

REVISED FINAL - BORIT ASBESTOS SUPERFUND SITE

PHASE 2 FIELD INVESTIGATION PLANNING GUIDE

Problem Statement

Operable unit one (OU-1) at the Borit Asbestos Superfund Site (the Site) consists of two asbestos-containing material (ACM) waste disposal areas and a Reservoir constructed, in part, of ACM in the town of Ambler PA. These disposal areas are bounded by creeks and residential and commercial areas. A site walk-over, review of background information, and a Phase 1 field investigation conducted in late 2009/early 2010 indicates that other waste material is disposed with the ACM, including concrete, brick, glass, and tar-like material in a metal bucket. Waste is typically mixed with soil; however, there were borings where there were layers of pure ACM.

- The first area, known as the Park, is relatively flat and is the site of a former playground and tennis courts. Activity-based sampling (raking on the Bank of Wissahickon Creek) in November 2006 by EPA's Response Engineering and Analytical Contract (REAC) personnel, resulted in unacceptable concentrations of asbestos in air. Asbestos waste at the Park was found to be on average approximately 13 feet thick and waste is thickest at PKSB-38. PKSB-38 encountered refusal and had a waste layer of approximately 23 feet. In general the waste layer appears to get thicker in the Park as it approaches Wissahickon Creek from Wissahickon Ambler Alley/Maple Street. Analytical data collected during Phase 1 field activities at the Park show regional screening level (RSL) exceedances in soil for some metals, asbestos, semi-volatile organic compounds (SVOCs), and volatile organic compounds (VOCs). The Park had RSL exceedances in groundwater for some metals, asbestos, and VOCs.
- The second ACM disposal area is referred to as the Asbestos Pile. Test pits in this area found "sludge" and cinders. A portion of this area was previously used for fire training and as a waste transfer station. Asbestos waste at the Asbestos Pile was found to be on average approximately 17 feet thick and waste is thickest at APSB-08. APSB-08 is located on the topographically highest point of the Asbestos Pile and was found to have a waste layer of approximately 40 feet. At its thickest point it appears that the waste layer extends approximately 25 feet above original grade and 15 feet below original grade. Analytical data collected during Phase 1 field activities at the Asbestos Pile show RSL exceedances in soil for some metals, asbestos, SVOCs, and one polychlorinated biphenyl (PCB) compound. The Asbestos Pile had RSL exceedances in groundwater for some metals, asbestos, one pesticide, SVOCs, and VOCs.

- The third area, known as the Reservoir, is a reservoir of unknown origin and construction located between the two waste disposal areas. The berm of the Reservoir is constructed of ACM intermixed with soil. Asbestos waste at the Reservoir was found to be on average approximately a little more than 1 foot. The thickest waste layer was found at RVS-08 and was found to have a mixed soil and waste layer approximately 3 feet thick. All other Reservoir berm sampling locations, with the exception of RVS-08, had some extent of fill covering the asbestos waste. Analytical data collected during Phase 1 field activities at the Reservoir show RSL exceedances in soil for some metals, asbestos, and SVOCs. The Reservoir had RSL exceedances in surface water for some metals and asbestos. The Reservoir had RSL exceedances in sediment for some metals and one SVOC.
- All three areas are bounded on the west by Wissahickon Creek. Rose Valley Creek flows from northeast to southwest between the Reservoir and the Park and is a tributary to Wissahickon Creek. Tannery Run flows from northeast to southwest on the south side of the Asbestos Pile and intersects Wissahickon Creek.
- CDM sampled floodplain soils as part of the Phase 1 field activities collecting shallow (0-3 inch) and deep (6 to 24 inch) samples. ACM was observed within the floodplain around the Site and downstream past the Site. Analytical data collected during Phase 1 field activities within the floodplain show RSL exceedances in soil for some metals, asbestos (only in deep samples), and SVOCs.
- CDM sampled the creeks as part of the Phase 1 field activities, collecting normal and heavy depositional sediment as well as surface water. ACM was observed within the creeks around the Site and downstream of the Site. Analytical data collected during Phase 1 field activities within the creeks show RSL exceedances in sediment for some metals and one SVOC. The creeks had RSL exceedances in surface water for asbestos (two locations) and SVOCs.

The vertical and lateral extents of asbestos and chemical compounds exceeding RSLs are being evaluated in all three parcel areas as well as in the adjacent creeks and floodplains. The vertical and lateral extents of asbestos and chemical compounds will continue to be evaluated throughout other phases of this investigation. EPA plans to begin evaluation of asbestos exposure in air in adjacent residential properties during the Phase 2 investigation.

Study Questions

The overall objective of EPA's work at the Borit Asbestos Superfund Site is to define the nature and extent of contamination (asbestos and chemical) through a remedial investigation (RI) to the extent that a Conceptual Site Model (CSM) can be developed/refined. The CSM will be used to support the performance of a feasibility study (FS), and to provide analytical data to support a comprehensive human health risk assessment (HHRA) and a screening level ecological risk assessment (SLERA). The primary study questions are:

- What is the nature and extent of the disposed waste at the Borit Site?
- Does the contamination at the Borit Site pose a threat to human health and the environment?

Many secondary questions arise in considering the data that will need to be generated to evaluate these primary questions. For the purposes of this planning discussion, these secondary questions are called “Investigative Questions” and are listed in Table 1 where they are organized by the distinctive areas to be investigated during the Phase 2 field investigation. Questions evaluated during the Phase 1 field investigation, for which sufficient data were collected during the Phase 1 investigation for the RI report, have been excluded from this Identification of Phase 2 Field Investigation Data Requirements.

Required Data

Data exist to help answer some of these questions and to guide the approach for collecting additional data. For all areas the documents which are necessary to perform the enclosed work are:

- Phase 1 field investigation results,
- Documents provided by the Community Advisory Group (CAG),
- EPIC aerial photos,
- Sanborn® maps,
- information regarding personal air monitoring and flood plain data (used in the Removal Program design for stream bank stabilization) provided by the EPA On-scene Coordinator,
- information from the Wissahickon Waterfowl Preserve regarding species observed and fish species used to stock the Reservoir,
- information from the Wissahickon Valley Watershed regarding stream flow data,
- information from the Wissahickon Valley Watershed or U.S. Fish and Wildlife Service, PA Fish and Boat Commission, PA Game Commission, and PA Department of Conservation and Natural Resources in regard to ecological receptors in Site waterways, and
- Reservoir construction data from Dams and Waterways, Montgomery County, Ambler Asbestos Site File, and PADEP.

For each detailed investigative question, Table 1 provides a brief summary of the existing data, the identified data gap, and the proposed actions and planned investigation phase for filling the data gap. Questions evaluated in the Phase 1 field investigation have been removed from Table 1.

Table 1 Identification of Borit Site Phase 2 Field Investigation Data Requirements

Question Number	Investigative Question	Existing Information	Data Gaps	Proposed Action/Investigation Phase
Park Area				
4	Has shallow groundwater been impacted beneath the Park Area?	<ul style="list-style-type: none"> Phase 1 groundwater data from grab samples within boreholes and piezometers installed during Phase 1 	<ul style="list-style-type: none"> Groundwater flow direction/gradient Groundwater depth Groundwater aquifer(s) 	<ul style="list-style-type: none"> PHASE 2 Install 2 monitoring wells in Phase 2 at the Park. Monitoring wells will be cased off through the waste layer and left as an open hole in bedrock, unless open hole is greater than 20 feet long. Collect soil sample for asbestos by PLM at the native layer. Survey piezometers and monitoring wells, and collect water levels to determine groundwater flow direction. Develop and collect groundwater samples using low flow techniques for VOCs, SVOCs, PCBs/Pesticides, metals, and asbestos by TEM.
5	Are additional data necessary to perform the HHRA for the Park Area?	<ul style="list-style-type: none"> Phase 1 asbestos and chemical data Activity-based sampling (ABS) conducted in 2006 and 2007: raking and grass cutting, walking, and soil sampling Maintenance ABS scenario (raking). This ABS scenario showed an asbestos level of 0.076 fibers/mm² Modeled risk from asbestos 	<ul style="list-style-type: none"> Additional ABS to evaluate the air exposure pathway from asbestos May need to collect additional chemical data and evaluate metal anomalies Collect soil to be analyzed for asbestos at property extent, specifically at areas where 	<ul style="list-style-type: none"> PHASE 2 Depending on discussions with EPA after review of the Phase 1 Data Summary Report, may add additional samples for non-ACM contamination found at the Site. Analyze 3 stationary passive air samples for asbestos by TEM and particulates (1 upwind, 2 downwind) each day during ABS (approximately 2.1 samples at the Park). Collect 6 surface soil samples (0-3") for asbestos within the composite area that had asbestos levels >12% in the cover waste interface (PKSB-06, 08, 10, 12, , 29, 40), collect 5 surface soil samples (0-3") for asbestos along the Wissahickon and Rose Valley stream bank cap to check if ABS needs to be performed in these areas. Total 11 soil samples by PLM. Collect 1 grab surface soil sample (0-3") for asbestos and percent moisture at each of the planned 7 ABS locations prior to performing ABS activities. Total 7 for PLM and % moisture. Conduct ABS for raking activity at 7 locations. Analyze 2

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		<p>was sufficient to score the Site for placement on the NPL</p>	<p>steep slopes could have surface water runoff exiting the Site</p>	<p>activity-based air samples (high or low volume adult and high volume child) for each of the 7 planned ABS locations, total 14 by TEM. Low volume cassette only analyzed if high volume cassette is compromised. Child cassette worn on ABS actor's waist. Analytical sensitivity for all TEM ISO 10312 air sampling is 0.0004 S/cc.</p> <ul style="list-style-type: none"> • Plan 4 ABS locations in the Park along border with Maple Street in areas not yet addressed by Removal: 1 in each of the 2 composite areas that had levels > 12% in the cover waste interface, and 2 other locations based on visible ACM (will be 4 total, 2 on each side of the access road from Oak Street). • Plan 1 ABS location in the floodplain area in the northern corner by CKFP-07 • Take 2 additional ABS locations in the streambank cap along the Wissahickon and Rose Valley if PLM samples taken during Phase 2 have detectable levels of asbestos (if no asbestos detected during PLM analysis will do 1 ABS scenario in Removal's work area in new cover). Proposed ABS locations are subject to change depending on availability. Total to scope is 7. • Collect GPS points at all ABS locations. • Note: Added per conference calls on March 30 and April 6 with EPA and a Site visit with EPA on April 28, 2010. • Grab two surface soil samples (0-3") for asbestos where surface water runoff is believed to exit the Site. • Note: Added per EPA WAM email June 21 and based on call from EPA WAM on June 3. • Note: Analytical sensitivity for asbestos air samples analyzed by TEM ISO 10312 method based on call with EPA on July 28. • AFTER PHASE 2 • Prepare a Baseline Human Health Risk Assessment Report.

Question Number	Investigative Question	Existing Information	Data Gaps	Proposed Action/Investigation Phase
6	Are additional data necessary to perform the screening level ecological risk assessment for the Park Area?	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Determine whether there are burrowing animals at the site • Determine ecological risks and exposure pathways 	<ul style="list-style-type: none"> • PHASE 1 (not yet completed) • Perform an ecological site walk over (habitat survey) to observe what species inhabit or visit the Site. • Note: This will be performed during the growing season. • AFTER PHASE 2 • Perform a SLERA using available data.
38	Can existing Site subsurface conditions provide enough stability to perform potential remedial action activities (e.g., capping, excavation, treatment, etc.)?	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Geo-environmental data to support FS evaluation of potential remedial alternatives 	<ul style="list-style-type: none"> • PHASE 2 (still under review by CDM, may change) • Drill 3 test borings to depths ranging from approximately 15 to 30 feet below the ground surface. Borings will be drilled with continuous standard penetration tests (SPTs). Borings will be drilled at the locations which appear to be critical with respect to potential remedial action activities. Borings will be located in the field and their ground surface elevations obtained by a surveyor. • Laboratory testing may include moisture content, grain size analysis, Atterberg Limits, which collectively are called Classification Tests, specific gravity tests, consolidation tests, and shear strength tests. Preliminarily it is anticipated that 6 Classification Tests, 2 specific gravity tests, 2 consolidation tests, and 2 shear strength tests will be performed. These tests will help evaluate settlement and slope stability at the Park for the FS.
Asbestos Pile				
7	What is the extent of ACM Waste in the cover and waste layers of	<ul style="list-style-type: none"> • Phase 1 asbestos data • An electromagnetic 	<ul style="list-style-type: none"> • Aerial and vertical extent of ACM waste 	<ul style="list-style-type: none"> • Will Evaluate Need After Phase 1 • Perform an electrical resistivity survey to determine the lateral extent and thickness of the Asbestos Pile and associated ACM waste layer(s).

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	the Asbestos Pile?	<p>survey was conducted (Gilmore Report); CDM will reevaluate the use of this report after Phase 1 has been completed to determine if the existing report is sufficient or if a new survey needs to be conducted</p>		<ul style="list-style-type: none"> • Task not yet completed. • Phase 2 • Grab one surface soil sample (0-3") for asbestos where surface water runoff is believed to exit the Site. • Note: Added per EPA WAM email June 21 and based on call from EPA WAM on June 3.
11	Has shallow groundwater been impacted beneath the Asbestos Pile?	<ul style="list-style-type: none"> • Phase 1 groundwater data from grab samples within boreholes and piezometers 	<ul style="list-style-type: none"> • Groundwater flow direction/gradient • Groundwater depth • Groundwater aquifer(s) 	<ul style="list-style-type: none"> • PHASE 2 • Install 2 monitoring wells in Phase 2 at the Asbestos Pile. Monitoring wells will be cased off through the waste layer and left as open holes in bedrock, unless open hole is greater than 20 feet long. Collect soil sample for asbestos by PLM at the top of the native layer. • Survey piezometers and monitoring wells, and collect water levels to determine groundwater flow direction. • Develop and collect groundwater samples using low flow techniques for VOCs, SVOCs, PCBs/Pesticides, metals, and asbestos by TEM.
12	Are additional data necessary to perform the HHRA for the Asbestos Pile?	<ul style="list-style-type: none"> • Some activity-based sampling (ABS) has been conducted such as a raking maintenance scenario • Phase 1 soil 	<ul style="list-style-type: none"> • Additional activity-based samples to evaluate the air exposure pathway • May need to collect 	<ul style="list-style-type: none"> • PHASE 2 • Depending on discussions with EPA after review of the Phase 1 Data Summary Report, may add additional samples for chemical contamination found at the Site. • Analyze 3 stationary passive air samples for asbestos by TEM and particulates (1 upwind, 2 downwind) each day during activity-based sampling (ABS) (approximately 12 samples at the Asbestos Pile).

Question Number	Investigative Question	Existing Information	Data Gaps	Proposed Action/Investigation Phase
13	Are additional data necessary to perform the ecological risk assessment For the Asbestos Pile?	<ul style="list-style-type: none"> Chemical data collected during Phase 1 activities 	<p>additional chemical data and evaluate metal anomalies</p> <ul style="list-style-type: none"> Collect soil to be analyzed for asbestos at property extent, specifically at areas where steep slopes could have surface water runoff exiting the Site 	<ul style="list-style-type: none"> Collect 1 grab surface soil sample (0-3") for asbestos and percent moisture at each of the 4 planned ABS locations prior to performing ABS activities. Total 4 for PLM and % moisture. Conduct ABS for raking activity at 4 locations. Analyze 2 activity-based air samples (high or low volume adult and high volume child) per ABS location, total 8 by TEM. Low volume cassette only analyzed if high volume cassette is compromised. Child cassette worn on ABS actor's waist. Analytical sensitivity for all TEM ISO 10312 air sampling is 0.0004 S/cc. 4 ABS locations: 1 in Former Fire Training area, 1 along fence line with Maple Street, 1 on top of Pile at APSB-34, and 1 in shingles area near APPZ-03A. Proposed locations are subject to change depending on availability. Total to scope is 4. Collect GPS points at all ABS locations. Note: Added per conference calls on March 30 and April 6 with EPA and a Site visit with EPA on April 28, 2010. Note: Analytical sensitivity for asbestos air samples analyzed by TEM ISO 10312 method based on call with EPA on July 28. AFTER PHASE 2 Prepare a Baseline Human Health Risk Assessment Report. PHASE 1 (not yet completed) Perform an ecological site walk over (habitat survey) to observe what species inhabit or visit the Site. Note: This will be performed during the growing season. AFTER PHASE 2 Perform a SLERA using available data.

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39	Can existing Site subsurface conditions provide enough stability to perform potential remedial action activities (e.g., capping, excavation, treatment, etc.) and to support potential future Site uses?	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Geo-environmental data to support FS evaluation of potential remedial alternatives and potential future uses 	<ul style="list-style-type: none"> • PHASE 2 (still under review by CDM, may change) • Drill 6 test borings to depths ranging from approximately 20 to 50 feet below the ground surface. Borings will be drilled with continuous SPTs. Borings will be drilled at the locations of which appear to be critical with respect to potential remedial action activities. Borings will be located in the field and their ground surface elevations obtained by a surveyor. • Laboratory testing may include moisture content, grain size analysis, Atterberg Limits, which collectively are called Classification Tests, specific gravity tests, consolidation tests, and shear strength tests. Preliminarily it is anticipated that 14 to 20 Classification Tests, 4 to 6 specific gravity tests, 4 to 6 consolidation tests, and 4 to 6 shear strength tests will be performed. These tests will help evaluate settlement and slope stability at the Asbestos Pile for the FS.
40	Has the soil been impacted with dioxins during the fire training activities?	<ul style="list-style-type: none"> • No dioxin analyses were performed during Phase 1 	<ul style="list-style-type: none"> • Dioxin sampling within the former fire training area 	<ul style="list-style-type: none"> • PHASE 2 • Collect 5 samples for dioxins (0-3") in the former fire training area. Samples will be collected in the flat area on both sides of the access road (3 on one side, 2 on the other). • Note: Added per conversations with EPA on March 24, 2010 and confirmed in an email from CDM on March 25, 2010.
41	Is the visible slag impacting soil?	<ul style="list-style-type: none"> • None • Slag was noted for the first time during the Phase 1 field investigation 	<ul style="list-style-type: none"> • Metals, SVOCs, asbestos, and dioxins sampling on visible slag 	<ul style="list-style-type: none"> • PHASE 2 • Collect 1 to 2 samples of visible slag at the Pile and analyze for metals, SVOCs, asbestos, and dioxins. Note: Added per conversations with EPA on March 24, 2010 and confirmed in an email from CDM on March 25, 2010. Asbestos sampling added on per a conversation with EPA on June 16, 2010

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Reservoir				
15	Are there risks to ecological receptors at the Reservoir?	<ul style="list-style-type: none"> Reservoir area used as a waterfowl preserve EPA OSC noted that the Reservoir is being stocked with fish for the waterfowl EPA BTAG stated that asbestos fibers have been shown to be toxic to some fish 	<ul style="list-style-type: none"> Confirm presence of ecological receptors in Reservoir Confirm type of waterfowl observed at the Wissahickon Waterfowl Preserve Confirm type of fish being stocked in the Reservoir 	<ul style="list-style-type: none"> PHASE 1 (not yet completed) Perform an ecological site walk over (habitat survey) to observe what species inhabit or visit the Site. Talk with the Wissahickon Waterfowl Preserve to determine what waterfowl or other species have been observed at the Reservoir and what fish are used to stock the Reservoir. This task is currently being performed. Note: This will be performed during the growing season. AFTER PHASE 2 Perform a SLERA using available data.
19	How does the Reservoir fill and drain?	<ul style="list-style-type: none"> Anecdotal reports indicate that it may drain through a pipe located near the former dam into Wissahickon Creek Seep was observed on the western side of the Reservoir near Wissahickon Creek 	<ul style="list-style-type: none"> Reservoir construction data Contaminant levels in seep 	<ul style="list-style-type: none"> PHASE 1 Perform file search for background information concerning the construction of the Reservoir. Agencies to contact: Dams and Waterways, PADEP, County, and EPA (Ambler Asbestos Site File). This task is currently being performed. PHASE 2 Sample the seep observed during Phase 1 field investigation for Asbestos by TEM, VOCs, SVOCs, metals, PCBs, and pesticides. Note: Added per an email from EPA on May 28, 2010.

Question Number	Investigative Question	Existing Information	Data Gaps	Proposed Action/Investigation Phase
20	Is the Reservoir hydraulically connected to the other surface water (streams) or to shallow groundwater?	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Piezometric data from Reservoir, groundwater, and streams 	<ul style="list-style-type: none"> • PHASE 2 • Install staff gauges in the Reservoir, upstream and downstream in Wissahickon Creek, and upstream in Rose Valley Creek and Tannery Run • Survey piezometers in groundwater table. Collect water level data quarterly and immediately following major storm events.
21	If the Reservoir is hydraulically connected to the shallow groundwater, has the shallow groundwater quality been impacted?	<ul style="list-style-type: none"> • Phase 1 surface water data from Reservoir 	<ul style="list-style-type: none"> • Hydraulic connectivity data • Groundwater quality data 	<ul style="list-style-type: none"> • PHASE 2 • Evaluate Reservoir water and sediment quality data (using data collected during Phase 1). • Install and survey staff gauges in streams and Reservoir and piezometers in water table aquifer (see investigative question #20). • Install 2 monitoring wells at the Reservoir adjacent to the Reservoir berm, one along the access road between the Asbestos Pile and Reservoir and one within the floodplain closest to Rose Valley Creek. Monitoring wells will be cased off through the waste layer and left as an open hole in bedrock, unless open hole is greater than 20 feet long. Collect soil sample for asbestos by PLM at the native layer. • Survey piezometers and monitoring wells, and collect water levels to determine groundwater flow direction. • Develop and collect groundwater samples using low flow techniques for VOCs, SVOCs, PCBs/Pesticides, metals, and asbestos by TEM.
22	Are additional data necessary to perform the HHRA for the Reservoir?	Phase 1 chemical and asbestos data collected in Reservoir sediments, surface water and soil	<ul style="list-style-type: none"> • Additional activity-based samples to evaluate the air exposure pathway associated with 	<ul style="list-style-type: none"> • PHASE 2 • Depending on discussions with EPA after review of the Phase 1 Data Summary Report, may add additional samples for chemical contamination found in the Reservoir sediments, surface water, or soils. • Analyze 3 stationary passive air samples for asbestos by TEM and particulates (1 upwind, 2 downwind) each day

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			Reservoir berm soils <ul style="list-style-type: none"> May need to collect additional chemical data 	during ABS (approximately 3 samples at the Reservoir). <ul style="list-style-type: none"> Collect 1 grab surface soil sample (0-3") for asbestos and percent moisture at the ABS location prior to performing ABS activities. Total 1 for PLM and % moisture. Conduct ABS at 1 location for long handle shovel activity. Analyze 2 activity-based air samples (high or low volume adult and high volume child) for the ABS location, total 2 by TEM. Low volume cassette only analyzed if high volume cassette is compromised. Child cassette worn on ABS actor's waist. Analytical sensitivity for all TEM ISO 10312 air sampling is 0.0004 S/cc. 1 ABS location: One ABS location near RVSB-18. Total to scope is 1. Collect GPS points at the ABS location. Note: Added per conference calls on March 30 and April 6 with EPA and a Site visit with EPA on April 28, 2010. Note: Analytical sensitivity for asbestos air samples analyzed by TEM ISO 10312 method based on call with EPA on July 28. Grab one surface soil sample (0-3") for asbestos where surface water runoff is believed to exit the Site. Note: Added per EPA WAM email June 21 and based on call from EPA WAM on June 3. AFTER PHASE 2 Prepare a Baseline Human Health Risk Assessment Report.
Creeks (Wissahickon, Rose Valley and Tannery Run)				
25	What is the risk to ecological receptors from the creeks?	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Confirm presence of ecological receptors in creeks 	<ul style="list-style-type: none"> PHASE 1 (not yet completed) Perform an ecological site walk over (habitat survey) to observe what species inhabit or visit the Site. Note: This will be performed during the growing season. AFTER PHASE 2 Perform a SLERA using available data.

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30	<p>What are the risks to human health from the creeks? Is there an exposure from wading or fishing?</p>	<ul style="list-style-type: none"> Phase 1 chemical and asbestos data collected in Creek surface water and sediment 	<ul style="list-style-type: none"> Analytical data for assessing human health risk of asbestos in air 	<ul style="list-style-type: none"> PHASE 2 Discuss Phase 1 data with EPA to determine if additional sample collection is required for a HHRA. Analyze 3 stationary passive air samples for asbestos by TEM and particulates (1 upwind, 2 downwind) each day during ABS (approximately 6 samples within the downstream floodplain). Collect 1 grab surface soil sample (0-3") for asbestos and percent moisture at each of the planned 2 ABS locations prior to performing ABS activities. Total 2 for PLM and % moisture. Conduct ABS for a hiking activity (downstream of Butler Pike) and a mowing activity (near OWSB-02). Analyze 2 activity-based air samples (high or low volume adult and high volume child) per ABS location, total 4 by TEM. Low volume cassette only analyzed if high volume cassette is compromised. Child cassette worn on ABS actor's waist. Analytical sensitivity for all TEM ISO 10312 air sampling is 0.0004 S/cc. 2 ABS locations: 1 downstream of Butler Pike within the walking trail and rocky floodplain and 1 just downstream of OWSB-02 on the other side of Wissahickon Creek in the walking trail. Total to scope is 2. Collect GPS points at both ABS locations. Note: Added per conference calls on March 30 and April 6 with EPA and a Site visit with EPA on April 28, 2010. Note: Analytical sensitivity for asbestos air samples analyzed by TEM ISO 10312 method based on call with EPA on July 28. Determine extent of ACM debris washed downstream from the Site. Note: Added per a telephone call with EPA on June 3, 2010.

Question Number	Investigative Question	Existing Information	Data Gaps	Proposed Action/Investigation Phase
				<ul style="list-style-type: none"> • AFTER PHASE 2 • Prepare a Baseline Human Health Risk Assessment Report (Phase 2).
Other				
35	Have there been any impacts to soil, sediment, surface water or shallow groundwater at any of the three areas?	<ul style="list-style-type: none"> • Phase 1 investigation data and any subsequent data collected for the RI/FS 	<ul style="list-style-type: none"> • Reports 	<ul style="list-style-type: none"> • AFTER PHASE 2 • Prepare Draft and Final Remedial Investigation Reports.
36	What are the potential cleanup alternatives and estimated costs based on the findings of the RI?	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Reports 	<ul style="list-style-type: none"> • AFTER PHASE 2 • Prepare Draft and Final Feasibility Study reports.
37	Community Involvement	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • NA 	<ul style="list-style-type: none"> • ONGOING • Provide community involvement support for 5 meetings which may include: preparation of poster boards and other materials, CDM attendance at meetings in Ambler, PA, and meeting minutes. • Continue to update spreadsheet containing information provided by various CAG members. Provide to EPA RPM monthly. • PHASE 2 • Prepare factsheet for residents. • If requested by EPA, prepare Access Agreements for residential ABS sampling. At this time, EPA expects to perform this activity. • Analyze 3 stationary passive air samples for asbestos by TEM and particulates (1 upwind, 2 downwind) each day during ABS (approximately 24 samples).
42	Has asbestos migrated offsite to exteriors at neighboring residences? What are the risks to human health within residential	<ul style="list-style-type: none"> • None 	<ul style="list-style-type: none"> • Activity-based sampling to evaluate the air exposure pathway for day-to-day residential activities in 	<ul style="list-style-type: none"> • PHASE 2 • Prepare factsheet for residents. • If requested by EPA, prepare Access Agreements for residential ABS sampling. At this time, EPA expects to perform this activity. • Analyze 3 stationary passive air samples for asbestos by TEM and particulates (1 upwind, 2 downwind) each day during ABS (approximately 24 samples).

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	yards performing day-to-day activities?		residential yards	<ul style="list-style-type: none"> • Collect 1 grab surface soil sample (0-3") for asbestos and percent moisture at each ABS location prior to performing ABS activities. Total 8 for PLM and % moisture. • Perform PLM in woodchip and/or soil samples (whichever exists) beneath swings at kids park (prior to Phase 2) and then EPA will decide if ABS is appropriate (note depth of wood chips and if soil beneath has visible ACM). Total of 2 PLM samples. • Conduct ABS for raking activities. Analyze 2 activity-based air samples (high or low volume adult and high volume child) per ABS location, total 16 by TEM. Low volume cassette only analyzed if high volume cassette is compromised. Child cassette worn on ABS actor's waist. Analytical sensitivity for all TEM ISO 10312 air sampling is 0.0004 S/cc. • Plan 3 Residential ABS locations along Mercer Hill Rd and Betsy Lane, 5 residential ABS locations along Maple Street. Total to scope is 8. • All residential locations are subject to change and will vary depending on access acquired by EPA. • Collect GPS points at all ABS locations. • Note: Added per conference calls on March 30 and April 6 with EPA and a Site visit with EPA on April 28, 2010. • Note: Analytical sensitivity for asbestos air samples analyzed by TEM ISO 10312 method based on call with EPA on July 28.
43	Is asbestos in ambient air in adjacent neighboring communities?	<ul style="list-style-type: none"> • Some historical air monitoring was performed in community in 2006 and 2007 prior to Removal performing work • Air monitoring in community 	<ul style="list-style-type: none"> • Evaluation of ambient air in neighboring community after Removal started intrusive work at the Site 	<ul style="list-style-type: none"> • Analyze ambient air in neighboring communities for 5 months. Each month will consist of 3 separate 24 hour sampling events. Assume 7 stationary locations similar to those locations used by Removal for air monitoring in 2006 and 2007, plus one across Maple Street from the Asbestos Pile. EPA expects three one day sampling events to occur in August, three one-day sampling events to occur in September, three one day sampling events to occur in October and the other six one day sampling events will be

Question Number	Investigative Question	Existing Information	Data Gaps	Proposed Action/Investigation Phase
44	Is analytical data being managed in EPA's EQulS Database?	<p>during Removal's intrusive work</p> <ul style="list-style-type: none"> Phase 1 data are being managed in an Access database currently maintained by CDM None 	<ul style="list-style-type: none"> Data in EQulS for EPA's ease in future storage and management 	<p>held in reserve.</p> <ul style="list-style-type: none"> Note: Added per a telephone call from EPA on May 6, 2010. Scope for ambient air sampling finalized during call with EPA on July 28. Analytical sensitivity to be used for ambient air program will be 0.0004 S/cc. Will run two cassettes off of each air pump using a manifold, only one sample will be analyzed. The second air cassette will be archived unless the first cassette is compromised, at which time the second cassette will be submitted for analysis. Move all Phase 1 and Phase 2 analytical data from Access to an EQulS database to facilitate future transfer to EPA's EQulS database. Note: Added per a telephone call from Stacie Pratt on May 6, 2010.
45	What are the analyte levels for inorganics in background soil for this area?	<ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> Inorganic background concentrations 	<ul style="list-style-type: none"> AFTER PHASE 2 Collect soil samples for inorganics from background locations chosen by EPA. Note: Added per recommendations from the Phase 1 Data Evaluation Report and subsequent conversations with EPA WAM.

Health and Safety Considerations

- During the field effort, all field personnel will wear Level C PPE for intrusive activities
- The drill rig operators will be required to don level C and also wear 2 pumps for personal air, which will be sampled for an 8 hour TWA and a 30 min. exposure limit. Samples will be analyzed for PCM and if this exceeds the PEL, then run for TEM. This will be done for all days of sampling activities at the Park, Reservoir, and at the Asbestos Pile, with the samples being analyzed to determine worker exposure.
- Keep soil moist to reduce dust (except during ABS sampling). No dust generated by site investigation activities may leave the vicinity of the sampling area through the air or other transport pathways.
- ABS sampling activities may require a robust sprayer to spray dust at the periphery of the sampling activity to ensure dust does not leave the vicinity of the sampling area. It is anticipated that residential ABS scenarios will not require any type of dust suppression. Onsite ABS scenarios may require some type of dust suppression.
- Keep vehicles off of the Site unless absolutely necessary.

Approach

Refine CSMs then use a phased approach:

Phase 1:

- Completed

Phase 2:

- Collect other media as indicated or determined to be required after EPA has reviewed the Phase 1 results: soil, groundwater, surface water (seep), sediment, and air.
- Evaluate asbestos migration from surface water transport at the Site parcels.
- Install and sample groundwater monitoring wells in bedrock.

- Sample seep from Reservoir.
- Perform a geotechnical investigation to evaluate slope stability and settlement for the FS.
- Perform an investigation to evaluate the extent of ACM washed downstream.
- Identify potential contaminant transport pathways: conduct hydrologic studies (piezometers and staff gauges) at the Reservoir and Creeks. Determine flow into and out of Reservoir.
- Conduct detailed hydrologic (stream flow) studies as necessary.
- Perform activity-based sampling on the Park, Reservoir, Asbestos Pile, walking trails, and at select residential properties.
- Collect ambient air data within the community.

After Phase 2:

- Collect background inorganic samples
- The following reports will be prepared after incremental work plan preparation and approval: Phase 2 Data Summary Report, Draft and Final RI, Draft and Final SLERA, Draft and Final HHRA, and Draft and Final FS.
- Sample potential receptors: ecological receptors if identified.

To be determined by EPA:

- Additional sampling locations.
- Sample public groundwater supply well for asbestos by TEM.
- ABS at one commercial property along Maple Street across from Asbestos Pile.

Note:

- CDM understands that no tree clearing, hauling, and chipping/ disposal is required to perform this work.
- CDM understands that purge water and decontamination water from activities performed on the Site may be discharged to the ground surface at the Site.
- CDM understands that purge water and decontamination water from activities performed at residential properties must be containerized.
- CDM understands that decontamination water and water used for dust suppression can be pulled from the nearby creeks.
- CDM understands that residential lawns must be left without rake clippings and seed and hay placed down if necessary.
- CDM understands that work will be performed during week days and is not scheduled for weekends.
- CDM understands that no additional tree bark sampling will be performed at this time.