## INTERIM ACTION WORK PLAN Removal of Mercury-Contaminated Soil at Cell Building

Prepared for: Port of Bellingham

Project No. 070188-001-26 • December 26, 2016 FINAL

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## **1** Background and Goal for Interim Action

In 2013-2014, an interim action was completed within the Chlor-Alkali Remedial Action Unit (RAU) of the Georgia-Pacific West Site (Site; Figure 1). That interim action removed approximately 3,550 tons of soil and debris containing visible elemental mercury and also demolished the Mercury Cell Building<sup>1</sup> (Aspect, 2014). Due to unexpected conditions encountered following removal of the Cell Building structure, the Port of Bellingham (Port) and Washington State Department of Ecology (Ecology) agreed to suspend the interim action and address remaining contamination as part of the final cleanup action for the RAU. Pending the final cleanup action, an estimated 600 cubic yards (900 tons) of soil containing visible elemental mercury within the footprint of the former Cell Building were secured beneath a heavy-gage, impervious and ultravioletresistant polyethylene cover; the cover extended over the entire Cell Building footprint. Figure 2 depicts locations of the excavation areas from the 2013–2014 interim action as well as the soil to be removed in this interim action. Due to a number of factors, implementation of the final cleanup action for the RAU will take longer than expected, and Ecology is now requiring the Port to remove that mercury-impacted soil prior to the final cleanup action.

Therefore, the goal for this interim action is removal and off-Site disposal of the estimated 600 cubic yards of mercury-contaminated soil at the former Cell Building. To address Subtitle C (hazardous waste) landfill disposal requirements, the soil will first be treated on-Site to meet federal land disposal restriction (LDR) treatment standards.

This interim action will be conducted under Agreed Order No. 6834, as amended, between the Port and Ecology. The August 2011 amendment to the Agreed Order allows completion of interim actions, subject to preparation of a work plan that proposes the scope of work and schedule for the interim action, and subject to public review and Ecology approval of the work plan. This Interim Action Work Plan (Work Plan), prepared for public review and comment and Ecology review and approval, meets that requirement of the Agreed Order.

## **1.1 Work Plan Organization**

Following this introductory section, the remaining sections of this Work Plan are as follows:

- Section 2—Elements of Interim Action
- Section 3—Permits and Substantive Requirements
- Section 4—Reporting
- Section 5—Schedule

<sup>&</sup>lt;sup>1</sup> Structure in which liquid mercury was historically used as part of the former Georgia-Pacific pulp mill chlorine plant.

- Section 6—Integration with Final Cleanup Action
- Section 7—References

## 2 Elements of Interim Action

This section describes specific work elements of the interim action to be accomplished.

#### 2.1 Waste Designation and Disposal

All soil and debris removed during this interim action will be designated as dangerous waste, transported under hazardous waste manifests, and properly disposed of at the Chemical Waste Management Subtitle C (hazardous waste) landfill in Arlington, Oregon.

The soils to be disposed of will be treated at the Site, before transport, to achieve the alternative LDR treatment standards for mercury-contaminated soils (remediation waste), in accordance with 40 Code of Federal Regulations (CFR) 268.49<sup>2</sup>, so that the treated soil can be land-disposed at a Subtitle C landfill. It is expected that the treated soil will achieve Toxicity Characteristic Leaching Procedure (TCLP) mercury concentrations below the federal toxicity characteristic (0.2 mg/L mercury by TCLP test), and therefore will not be federal characteristic hazardous waste. However, the treated soil will still contain greater than 1,000 mg/kg total mercury, and will therefore designate as State-Only Toxic Dangerous Waste (WT02) requiring disposal at a Subtitle C landfill.

If the on-Site treatment achieves the alternative LDR treatment standard, but does not eliminate the hazardous waste characteristic (i.e., TCLP mercury between 0.20 and 0.25 mg/L), then the treated soil would designate as D009 hazardous waste, and be loaded and transported for Subtitle C disposal. Note that, from a practical perspective, the management of D009 waste meeting LDR treatment standards and management of WT02 waste will be substantively identical (i.e., transport under manifest, Subtitle C disposal).

Any debris within the soil being removed that is large enough to interfere with the on-Site treatment process will be segregated into a separate waste stream and designated as characteristic hazardous waste debris (D009). Consistent with the approach used in the 2013–2014 interim action, the D009 debris will be treated using macroencapsulation to meet the LDR for debris prior to its Subtitle C landfill disposal.

Once the approximately 600 cubic yards of soil are removed from the Site, asphalt pavement will be constructed across the entire unpaved Cell Building excavation area as the final step in this interim action, pending start of the final cleanup action for the RAU. The existing polyethylene cover will be cut up, profiled for disposal, and properly disposed of at an off-Site landfill.

<sup>&</sup>lt;sup>2</sup> Reduce TCLP mercury concentrations by at least 90 percent <u>or</u> to 10 times the universal treatment standard (UTS) in 40 CFR 268.48, whichever is less stringent. For mercury, 10 x 0.025 mg/L TCLP mercury (UTS under 40 CFR 268.48) = 0.25 mg/L TCLP mercury as the alternate LDR treatment standard.

## 2.2 On-Site Soil Treatment Prior to Disposal

During the 2013–2014 interim action, mercury-contaminated soils very similar to those to be addressed in this interim action were successfully treated on-Site to meet the alternative LDR treatment standard. That treatment included adding elemental sulfur (a stabilization agent) and Portland cement (a solidification agent) at dosages of 5 percent and 45 percent of wet soil weight, respectively. Those amendments and dosages were selected based on the results of treatability testing conducted in 2012, and were intentionally conservative, since the cost of treatment failure (not meeting the treatment standard) would have been exceptionally high. During that full-scale application treatment, the individual batches of treated soil typically surpassed the treatment standard by two orders of magnitude, confirming the conservatism in treatment design for disposal purposes.

Information that has become available more recently from *in-situ* treatment of soils containing visible elemental mercury at the Mercury Refining Superfund Site in New York (Brown and Caldwell, 2013) suggests that further optimization of treatment amendments and dosages can likely result in significant cost savings for soil to be disposed of off-Site. For example, in treatability tests at the Superfund Site, the target reduction in mercury leachability was achieved through addition of a stabilization agent alone (i.e., no cement added). The elimination of cement from the treatment would significantly reduce the volume and weight of the treated soil, and thereby significantly reduce the transport and disposal costs relative to the approach from the 2013–2014 interim action.

Therefore, supplemental treatability testing is underway to optimize the treatment approach for meeting the alternative LDR treatment standard for off-Site disposal during this interim action. The results of the supplemental treatability testing—the type and dosage of treatment reagents—were not available at the time of preparation of this Work Plan; however, that information will be reviewed and approved by Ecology prior to it being incorporated into the Construction Specifications for this interim action.

As a first step in the full-scale treatment process, a treatment test run will be conducted on a batch of contaminated soil targeted for removal, to test the mixing procedures and verify quality control. Treatment performance for the test batch will be confirmed by compliance monitoring prior to starting treatment of the remaining soil.

In the unlikely event that a batch of treated soil fails to meet the alternative LDR treatment standard, reprocessing of that batch on-Site will be attempted if technically feasible. The ability to treat the soil a second time will likely depend on the cement content of the treated soil, which will be determined as part of the supplemental treatability testing that is underway. Based on the Superfund Site treatability results noted above and on information provided by the vendor of a proprietary stabilization agent that is being tested, the physical characteristics of the treated soil will likely allow it to be reprocessed if needed<sup>3</sup>. If on-Site reprocessing is not technically feasible, or if reprocessed soil still fails to meet the treatment standard, the Port will consult with

<sup>&</sup>lt;sup>3</sup> In the 2013–2014 interim action, each batch of treated soil (with 45 percent cement content) formed a monolithic block and could not be reprocessed.

Ecology regarding either (1) Ecology granting a variance from the LDR treatment standard in accordance with 40 CFR 268.44 prior to Subtitle C disposal, which would be subject to Ecology approval, or (2) transporting the treated soil to Waste Management's Mercury Waste Solutions facility in Wisconsin for treatment by retort (LDR treatment standard under 40 CFR 268.40) and then Subtitle C disposal.

#### 2.2.1 Control of Air Emissions during Soil Treatment

The soil to be treated on-Site contains concentrations of elemental mercury that can generate mercury vapors during handling. Once stabilized, the elemental mercury will largely convert to mercury sulfide, which has low volatility. Therefore, the interim action will address air emissions during physical screening (debris removal) and mixing of contaminated soil with treatment reagents. To limit air emissions, the volume of contaminated soil that is exposed at any one time can be minimized by only uncovering the soil while it is being excavated and moved into the on-Site soil treatment enclosure.

To control air emissions during the on-Site treatment process, a tent-like cover will be set up over the treatment system equipment. We anticipate that the cover will be configured similar to a tunnel, closed on the sides but open on both ends to allow soil to be loaded into and out of the treatment equipment. A large-capacity blower on one end of the tunnel will draw air from beneath the cover through treatment canister(s) filled with sulfurimpregnated activated carbon designed to remove mercury vapors. The cover will provide containment and facilitate capture and treatment of mercury vapors generated during the soil treatment process. The blower will be sized to capture and exchange at least three times per hour the total volume of air from beneath the cover.

Throughout the soil treatment process, air monitoring for mercury will be conducted within the breathing zone for the purpose of worker health and safety, and around the project site perimeter to assess fugitive emissions. Within the health-and-safety exclusion zone, workers will also wear air-purifying respirators during handling and treatment of the contaminated soil, consistent with measures undertaken during the 2013–2014 interim action. The air monitoring for mercury will include real-time measurements using a Lumex portable mercury vapor analyzer for health-and-safety monitoring, and 24-hour time-weighted-average sampling using sorbent traps for compliance monitoring at the project site perimeter. Baseline monitoring will also be conducted prior to start of soil treatment operations to document ambient mercury air concentrations. An Air Monitoring Plan outlining the air monitoring details will be part of the Compliance Monitoring Plan for the interim action that will be submitted to Ecology for review with the Construction Specifications.

Action levels for mercury in air will be as follows:

- Within the worker breathing zone: the 100 micrograms per cubic meter (ug/m<sup>3</sup>) Occupational Safety and Health Administration (OSHA) permissible exposure limit;
- Within 10 feet of the discharge from the air treatment system: 50 ug/m<sup>3</sup>. Because the air treatment system is intended to capture the mercury emissions from the soil treatment process, this action level is derived to comply with the small

quantity emission rate (SQER<sup>4</sup>) defined in Chapter 173-460 Washington Administration Code (WAC), Controls for New Sources of Toxic Air Pollutants. Based on experience during the 2013–2014 interim action, the air treatment system will draw up to 5,000 cubic feet of air per minute (cfm) from below the treatment process cover through the treatment media. Assuming continuous operation of the air treatment system at 5,000 cfm for a 10-hour work day, a maximum air mercury concentration of 60  $ug/m^3$  is allowable to comply with the 0.0118 pound/day SQER (Table 1 provides the calculations). The action level for discharge from the air treatment system is set lower, at 50  $\mu$ /m<sup>3</sup>, to provide a factor of safety. Assuming continuous 5,000 cfm discharge of mercury concentrations equal to the 50 ug/m<sup>3</sup> action level, the system would discharge a mercury mass of 0.009 pounds/day or 4 grams/day, which are respectively below the 0.0118 pounds/day SQER and the 2,300 grams/day discharge limit under the Regulation of the Northwest Clean Air Agency (NWCAA; Table 1). Note that soil treatment and thus air treatment system operation will likely occur for less than the assumed 10 hours per day based on experience during the 2013–2014 interim action, thus providing an additional measure of safety in setting this action level; and

At the project site perimeter: a 5 ug/m<sup>3</sup> Model Toxics Control Act (MTCA) air remediation level that is derived as a modified Method B (unrestricted) air cleanup level. MTCA<sup>5</sup> allows establishing air remediation levels as modified Method B air cleanup levels using quantitative Site-specific risk assessment with a modified reasonable maximum exposure (RME) scenario. As a noncarcinogen, the standard Method B air cleanup level for mercury is based on a child's continuous inhalation exposure for a 6-year duration. The on-Site handling and treatment of contaminated soils (emissions source for interim action) is expected to last up to 6 weeks. Consequently, in accordance with WAC 173-340-708(10)(b)(ii), a modified RME with an air exposure duration conservatively assumed at 2 months (0.17 year) is used to establish the modified Method B air cleanup level as the remediation level. All other standard Method B air exposure parameters are unchanged in calculating the air remediation level. Table 2 provides the calculation of the air remediation level as an air action level for this interim action. Note that the nearest residence is at least 800 feet farther from the emissions source than the project site perimeter, where the air action level must be met, providing an additional measure of safety in setting this action level.

If mercury concentrations measured in the worker breathing zone, at the air treatment system discharge location, or at the project site perimeter exceed their respective action levels, the Contractor will be required to suspend operations and implement additional vapor control measures. These may include applying vapor suppressants (e.g., HgX<sup>®</sup>) to exposed untreated soil and/or modifying the air containment/treatment system so as to achieve the action levels.

<sup>&</sup>lt;sup>4</sup> The emissions mass discharge below which dispersion modeling is not required to demonstrate compliance with acceptable source impact levels (WAC 173-460-150).

<sup>&</sup>lt;sup>5</sup> WAC 173-340-357, -708(3), -708(10), and -750(3)(d),

## 2.3 Compliance Monitoring

In accordance with WAC 173-340-410, compliance monitoring for a cleanup action includes the following elements:

- **Protection monitoring** confirms that human health and the environment are adequately protected during the cleanup action;
- **Performance monitoring** confirms that the cleanup action has attained cleanup levels and/or other performance standards, such as permit requirements; and
- **Confirmation monitoring** confirms the long-term effectiveness of the cleanup action once cleanup levels and/or other performance standards have been attained.

For this interim action, protection and performance monitoring will be conducted, as outlined below. Confirmation monitoring will be conducted as part of the final cleanup action for the RAU, not as part of this interim action.

#### 2.3.1 Protection Monitoring

Protection monitoring will be conducted during the interim action by requiring that on-Site workers conducting the soil handling and management are appropriately trained in hazardous waste operations and follow applicable health-and-safety plans prepared specifically for the interim action project. This includes workers inside the exclusion zone wearing personal protective equipment, including, but not limited, to air-purifying respirators with mercury cartridges, disposable poly-coated chemically protective coveralls, and hearing protection.

Protection monitoring includes real-time mercury vapor monitoring within the worker breathing zone as discussed in Section 2.2.1. The air monitoring data will be made available to on-Site workers and Ecology. Nothing in this Work Plan precludes contractors/consultants on-Site from choosing to conduct additional air monitoring.

#### 2.3.2 Performance Monitoring for Soil Treatment

One performance monitoring sample will be collected for TCLP mercury analysis (EPA Methods 1311 and 7470) from each truck-and-trailer load of treated soil (roughly 30 tons) to assess treatment compliance with the 0.25 mg/L alternative LDR treatment standard and the 0.2 mg/L toxicity characteristic criterion (i.e., a TCLP mercury concentration below 0.2 mg/L meets both standards). Details regarding performance monitoring of the treated soil will be presented in the Compliance Monitoring Plan that will be submitted for Ecology review with the Construction Specifications.

## **3** Permits and Substantive Requirements

The interim action is being conducted under an Agreed Order, and is therefore exempt from the procedural requirements of Chapters 70.94, 70.95, 70.105, 77.55, 90.48, and 90.58 of the Revised Code of Washington (RCW), and of any laws requiring or authorizing local government permits or approvals. However, the interim action must still

comply with the substantive requirements of such permits or approvals (WAC 173-340-520). In addition, the interim action is not exempt from federal permits.

The following sections outline the State Environmental Policy Act (SEPA; RCW 43.21C and WAC 197-11-250 through -259) and federal permit requirements, and then discuss how substantive requirements of procedurally exempt permits will be met during implementation of this interim action.

## 3.1 State Environmental Policy Act (SEPA)

Compliance with SEPA, Chapter 43.21C RCW, will be achieved by conducting SEPA review in accordance with applicable regulatory requirements, including WAC 197-11-268, and Ecology guidance as presented in Ecology Policy 130A (Ecology, 2004). The Port will act as the SEPA lead agency and will coordinate SEPA review.

#### 3.2 Federal NPDES Waste Discharge Permit

The Port manages National Pollutant Discharge Elimination System (NPDES) Waste Discharge Permit No. WA0001091, which regulates the discharge of permitted waters from the Site, via its secondary treatment aerated stabilization basin (ASB), to Bellingham Bay (Ecology, 2014). All waters generated from the interim-action work (e.g., stormwater runoff and, if any, process waters) will be managed under that permit, pending a written request to, and subsequent approval from, Ecology. The ASB NPDES permit authorizes management of water from Site remediation activities; see permit special condition S7 (Nonroutine and Unanticipated Discharges) of the permit for further detail. The Construction Specifications will require conveyance of stormwater and process waters from the project site directly to the ASB pump station, from where it will be pumped to the ASB.

#### 3.3 Permit Substantive Requirements

The interim action is subject to the following state and local requirements, but is procedurally exempt from them:

- Major Grading Permit as per City of Bellingham Grading Ordinance, Bellingham Municipal Code (BMC) 16.70;
- Critical Areas Permit as per City of Bellingham Critical Areas Ordinance, BMC 16.55; and
- City of Bellingham Stormwater Requirements, BMC 15.42.

In addition, to meet substantive requirements for air quality, mercury air emissions from the project must meet applicable air quality standards. Substantive requirements for air emissions are included in the Regulation of the NWCAA and state regulation (Controls for New Sources of Toxic Air Pollutants; Chapter 173-460 WAC). As described in Section 2.2.1, air treatment and air monitoring will be conducted throughout the soil handling-and-treatment process, and those operations will be adjusted as needed to comply with the defined air action levels for the project.

All work for this interim action will occur at distances greater than 200 feet from the ordinary high water mark, so is outside jurisdiction of the City of Bellingham Shoreline Master Program (BMC Title 22).

The applicable substantive requirements of the state and local permits or approvals, and the general manner in which the interim action will meet them, are identified below. The Port will continue to coordinate with the City of Bellingham (City) regarding implementation of the interim action project. This includes providing to the City a letter describing, with references to specific portions of the Construction Plans and Specifications, how the interim-action work will meet the substantive requirements of their permits listed below and obtaining written concurrence from the City.

#### 3.3.1 City of Bellingham Major Grading Permit

Pursuant to the City of Bellingham Grading Ordinance (BMC 16.70.070), a Major Grading Permit is required from the City for grading projects that involve more than 500 cubic yards of grading. The permit-required standards and requirements will be integrated into the interim action Construction Plans and Specifications to ensure that the construction complies with the substantive requirements of the City grading ordinance. Those substantive requirements include: location and protection of potential underground hazards, proper vehicle access point to prevent tracking of soil outside of the project site, erosion control, work hours and methods compatible with weather conditions and surrounding property uses, prevention of damage or nuisance, maintaining a safe and stable work site, compliance with noise ordinances and zoning provisions, and compliance with City traffic requirements when using City streets.

#### 3.3.2 City of Bellingham Critical Areas Ordinance

This interim action will occur on land designated as a seismic hazard area by BMC 16.55 Critical Areas because it occurs on man-made fill. However, this soil removal project is not a development proposal and does not include construction of any improvements. The planned soil treatment and loading activities, and the final excavation condition, will not exacerbate seismic hazards within the work area or surrounding property.

#### 3.3.3 City of Bellingham Stormwater Requirements

Pursuant to the City of Bellingham Stormwater Management ordinance (BMC 15.42), this interim-action work must meet the requirements of a City Stormwater Permit. This project does not include construction of any improvements, and the substantive requirements will be met by preparation of and compliance with a Temporary Erosion and Sediment Control (TESC) Plan to prevent off-Site runoff and treat runoff from the construction area, control sources of pollution, and preserve existing drainage systems and outfalls.

## 4 Reporting

Upon completion of the interim-action work, a draft Interim Action Report, describing the methods and outcome of the interim action, will be prepared and submitted to Ecology for review and comment. Following final Ecology approval of the Interim Action Report, the methods and results of the interim action will also be incorporated into the Feasibility Study (FS) and Draft Cleanup Action Plan (DCAP) for the RAU as appropriate.

## 5 Schedule

The expected schedule milestones for this interim action are as follows:

- By end of November 2016: Complete treatability testing to determine optimal reagent type and dosage for on-Site treatment of contaminated soil for purposes of disposal, and submit for Ecology review the draft report of those findings;
- By end of December 2016: Submit for Ecology review the draft Construction Plans and Specifications and draft Compliance Monitoring Plan for the interim action;
- By end of January 2017: Complete the Port's bid solicitation and contractor selection for the interim action construction project;
- By end of March 2017: Complete the interim-action construction (6-week construction duration anticipated); and
- By mid-May 2017: Submit for Ecology review the draft Interim Action Report.

## 6 Integration with Final Cleanup Action

The permanent source removal achieved through this interim action is designed to be consistent with, and not preclude, remedial alternatives for the Chlor-Alkali RAU final cleanup action as required under WAC 173-340-430(3)(b). Source control is the first and most important step for controlling potential migration of contaminants, which is a key requirement for the final cleanup of the RAU.

## 7 References

- Aspect Consulting (Aspect), 2014, Caustic Plume/Cell Building Interim Action Report, Georgia-Pacific West Site, Bellingham, Washington, October 10, 2014.
- Brown and Caldwell Associates, 2013, Attachments A and B to Final Remedial Design Report (100% Design Submittal), Mercury Refining Superfund Site, Colonie, New York, August 2013.
- Washington State Department of Ecology (Ecology), 2004, Toxics Cleanup Program Policy 130A, Coordination of SEPA and MTCA, Revised July 28, 2004.
- Washington State Department of Ecology (Ecology), 2014, National Pollutant Discharge Elimination System Waste Discharge Permit No. WA-000109-1 for the Georgia-Pacific West Site.

## 8 Limitations

Work for this project was performed for the Port of Bellingham (Client), and this report was prepared in accordance with generally accepted professional practices for the nature and conditions of work completed in the same or similar localities, at the time the work was performed. This report does not represent a legal opinion. No other warranty, expressed or implied, is made.

All reports prepared by Aspect Consulting for the Client apply only to the services described in the Agreement(s) with the Client. Any use or reuse by any party other than the Client is at the sole risk of that party, and without liability to Aspect Consulting. Aspect Consulting's original files/reports shall govern in the event of any dispute regarding the content of electronic documents furnished to others.

# TABLES

# Table 1 - Calculated Potential Mercury Air Emissions from Air TreatmentSystem

Project No. 070188-001-26, Interim Action, GP West Site Bellingham, Washington

Air Emissions Criteria for Mercury: NWCAA emissions standard (Section 428.2) = WAC 173-460-150 SQER = WAC 173-460-150 de minimus =	2300 gram/day 0.0118 lb/day 0.000591 lb/day	= = =	5.1 lb/day 5.4 gram/day 0.27 gram/day		
Air treatment system max air discharge rate = System operation duration per day = Max air discharge volume =	5000 ft <sup>3</sup> /min 10 hours 84,950 m <sup>3</sup> /day	=	600 minutes/day		
[A] Max allowable mercury air concentration in air treatment system max discharge to meet SQER = 0.06 mg/m3 = 60 ug/m <sup>3</sup>					
performance standard at treatment system discharge (action level) =	0.05 mg/m3	=	50 ug/m <sup>3</sup>		

[B] Calculated Hg emissions per day if air treatment system discharges 0.05 mg Hg/m <sup>3</sup> at max flow rate, relative to two applicable standards					
	=	4 gram/day	compared to 2,300 g/day NWCAA standard; and		
	=	0.009 lb/day	compared to 0.0118 lb/day SQER		
Abbreviations:					

Hg: Mercury NWCAA: Northwest Clean Air Agency SQER: Small quantity emission rate (WAC 173-460-150).

#### Table 2 - Derivation of Air Remediation Level as Action Level for Project Site Perimeter Monitoring

Project No. 070188-001-26, Chlor-Alkali RAU, GP West Site Bellingham, Washington

Modified Method B Air		
Cleanup Level as Air		
Remediation Level*	=	RfD x ABW x UCF x HQ x AT
(ug/m3)		BR x ABS x ED x EF

where:

RfD =	Reference dose as specified in WAC 173-340-708(7) (mg/kg-day)	=	8.57E-05
ABW =	Average body weight (child) over the exposure duration (16 kg)	=	16
UCF =	Unit conversion factor (1,000 ug/mg)	=	1000
HQ =	Hazard quotient (1) (unitless)	=	1
AT =	Averaging time (6 years)	=	6
BR =	Breathing rate (10 m3/day)	=	10
ABS =	Inhalation absorption fraction (1.0) (unitless)	=	1
ED =	(Remediation Level) Exposure duration (0.17 years**)	=	0.17
EF =	Exposure frequency (1.0) (unitless)	=	1

#### Modified Method B Mercury Air Cleanup Level as Air Remediation Level\* = 5 (ug/m3)

Notes:

\*: Air remediation level applies at project site perimeter, which is at least 800 feet closer to emissions source than any residence.

\*\*: For remediation level, the 6-year (72-month) standard Method B exposure duration is modified to be a 2-month project duration (2/12 = 0.17 year).

## **FIGURES**



Basemap Layer Credits || Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community Copyright:© 2014 Esri

