

**PRELIMINARY REMEDIAL ACTION WORK PLAN
FOR SOIL REMEDIATION AT THE FORMER
BISHOP TUBE FACILITY
EAST WHITELAND TOWNSHIP
CHESTER COUNTY, PENNSYLVANIA**

For the Benefit of:

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1.0 INTRODUCTION

Penn Environmental & Remediation, Inc. (Penn E&R), on behalf of O'Neill Properties Group (OPG), is submitting this preliminary Remedial Action Work Plan (Work Plan) in accordance with Pennsylvania's Land Recycling and Environmental Remediation Standards Act (Act 2). The Work Plan is being submitted for the former Bishop Tube facility located on Malin Road in East Whiteland Township, Chester County, Pennsylvania (the Site). The property is occupied by a former stainless steel tubing/pipe manufacturing facility and is currently vacant. We understand that OPG, or its affiliate, is planning to acquire the Bishop Tube facility and to redevelop it for light warehousing purposes. It is our current understanding that OPG will re-use the existing Site buildings to the extent possible.

Prior environmental investigations conducted at the Site in the 1980s and 1990s have identified impacts from the prior manufacturing operations. Most prominently, soils and ground water have been found to contain concentrations of the chlorinated solvent trichloroethylene ("TCE") and its breakdown products (such as 1,1,1-trichloroethane ("1,1,1-TCA") and tetrachloroethylene ("PCE")). The chlorinated solvent impacts are presumed to be associated with degreasing agents historically used at the plant and are primarily located in three "hot spot" areas including a former vapor degreaser area beneath Building #8, another former degreaser area beneath Building #5, and a former exterior drum storage area immediately south of Building #8 and east of Building #5.

As part of their purchase of the property, OPG intends to pursue release of liability protection for soils at the Site under Act 2. As part of this process, OPG intends to enter into a Prospective Purchaser Agreement (PPA) to resolve potential liability under the Hazardous Sites Cleanup Act ("HSCA") with the Pennsylvania Department of Environmental Protection ("PADEP"). Therefore, this preliminary Remedial Action Work Plan is being submitted to the PADEP for approval and incorporation into the PPA. This preliminary Remedial Action Work Plan provides a general description of the site and a brief summary of the site characterization activities that have been completed to date, and presents the potential remedial actions that are proposed for implementation at the Site to satisfy the requirements of Act 2 so that a release of liability for soil can be obtained.

Based on our review of environmental reports prepared by others for the Site, Penn E&R recommends the use of soil vacuum extraction ("SVE") technology to aggressively remove chlorinated solvents from unsaturated soils within the three primary soil areas of concern (i.e., the "hot spot" areas), and to couple this approach with soil capping in these areas. Procedurally, the goal of this remedial approach would be to demonstrate attainment with an Act 2 Site-specific standard ("SSS") for soil. As such, the primary goal would be to mitigate the potential human health risks related to vapor intrusion from the impacted soil into on-Site (and off-Site) buildings and by direct contact with the impacted soils. The secondary goal would be to mitigate impacts to ground water associated with contaminants in the unsaturated zone. However, the SVE system would not be intended to remediate Site soils to the point of attaining Act 2 direct contact or soil to ground water standards without the use of some type of additional engineering control, such as capping with an impervious surface such as pavement, asphalt, or building foundations, to eliminate direct contact with the impacted soils and to minimize rainwater infiltration into the soils. Based on our current understanding of the project, Penn E&R has assumed

that OPG will not be required to address ground water impacts, including impacts to soils in the saturated zone, since the PADEP has assumed sole responsibility for undertaking the necessary ground water cleanup at and migrating from the Site.

Nevertheless, in addition to addressing soil impacts within the unsaturated zone, and at OPG's sole discretion, Penn E&R may also evaluate, and/or install infrastructure for, additional or alternative remedial technologies to remediate saturated soils and/or ground water at the Site. These actions would be taken to accelerate ground water cleanup at the Site and thereby limit the potential need for PADEP to conduct remedial activities on-Site as part of the Department's ground water remedial responsibilities following redevelopment of the property.

2.0 BACKGROUND

This Section of the preliminary Remedial Action Work Plan provides a general description of the Site, including the site layout, ownership and use, and a summary of previous environmental investigations at the Site.

2.1 Description of Site

The Site is located at 1 Malin Road in East Whiteland Township, Chester County, Pennsylvania, approximately ¼ mile south of U.S. Route 30. The Site consists of approximately 13.7 acres of land. The Site is occupied by two large rectangular-shaped buildings that cover approximately 3.2 acres of surface area. The two buildings are connected and are referred to as Building #5 and Building #8. These buildings are currently not in use and are in various states of disrepair. The remainder of the Site consists primarily of paved and gravel-covered parking/storage areas, with a lesser amount of undeveloped grassy areas. A chain-link fence surrounds the northern, southern and western boundaries of the Site.

The Site is bordered to the north by a railroad line, beyond which are several retail/commercial businesses along Route 30. The Site is bordered to the east by a residential neighborhood (General Warren Village) and the south by an Amtrak rail line. The Site is bordered to the west by Malin Road, beyond which is a bulk petroleum storage facility operated by ExxonMobil and another commercial property. Little Valley Creek, a designated Exceptional Value stream, transverses the eastern and northeastern property boundaries. A second, unnamed stream/drainage ditch is located along the northern property boundary and discharges to Little Valley Creek.

2.2 Current Site Use and Ownership

The Site is currently owned by Christiana Metals Corporation, although the Chester County Economic Development Authority (CCEDA) has an option to purchase the Site. The Site is currently vacant and not being used for any purpose.

2.3 Historic Site Use and Ownership

Prior to its use for industrial purposes, the Site was primarily agricultural in nature. Manufacturing operations began at the Site in 1951 under the name of "J. Bishop and Company, Platinum Works". It is believed that this company processed platinum and other precious metals, although exact operations are not known.

In 1967, the plant was sold to Matthey Bishop & Company. Plant operations were changed to encompass the manufacturing of specialty seamless stainless steel tubing. Under these new operations, the plant was reclassified as a redraw mill, where stainless steel pipe was reduced to specific diameters and wall gauges by successive redraws and heat treatment. Matthey Bishop sold the Site to the Whittaker Corporation in 1969.

In 1974, the Christiana Metals Corporation purchased the Site. Christiana Metals continued to operate the stainless steel tube manufacturing business at the Site until the early-1990s, when the buildings and business operations were sold to the Marcegaglia Group, USA-Damascus Division. The Site operated under the name of Damascus-Bishop Tube Company, Inc. from the early-1990s until the plant closed in 1999.

In general, manufacturing operations at the Bishop Tube facility included the cleaning, shaping, welding, degreasing, annealing, straightening, sandblasting, polishing and painting of stainless steel and specialty metals into tubes and pipes and other various metal products. The plant utilized a variety of raw materials and chemicals in the manufacturing process, including nitric acid, hydrofluoric acid, caustic materials (for water treatment), motor and gear oils, specialty drawing lubricants, degreasing solvents (primarily trichloroethene or TCE), anhydrous ammonia, coolants, polishing compounds and paints.

2.4 Previous Site Investigations

Prior environmental investigations, conducted on behalf of previous property owners in the 1980s and 1990s and later on behalf of PADEP, have identified impacts from the prior manufacturing operations at the Site. Most prominently, soils and ground water have been found to contain concentrations of the chlorinated solvent trichloroethylene ("TCE") and its breakdown products (such as 1,1,1-trichloroethane ("1,1,1-TCA") and tetrachloroethylene ("PCE")), as well as fluoride, exceeding Act 2 nonresidential Statewide Health standards ("SHSs"). Elevated concentrations of chlorinated solvents and fluoride have also been detected in surface water and sediment samples collected from Little Valley Creek. The chlorinated solvent impacts are presumed to be associated with degreasing agents historically used at the plant, while the fluoride impacts are thought to have originated from hydrofluoric acid used in the former pickling operations.

The known chlorinated solvent impacts to Site soils are primarily located in three "hot spot" areas including a former vapor degreaser area beneath Building #8, another former degreaser area beneath Building #5, and a former exterior drum storage area immediately south of Building #8 and east of Building #5. TCE concentrations in these areas have been detected above 5,000 milligrams/kilogram (mg/kg), well in excess of the Act 2 nonresidential SHSs for the direct contact and impact to ground water pathways. PADEP's consultant, Baker Environmental, Inc. (Baker) believes that these soil "hot spots" are serving as residual sources of the TCE plume found in the shallow ground water beneath the Site, and therefore suggests that remediation of these soil "hot spots" may improve shallow ground water quality. Besides chlorinated solvents, other regulated substances have been detected in Site soils as well, resulting both from on-Site operations and also potentially from petroleum releases at the neighboring ExxonMobil bulk storage facility.

With respect to ground water, a network of over 30 monitoring wells exists at the Site. However, although a ground water pump-and-treat system to limit offsite migration of and remediate the TCE plume has been proposed for the Site, remediation of the ground water plume has not yet been implemented by PADEP.

In addition to serving as a likely source of the ground water impacts, the elevated concentrations of chlorinated solvents in soil may pose a potential vapor intrusion concern for any occupied buildings at the Site or via direct contact.

In addition to the impacts detected on the Site, certain off-Site impacts have also been observed. Ground water flow in both the overburden and bedrock aquifers beneath the Site is thought to be toward the north-northeast. Although the majority of the local community is served by public water, some nearby properties rely on private wells for potable water needs. In 1996, a ground water sample collected from a residential water supply well at 54 Conestoga Road, located northeast (downgradient) of the Site across Route 30, was found to contain chlorinated solvents, including TCE exceeding Act 2 residential SHSs. Accordingly, in 1999, Christiana Metals, at PADEP direction, installed a carbon filtration system at this residence. Another off-Site well, at 30 Conestoga Road (approximately 1,600 feet downgradient of the Site), was originally drilled in 2002 to provide water to a business at that location. According to PADEP, however, when TCE and other chlorinated solvents were detected in that well shortly after its construction, it was converted by PADEP to a ground water monitoring well, and was never used for potable water supply. Therefore, the domestic well at 54 Conestoga Road is the only off-Site ground water receptor currently thought to be impacted by the Site's TCE plume, and this receptor is being treated through the use of carbon filtration. Aside from these two wells on Conestoga Road, the off-Site extent of the plume has not yet been thoroughly characterized.

Indoor vapors associated with the migrating TCE plume has been identified as another potential off-Site exposure concern. In January 2005, PADEP collected an air sample from inside the basement of a residence closest to the Site located in the General Warren Village neighborhood adjacent to the Site to the east. Several VOCs found in ground water at the Site were detected in this indoor air sample, including TCE. However, none of the concentrations detected exceeded PADEP standards.

Regarding potential impacts to natural resources, both the shallow and deep ground water aquifers beneath the Site appear to be a source of baseflow to Little Valley Creek, which runs along the eastern portion of the Site. Elevated concentrations of TCE have been detected in surface water samples collected from Little Valley Creek in the northeast corner of the Site, and in ground water samples from a nearby monitoring well, suggesting a connection between the impacted ground water plume and impacts to the stream.

3.0 TECHNICAL APPROACH

This Section of the Work Plan provides a discussion of our approach to confirming and implementing the remedial activities necessary for the former Bishop Tube site.

3.1 Overview and General Assumptions

In prior discussions with PADEP regarding OPG's interest in acquiring the Site, the PADEP has confirmed that it would be responsible for any and all groundwater remediation required at and off the Site, while under the terms of the PPA, OPG would agree to perform any necessary soil remediation at the Site to demonstrate attainment with an Act 2 standard for Site soils. In these discussions, PADEP indicated that OPG could propose its preferred soil remedial approach, which PADEP would review and approve prior to executing the PPA. Therefore, this Work Plan is being submitted to satisfy this requirement and for incorporation into the PPA.

Soils Remedial Approach

Based on a review of recent environmental reports prepared by Baker for the Site, Penn E&R recommends the use of soil vacuum extraction ("SVE") technology to aggressively remove chlorinated solvents from unsaturated soils within the three primary soil hot spots previously discussed. Procedurally, the goal of this remedial approach would be to demonstrate attainment with an Act 2 Site-specific standard ("SSS") for soil. As such, the primary goal would be to mitigate the risk to human health of vapor intrusion from the impacted soil into on-Site (and off-Site) buildings, as this exposure pathway is considered to represent the greatest potential risk to human health directly related to impacted soils at the Site, and by direct contact with the impacted soils. The secondary goal would be to mitigate impacts to ground water associated with contamination in the unsaturated zone. However, the SVE system would not be intended to remediate Site soils to the point of attaining Act 2 direct contact or soil to ground water standards without the use of some type of additional engineering control, such as capping with an impervious surface such as pavement, asphalt, or building foundations, to eliminate direct contact with the impacted soils. (two of the three known hot spots are currently capped beneath the former manufacturing buildings). Moreover, although remediating the soil "hot spots" through SVE would certainly assist PADEP in its work to address the groundwater impacts related to the Site, Penn E&R has assumed that the PADEP will not require OPG to implement any additional saturated soil remediation necessary for PADEP's groundwater remediation as part of this remedial action since the PADEP has assumed sole responsibility for undertaking the necessary groundwater cleanup at and migrating from the Site.

Nevertheless, in addition to addressing soil impacts within the unsaturated zone, and at OPG's sole discretion, Penn E&R may also evaluate, and/or install infrastructure for, additional or alternative remedial technologies to remediate saturated soils and/or ground water at the Site.

Overview of Technology

SVE involves the application of high vacuum pressure through a network of recovery wells installed in the soil areas of concern. The vacuum pressure induces the flow of subsurface vapor through the extraction points for removal and treatment at the surface. Initially, Penn E&R would conduct a pilot test of approximately three months to confirm the feasibility of this technology and refine the design of the final SVE system. Penn E&R currently estimates that the SVE system would run for a total of approximately 16 months, including the three-month pilot test.

Although Penn E&R believes that SVE would be the primary approach for soil remediation, other technologies, such as air sparging and thermal desorption, may also prove necessary as supplements to the SVE system as implementation proceeds and will be evaluated as part of the pilot test activities. Depending on the success of the SVE system in reducing the contaminant mass in the three hot spots areas, some amount of excavation and off-Site disposal of impacted unsaturated soil may also become necessary to further reduce the contaminant source areas and thus minimize vapor intrusion concerns and the potential for direct contact with the impacted material, as well as the downward migration of contaminants into the water table. Whether and to what degree soil removal may be necessary will only be known after implementation of the SVE pilot system.

Assuming that the existing buildings will remain in place, Penn E&R also recommends the installation of a passive venting system in the flooring of the two buildings to reduce vapor intrusion risks from any remaining residual soil impacts underlying the structures following completion of the active remediation program. This would entail cutting trenches in the existing concrete slabs for installation of piping and stone. To the extent additional structures were constructed on top of the other "hot spot" area, this venting system would also be recommended.

In addition to addressing soil impacts within the unsaturated zone, and at OPG's sole discretion, Penn E&R may also evaluate, and/or install infrastructure for, additional or alternative remedial technologies to remediate saturated soils and/or ground water at the Site. These actions would be taken to accelerate ground water cleanup at the Site and thereby limit the potential need for PADEP to conduct remedial activities on-Site as part of the Department's ground water remedial responsibilities following redevelopment of the property. Additional or alternative technologies that may be evaluated by Penn E&R include air sparging below the water table, the use of two-phase vacuum extraction (TPVE, i.e., the simultaneous extraction of ground water and vapor-phase contamination) and the use of chemical additives in the saturated zone to break down the compounds of concern (such as potassium permanganate or hydrogen release compound (HRC[®])).

A more detailed discussion of our proposed remedial program is provided the following section.

3.2 Proposed Remedial Approach

Our technical approach for implementing soil remedial activities at the Site was developed based on the information included in the various technical reports prepared by Baker, the PADEP and others

regarding previous soil and ground water characterization activities at the Site. Our approach to this project includes the implementation of the following four tasks:

- Task 1 - Remediation Goals and Remedial Technology Screening
- Task 2 - Preparation of Remedial Action Workplan & Permit Applications
- Task 3 - Mobilization Activities and Field Operations
- Task 4 - Preparation of Act 2 Notices and Final Report

The activities included in each of these tasks are presented below.

Task 1 – Remediation Goals and Remedial Technology Screening

To obtain Act 2 liability protection for the former Bishop Tube site, remediation goals and appropriate remediation standards will need to be identified and quantified. To do so, a detailed evaluation of potential receptors of site contamination and associated risks to those receptors will need to be completed to confirm that the selected remediation alternatives are appropriate for obtaining the selected remedial cleanup standards. As previously indicated, Penn E&R has assumed that that soils in the three areas of concern identified by Baker (i.e., the former Vapor Degreaser Area Building #8, the former Vapor Degreaser Area Building #5 and the former Drum Storage Area) will require remediation to be protective of human health via the vapor intrusion and direct contact exposure pathways, as well as the soil to ground water pathway (with respect to unsaturated soils). Therefore, as an initial activity under this task, Penn E&R will conduct an assessment of potential receptors and evaluate current and future exposure pathways. We feel this is a critical first step in assuring the most desirable and efficient process to attaining Act 2 liability protection for the site.

As previously indicated, Penn E&R's preliminary technology screening process has resulted in the selection of aggressive short term SVE as the primary remedial technique. Our experience with this remediation technology has shown it to be very effective in achieving accelerated remediation of soils at similar VOC- impacted sites in Pennsylvania. However, as part of this initial task, Penn E&R will perform a more rigorous technology review process, including assessment of other technologies that warrant further consideration given the specific conditions at this Site, including air sparging and thermal desorption, coupled with SVE. In addition, depending on the ultimate Site use and exposure scenarios, limited excavation and removal of soils may also be required to demonstrate attainment of the selected cleanup standard.

Task 2 - Preparation of a Remedial Action Work Plan & Permit Applications

Upon completion of the Task 1 activities, Penn E&R will develop a final Remedial Action Work Plan (RAWP) for implementation of the selected remedial action and related pilot test activities. The RAWP will provide the necessary detail for the procedures to be followed in implementing the SVE pilot test program. The RAWP will provide the specific details for implementing the SVE system such as liquid (condensate) and vapor discharge streams and monitoring requirements. Quality Assurance/Quality Control (QA/QC), sampling methodologies, chain-of-custody and equipment decontamination

procedures, and health and safety protocols will also be addressed as necessary. Penn E&R will also develop a site specific Health and Safety Plan (HASP) as part of the Task 2 activities. This HASP will outline the measures that will be taken to ensure that all on-site work is completed safely and in accordance with all applicable Occupational Safety & Health Administration (OSHA) regulations.

Coincident with preparation of the RAWP, Penn E&R will complete and file with the PADEP the necessary permits to operate the SVE system under an initial three month duration pilot test. Penn E&R will also obtain any necessary local permits that may be required for contractor work in the area.

Task 3 – Mobilization Activities and Field Operations

Mobilization Activities

Prior to implementing any on-site remedial activities, Penn E&R will complete several pre-mobilization activities. The first activity will be to secure the site area to isolate field operations from the public. We will coordinate these activities with appropriate site/owner officials. Penn E&R will also identify a location for a decontamination area as part of the mobilization activities. This area will be used to decontaminate, as necessary, the various pieces of equipment that will be used during the site remediation.

Penn E&R will also work with owner representatives to acquire electric and water connections as necessary for the remedial action.

Installation of SVE Extraction Wells

Upon completion of the pre-mobilization activities described above, we are proposing to install a series of properly constructed SVE wells within the three areas of concern to extract possible free-phase and sorbed VOCs. Based on information presented in the Baker reports, the surface area of impacted soils in the three areas of concern is as follows: 135 ft x 120 ft (former Drums Storage Area), 120 ft x 105 ft (former Degreaser Area in Building 8) and 90 ft x 45 ft (former Degreaser Area in Building 5). Based on these dimensions, Penn E&R has calculated that the SVE recovery well spacing will need to be on approximately 35 foot centers. Therefore, a total of approximately 37 recovery points will be initially installed at the Site, although additional recovery wells may be installed following completion of pilot test activities.

As part of this task, Penn E&R, at OPG's sole discretion, may also install additional extraction and/or injection wells and related infrastructure required for implementation of additional or alternative remedial technologies selected for pilot test evaluation and/or potential long-term application, including, but not limited to, the use of air sparging (both within the saturated and unsaturated zones), TPVE or the application of chemical additives to the subsurface.

Soil Vapor Extraction (SVE) Pilot Test Operations

In order to verify the effectiveness of the SVE program, it is recommended that a field-testing program be initiated in the form of a pilot test to confirm project feasibility and design parameters. The pilot test

recommended for this project would consist of operating the SVE system for approximately three months to assess the rate of VOC mass removal. This approach will confirm the effectiveness of the SVE system and will provide data on which to calculate, more accurately, the term of the remediation program and any remediation program enhancements. Activities under this portion of Task 3 include the installation, connection, troubleshooting and startup of the SVE system. Penn E&R will kick off the installation activities with a general health and safety meeting with all personnel associated with the project. The pilot test equipment (vacuum generator, vapor-liquid separation vessels, controls, instrumentation, and ancillary pumps), and piping will then be installed and secured, and electrical connections completed. The discharge hose and/or piping will also be installed as per the operating permit requirements. We anticipate initially connecting the proposed recovery wells to manifold systems and then to one of Penn E&R's trailer-mounted SVE systems via temporary rigid and flexible PVC piping installed at-grade. Extracted vapors will be drawn through the PVC piping to the influent port of the SVE system. The piping will be sized to minimize pressure losses, and will be rated for the maximum anticipated temperature.

As part of this task, Penn E&R, at OPG's sole discretion, may also conduct limited pilot test activities to determine the effectiveness of additional or alternative remedial technologies selected for potential long-term application to address soil and/or ground water impacts at the Site, including, but not limited to, the use of air sparging (both within the saturated and unsaturated zones), thermal desorption, TPVE or the application of chemical additives to the subsurface.

Long Term Operation of SVE System and Remediation Program Enhancements.

Should the monitoring data confirm this remediation to be effective and that longer-term operation is desirable, extending the period of operation will be pursued with PADEP. Using generalized information regarding contaminant source and subsurface characteristics provided by the previous site work, we have made the following assumptions to estimate system design variables and vacuum parameters for long-term operation of the SVE system:

- Plume area requiring treatment: three areas: 135 ft x 120 ft, 120 ft x 105 ft and 90 ft x 45 ft
- Representative contaminant concentration in vapor stream: 30 Lbs/Day on average
- Contaminated unsaturated zone thickness requiring treatment: 8 feet (0 to 8 feet bgs)
- Soil Porosity: approximately 25 percent.

At this time our calculations show that with a reasonable approximation of vapor concentration, normal diminishing returns on mass recovery, the estimated initial mass, and an assumed end point being protective of human health and the soil to ground water pathway, the term of operation for the SVE system will be approximately 16 months, including the initial three month pilot test period. However, as previously indicated, supplemental remedial technologies, such as air sparging and thermal desorption, may be incorporated into the overall unsaturated soil remediation program following completion of the pilot test activities. The use of such technologies may accelerate the overall mass removal time required to meet the selected cleanup standards. The use of limited soil excavation and off-site disposal to address any residual impact in the three areas of concern following completion of the SVE program, to the extent feasible, may also be implemented to meet the final cleanup standard(s).

In addition, Penn E&R, at OPG's sole discretion and with PADEP approval, may also implement additional remedial technologies (i.e., TPVE or injection of chemical additives to the subsurface) at the Site to address ground water impacts (including soil impacts within the saturated zone). Alternatively, to the extent OPG authorizes Penn E&R to install infrastructure required to implement these technologies, such infrastructure may be left in place for implementation by others.

System Monitoring and Sampling Program

Operational data from the SVE system will be recorded for evaluation. The system will include a digital remote monitoring system so that Penn E&R can monitor operational data via computer on a daily basis. The rate of mass removal and airflow will be monitored during scheduled site visits by our O&M technicians.

During scheduled site visits we will monitor airflow rates and influent and effluent vapor concentrations, collect hydraulic and pneumatic monitoring data from the SVE wells and piezometers, and complete any required system O&M tasks. Necessary adjustments to the vacuum pressure and withdrawal manifold will also be made during these site visits to optimize system effectiveness. Should operation be extended into the winter months, miscellaneous equipment and supplies such as heat tape for the piping runs may be required to maintain proper operation of the system.

Treatment/Discharge of Extracted Vapor and Water

The discharge of extracted vapor and water will depend on the requirements of the discharge permit(s). However, we anticipate that the extracted vapor will be routed initially through a catalytic oxidizer, then later in the program through granular activated carbon and discharged under authority of the Pilot Test Air Permit to the atmosphere. The permit will stipulate protocols for influent and effluent vapor concentration monitoring.

We have assumed that any extracted ground water or condensate, to the extent any is generated, will be handled by discharge to the ground water treatment system currently being designed by PADEP or treated by Penn E&R on-Site and discharged to the existing sanitary sewer system, or stored on-Site for disposal.

Installation of a Passive Venting System for Existing Concrete Flooring

As we have recently discussed, it is currently anticipated that both Buildings #5 and #8 will remain in place for end-use of the facility. As such, it will be necessary to install a passive venting system to reduce the risk of vapor intrusion from any residual impact in the subsurface soils into the buildings following completion of the SVE program. Under this subtask, we will cut trenches in the existing concrete for emplacement of a piping array within a stone bed. The piping will be plumbed to discharge to the exterior of the building, with appropriate engineering controls, as required.

Demobilization Activities

Upon completion of the remedial activities outlined above, Penn E&R will remove the SVE trailer and associated piping, oxidizer and/or activated carbon and all other site equipment used during the remedial activities. Penn E&R will secure the well heads to the extent possible prior to demobilization from the site. Upon receiving approval of the Final Report, as discussed below, the site wells will be sealed according to PADEP guidance.

Task 4 – Preparation of Act 2 Notices and Final Report

Upon completion of the SVE pilot test activities, Penn E&R will prepare an Act 2 combined Remedial Investigation/Risk Assessment/Cleanup Plan report. The combined Remedial Investigation/Risk Assessment/Cleanup Plan report will include a detailed discussion of all previous site investigations, the activities implemented as part of any additional Act 2 site characterization activities (including the aforementioned pilot test program), the results of these and previous site activities, and any conclusions and recommendations drawn from these results. The report will define the nature and extent of any contamination encountered, the concentration of the contaminants in the media of concern and an analysis of the mobility of, and possible risks associated with, the contaminants of concern. All current and previous sampling results will be compared to appropriate Act 2 cleanup standards. As part of the development of this report, Penn E&R has assumed the need to implement a detailed exposure pathway analysis and risk assessment related to the identified exposure pathways at the Site. A proposed cleanup plan, outlining the selected remedial activities/engineering and institutional controls and/or deed restrictions, as may be warranted to meet the appropriate Act 2 standards, will also be included in the report.

Upon completion of the remedial activities, and receipt of all required attainment sample data, Penn E&R will develop an Act 2 Final Report. This report will be used to document attainment of the selected Act 2 standards for the areas remediated. The Final Report will include a detailed discussion of all previous site investigations, the activities implemented as part of this on-site remedial program, the results of these studies and any conclusions and recommendations drawn from these results. The report will define the nature and extent of any residual contamination, the concentration of the contaminants and the analysis of the mobility and fate of the contaminants. All current and previous sampling results will be compared to appropriate Act 2 cleanup standards such that a release from cleanup liability for the remediated areas at the site can be obtained. The use of engineering controls (i.e., capping mechanisms) to meet the required standards will also be documented, as well as any post-remediation care requirements.

Penn E&R will also prepare and submit all notifications required under Act 2. Penn E&R will develop and submit to the PADEP a Notice of Intent to Remediate (NIR). The local municipality will be notified of the NIR and the NIR will be published in a local newspaper. Upon attainment of the selected standard and submittal of the Final Report, Penn E&R will, as required, notify the local municipality of the submittal of the report and attainment of the cleanup standard. This notice will also be published in a local newspaper.