs</td>
<td>3.60 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXC-9A CRA</td>
<td>8</td>
<td>Site I</td>
<td>Fixed Lab</td>
<td>1/9/1986</td>
<td>PCB Total PCBs</td>
<td>2.50 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G-13 (11-13') CRA</td>
<td>10</td>
<td>Site I</td>
<td>Fixed Lab</td>
<td>3/6/1997</td>
<td>Inorganic Cadmium</td>
<td>240.00 mg/kg</td>
<td>200</td>
<td>25</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP-12 (3-5') CRA</td>
<td>10</td>
<td>Site I</td>
<td>Mobile Lab</td>
<td>2/18/1997</td>
<td>VOC Trichloroethene</td>
<td>42.00 mg/kg</td>
<td>46</td>
<td>29</td>
<td>82</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP-30 (12-14') CRA</td>
<td>11</td>
<td>Site I</td>
<td>Fixed Lab</td>
<td>3/7/1997</td>
<td>Inorganic Arsenic</td>
<td>9.07 mg/kg</td>
<td>20</td>
<td>9</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GP-31 (4-6') CRA</td>
<td>11</td>
<td>Site I</td>
<td>Fixed Lab</td>
<td>3/7/1997</td>
<td>PCB Total PCBs</td>
<td>16.71 mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I03MW CRA</td>
<td>9</td>
<td>Site I</td>
<td>SS</td>
<td>7/15/1992</td>
<td>Inorganic Thallium</td>
<td>15.40 mg/kg</td>
<td>21</td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I12SB CRA</td>
<td>9</td>
<td>Site I</td>
<td>SS</td>
<td>7/16/1992</td>
<td>Inorganic Cadmium</td>
<td>88.30 mg/kg</td>
<td>200</td>
<td>25</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I12SB (Dup) CRA</td>
<td>9</td>
<td>Site I</td>
<td>Duplicate</td>
<td>7/16/1992</td>
<td>Inorganic Cadmium</td>
<td>87.70 mg/kg</td>
<td>200</td>
<td>25</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J-16 (4-6') CRA</td>
<td>10</td>
<td>Site I</td>
<td>Fixed Lab</td>
<td>2/26/1997</td>
<td>Inorganic Cadmium</td>
<td>127.00 mg/kg</td>
<td>200</td>
<td>25</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L-13 (10-15') CRA</td>
<td>10</td>
<td>Site I</td>
<td>Mobile Lab</td>
<td>2/27/1997</td>
<td>VOC Trichloroethene</td>
<td>600.00 mg/kg</td>
<td>46</td>
<td>29</td>
<td>82</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L-16 (5-7') CRA</td>
<td>10</td>
<td>Site I</td>
<td>Fixed Lab</td>
<td>2/26/1997</td>
<td>Inorganic Cadmium</td>
<td>134.00 mg/kg</td>
<td>200</td>
<td>25</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SL-22-83 CRA</td>
<td>6</td>
<td>Site I</td>
<td>Dry Weight Results</td>
<td>7/15/1983</td>
<td>PCB Total PCBs</td>
<td>5.20 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SL-23-83 CRA</td>
<td>6</td>
<td>Site I</td>
<td>Dry Weight Results</td>
<td>7/15/1983</td>
<td>PCB Total PCBs</td>
<td>1.50 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SL-29-83 CRA</td>
<td>6</td>
<td>Site I</td>
<td>Dry Weight Results</td>
<td>7/15/1983</td>
<td>PCB Total PCBs</td>
<td>2.4 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SL-30-83 CRA</td>
<td>6</td>
<td>Site I</td>
<td>Dry Weight Results</td>
<td>7/15/1983</td>
<td>PCB Total PCBs</td>
<td>4.3 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SL-34A-83 CRA</td>
<td>6</td>
<td>Site I</td>
<td>Dry Weight Results</td>
<td>7/15/1983</td>
<td>PCB Total PCBs</td>
<td>5.15 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SL-34C-83 CRA</td>
<td>6</td>
<td>Site I</td>
<td>Dry Weight Results</td>
<td>7/15/1983</td>
<td>PCB Total PCBs</td>
<td>5.2 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SL-35A-83 CRA</td>
<td>6</td>
<td>Site I</td>
<td>Dry Weight Results</td>
<td>7/15/1983</td>
<td>PCB Total PCBs</td>
<td>1.46 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SL-40A-83 CRA</td>
<td>6</td>
<td>Site I</td>
<td>Dry Weight Results</td>
<td>7/15/1983</td>
<td>PCB Total PCBs</td>
<td>7.4 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SL-44A (0.8-1.8') CRA</td>
<td>7</td>
<td>Site I</td>
<td>SB</td>
<td>2/2/1984</td>
<td>PCB Total PCBs</td>
<td>643.25 mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SL-44B (1.8-2.8') CRA</td>
<td>7</td>
<td>Site I</td>
<td>SB</td>
<td>2/2/1984</td>
<td>PCB Total PCBs</td>
<td>938.25 mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SL-44C (2.8-3.8') CRA</td>
<td>7</td>
<td>Site I</td>
<td>SB</td>
<td>2/2/1984</td>
<td>PCB Total PCBs</td>
<td>5780.25 mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SL-45A (0.7-1.7') CRA</td>
<td>7</td>
<td>Site I</td>
<td>SB</td>
<td>2/2/1984</td>
<td>PCB Total PCBs</td>
<td>1.52 mg/kg</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS-01 (1-1.5') CRA</td>
<td>11</td>
<td>Site I</td>
<td>SB</td>
<td>12/7/2005</td>
<td>PCB Total PCBs</td>
<td>116.60 mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS-01 (3-3.5') CRA</td>
<td>11</td>
<td>Site I</td>
<td>SB</td>
<td>12/7/2005</td>
<td>PCB Total PCBs</td>
<td>564.00 mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS-01 (5-6.5') CRA</td>
<td>11</td>
<td>Site I</td>
<td>SB</td>
<td>12/7/2005</td>
<td>PCB Total PCBs</td>
<td>22.65 mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS-06 (1-1.5') CRA</td>
<td>11</td>
<td>Site I</td>
<td>SB</td>
<td>12/7/2005</td>
<td>PCB Total PCBs</td>
<td>4080.00 mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS-06 (3-3.5') CRA</td>
<td>11</td>
<td>Site I</td>
<td>SB</td>
<td>12/7/2005</td>
<td>PCB Total PCBs</td>
<td>75.80 mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS-08 (1-1.5') CRA</td>
<td>11</td>
<td>Site I</td>
<td>SB</td>
<td>12/7/2005</td>
<td>PCB Total PCBs</td>
<td>3.38 mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS-10 (1-1.5') CRA</td>
<td>11</td>
<td>Site I</td>
<td>SB</td>
<td>12/7/2005</td>
<td>PCB Total PCBs</td>
<td>4.17 mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS-13 (3.5-4') CRA</td>
<td>11</td>
<td>Site I</td>
<td>SB</td>
<td>12/7/2005</td>
<td>PCB Total PCBs</td>
<td>3.92 mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SS-14 (1.2-1.7') CRA</td>
<td>11</td>
<td>Site I</td>
<td>SB</td>
<td>12/7/2005</td>
<td>PCB Total PCBs</td>
<td>8.16 mg/kg</td>
<td>8</td>
<td>1.2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Subsection 4009, IRP Site J

RI-4009-05 (12-13') Tetra Tech 19 ESA SB 5/12/2008 Inorganic Arsenic 13.00 mg/kg 20 9 11

---

Table 1 - Soil Samples Exceeding Residential SRV, 430 Acre Subject Property, Arden Hills Minnesota
Enecotech Used GIS to generate coordinates for sample locations shown on Figure 3 Construction and Sampling Grid Layout. Samples were located at the center of each grid.

Historical Data Source References, Copied data from the Shaw Access file located at T:\1561 TCAAP\Site C\TCAAP_Database.mdb. Only the locations that were remediated in 2005 and 2006 were entered into Version 14 of the database. When the greater concentration was entered into the database, do not have (probably at EnocoTech). We do have data tables in xls (T:\1561 TCAAP\135 Primer Tracer\2005 SI Report\Final\Tables).


Manually entered data from Appendix A in reports.


Manually entered data from Appendix A in reports.


The BAP equivalents were calculated using 1/2 the reporting limit for non-detect results. Calculations were done using the Version 13 of BAP Equivalent Worksheet from their webpage. (http://www.pca.state.mn.us/publications/risk-tier2srv.xls) shown on Figure 3.5.

Table 2

<table>
<thead>
<tr>
<th>Source ID</th>
<th>Sample Type</th>
<th>Source Used</th>
<th>Report Location - Hard Copy</th>
<th>Report Location - PDF</th>
<th>Lab Reports - Hard Copy</th>
<th>Lab Reports - PDF</th>
<th>Lab Reports - xls/dbf</th>
<th>Author Coordinates Data Entry Assumptions</th>
<th>Data Entry - Agreements</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Field copy</td>
<td>CRA Used GIS to generate UTM coordinates from Latitude Longitude coordinates in Table 3.1 in the Environmental Site Assessment for 774-Acre Excess Parcel Phase I and Phase II Report, Volume 1, Final (T:\561 TCAAP\Land Transfer\ESA Report\Plexus ESA Report\Phase I Final Report\21407--ESA-Feb 2004.pdf)</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
</tr>
<tr>
<td>11 A</td>
<td>Field copy</td>
<td>ESA Used Version 13 of database as starting point. We believe that Version 13 used the Lab Reports.xls; however we cannot verify that.</td>
<td>Plexus Used GIS to generate coordinates for sample locations from the TCAAP Office.</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
</tr>
<tr>
<td>12 A</td>
<td>Field copy</td>
<td>TWISS Used GIS to generate coordinates for sample locations from the TCAAP Office.</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
</tr>
<tr>
<td>13 A</td>
<td>Field copy</td>
<td>TRWA Used GIS to generate coordinates for sample locations from the TCAAP Office.</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
<td>Do not have</td>
</tr>
</tbody>
</table>
Appendix B

Screen Deck Specifications
SCREEN-IT®

6x16 Two Deck &
6x16 Three Deck

SCREEN COMPOST 120-140 YARDS PER HOUR
SCREEN GRAVEL UP TO 600 TONS PER HOUR

SCREENS: Log Yard Waste, Compost, Bark, Top Soil, Sand & Gravel,
Trash, C&D, Stumps, Concrete, Rock and Many Recyclable Items

6X16 TWO DECK SCREEN-IT® WORKING IN TANDEM WITH A
133X152 REVERSE HIGH DISCHARGE IMPACT CRUSHER
6x16 Two Deck &
6x16 Three Deck

6x16 Two Deck
THE SCREEN WITH 5/8" STROKE - RUBBER MOUNTED
High Production

6x16 Three Deck
WORLD'S LARGEST PORTABLE SCREENING PLANT
**Measurements & Components**

**6x16 Screen-It® - TWO DECK**

**TRANSPORT**
- Height: 13’ 6”
- Width: 11’ 11”
- Length: 50’
- Fifth Wheel Pull
- Spring Suspension
- Lights, Air Brakes
- Oil Filled Hubs

**ENGINE**
- Four Cylinder Turbo Deutz® - Air Cooled
- 98 Horsepower - 65 Gal Fuel Tank
- 110 Gallon Hydraulic Tank

**SCREEN**
- 6X16 Two Deck With Step Deck
- Hydraulic Drive With 5/8” Throw
- Rubber Spring Suspension
- 140mm Bearings Running In Oil

**OPTIONS**
- Four Individual Jacking Legs
- Shredder - Grizzly Dump
- Stacking Conveyors
- Ball Decks

**HOPPER**
- 15 or 18 Cubic Yard Charging Hopper
- Height To Load 13’ 6”
- Rear Width In Working Position - 14’
- Rear Width In Travel Position - 8’

---

**6x16 Screen-It® - THREE DECK**

**TRANSPORT**
- Height: 13’ 6”
- Width: 11’ 11”
- Length: 54’
- Fifth Wheel Pull
- Spring Suspension
- Lights, Air Brakes
- Oil Filled Hubs

**ENGINE**
- Six Cylinder Deutz® - Air Cooled
- 135 Horsepower - 65 Gal Fuel Tank
- 110 Gallon Hydraulic Tank
- Two Auxiliary Circuits Standard

**SCREEN**
- 6X16 Three Deck Screen
- 140mm Bearings Running In Grease
- Hydraulic Drive With 5/8” Throw
- Rubber Spring Suspension

**OPTIONS**
- Four Individual Jacking Legs
- Remote Control Grizzly Dump
- Stacking Conveyors - Shredder
- Wet-Dry Screens - Ball Decks
- Remote Feed Controls

**HOPPER**
- 15 or 18 Cubic Yard Charging Hopper
- Height To Load 13’ 6”
- Rear Width In Working Position - 14’
- Rear Width In Travel Position - 8’

---

**CONVEYORS**
- 48” Wide Feed Conveyor 23’ 10” Long
- 48” Wide Under Screen Conveyor
- 30” Side Discharge Conveyor 16’ 4” Long
- 30” Rear Discharge Conveyor 16’ 4” Long
- 48” Wide Feed Conveyor 23’ 10” Long
- 60” Wide Under Screen Conveyor
- 30” Discharge Conveyor 16’ 4” Long
- 30” Second Deck Overs Conveyor 16’ 4”
- 30” Third Deck Overs Conveyor 16’ 4”

---

CEC reserves the right to amend or change specifications and/or appearance to improve their products.

**Construction Equipment Co.**
18650 SW Pacific Highway
Tualatin, Oregon 97062
(503) 692-9000
Fax (503) 692-6220

Made In U.S.A.

Area Dealer
STANDARD EQUIPMENT & FEATURES

TRAVEL POSITION
The feed conveyor and hopper hydraulically slide back and lower to transportation height, while the hopper wings fold in.

HUCK RIVETED SCREEN
Huck Riveted Screens Allow Screen Deck Replacement
No Welding On Screen Body

14' WIDE FEEDER
Open Throat Design
Single Direction Material Feed

CONTROL PANEL
Control panel and hydraulic controls are all located in a turnkey area.

VARIABLE FEED CONVEYOR
A 48" wide, variable feed conveyor with 20" rubber lagged head pulley feeds a 6x16 two deck screen and a three deck screen.
CONE-IT®
Crushes 6” gravel to 1½” or ¾” minus.
Sets up in one hour.
Produced 175 tons per hour average on this job.

CRUSH-IT®
Crushes concrete at high volume.
Handles lump sizes up to 24” x 24” x 12”
Produces 1” or 1½” finished product.

TRACK MOBILE SCREEN-IT® & CONE
Allows on-site mobility with remote radio controls