ENGINEERING & MONITORING PLAN

RISK-BASED PCB DISPOSAL APPROVAL

ARSYNCO, INC. SITE
CARLSTADT, NEW JERSEY

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1.0 INTRODUCTION

1.1 PROJECT INTRODUCTION

This Engineering and Monitoring Plan (E&M Plan) outlines the activities necessary to address soils at the Arsynco, Inc. property (the Site) that contain concentrations of PCBs ≥50 parts per million (ppm) in accordance with Arsynco's Application for Risk-Based Clean-up/Disposal of PCB Remediation Waste that was submitted to EPA ("Arsynco's Application"). The Arsynco site is located in Carlstadt, Bergen County, New Jersey.

Arsynco's Application that EPA considered and approved included the following documents:

- October 8, 1998 Application for Risk-Based Cleanup Approval;
- October 11, 1999 Addendum to Application for Risk-Based Cleanup Approval;
- October 10, 2000 Proposed Remedy and Human Health Risk Assessment of PCB-Impacted Soils;
- December 2003 Remedial Investigation Report Addendum & Remedial Action Workplan, and;
- October 4, 2004 Cap Specifications for PCB Remediation: Application for Risk-Based Cleanup Approval.

The Arsynco Application was approved by EPA and became effective on July 21, 2009 (the "EPA Approval" or the "Approved Plan").

The PCB soil remediation being conducted under this approval includes the excavation and off-site disposal of soil impacted with PCBs ≥500 ppm, with the exception of the material located within the former pond area. The former on-site pond is designated as the "Former On-Site Pond TSCA Disposal Area". The Former On-Site Pond TSCA Disposal Area contains material with PCB concentrations above 500 ppm, that is already effectively contained within the former pond.

Following the excavation and off-site disposal of soil with PCBs ≥500 ppm, soils with PCBs between 50 and 499 ppm will remain on-site and will be consolidated into one area on the eastern part of Tract 1 (exclusive of the Former On-Site Pond TSCA Disposal Area). This area is designated as the "Consolidated Material TSCA Disposal Area". The precise location of the Consolidated Material TSCA Disposal Area on the eastern part of Tract 1 has not yet been determined. In accordance with part 3 D) of the EPA Approval, the proposed location of the Consolidated Material TSCA Disposal Area will be provided to EPA for approval not less than 60 calendar days prior to disturbance (other than the pre-excavation soil sampling activities described in Section 3.1), excavation or consolidation of soil into that area. Please note that prior to excavation activities some additional soil characterization sampling will be conducted as discussed in Section 3.1 of this document. One purpose of the additional sampling is to better define the areas of PCB soil ≥500 ppm prior to the excavation program. The results of this sampling may have an impact on the quantity of soil with PCBs between 50 and 499 ppm. This, in turn, may have an impact on the precise location of the Consolidated Material TSCA Disposal Area on the eastern part of Tract 1.

The attached Figures show the locations of known soil with PCB concentrations ≥500 ppm and known soil with PCB concentrations ≥50 ppm and <500 ppm. Figure 1 also depicts the Former On-Site Pond TSCA Disposal Area and a possible location of the Consolidated Material TSCA Disposal Area.

Once the excavation and consolidation activities are completed, both of the TSCA Disposal Areas will be capped in accordance with the October 4, 2004 Cap Specifications for PCB Remediation document and the requirements provided at 40 C.F.R. §761.61(a)(7) and C.F.R. §264.310(a).

Additional activities will be conducted following cap construction, including the construction of flood control berms, installation of fencing, recording of a Deed Notice, installation of monitoring wells upgradient and downgradient of the TSCA Disposal and perpetual monitoring and maintenance activities.

1.2 PURPOSE AND ORGANIZATION OF REPORT

The purpose of this E&M Plan is to provide a summary of the plans and specifications to achieve the remedial action objectives and the long-term maintenance and monitoring requirements specified in the Arsynco Application and the EPA Approval. This report has been structured as follows:

Section 1: Introduction – This section presents the background information on the project and identifies the purpose and scope of this E&M Plan.

Section 2: Site Description and Background – This section provides a description of the Site and the administrative history of the Site.

Section 3: Remedial Design Components & Technical Approach – This section provides a summary of the activities that will be conducted both prior to implementation of the remedial design (RD) and during the RD activities under the Risk-Based PCB Clean-up/Disposal Approval. This section discusses the pre-implementation soil sampling activities (both waste characterization and additional delineation sampling), describes the components of the RD, discusses the support plans necessary to support the project (e.g. – Health and Safety Plan, Dust Control Plan, Air Monitoring Plan, Quality Assurance Project Plan, etc.), describes various components of the site setup (e.g. – site security, access, staging and work zones, etc.), and summarizes the pre-mobilization and mobilization activities.

Section 4: Schedule – Section 4 provides the schedule for the project.

Tables, Figures and Appendices may also be included in this report. These materials provide additional information, summarize relevant data, and serve as the basis for design decisions.

2.0 SITE DESCRIPTION AND BACKGROUND

2.1 SITE DESCRIPTION

The Arsynco property consists of approximately 12.3 acres of land located at the western boundary of the Hackensack Meadowlands area. The Arsynco property is divided into two (2) adjacent tracts of land. The main portion of the site, known as Tract 1, consists of approximately 9.5 acres of land, and formerly contained all production operations. The buildings on the site, with the exception of a single story office building (Building 16), were demolished following cessation of operations in 1993. The majority of the PCB contamination at the site is located on Tract 1, and the highest concentrations of PCBs (up to 6,200 ppm) were identified within the fill material present in the southeast section of this area, as described in the October 1998 submittal to EPA. The entire Tract 1 area (below the fill material) is underlain by meadow mat and native glacial lake bottom materials comprised of heavy clays.

Tract 2 of the property is located to the east of Tract 1 and consists of approximately 2.8 acres of low lying, undeveloped, marshy land. Tract 2, which borders 16th Street in Carlstadt, has never been developed and contains small, manmade drainage swales that are connected to Never Touch Creek. The soils on Tract 2 were reworked extensively in the past to satisfy the construction of Sixteenth Street and drainage concerns in the region. The drainage system on Tract 2 is under tidal influences and has historically been used to accept surficial runoff from the entire industrial region surrounding the Site. As a result, Tract 2 receives flow of poor quality water from Never Touch Creek (via Berry's Creek, the Hackensack River and Newark Bay) as well as discharges and/or runoff from all of the adjacent properties. The site sampling program conducted has documented that PCBs are not present at levels ≥50 ppm on Tract 2, with the exception of one isolated hotspot where active remediation is proposed (via excavation and off-site disposal). As a result, PCBs will not remain on Tract 2 at levels above 50 ppm, and Tract 2 of the property is not part of the activities proposed in connection with Arsynco's Application.

The Arsynco property, as well as virtually all of the land to the north, south and east of the site was once marsh land, typical of the undeveloped portions of the Hackensack Meadowlands.

However, nearly the entire area has been filled in over the years to support development and construction. Much of the filling throughout the Hackensack Meadowlands region occurred as unregulated dumping decades ago, prior to the regulation of this area. As such, the quality of materials historically used to fill the entire region is highly suspect, and regional contamination problems are well documented. Site investigations have confirmed the presence of up to approximately 8 feet of fill above the native meadow mat layer on the Arsynco site.

As the result of filling, ground surface elevations across Tract 1 of the site are generally about 5 to 8 feet above mean sea level. Due to these common, low elevations, much of the Meadowlands district is affected by tidal inundations from Newark Bay and fluvial flows from the Hackensack River and Berry's Creek. Annual water level elevations of up to 5.5 feet above mean sea level in the Hackensack River have been reported, and a maximum high tide of 8.3 feet above mean sea level was recorded in 1960, representing a tidal frequency of 100 years. Although the Arsynco property is located within the 100 year flood plain of the Hackensack River system, it should be noted that the water level measurements in the Hackensack River decrease upstream as the water spreads over the low-lying flood plain along the river and its tidal creeks and ditches. Therefore, it would be expected that the 100 year tidal event would be much less magnified at the Arsynco site.

2.2 SITE ADMINISTRATIVE HISTORY

The request for a Risk-Based Cleanup Approval for the remediation of PCB contaminated soil at the Arsynco site, prepared in accordance with 40 CFR §761.61(c), was originally submitted to EPA in October 1998. The October 1998 application included a proposal to actively remove contaminated soil containing PCBs at or above 500 ppm via excavation and off-site disposal and to consolidate and cap the remaining contaminated soils containing PCB concentrations from 50 to 499 ppm. Consolidation of the PCB contaminated soils that would remain on the site at levels between 50-499 ppm was proposed in order to confine this material to a limited, manageable area of the property, while making a larger portion of the site useable and more attractive to potential developers.

Following review of the Risk-Based Cleanup application, EPA issued a response letter dated July 23, 1999. The July 1999 letter from EPA requested various informational items from Arsynco. On October 11, 1999 Arsynco submitted a response to EPA which addressed most aspects of the Agency's July 1999 letter. In October 2000 Arsynco submitted a baseline human health risk assessment in accordance with the EPA guidance provided. The results of the risk assessment demonstrated that there was no unreasonable risk posed by PCBs in site soils following implementation of either the "baseline" remedy, as required by EPA, or the "alternative" remedy additionally evaluated by Arsynco as part of the risk assessment process, and the results were well within acceptable regulatory risk ranges.

The required cap and berm specification proposals, providing scenarios using either an asphalt parking lot or a future building floor slab as a cap was prepared and was submitted to USEPA in April 2004. Following submittal of the April 2004 cap specification plan document, USEPA requested a meeting at the Arsynco site. The site meeting was held on August 26, 2004. During the site meeting, USEPA stated that Risk-Based PCB Cleanup Approval issued by USEPA could not be issued for "potential" cap plan scenarios (as provided in the April 2004 document). Rather, EPA noted that the future approval could only be issued for a single, defined cap plan for the site. As a result, USEPA requested that Arsynco determine which cap plan was most appropriate and submit a single cap plan for EPA's consideration. However, EPA also stated that the cap plan could be revised/modified either by Arsynco or an authorized third party at a future date, if required, although the Agency noted that a separate approval would have to be issued by EPA. EPA also indicated that if a modification were made to the capping plan, the re-issuance of an approval by the Agency should be a relatively simple process and that re-issuance of an approval would not necessarily require another public notice. The final cap specification document was then submitted to EPA in October 2004.

Additionally, the October 2004 document also included an amendment to the October 1998 Application to allow material contaminated with PCB levels above 500 ppm that was located within the former pond on the east side of Tract 1 to remain on the Site.

The above document submittals made up the Arsynco Application to EPA. The Arsynco Application was approved by EPA with an effective date of July 21, 2009.

3.0 REMEDIAL DESIGN COMPONENTS & TECHNICAL APPROACH

3.1 PRE-EXCAVATION SOIL CHARACTERIZATION SAMPLING

Prior to commencement of the soil excavation/consolidation program, additional sampling will be conducted to more precisely define the lateral and vertical boundaries in the areas where PCBs were previously identified at concentrations ≥500 ppm.

Pre-excavation sampling will also be conducted to appropriately characterize the impacted soil for disposal purposes. Since the soil is not a "PCB Bulk Product Waste" or a "Non-liquid PCB remediation waste from processes that continually generate new waste…" disposal characterization sampling in accordance with 40 CFR §761 Subpart R is not required. Waste characterization sampling will be conducted in accordance with the requirements of the disposal facility(s) selected for this project.

3.1.1 Analytical Methods

Soil matrix samples collected for analysis will be analyzed by a NJ-certified analytical laboratory using approved USEPA methodologies for the parameters required to be tested. In addition to PCBs, the specific parameters analyzed will be dependent upon the requirements specified by the disposal facility where the soil will be disposed. PCB samples will be analyzed using Method 8082 from SW-846.

It is proposed that NJ-Reduced data deliverables be submitted for confirmatory sample analysis.

3.2 REMEDIAL PLAN OVERVIEW

3.2.1 Excavation of Soils with PCBS ≥ 500 ppm

Arsynco will excavate and properly dispose of soils which contain PCBs at concentrations ≥500 ppm (with the exception of soils located within the former pond on the east side of Tract 1). The locations/depths of the areas where PCBs are present at concentrations ≥50 ppm to ≥500 ppm are illustrated on Figures 1, 2 and 3, attached. The total quantity of soil from these areas with PCBs at levels ≥500 ppm is anticipated to be approximately 1,000 tons. However, as discussed in Section 3.1, additional soil sampling will be conducted prior to commencement of the soil excavation activities in an effort to more precisely define the boundaries of areas where PCBs are present ≥500 ppm. Therefore, following the collection and review of the additional soil characterization sample data, the exact locations of the areas where PCBs are present ≥500 ppm and the overall quantity of this soil may change.

3.2.1.1 *Debris Segregation & Handling*

If required by the selected disposal facility or otherwise necessary, debris encountered during the process of excavating soil with PCBs ≥500 ppm will be segregated by physical composition and characterization of the materials. If required, this material may be decontaminated on-site or off-site prior to disposal or appropriate handling. Decontamination via an on-site washing process may be used and, if so, will be conducted in accordance with 40 CFR §761. Wastes generated from possible on-site decontamination/washing of debris will be handled in accordance with the requirements of 40 CFR §761.

If segregated debris is decontaminated on-site the debris will be sampled following the decontamination process according to the procedures set out in §761.283, §761.289 and §761.292. If the concentrations of PCBs in the debris are ≥500 ppm the debris will be properly disposed off-site. If the concentrations of PCBs in the debris samples are >50 ppm and ≤499 ppm the debris will be placed into the "Consolidated Material TSCA Disposal Area". If the concentration of PCBs in the debris is <50 ppm the debris may be returned to the Site.

3.2.1.2 Soil Drying / Dewatering

If dewatering or drying of excavated soil is deemed necessary or beneficial, excessively wet soils will be placed into temporary containment areas with a base consisting of polyethylene sheeting and surrounded by containment booms and/or hay bales. Containment areas will be located directly adjacent to the topographically upgradient side of the areas being excavated so that water can gravity drain back into the associated excavation. If necessary, soils destined for off-site disposal may be mixed with a suitable drying material such as kiln dust.

3.2.1.3 Post-Excavation Sampling & Analysis

A detailed sampling plan, including a map showing the potential/anticipated number, locations and depths of proposed samples, will be submitted to USEPA under separate cover.

3.2.1.4 Treatment & Disposal of Soils with PCBs ≥500 ppm

Under the approved plan soil that contains PCBs at concentrations ≥500 ppm will be properly disposed off-site. Please refer to Section 3.2.1.1 for details on how debris will be handled. The disposal vendor(s) selected will be required to meet both the regulatory requirements and scheduling aspects of this project. Transporters of the wastes will be required to demonstrate compliance with applicable state and federal requirements governing the transport of the wastes.

It is possible that some of the PCB contaminated soil that will be disposed off-site will also be subject to RCRA regulations and will require disposal at a facility that holds current permits for both TSCA and RCRA mixed wastes. This will be determined via waste characterization sampling that is discussed in Section 3.1 of this report.

In the event that RCRA/TSCA mixed wastes will be generated, Arsynco may elect to evaluate options for classification of the waste under RCRA or possible on-site management to address concentrations of RCRA-list contaminants or RCRA characteristics to effectively manage TSD

treatment and disposal costs for the wastes. Arsynco may also elect to evaluate options for possible on-site management of materials to manage the concentrations of PCBs if it will result in a cost savings for the off-site treatment/disposal of that material. Regardless, soil that contains PCBs at concentrations ≥500 ppm will be properly disposed off-site.

3.2.2 Excavation & Consolidation of Soils with PCBS ≥50 & ≤499 ppm

In accordance with the Approved Plan, soils with PCB concentrations <500 ppm will remain on-site. As part of the Approved Plan, material with PCB levels of ≥50 ppm and <500 ppm that remain at the site will consolidated into one area on the eastern part of Tract 1. This area already contains the majority of this affected quantity. The soil with PCB levels ≥50 ppm and <500 located in the other parts of the property will be excavated and moved to the "Consolidated Material TSCA Disposal Area".

The specific location for the consolidation and placement of this material in the southeast part of the site has not been conclusively determined. It is anticipated that an approximate 2 acre area within the southeast part of the site will be chosen for the consolidation and placement of this material (see Figure 1 for potential/possible location). However, the exact dimensions and location of this area will not be determined until after the additional sampling that is proposed in Section 3.1 is completed and the final quantity of material that will be consolidated into this area is known. In accordance with Part 3.D) of the EPA Approval, Arsynco will provide the proposed location of the "Consolidated Material TSCA Disposal Area" to EPA for approval not less than 60 calendar days prior to disturbance, excavation or consolidation of the material into that area.

Once the appropriate material is placed in this area, the "Consolidated Material TSCA Disposal Area" will be capped in accordance with the requirements of the EPA Approval. The TSCA Disposal Areas will also be secured with appropriate fencing and marked with signs, as necessary. Capping and other controls are discussed in the following sections of this report.

3.2.2.1 Debris Segregation & Handling

Large debris that may be encountered during the excavation activities associated with the material to be consolidated into the "Consolidated Material TSCA Disposal Area" may be segregated by physical composition and characterization of the materials. If required, this material may be decontaminated on-site. Decontamination via an on-site washing process may be used and, if so, will be conducted in accordance with 40 CFR §761.

If debris is segregated for decontamination, each segregated debris type will be sampled following the decontamination process according to the procedures set out in §761.283, §761.289 and §761.292. If the concentrations of PCBs in the debris are <50 ppm the debris may be returned to the Site and would not necessarily be placed into the "Consolidated Material TSCA Disposal Area".

Wastes generated from possible on-site decontamination/washing of debris will be handled in accordance with the requirements of 40 CFR §761.

3.2.2.2 Soil Drying / Dewatering

If dewatering or drying of excavated soil is deemed necessary or beneficial, excessively wet soils will be placed into temporary containment areas with a base consisting of polyethylene sheeting and surrounded by containment booms and/or hay bales. Containment areas will be located directly adjacent to the topographically upgradient side of the areas being excavated so that water can gravity drain back into the associated excavation. The goal is to dewater the material that will be transported on-site to the "Consolidated Material TSCA Disposal Area", as necessary to reduce/eliminate spillage from trucks during the on-site transport.

3.2.2.3 Post-Excavation Sampling

A detailed sampling plan, including a map showing the potential/anticipated number, locations and depths of proposed samples, will be submitted to USEPA under separate cover.

3.2.3 Preparation, Grading & Cap Construction in TSCA Disposal Areas

3.2.3.1 Former On-Site Pond TSCA Disposal Area

The area of the Former On-Site Pond TSCA Disposal Area will most likely be designated as a future parking/driveway area. The entire surface area of this area will be covered with an asphalt cap of at least 6-inches in thickness. The cap will meet the requirements of 40 CFR §761.61(a)(7) and 40 CFR §264.310(a). The construction of the cap will follow the "Cap Specification for PCB Remediation" document dated October 4, 2004. Prior to cap construction, the surficial soils in this area may be compacted, if necessary, to stabilize the contaminated material and to avoid differential settling and cracking in the subsequent asphalt cap surface. Once the soil material is compacted and graded (to promote appropriate surface drainage) the cap will be constructed. The purpose of the cap is to provide a physical barrier between the underlying contaminated soil and humans, animals and plant roots, as well as to minimize infiltration of surface water, promote drainage, minimize erosion and to support the required site traffic.

3.2.3.2 Consolidated Material TSCA Disposal Area

The "Consolidated Material TSCA Disposal Area" will most likely be designated as a future parking/driveway area. The entire surface area of the "Consolidated Material TSCA Disposal Area" will be covered with an asphalt cap of at least 6-inches in thickness. The cap will meet the requirements of 40 CFR §761.61(a)(7) and 40 CFR §264.310(a). The construction of the cap will follow the "Cap Specification for PCB Remediation" document dated October 4, 2004. Prior to cap construction, the surficial soils in this area will be graded and compacted as necessary, to stabilize the contaminated material and to avoid differential settling and cracking in the subsequent asphalt cap surface. Once the soil material is compacted and graded (to promote appropriate surface drainage) the cap will be constructed. The purpose of the cap is to provide a physical barrier between the underlying contaminated soil and humans, animals and plant roots,

as well as to minimize infiltration of surface water, promote drainage, minimize erosion and to support the required site traffic.

3.2.4 Backfilling & Restoration of Excavated Areas

Arsynco will review post-excavation sample results to verify that they meet the Site cleanup criteria. The open excavated areas (other than the "Consolidated Material TSCA Disposal Area") will then be backfilled to existing grade utilizing a suitable clean fill material. The clean fill will be brought to grade in 12 to 18 inch compacted intervals, as necessary.

Vendors providing clean backfill material will be required to provide, prior to delivery, a certification indicating that the material is from a virgin source or supply analytical data supporting the quality of the material.

The backfilled areas will be graded, as necessary, to coincide with the goals of the overall remediation of this Site and the long-term objectives for this Site. The graded, backfilled areas may also be vegetated (e.g. – seeded) to reduce erosion, based on the long-term objectives for this Site. Silt fence will be installed in areas where it is necessary to prevent soil from eroding during heavy rain events.

3.2.5 Construction of Flood Control Berms

Stabilized earthen berms will be constructed along the entire eastern edge of Tract 1 (along the entire Tract 2 border) and along the southern property line adjacent to the drainage ditch (from Thirteenth Street to the Tract 2 border), as proposed in the Arsynco Application. The berms will be installed to a height equal in elevation to approximately 10 to 10.5 feet above mean sea level, corresponding to approximately 1.5 to 2 feet above the 100 year flood elevation of the Hackensack River. The stabilized earthen berms will be constructed with compacted soil material enhanced with a suitable erosion control geotextile material, if appropriate, and will be covered with appropriate vegetative cover material to inhibit and reduce erosion.

The constructed berms will not only protect the site from flood water surges, but will also prevent normal surface water sheet flow toward the low lying areas of Tract 2 and the southern drainage ditch. Therefore, the surface soil and asphalt cap system at the site should be graded to direct surface drainage to a properly designed on-site storm drain system. Storm drainage in the area of the site (including drainage from surrounding properties and Route 17) is currently directed to the southern drainage ditch and Tract 2 of the Arsynco property, and future storm drainage from the Arsynco site should also be directed to these areas. The specific layout and design of the required site drainage system should be determined in conjunction with actual site remediation and, preferably, with site redevelopment activities.

3.2.6 Additional Engineering & Institutional Controls

The Arsynco site will require both institutional controls (i.e., a Deed Notice) and engineering controls (e.g., caps, perimeter fencing, signs, etc.) as part of the EPA Approval and as part of other site remediation efforts being conducted under the supervision of NJDEP. Due to the levels and distribution of contaminants that will remain, virtually the entire property will be covered under the Deed Notice, including the two (2) TSCA Disposal Areas. The implementation of institutional and engineering controls is required by NJDEP to ensure that contaminant concentrations remaining in site soils will not pose an unreasonable threat to human health during future site use and to ensure that remaining contamination is properly managed. As part of the Deed Notice that will be required by NJDEP, a monitoring and maintenance plan will be developed for the site which details the procedures that will be used to maintain and to periodically evaluate the condition and effectiveness of controls (i.e., maintain condition of asphalt cap and/or building cap, berms, etc.). The Deed Notice will also prohibit alteration, improvement or disturbance of the engineering controls without first obtaining written consent from NJDEP, although written consent from NJDEP is not required in certain circumstances (e.g., emergencies).

Following construction of the cap remedy Arsynco will prepare a Deed Notice in accordance with 40 C.F.R. § 761.61(a)(8) and New Jersey law. The Deed Notice will, at a minimum, pertain to the two TSCA Disposal Areas. The Deed Notice will be consistent with EPA and NJDEP

requirements and will include: a description of the extent of contamination found at the site; a description of the removal action, establishment of the TSCA Disposal Areas, and the cap remedy; survey information necessary to identify the precise locations of the TSCA Disposal Areas; the restrictions on use included in Section 7 of the EPA Approval; a description of monitoring, maintenance, and reporting requirements required by the EPA Approval, and a copy of the EPA Approval appended as an attachment. As required, the final format of this information in the Deed Notice must be approved in writing by the Director of the Division of Enforcement and Compliance Assistance for EPA Region 2.

In addition to establishing a Deed Notice, Arsynco will construct and maintain a six-foot high chain link fence around the entire site, with the exception of the far east side of the site along Sixteenth Street. This side of the site currently contains a four-foot high fence, and a variance from the New Jersey Meadowlands Commission would be required to construct a six-foot high fence along this area. Arsynco will use its best efforts to obtain the necessary approvals to ensure that the entire site is enclosed by a six-foot high fence. However, in the event that the necessary approvals to construct a six-foot high fence along Sixteenth Street can not be reasonably obtained, Arsynco will improve as necessary and maintain the four-foot high fence along Sixteenth Street. If a six-foot high fence cannot be installed along Sixteenth Street, Arsynco will construct a six-foot high fence along the east side of Tract 1 that borders Tract 2. Placement of the six-foot high fence along the east side of Tract 1 would result in the full enclosure of the entire Tract 1 parcel, including both TSCA Disposal Areas. The fence(s) will be maintained and marked, at intervals of not less than 25 feet on each side, with signs as specified in 40 C.F.R. 761.45(a), in perpetuity, or until the PCB contaminated materials are removed from the site, to prevent entry of trespassers.

3.2.7 Long Term Monitoring and Maintenance

3.2.7.1 Monitoring Well Installation and Sampling

Following the construction of the cap and berm controls, Arsynco will install shallow and deep monitoring well clusters constructed in their entirety with stainless steel or Teflon, with screen

intervals of not greater than 10 feet, up-gradient and down-gradient of both TSCA Disposal Areas. Deep wells shall be double cased to prevent migration of contamination from the shallow to the deep zone. At minimum, one up-gradient and two down-gradient well clusters will be installed, which are in addition to the wells already located adjacent to the former pond which will be maintained, if possible, or replaced following the remedial activities required at the Site. The proposed number, depths, and locations of the new well clusters will be submitted to EPA for their approval at least 30 days in advance of installation. Groundwater samples from the new wells will be collected on a quarterly basis, and to the extent practicable within 24 hours of a precipitation event of greater than or equal to 0.25 inches as determined at Newark International Airport, and during a period of "high tide" groundwater elevations at the site. The wells will be sampled using the "Low Flow" method described at *http://www.epa.gov/Region2/desa/hsw/lowflow.pdf*. The EPA Approval specifies that the groundwater samples collected from these wells will be analyzed for PCBs using EPA Method 525.2. Arsynco requests clarification from EPA regarding the analytical method, as EPA Method 525.2 is a drinking water method for semi-volatiles that is not commonly used for PCB analysis. Arsynco proposes to analyze the samples for PCBs using either EPA Method 608 or 8082. These methods are fully capable of achieving detection limits that are in compliance with regulatory thresholds for PCBs in groundwater in Class II-A aquifers in New Jersey, which is the Practical Quantitation Limit (PQL) associated with the New Jersey Groundwater Quality Criteria (0.5 micrograms per liter). According to the EPA Approval, this PQL (0.5 ug/L) is currently the equivalent to the federal Maximum Contaminant Level (MCL). Action levels for PCBs detected in groundwater will be established in accordance with the requirements of the EPA Approval (i.e. – the more stringent of the federal MCL or the PQL associated with the NJ GWQC). Following receipt of the final report of validated data from the laboratory Arsynco will notify EPA in writing of an exceedance of the action level established, verbally within one (1) working day and in writing within five (5) working days, of Arsynco's receipt of the analytical results from the laboratory analyzing the samples, and not more than 30 calendar days after the collection of the samples.

Please note that in accordance with the EPA Approval, after three (3) years of groundwater monitoring, if sample results are consistently below the action level, Arsynco may request from EPA that the frequency of the monitoring be decreased.

3.2.7.2 Inspection and Maintenance Obligations & Annual Report to EPA

Arsynco will provide EPA Region 2 with an update of the status of the remediation project every three (3) months following the effective date of the EPA Approval until the construction of the two on-site TSCA Disposal Areas, removal of PCB contaminated material, disposal of removed PCB contaminated material, and construction of berms, capping, and fencing operations are complete. After the caps, berms, and fences are constructed, Arsynco will visually inspect the caps, berms, and fences quarterly, and maintain the caps as needed. If necessary, the caps, berms, or fences shall be repaired or replaced within 14 working days of the verification of damage or other loss of integrity. Within 14 working days of completion of repairs, Arsynco will submit to EPA Region 2 the following information:

1. notification that the caps, berms, or fences have been breached or otherwise suffered damage or loss of integrity;
2. certification, signed by a professional engineer licensed by the State of New Jersey, that the caps, berms, or fences have been repaired or replaced to a condition not less than that constructed as required by this approval.

The caps will be maintained to prevent access to the contaminated material under the caps and to prevent such material from being released. Arsynco will also, by July 1st of each year, submit to EPA Region 2 an annual written summary report covering the previous reporting period (January through December of the previous year). The Annual Report will provide the following information:

1. reports of visual inspections and maintenance needed to maintain the as-built integrity of the caps, berms, and fences;
2. maintenance reports;

3. information regarding problems maintaining, or apparent breach of, elements of the remedy;
4. groundwater monitoring results including QA/QC samples; and,
5. Documentation required under 40 C.F.R. §761.180(a), as appropriate.

3.3 SITE PLANS

3.3.1 Permits and Approvals

Necessary permits and approvals that are required to conduct this remedial program will be obtained from the appropriate agencies prior to commencement of permit/approval required activities. Potential permits/approvals that may be required for the Site include:

Permit/Approval	Agency
EPA Approval of Engineering & Monitoring Plan	USEPA
EPA Approval of "Consolidated Material TSCA Disposal Area" location	USEPA
EPA Approval of the number, depths, and locations of the groundwater monitoring wells to installed (at least 30 days in advance of installation)	USEPA
NJMC Zoning Certificate	NJMC
Soil Erosion and Sediment Control Plan Certification	NJDA, SSCC
U.S. Army Corps of Engineers Dredge and Fill Permit	USACOE
Wetlands Permit	USACOE
Stormwater Permit (General)	NJDEP
Permit to Drill Well	NJDEP

NJPDES – Discharge to Groundwater Permit	NJDEP
NJPDES – Discharge to Surface Water Permit	NJDEP
Flood Hazard Area Permit	NJDEP
Air Discharge Permit (Cert. to Operate Air Pollution Control Apparatus/Equipment)	NJDEP

3.3.2 Site Health and Safety Plan

A Site Health and Safety Plan (HASP) for the PCB remediation activities is provided in Appendix A. Please note that this HASP will require review and possibly revision both before and during the site activities.

3.3.3 Air Monitoring Plan

The Air Monitoring Plan for the PCB remediation activities is provided in Appendix B.

3.3.4 Dust Control Plan

Groundwater is typically present at shallow depths throughout most of the Site and the Site frequently has areas containing standing water. The presence of groundwater and standing water greatly diminishes the potential for significant dust migration concerns throughout the project. Dust has not been an issue with of the historic activities conducted at the Site. However, dust control measures will be implemented to control fugitive dust emissions during excavation activities. Water will be applied as necessary during excavation and soil movement activities in order to minimize fugitive dust. Water will be obtained from either the on-site connection or from a water truck. The quantity of water applied will be adjusted as necessary to control the actual dust conditions while preventing overuse and the possible offsite migration. Dust monitoring is discussed in the Air Monitoring Plan provided in Appendix B.

3.3.5 Quality Assurance Project Plan

A Quality Assurance Project Plan (QAPP) for the PCB remediation activities is provided in Appendix C.

3.3.6 Soil Erosion and Sediment Control Plan

Since the site activities will involved the disturbance of more than 5,000 square feet of land, certification of a Soil Erosion and Sediment Control Plan by the local Soil Conservation District, which indicates that the plan meets the standards promulgated by the State Soil Conservation Committee, will be obtained.

Soil erosion and sediment control methods will be implemented throughout the duration of the project. Basic engineering measures will be taken to reduce the amount of soil erosion from excavated areas and access road construction. It is expected that staked hay bales or silt fence will be installed at the down-slope edge of the excavation areas and along the south side of Tract 1 adjacent to the drainage ditch and along the east side of Tract 1 adjacent to Tract 2. Erosion controls will be periodically inspected and maintained until soils have become stabilized. Silt fence or hay bales will be installed around the perimeter of the loose materials to prevent rain washouts. Stockpiles will be covered in six-millimeter polyethylene sheeting that will be secured in place. Erosion control matting may also be employed if loose materials cannot be contained utilizing silt fence and straw bales. When operations are completed and the loose soil areas have been stabilized, the silt fence, straw bales and rock will be removed and properly disposed.

3.4 SITE SETUP

3.4.1 Site Security

Site security will be established through temporary and permanent fencing and signage. The entire site is surrounded by chain link fencing. Site access gates will be kept locked when no site

work is being conducted. Office trailers and support/staging areas will be established as necessary.

3.4.2 Access, Staging Areas and Work Zones

Primary site access will be established from 13th Street. Alternate site access will be from Berry Avenue, as needed. Site preparation activities will include establishment of vehicle parking and equipment staging. Construction of initial erosion control devices will be completed prior to initiation of site work. Specific truck routes will be designated from the work site onto the nearest highways.

There will be a number of different work zones required on the Site based on the location of the areas being excavated as work progresses. Established work zones will be marked with colored tape or flags so that these zones are visible to site personnel. Unauthorized personnel will not be permitted in the work zones. Soil staging areas will be established directly adjacent to the excavation areas within the works zones. Vehicle and equipment decontamination zones will be located adjacent to each work area. Other staging areas for miscellaneous, non-hazardous site materials, supplies, etc. will be established on the site, as needed.

3.4.3 Equipment & Vehicle Decontamination

To reduce the possibility of cross-contamination, reusable non-dedicated sampling equipment such as stainless steel hand auger samplers will be decontaminated between each sample location in accordance with the SOPs provided in the QAPP (Appendix C). Where possible, disposable items will be utilized (i.e., dedicated acetate liners) to reduce the potential for cross-contamination. Equipment will be decontaminated before sample collection at or near the boring location.

Construction equipment (e.g. – excavators, loaders, dump trucks, and necessary support vehicles, etc.) will be allowed within the impacted areas. Off-site soil transport vehicles will not be allowed to unnecessarily drive on impacted areas of the site and will be limited to gravel vehicle

access roads, staging areas and the work zones. Prior to leaving the site, transport vehicles will be inspected for accumulated bulk material on the truck sides and tires. If present, accumulated material will be removed using dry methods (e.g. – brooms, shovels) in order to prevent tracking onto public roadways. This cleaning will be done before the trucks leave the work areas. Signage will be posted at the construction exit indicating that trucks should be inspected by an Arsynco representative prior to exiting.

Decontamination stations will be created near the individual work areas for equipment and vehicles, as necessary, and will generally consist of an impermeable barrier or gravel bed that is sloped to a collection sump. Decontamination fluids (water) will be collected using temporary systems (e.g. – drums, tanks and pumps). Equipment cleaning will be performed first by dry methods to removed bulk material, followed by high-pressure, low-volume power washing, as needed, to remove residual material. Decontamination fluids will be collected and containerized for subsequent off-site disposal or on-site treatment and discharge or disposal in accordance with an appropriate NJDEP permit.

3.4.4 Land-Clearing (Tree and Brush Removal)

Brush and trees will be removed, as necessary from the site before remediation work begins. Above-grade vegetation will be properly disposed off-site at a facility permitted to accept vegetative wastes. Larger trees may be chipped and used on-site. Below grade vegetation (i.e. - root balls) will be removed, as necessary, and as much adhered soil as possible will be removed at the location of origin. Following the removal of excessive soils, the below grade vegetative wastes will be staged on poly sheeting, sampled and, if necessary, disposed off-site.

3.4.5 Water Runoff Containment and Control

The Site is essentially flat, with no significant slopes promoting runoff. Most water from precipitation events ponds in low spots on the property and infiltrates into the ground. Some runoff occurs along the southern property boundary adjacent to the ditch that separates the Arsynco and Cosan Chemical properties, along the east side of Tract 1 at the Tract 2 border, and

along the west side of Tract 1, adjacent to the railroad track property. Water may also be generated from dust control measures that could be employed during the program.

As noted in Section 3.3.6, appropriate soil erosion and sediment control measures will be employed and maintained at the Site and in the areas of excavation to reduce or eliminate the flow of contaminated rainwater from the Site. In addition, as noted in Section 3.3.1, a Stormwater Management Permit will be required from NJDEP for this project, requiring use of Best Management Practices (BMPs) for stormwater control.

3.4.6 Excavation Water Control and Handling

Groundwater is encountered within the fill material overburden at various depths ranging from between 0.5 to 3.0+ feet below grade. Although various contaminants have been detected in the groundwater at the Site, PCBs have not adversely affected groundwater quality. However, the amounts of suspended solids that will be present in the water as a result of the excavation disturbances could result in the presence of PCB in excavation water due to the solids.

It is possible that groundwater encountered in some areas during the excavation activities will require removal. Prior to excavation activities, appropriate methods will be in place to handle contaminated groundwater that must be removed to accommodate the excavation and backfilling activities. Groundwater that must be removed will be pumped from the excavations into temporary storage tanks that will be staged on-site. The water from the storage tanks will either be properly disposed off-site or will be treated on-site, if necessary, and discharged either back to groundwater or to surface water. If on-site treatment and discharge is conducted it will be performed in accordance with an appropriate NJPDES permit received from NJDEP. It is also possible that dewatered groundwater will be treated and discharged to the sanitary sewer system operated by the Bergen County Utilities Authority (BCUA), which would also require an appropriate permit.

3.4.7 Spill Prevention

Preventing spills of hazardous substances or wastes from occurring is preferable to containing spills that have occurred. Prior to on-site operations, a review will be made to determine potential dangers involved with work practices and to assess the possibilities of discharges of a hazardous substance or waste onto the ground.

Work activities may involve the use of hazardous materials (e.g., fuels, solvents). Efforts will be made to prevent spills, including hydraulic oil or diesel fuel leaking from trucks and heavy equipment. Hazardous material will be stored in its appropriate containers. Tops and lids will be placed back on containers after use and containers of hazardous materials will be appropriately stored away from moving heavy equipment. Leaking hydraulic lines will be addressed and repaired as soon as possible. If a diesel tank is required for re-fueling equipment, it will be equipped with a secondary containment around the primary tank. The fuel tank will be capped, locked, and kept away from direct routes that may lead to the wetland areas.

If an unforeseen oil spill does occur during operations, spill response materials will be readily available on site.

3.4.8 Monitoring Well Protection, Abandonment and Installation

Monitoring wells are protected by steel protective casings or manholes. Prior to commencement of site activities, on-site monitoring wells will be clearly marked to avoid being damaged by site equipment and/or vehicles. A number of monitoring wells that are located in the works areas will require proper abandonment prior to excavation activities. Well sealing/abandonment will be performed by a New Jersey-licensed well driller.

Following completion of the remedial activities, the installation of site wells will be required for long-term monitoring purposes. These wells will be installed after the completion of the remedial programs by a licensed well drilling subcontractor under permits by NJDEP. Refer to Section 3.2.7.

3.5 PRE-MOBILIZATION ACTIVITIES (SUBCONTRACTOR SELECTION & PROCUREMENT)

In order to accomplish the remedial objectives in the most efficient manner it will first be necessary to procure and schedule select services prior to mobilization of the job site. This must be accomplished in an order that will achieve the Site objectives while minimizing costs and redundant mobilizations and demobilizations.

These services include but are not limited to: a land-clearing subcontractor, a land survey subcontractor, a Geoprobe/drilling subcontractor, a well abandonment subcontractor, an analytical services subcontractor, an excavation equipment/operation contractor, waste transporters, waste disposal facility (TSD), a vendor to supply clean backfill material for restoring the Site, asphalt paving contractor, etc.

In addition, arrangements must be made for an appropriate site office trailer(s) with electric, phone and internet service, a useable water source installed from the existing site service location, porta-johns, trash removal and equipment rental, as necessary. It may be necessary to conduct some minimal grading activities to support a site trailer.

3.6 MOBILIZATION

Once the pre-mobilization activities have been completed and the required permits and approvals have been obtained, and the overall workplan and an updated HASP have been completed and approved, mobilization can begin. Initial activities will include tree removal and site clearing, monitoring well abandonment, installation of erosion controls measures, construction of temporary haul roads and appropriate site entrance/exit and staging areas, and setup of site work zones, decontamination zones and support zones. Future tasks will include soil excavation, soil consolidation, backfilling/restoration, cap and berm construction, fencing installation and monitoring well installation.

4.0 SCHEDULE

The estimated project schedule is provided in Appendix D.