



CBI Building Demolition Work Plan for the Carter Carburetor Superfund Site

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CBI Building Demolition Work Plan for the Carter Carburetor Superfund Site St. Louis, Missouri

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ABBREVIATIONS AND ACRONYMS

AMECAMEC Environnemental & Infrastructure, Inc.AOCAdministrative Order on ConsentASAAdministrative Settlement Agreementbgsbelow ground surfaceBMPBest Management PracticesCBICarter Building, Inc.CERCLAComprehensive Environmental Response, Compensation and Liability ActCFRCode of Federal RegulationscmcentimeterCOCcontract Required Quantitation LimitsCYcubic yardsDWPdemolition work planEE/CAEngineering Evaluation and Cost AnalysisEPAUS Environmental Protection Agencyftfoot (or feet)ft²square feetHHBGCBoys and Girls Club of Greater St. Louis, Herbert Hoover ChapterHRPHRP Associates, Inc.LRALand Reutilization Action of the City of St. LouisHASPHealth and Safety PlanMDNRMissouri Department of Natural Resourcesmg/kgmilligram per kilogrammg/Lmilligram per literMSDMetropolitan St. Louis Sever DistrictOSHAOccupational Safety and Health AdministrationPCBprofessional EngineerPOTWpublicly owned treatment worksPPEpersonal protective equipmentRAWPRemoval Action Work PlanRCcreinforced concreteRCRAResource Conservation and Recovery ActSiteCarter Carburetor Superfund SiteSOWScope of WorkSREStreamlined Risk Assessment	ACF	ACF Industries, LLC
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SiteCarter Carburetor Superfund SiteSOWScope of WorkSREStreamlined Risk AssessmentTCEtrichloroethyleneTCLPtoxicity characteristic leachate procedureTSCAToxic Substances Control ActTSDFtreatment storage and disposal facilityUSCUnited States CodeWCTWater Collection Tank	RCRA	Resource Conservation and Recovery Act
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TSDFtreatment storage and disposal facilityUSCUnited States CodeWCTWater Collection Tank	TSCA	Toxic Substances Control Act
USC United States Code WCT Water Collection Tank	TSDF	treatment storage and disposal facility
WCT Water Collection Tank	USC	United States Code
	WCT	Water Collection Tank



1.0 INTRODUCTION

The purpose of the Carter Building Inc. (CBI) Demolition Work Plan (DWP) is to document the scope of work (SOW) to be executed to meet the guidance provided in Administrative Settlement Agreement (ASA) and Administrative Order on Consent (AOC) CERCLA 07-2013-0008. Specifically, the CBI DWP was prepared in accordance with Section III Tasks paragraph A.2 Addendum B – CBI Building Work Plan Addendum.

This plan describes in detail the activities required for the successful demolition of the CBI Building (Site);

- Pre-demolition activities,
- Sampling and disposal of materials not scheduled for re-use as backfill on-site
- Dust control methods,
- Fugitive dust sampling,
- Sizing of the demolition debris for use as backfill,
- Sampling of the demolition debris stockpiles
- Stockpile management
- Disposal of demolition debris not suitable for on-site re-use
- Post demolition sampling of CBI footprint soils/materials

The Site Layout, Figure 1-1 depicts the expected layout of the Site to include the placement of equipment, stockpiles and water management apparatus. The layout is based on existing conditions and expected equipment and space needed for stockpiled materials. A proposed schedule, based on this DWP, for the demolition of the CBI Building is included as Appendix A.

1.1 <u>Background</u>

The CBI Building is a four (4) story building located on a site bounded by North Grand Boulevard on the west, St. Louis Avenue on the south, North Spring Avenue on the west, and Dodier Street on the north. The CBI building front is on the east side of the 2800 block of North Spring Avenue. The CBI Building is a reinforced concrete (RC) framed structure having approximate overall dimensions of 630 feet (ft) by 248 ft with an actual footprint of approximately 139,600 square feet (sq ft). The second floor footprint is approximately 133,200 sq. ft, the third floor footprint is approximately 122,800 sq. ft., and the fourth floor footprint is approximately 83,650 sq. ft. The RC concrete frame is a skip joist system with the beam and column frames are generally spaced at 16 ft and spanning in the east-west direction with the RC beam/column frames generally spaced at 20 ft. The floor joists typically span 16 ft and have a depth of 15 inches with a slab thickness of approximately 4-5 inches, and are spaced at approximately 1/3 the column frame width. The RC beams have a depth of approximately 18 inches by 27 inches.

The first, second, and third floors have similar foot prints, with 348 bays on the first floor, 311 bays on the second floor, and 301 bays on the third floor. The fourth floor is not present on the northern third of the CBI Building, with only 230 bays.



As described in Section 2.0 Site Characterization of the Engineering Evaluation and Cost Analysis (EE/CA) for the Carter Carburetor Site. September 22, 2010; the CBI Building is contaminated with polychlorinated biphenyls (PCBs). PCBs were detected in concrete and masonry on all four floors of the CBI Building.

The demolition of the CBI Building was determined to be effective at meeting the removal goals as the recommended remedy as stated in the EE/CA, as this remedy is protective of human health and the environment

1.2 Approach to Management of PCB-Impacted Demolition Debris

Approval of this site cleanup and disposal of PCB remediation waste is requested under Title 40 CFR Part 761.61(c) of *the PCB Regulations (Mega-Rule),* which is the Risk-*Based disposal approval* provision. This regulatory information is governed by Code of Federal Regulation (CFR) Title 40, Protection of Environment; Chapter I, Environmental Protection Agency (EPA); Subchapter R, Toxic Substance Control Act (TSCA); Part 761, Polychlorinated Biphenyl (PCBs) Manufacturing, Processing, Distribution in Commerce, and Use Prohibitions; Subpart D, Storage and Disposal; Section 761.61, PCB Remediation Waste; dated July 1, 2011.

The Demolition Work Plan contains special handling and disposal considerations for the management of PCB impacted concrete and masonry demolition debris. These considerations were incorporated into the Work Plans after a review of the PCB Regulations and its subparts, specifically subparts N, O, P, Q, and R. Given the large scope of the project and site constraints, the Demolition Work Plan methods and activities require site specific risk based decisions regarding the PCB regulations. The risk based decisions are based on site-specific data and sampling methods. These risk based decisions are necessary to facilitate demolition on a timely basis and minimize the numerous project related risks, which include, but are not limited to:

- fugitive dust generation,
- worker exposure,
- management of PCB impacted storm water runoff,
- generation of PCB decontamination fluids, and
- management of PCB impacted demolition debris in stockpiles.

The site characterization data generated for the Streamlined Risk Assessment (SRE) and EE/CA will be combined with supplemental pre-demolition sampling results to delineate the extents where specific ranges of PCB concentrations will occur. The four specific Aroclor concentration intervals that will define remediation waste profiles and respective planned disposition are as follows:

- a) Greater than or equal to 100 ppm PCB (≥100 mg/kg)
 - o disposal off-site
- b) Greater than or equal to 25 ppm PCB and less than 100 ppm PCB (≥25 mg/kg, <100 mg/kg)
 - o reuse as backfill below ten feet from ground level and engineered control cap



- c) Greater than or equal to 1 ppm PCB and less than 25 ppm PCB (≥1 mg/kg, <25 mg/kg)
 - \circ $\;$ Reuse as backfill below 3 feet from ground level and engineered control cap, and
- d) Less than 1 ppm PCB (<1mg/kg)
 - Reuse as backfill, unrestricted.

The three types of remediation waste containing regulated PCBs concentrations will be separately marked with high visibility paint prior to removal and demolition. The PCB impacted materials will be segregated, demarked and carefully handled during demolition according to their respective concentrations and final waste disposition (on-site beneficial reuse, TSCA-offsite, or non-TSCA offsite). The method for management of demolition debris will vary depending on the potential PCB impacts, and will be more restrictive for higher concentrations. Sampling for PCB impacts in the demolition debris will be performed in stockpiles of less than 75 cubic yards to verify concentrations prior to disposal. If results for stockpile samples for a specific remediation waste profile indicate the PCB concentration is within a different profile, the material will then be handled according to the more restrictive profile (i.e. a result for a stockpile anticipated to contain PCBs at \geq 25 ppm and < 100 ppm was 105 ppm, the stockpile would then be treated as a \geq 100 ppm waste and transported offsite for disposal).

The approach is consistent with the previous characterization methods and risk evaluation results for the Site. This conservative approach is protective of human health and the environment.



2.0 SEQUENCE OF OPERATIONS

This section provides an overall strategy for the demolition of the CBI Building and a framework for the remainder of this CBI DWP. Work will be sequenced and executed in a safe and efficient manner and according to all applicable regulations, including but not limited to, 29 CFR Part 1926.

2.1 <u>Pre-Demolition Activities</u>

There are several activities that must be performed prior to the start of structural demolition of the CBI Building. The order in which the activities are listed is not indicative of the order in which they are completed. Some of the activities have already been completed, as indicated below. The activities are:

- Obtain a Demolition Permit;
- Mobilize Personnel and Equipment;
- Universal Waste Removal and Disposal Completed March 25, 2014;
- Asbestos Abatement and Disposal field operations began April 21, 2014 and scheduled to be completed in October 2014;
- Utility Abandonment;
- Supplemental Delineation of PCBs on 3rd Floor and 4th Floor, as required;
- Demarcation of PCB impacted concrete for demolition, and
- Non-Structural Component Removal.

2.2 Detailed Description of Demolition Process

The detailed description of demolition process is provided in Section 5.0 of this CBI DWP. Specific details to be discussed are:

- Sequence of Demolition;
- Fourth Floor Special Considerations;
- Demolition Technique;
- Demolition Material Management; and
- Road Closures.

2.3 <u>Control Measures</u>

The following is a list of control measures to be discussed in this CBI DWP:

- Entry and Exit Procedures;
- Dust Control for:
 - o Material Movement Activities
 - o Crusher Operations
 - o Demolition Activities
- Dust Suppression and Surface Water Runoff Management.



3.0 SITE MOBILIZATION

HRP will perform a pre-demolition inspection and retain video/photographic documentation of the existing site conditions, including the surrounding sidewalks and roadways, prior to commencement of Site demolition activities. Additionally, any equipment mobilized to the Site will have a safety inspection performed and documented by the HRP Site Health and Safety Coordinator and a representative from the demolition contractor to ensure the equipment is functioning correctly and all safety devices are properly installed and functioning as designed.

Major equipment anticipated to be mobilized for the demolition of the CBI Building includes, but is not limited to:

- Tracked Excavator with Hydraulic Hammer;
- Tracked Excavator with Hydraulic Shear;
- Tracked Excavator with Bucket and Thumb;
- Mini Excavator;
- Wheel Loader(s);
- Dump Truck(s);
- Truck Scale;
- Decontamination Area;
- Mobile Crusher Plant;
- Aerial Lift(s);
- Water Storage Tank(s);
- Water Truck or similar;
- Wastewater Treatment System;
- Miscellaneous hand tools to include cutting torches;
- Storage Containers; and
- Mobile Office.



4.0 QUALITY ASSURANCE SAMPLING & ANALYSIS PLAN

Field samples will be collected and analyzed for several different purposes during the demolition and removal activities. The HRP technical staff will collect and document these samples under the supervision of the Site Manager. Quality assurance and quality control (QA/QC) measures will be implemented in an effort to maintain quality and evaluate the usability of the analytical results. Rationales and types of samples anticipated for collection include the following:

- A. Concrete, brick, and masonry chip samples from the building floors, interior walls, and columns to further characterize and/or confirm the extent of impacts,
- **B.** Wipe samples of non-porous metal surfaces of interior building appurtenances to determine management and handling requirements,
- C. Wipe sample of non-porous metal surface on equipment following decontamination,
- **D.** Sub-slab soil sampling will be performed following removal of the first floor building slab. The sub-slab soil sampling will be necessary to determine the degree and extent of PCB impacts beneath the building, if any. Access to these soils has been limited due to the presence of the building structural components and deferred until the PCB-impacted slab was removed to avoid cross-contamination or creating migration pathways to soil.
- **E.** Stockpile samples will be collected of demolition debris anticipated for on-site management and off-site disposal to verify anticipated concentrations.
- F. Wastewater samples will be collected to determine PCB impacts, treatment requirements and/or compliance with permit effluent limits. The types of wastewater samples will include: used decontamination wastewater, storm water runoff from construction areas, storm water runoff from stockpile areas, and dust suppression runoff, miscellaneous building sumps and pits, pre-treatment raw water, wastewater at monitoring points within the treatment train, and wastewater discharge. The date quality objective may vary for each of these wastewaters with the most stringent quality objectives applied to treated wastewaters and runoff.

4.1 Sampling Collection and Handling Procedures

Respective of type and purpose, samples will be grab for all types of samples except stockpile samples of demolition debris, which will be composited at a sampling frequency of at least one composite per 75 cubic yard stockpile. Samples will be collected in accordance with procedures established in the EE/CA where possible. The six types of samples and method for collection are as follows:

A. Concrete, Brick and Masonry Chip Samples:

In order to collect chip samples from the floor and walls of the building, the project field team will utilize the procedure as put forth in the Region I, EPA-New England Draft "Standard Operating Procedure for Sampling Concrete in the Field", 12/1/97. Small deviations from the



procedure are necessary to lessen the chance of cross contamination of samples. The procedure for collecting samples is as follows:

- 1) Prepare surface Surface preparation of the concrete, brick and masonry will consist of scraping away residues and then wiping the sample area with a de-ionized water wetted paper towel.
- 2) After the surface is prepared, an inverted cone sufficient to contain fugitive dust will be placed over the sample location.
- 3) A rotary hammer will then be used to pulverize the concrete, brick and masonry to the appropriate depth. The rotary hammer will be fitted with a custom made depth gauge with the drilling depth verified before each sample location. The sampling intervals will be less than 1-inch thick.
- 4) Upon reaching the required depth, a stainless steel spatula will be utilized to collect the accumulated pulverized concrete, which will then be placed into laboratory supplied containers, labeled, and placed into an ice-filled cooler. If a duplicate sample is collected from the sample location, and the first hole did not provide sufficient sample volume for both samples, a second hole may be drilled adjacent to the first hole. The accumulated concrete from both holes will be placed into a single sample container, homogenized, and then divided into equal aliquots, labeled, and placed into the sample cooler.

For wall samples, the cone will not be used and a stainless steel trough will be placed below the sampling point to collect the pulverized sample during drilling.

5) Between each sample location, the dust suppression cones, the stainless steel spatulas, stainless steel trough, and the drill bits will be decontaminated. The equipment will be brushed to remove all visual residues, and the washed using a double wash and rinse of liquinox/water wash and DI water rinses.

B. Wipe Samples of Non-Porous Building Surfaces:

The wipe samples will be collected in a manner consistent with the EPA "Mega Rule" guidelines for the collection of wipe samples. In most instances, a 10 cm x 10 cm template (a new template for each sample location, supplied by the laboratory) will be held in place over the sample location. A non chlorinated solvent soaked pad/gauze will be wiped within the 10 cm x 10 cm area in an "S" pattern twice and then around the boundary. The second "S" swipe will be rotated 90 degrees from the first swipe. The pad or gauze will be folded in half following each swipe. The wipe will be placed into the sample jar, sealed, labeled, and placed into the sample cooler. Depending on the surface, the shape of the sampling area may change, but will cover no less than 100 square centimeters.





C. <u>Wipe Samples of Non-Porous Equipment Surfaces:</u>

Wipe samples from equipment will be collected following final use and decontamination prior to demobilizing from the site to verify surface are clean. These wipe samples will be collected in a similar manner as described above.

D. Soil Samples from Beneath the Building:

Soil samples collected from beneath the building will be grab type only. The soil samples will be collected using a direct-push hydraulic rig. A stainless steel sampler will be advanced in five foot increments, with a single-use liner installed in the sampler for each successive increment. A detailed Sub-Surface Investigation Work Plan will be prepared (see Section 9.4, page 9.2 for further detail) and will include, at a minimum, a Sampling and Analysis Plan; Quality Assurance Project Plan; and a discussion of how they relate to the Sub-Surface Investigation of the CBI Building Concrete Slab and Pump Room Floor. It is anticipated that samples will be collected for PCB analysis from the first foot of soil encountered in each boring. In addition, soil samples will be selectively collected from a depth of five feet below ground surface and immediately above the groundwater table. Based on PID field screening results, samples will be selectively analyzed for VOCs. Samples will be selectively analyzed for PAHs and metals based on presence of co-contaminants, visual observations during soil logging, and proximity to historical facility operations using or generating these constituents of concern.

E. Stockpile Samples of Demolition Debris.

Stockpile samples may be grab or composite type. These samples will be collected directly from stockpiles after being placed in the appropriate management staging area. There are four (4) types of potential PCB demolition debris remediation waste stockpiles that will be sampled to verify concentrations; as described in *Section 1.2: Approach to Management of PCB-Impacted Demolition Debris.*

One of these four (4) types' stockpiles is for materials containing greater than 100 ppm PCB based on site characterization. Since these materials are known to contain higher levels of PCB impacts and will be handled temporarily on-site and disposed off-site as TSCA-regulated remediation wastes, additional sampling at the Site will not be necessary, unless required by the selected off-site TSCA Landfill.

Stockpiles will be used to stage three (3) of the four (4) remaining categories of materials, all of which are destined for on-site reuse as backfill in the Die Cast excavation area. These material categories are demolition debris containing concentrations at:

- 1) Greater than or equal to 25 ppm PCB and less than 100 ppm PCB (≥25 mg/kg, <100 mg/kg)
- 2) Greater than or equal to 1 ppm PCB and less than 25 ppm PCB (≥1 mg/kg, <25 mg/kg)
- 3) Less than 1 ppm PCB (<1mg/kg)



Each of these categories of materials will be used as backfill at varying depths with higher levels of PCBs located at greater depths (see Section 1.2). Since these materials will be reused on-site and controlled in a calculated manner, verifying the PCB concentrations in the demolition debris must be performed to high degree of certainty. Consequently, sampling must be performed at the correct frequency to ensure proper management and placement of these materials will occur. These stockpiles should not exceed 75 cubic yards and the sampling frequency will be at least one composite sample per 75 cubic yards.

Composite Sampling Method

Composite sampling will be used to evaluate stockpile concentrations for all constituents of concern other than volatile organic compounds. For stockpiles of demolition debris containing greater than 100 ppm total PCB remediation waste, at least one sample aliquot will be collected per 200 cubic yards. For 75 cubic yard stockpiles of demolition debris containing less than 100 ppm total PCB remediation waste, at least one sample aliquot will be collected per 15 cubic yards to be composited into one (1) sample. No more than five aliquots will be used per composite sample to minimize sample dilution and ensure that the mathematical potential maximum concentration of each aliquot can be calculated using anticipated laboratory detection limits and will be sufficient to evaluate the lowest applicable cleanup criteria. For instance, a five aliquot composite sample for demolition debris, anticipated to contain less than 1 ppm of total PCB, must have a detection limit and result of less than or equal 0.2 ppm (0.2 mg/kg) to verify the material concentration category.

The sample aliquots will be selected based on 40 CFR Section 761.347 (Subpart R) for sampling a conical pile. Each single composite sample will be equally distributed from the aliquots and consist of a minimum of 100 grams. The sample aliquots will be homogenized in single-use disposal bags or in a stainless steel container and then placed in laboratory supplied sample containers. All durable sampling equipment will be stainless steel and decontaminated using the double wash and double rinse procedure between uses.

F. <u>Wastewater Samples:</u>

Wastewater characterization samples will be collected directly from their storage containers, holding tanks, or sampling ports at a rate necessary to represent the waste stream and comply with local permitting from the Publically Owned Treatment Works (POTW). During wastewater treatment, one sample per week will be collected for monitoring of field parameters. The sample will be submitted for laboratory analysis of constituents of concern at rate of 1 per 100,000 gallons or as required for local permitting, whichever is less.

All field samples will be collected into appropriate laboratory supplied sample containers. Each sample container will then be appropriately labeled and preserved on ice or in a dedicated sample refrigerator pending submittal to the contract laboratory under chain of custody protocol.



The following information, as appropriate, will be documented in a field logbook and on chain of custody forms whenever samples are collected:

- Description of the sample that is being submitted to the laboratory including the physical characteristics of the sample (e.g., matrix, color, odor, and texture).
- Date and time
- Purpose of sample (waste characterization, stockpile, etc.)
- Approximate depth of the sample
- Sample designation and location

Each sampling location representative of residual media (i.e. sub-grade foundations, floor delineation, soil, etc.) will be located by field measurements relative to pre-surveyed control points, existing grades, fixed site features, or benchmarks. Locations of media representing a remediation waste or other non-fixed point (i.e. demolition debris stockpiles, wastewater, building appurtenances) will be described in field records. Stockpiles will be identified and tracked separately until final disposal. Sampling nomenclature will indicate: sample date, origin (floor, stockpile, equipment, etc.), anticipated concentration group, and samples type (aqueous, composite, grab, or wipe).

4.2 <u>Sample Laboratory Analysis</u>

The samples will be provided to Pace Analytical Services, Inc. (Pace) for analysis for PCBs and other constituents of concern, as necessary. If readily available, the laboratory will be notified of the anticipated PCB concentration. All samples will be analyzed for PCBs by EPA Method 8082. Prior to analysis, samples of soil, concrete, brick and masonry, or other solid states will be subject to the similar extraction and analytical methodology used during site characterization and described in the EE/CA. The extraction method was used during the generation of data that was the basis to develop the site-specific risk-based cleanup criteria. Based on the historical analytical results, the extraction method has shown to be reliable and predictive.

4.3 Data Quality Objectives

The laboratory data generated during the cleanup activities will be used to determine remediation waste management requirements and compliance with relevant EPA and site-specific risk-based cleanup criteria. The quality of the laboratory analytical data and reporting will be in accordance with HRP Quality Assurance standards. The detection limits of the laboratory analysis will be requested to meet the appropriate regulatory criteria (Contract Required Quantitation Limits (CRQLs). Acceptable elevated detection limits may be allowed due to laboratory dilution necessary for quantifying the presence of a compound, but may not be allowed if PCBs are ultimately not identified in a sample.



4.4 Laboratory Data QA/QC

The laboratory utilized for project analyses will be required to perform all of the internal quality control procedures that are specified in the specific methods (e.g., SW846, CLP, etc.). The laboratory data will be evaluated in accordance with HRP's SOP for Laboratory Quality Assurance and Quality Control Data Quality Assessment and Data Usability Evaluation. The review of the data to evaluate its usability will include checking of such items as:

- Holding times,
- Field and laboratory blanks;
- Field and laboratory duplicates;
- Laboratory QA/QC performance samples
- Surrogate recoveries, if applicable;
- Calibration checks;
- Spike recoveries, if applicable;
- Temperature.
- Laboratory qualifiers and case narratives
- EPA methods utilized
- Sample clean-ups

Items such as instrument tuning, initial calibrations, calculations, and raw data will be checked by the laboratory.

4.5 <u>QA/QC Samples</u>

Several different types of QA/QC samples will be analyzed to evaluate the validity of laboratory analytical results, which include, but are not limited to, the following:

- *Laboratory Blanks* The laboratory will analyze method blanks prepared and analyzed with each set of samples. These are a check of the accuracy of the system and indicate if there are positive biases and include batch blanks (absent of compounds) and laboratory control samples (contain known compound concentrations).
- Matrix Spike/Matrix Spike Duplicate A matrix spike and matrix spike duplicate are actual samples spiked with a known amount of one or more target compounds. The matrix spike/matrix spike duplicate recovery is calculated from the results of the analysis. This information is useful for estimating the effect of the sample matrix on the analytical procedure. At least one matrix spike/matrix spike duplicate sample will be analyzed per media. More than one matrix spike/matrix spike duplicate sample may be analyzed per media if significant changes to the media are identified.
- *Duplicate Samples* Duplicate sampling will be performed at a rate of one per twenty samples submitted for laboratory analysis per analytical parameter, and at least one per



media. Duplicate samples will be given a blind sample identifier. The purpose of duplicate samples is to evaluate reproducibility of laboratory analyses.

• Equipment Rinsate - Rinsate water will be collected from durable sampling equipment following decontamination. A minimum of one equipment rinsate sample will be collected each day that durable sampling equipment is used. The equipment rinsate samples will be analyzed for the same parameters as those samples collected with that equipment on that day. Similarly to duplicate samples, the equipment rinsate samples will be given a blind fictitious sample identifier. The analytical results from equipment rinsate samples will be evaluated to determine the effectiveness of the decontamination procedures for eliminating the potential of cross contamination of any constituent due to the reuse of durable sampling equipment.

4.6 **Documentation and reporting**

The site supervisor will oversee the implementation of the CBI Demolition Work Plan; prepare, maintain and document a complete record of demolition activities performed at the Site and ensure that the project is completed in accordance with the specifications of general demolition work plan, the HASP, and generally accepted industry/engineering standards.

4.7 <u>Field Records</u>

The site supervisor will maintain a field log on a daily basis of all activities associated with demolition progress. The following specific documentation and reporting requirements will be the responsibility of the demolition site manager and site supervisor.

- Ensuring compliance with provisions of the HASP and completion of its logs;
- Ensuring proper management of PCB demolition wastes, including excavating, relocating, stockpiling, loading for transport, etc.;
- Maintaining an accurate accounting of materials and equipment entering and leaving the site, including PCB impacted debris and other materials, contractor forces, and placement of each type of backfill material on the site;
- Documentation of demolition activities including all drawings, photographic and video logs;
 - Sampling documentation, including copies of chain of custodies, a log of cooler temperatures, measurements of sample locations in reference to fixed site features;
 - Documenting and reporting of any spills, leaks, or other discharges occurring at the site during implementation of demolition activities;
 - Documenting and reporting of any disruption/damage to utilities.



5.0 PRE-DEMOLITION ACTIVITIES

Prior to the physical deconstruction of the CBI Building, the following activities must be accomplished and verified complete:

- Asbestos Abatement;
- Universal Waste Removal
- Supplemental Delineation of PCBs on 3rd Floor and 4th Floor, as required;
- Demarcation of PCB impacted concrete for demolition

These activities will be described in detail in the following sections. Other pre-demolition activities that will be accomplished prior to the beginning of physical deconstruction of the CBI Building include:

- Equipment Mobilization;
- Non-Structural Component Removal;
- Lead-based Paint Management;
- Utility Abandonment;
- Establish Dust Control and Decontamination Measures;
- Dust Suppression Water Management;
- Surface Water Runoff Management; and
- Establish Stockpile Management Locations and Final Stockpiles.

5.1 Asbestos Abatement

Asbestos abatement activities have been and will continue to be performed in accordance with the Asbestos Abatement Work Plan for the Carter Carburetor Superfund Site (Asbestos Abatement Work Plan), Appendix E of the Removal Action Work Plan for the Carter Carburetor Superfund Project, March 2014 (RAWP).

5.2 Universal Waste Removal

A Universal Waste Survey was performed in January 2014. The survey identified the universal waste items and quantities shown in Table 5-1.

ltom			Floor		
item	4 th	3 rd	2 nd	1 st	Total
Fixtures	117	65	166	267	615
8-Foot Bulbs	94	2	69	88	253
4-Foot Bulbs	156	221	354	679	1,410
Ballasts	311	116	203	401	1,031
Mercury Vapor Bulbs	15	0	0	0	15

Table 5-1: Carter Carburetor Universal Waste Inventory



5-1

Universal waste removal commenced February 2014 and was completed March 2014. Additional Universal Wastes identified during the removal of the items listed in Table 5-1 was removed and packaged in the packaging provided by Heritage Environmental Services, Inc.

All removed Universal Waste was removed and shipped off-site to be recycled or disposed by Heritage Environmental Services, Inc. Certificates of Disposal or recycling will be included in the project files but not included as part of this DWP or RAWP. Certificates of Disposal are available upon request, in writing, by contacting the HRP Site Supervisor and the USEPA On-Scene Coordinator.

5.3 Supplemental PCB Delineation on the 3rd and 4th Floors

Prior to building demolition, sampling of the concrete floor, columns, and brick and masonry on the 3rd and 4th floors will be performed, as required, to address any remaining significant data gaps. Based on the approach for management of PCB impacted materials and review of previous data, the characterization results for the 1st and 2nd floor are adequate for segregation of demolition debris.

Supplemental samples will be collected in areas where elevated concentrations of PCBs had previously been detected. The supplemental sampling is necessary on the top two floors to further define the distribution of PCB impacted concrete within the areas to be segregated by remediation waste profile criteria during demolition.

The sampling protocol will include the coring of concrete holes and collection of pulverized concrete samples, similar to the collection of field samples for the Field Sampling Rounds 1 & 2 in 2006 and 2007. The samples will be submitted for laboratory analysis of PCBs by EPA Method 8082A following the established extraction procedure. The sampling will be performed following completion of asbestos abatement and may coincide or follow the removal Universal Wastes from the building. A detailed *Supplemental PCB Sampling Plan for the 3rd and 4th Floors of the Carter Carburetor Site will be provided for EPA review no later than October 3, 2014 and approval prior to commencement of collection of supplemental concrete core samples from the CBI Building and prior to the demolition of the CBI Building.*

5.4 Demarcation of PCB Impacted Materials

In order to ensure that PCB impacted remediation wastes are tracked, managed, and disposed of appropriately; areas of the concrete building floor and walls will be marked with high visibility paint to distinguish between areas containing different ranges of PCB concentrations. Based on historical sampling results and the findings from the supplemental concrete delineation field sampling discussed above, the building demolition debris will be painted with the following colors based on the remediation waste profiles.

- High Visibility Orange: Greater than 100 ppm PCB,
- High Visibility Pink: Greater than 25 ppm, less than 100 ppm PCB, and
 - High Visibility Blue: Greater than 1 ppm, less than 25 ppm PCB, and



• No color/no paint: Less than 1 ppm PCB.

A solid line will be painted with the appropriate high visibility paint at the approximate boundary of each waste profile area. Continuous lines of the appropriate high visibility paint color will be spray painted inside each waste profile area at maximum spacing of two feet apart on floors and one foot apart on vertical surfaces (i.e. walls and columns).

5.5 Equipment Mobilization

Equipment will be mobilized on an as needed basis due to the limited area of the Site. Equipment may be stored on the west side of North Spring Avenue inside the fenced area, if cleared in advanced with the Site Supervisor. Heavy equipment mobilization will be coordinated with the demolition contractor and Site Supervisor to minimize impact to local businesses and traffic. Some equipment may require assembly on-site. Assembled equipment will be inspected and tested to ensure a safe working condition and that all safety apparatus' are in place and functioning as designed. Equipment operators will be competent, experienced and properly trained.

5.6 Entry and Exit Procedures

Site Access Control is discussed in detail in Section 5.6 of the RAWP. Site Access will be controlled to prevent unauthorized access to the Site in accordance with the RAWP.

5.6.1 CBI Building Pre-Demolition

Entry and exit into and out of the CBI Building for Pre-Demolition Activities will be made through the rollup door on the southeast side of the WILLCO Plastics Building.

In the event of an emergency during pre-demolition activities, any exit from the CBI Building on the first floor is acceptable. All personnel will meet at the rally point (Site Administrative Area) to ensure all registered personnel on-site are accounted.

5.6.2 CBI Building Demolition

After the demolition of the WILLCO Plastic Building; HRP and their demolition contractor will mobilize to the CBI Building. The first demolition activity will be the complete removal of non critical structural components greater than 100 ppm of total PCBs. The second demolition activity will be the complete, general demolition of the CBI Building. Once the first demolition activity is completed, **no personnel** will be allowed in the standing structure of the CBI Building. The HRP Site Health and Safety Coordinator, in conjunction with an HRP Structural Engineer, will determine when personnel can access the first floor slab AFTER demolition activities.



5.6.3 Decontamination and PPE

The building and areas of the site where supporting demolition activities (i.e. staging areas, stockpiles, material processing, etc) will be performed are considered part of the exclusion zone. An area of the site will be designated a contaminant reduction zone (Figure 1-1). In this area, decontamination and personal protective equipment protocols will be applied. The contamination reduction zone will have a decontamination strategy which will identify, establish and determine: 1) the number and layout of the decontamination stations, 2) the decontamination equipment needed, 3) the appropriate decontamination methods, 4) procedures to prevent contamination of clean areas, 5) methods and procedures to minimize worker contact with contaminants during removal of personal protective clothing and equipment (PPE), and 6) methods for disposing of clothing and equipment that are not completely decontaminated when completed for a work shift.

All personnel entering the exclusion zone will be required to wear PPE prior to entry and continuously while in the exclusion zone. The required PPE during all phases of work will include:

- High visibility shirts, vests, or similar garment(s),
- Hard hat,
- Eye protection,
- Hearing protection, and
- Steel-toed shoes or boots,

While PCBs are present in the building or in stockpile areas at levels greater than 25 ppm, the following additional PPE will be required within the exclusion zone:

- Boot covers,
- Tyvek chemical resistant suits, and
- Chemical resistant gloves.

Single use disposable PPE will be used to the maximum extent. Used PPE will be containerized and transported off-site for disposal as TSCA regulated waste (greater than 50 ppm).

Durable PPE and all other durable equipment that may have potentially been in contact with PCB impacted materials will be cleaned using the double wash and double rinse method consistent with Subpart S of the PCB Regulations prior to exiting the exclusion zone. Decontamination of personnel and equipment will be performed on an appropriately sized and constructed (i.e. sufficient to contain and clean the largest equipment) decontamination pad located within the contaminant reduction zone. The decontamination pad will be configured such that all wash-waters will be contained and can be easily collected. The used wash-waters will be containerized and transferred to the process wastewater treatment system.



5.7 <u>Non-Structural Component Removal</u>

For the purpose of this DWP a non-structural component is defined as any item remaining in the CBI Building that is not integral to the structural integrity of the building. For example; metal lockers, corrugated metal siding and metal studs, cabinets and counter tops, are all non-structural components. The equipment used for the removal will be small skids steers and possibly some hand trucks for the smaller items.

The removal of non-structural components is will be performed to facilitate demolition of a structure and minimize the sorting and segregation of materials destined for recycling, off-site disposal and on-site reuse. This activity will serve the same purpose with the following exception – all material removed from the CBI Building will be sampled for PCBs prior to disposal to ensure the proper handling of the material.

Building materials and appurtenances may be impacted with lead based paint and/or PCBs. The sampling method used will be based on the suspected contaminant of concern and the material substrate. The various substrates will be segregated as follows:

- Wood;
- Metal;
- Other non-porous surfaces (marble, porcelain, etc.);
- Concrete;
- Brick and masonry.

5.7.1 Lead Painted Surfaces

Lead-based painted surfaces will be identified, field prepared, treated, and managed for on-site or off-site disposal, as defined in Addendum A to CBI Building Demolition Work Plan CBI & WILLCO Buildings Dry-ice blasting and Power Wash Work Plan for the Carter Carburetor Superfund Site (see Appendix B).

5.7.2 PCB Verification Sampling for Disposal

Prior to removal from the building, non-structural components will be identified for potential PCB impact. Available historical data for any sampling of the non-structural components will be used to the extent possible. Any of these components not previously sampled and located in areas (i.e. bays) of the building where PCBs impacts have been detected during site characterization at a level greater than 1 ppm will be sampled to determine: 1) if a PCB impact is present, and 2) the appropriate management approach for the material. Additionally, any non-structural components located within floor areas containing greater than 100 ppm PCB on the 3rd and 4th floors of the building will be sampled and removed first.



5.7.3 Bare Metal/Non-Porous Surfaces

Representative sampling of bare metal and non-porous surfaces and substrates present in the building at the time of demolition will be performed to determine PCB impact using a standard wipe test. The wipe sample and test result will be considered to represent a single homogenous appurtenance or equipment located within a single bay of the building. Wipe samples will be collected from worst-case scenario locations where PCBs are most likely to be found on the surface. For instance, a wipe sample will be collected from a row of metal lockers near the floor level closest to where elevated PCBs were detected in the floor. The method for wipe sampling will follow the procedure described in Section 4.

5.7.4 Disposition

PCB level in Wipe Samples	Disposition of Substrate
Greater than or equal 10 μg/100 cm ²	Disposal off-site as TSCA-regulated waste
Less than 10 µg/100 cm ² , but greater than 1 µg/100 cm ²	If substrate can be processed (e.g. porcelain), it will be reused as backfill as PCB-impacted debris. Other substrate (e.g. metal) will be double-washed and double rinsed and transported off-site for
Less than 1 µg/100 cm ²	Unrestricted on-site use as backfill or off-site recycling

A summary of disposition of these materials based on wipe sampling results is provided below.

5.7.5 Porous Substrate

Representative bulk samples will be collected from building materials and appurtenances that are porous and non-structural prior to demolition, as necessary to determine PCB impact. Regardless of purpose and presence inside the building concrete, brick and masonry materials will not be sampled as a non-structural material and will be incorporated into the general demolition debris.

Because PCBs can migrate into porous surfaces surface wipe sampling is not adequate to determine the PCB concentration of porous surfaces and materials. For these porous material samples, an adequate sample volume (as required by the analytical laboratory) will be removed for analysis. Tools such as chisels, hammer-drills, and/or saws will be used to collect the sample, taking care to minimize dust generation. The samples will be collected from the top 0.5 to 2 cm of the materials surface and at the worst-case scenario location. Samples will be collected from areas in contact or nearest to areas where PCB impacts have been identified. Samples of these materials will be collected to represent a homogenous material within each bay.



5.7.6 Disposition

Results for PCB analysis of non-structural porous material samples will be used to identify PCB impacted materials and determine management approach.

PCB level in Bulk Samples	Disposition of Substrate
Greater than or equal 50 ppm	Containerized, packaged and disposed off-site at an appropriate RCRA licensed landfill that can accept
	TSCA remediation wastes
Less than 50 ppm, but greater than 1 ppm	Containerized and transported off-site at an appropriately permitted facility to receive such waste.
Less than 1 ppm	General construction waste transported off-site to an appropriately permitted facility

5.7.7 Oil and Water Management

No equipment containing PCB oil is present at the site. If any oils are encountered in the building during demolition, oil samples will be collected and analyzed for PCBs. If PCBs are detected at concentrations less than 50 mg/kg, the appurtenance containing the oil will be managed according to the as-found concentration in the oil. If PCBs are detected at concentrations greater than 50 mg/kg, the PCB containing oil will be removed and disposed of as TSCA waste. If the PCB containing oil only sorbents with disposal as TSCA waste. The appurtenance containing the TSCA regulated oil or oily layer will be drained, wiped clean, sampled with a wipe sample prior to removal and disposal as TSCA waste. ACF and their contractors will be diligent in their assessment and characterization of any and all equipment and piping that may have contained oil, transferred oil, or was lubricated by oil during decommissioning and/or demoltion of the CBI Building.

Two areas of the building are known to contain water or oil contaminated with PCBs.

- In the northeast corner (N11) of the first floor, a sump pit is located within a pipe chase. Runoff or infiltration water accumulates within the sump. Analytical testing was performed in December 2013; with results indicated the water is impacted with PCBs (AR1248 @ 114 µg/L) at levels less than 50 ppm. Analytical data indicated that the oil, which was visible as a layer on top of the water, was qualitatively identified as Motor Oil with an estimated concentration of 1,340,000 mg/kg or 134% oil. During demolition, the sump will be evacuated and absorbents will be applied and maintained. The wastewater will be transferred to the on-site treatment system. Used absorbents will be containerized and transported off-site for disposal.
- The pump room central to the CBI Building contains a sump (~G9) where oil had collected from historical Ingersoll-Rand machine(s). Testing results qualitatively identified the oil as Motor Oil with an estimated concentration of 1,450,000 mg/kg or 145% oil contaminated



with PCBs (AR1260 which can be attributed to dielectric fluid in transformers, Ameren UE) at concentrations greater than 50 ppm (1390 ppm and 921 ppm collected approximately one month apart). Prior to demolition, the oil from the sump will be transferred into drums and disposed off-site as TSCA waste. Absorbents will be applied and maintained during demolition. Spent oily absorbents will be containerized and transported off-site for disposal.

5.8 <u>Utility Abandonment</u>

A geophysical survey was performed to locate all underground utilities within the work area perimeter. This action was performed to ensure that utilities to the CBI Building have been terminated prior to the start of demolition activities. To date, no utilities with the exception of electrical power have been terminated. The geophysical survey has been incorporated with the topographic survey and is included in the DWP as **Figure 4-1**, Utility Locations.

HRP and the demolition contractor, when selected, will disconnect and properly terminate all existing utility lines as required for building demolition. Based on the data provided by the geophysical survey and the Missouri One Call service, the utilities that require abandonment prior to beginning demolition activities are natural gas, water, and sewer.

Laclede Gas will be contacted to terminate the gas lines supplying the CBI Building. The St. Louis Metropolitan Sewer District (MSD) will be contacted to determine how to isolate their sewers, and City of St. Louis will be contacted to terminate the water connections for the CBI Building.

5.9 Establish Dust Control

Dust control will be performed with water either in the form of a mist or direct spray at the point of dust generation, typically the point of building demolition. However, given the operations expected at the Site, several other point sources of dust generation will exist. The specific point sources of dust generation are as follows:

- Crusher Plant Feed and Crusher Area;
- Crusher Plant Discharge;
- Stockpiling;
- Movement of Stockpiles; and
- Equipment Movement on the Site.

It is anticipated that fire hydrants surrounding the Site will be utilized as a ready source of water for dust suppression. Final determination for the use of fire hydrants will be made by HRP and the demolition contractor in conjunction with the City of St. Louis Water Department. All permits will be procured prior to using a fire hydrant as a dust suppression or water source for the Site.



The location of City of St. Louis fire hydrants are shown on **Figure 4-1**. There are three fire hydrants located along Grand Avenue to the east of the Site, and a single fire hydrant is located on North Spring Avenue to the west of the Site. At any one point during the demolition of the CBI Building, each fire hydrant or a combination of fire hydrants may be used to prevent fugitive dust from leaving the Site perimeter.

5.10 Dust Suppression Water Management

The Contractor will implement a fugitive dust suppression program in accordance with the project specifications to prevent the off-site migration of particulate matter and/or dust resulting from excavation, loading, transportation, and filling operations associated with site materials. It will also be the Contractor's responsibility to: 1) supervise fugitive dust control measures, 2) to monitor airborne particulate matter and 3) to coordinate with the USEPA for perimeter air monitoring. To prevent the migration of dust suppression water off the Site, Best Management Practices (BMPs) for water management will be employed at the Site.

5.10.1 MSD Owned Sewers

HRP and MSD personnel will meet at the Site to discuss which sewers and drain lines belong to the MSD and which are privately owned. MSD-owned sewers or manholes will be plugged in accordance with MSD requirements to prevent dust suppression water from migrating off-site via the MSD sewer and to prevent the build-up of solids in the bottom of manholes.

5.10.2 Private Sewers

Privately owned sewers and manholes in the CBI Building will be plugged using non-shrink hydraulic cement to prevent dust suppression water from migrating off-site and to prevent the build-up of solids in the bottom of manholes. Prior to any final decision by ACF or their contractor on the type of hydraulic cement, the location and number of plugs and the final disposition of the manholes; a detailed Work Plan will be written and submitted to USEPA for review and approval prior to commencement of field activities. ACF and/or their contactor may request a meeting with USEPA to discuss the private sewers and manholes prior to the completion of the Work Plan to ensure that they are meeting the requirements of the USEPA and the local POTW (if required).

5.10.3 Surface Water

The first floor surface of the CBI Building is a concrete slab. To prevent surface water (sheet flow) from leaving the site during demolition activities, a series of temporary berms will be strategically placed on-site.

The berms will be constructed to direct the dust suppression water to a location for collection, sampling, possible treatment, and subsequent discharge to the publicly owned treatment works (POTW) or reuse as dust suppression water. Water will be collected, treated sampled and discharged



along with all the water collected on the Site as described in *Section 5.11 – Surface Water Runoff Management*.

5.11 Surface Water Runoff Management

Surface water management will be controlled utilizing a series of BMPs such as seeding, sodding, soil roughening, geotextiles, slit fences, etc combined with Site Specific Water Runoff Controls such as strategically placed berms, a process water collection tank and wastewater treatment system to insure the Site can meet the POTW requirements prior to discharge. Site specific water runoff controls that are available and consist of, but are not limited to at this time, are as follows:

- Land Grading to help control surface runoff, soil erosion and sedimentation (with the potential for COC transport mechanisms);
- Semi-permanent Diversions (berms) which can be constructed by creating channels with supporting earthen ridges on the bottom sides of the slopes to collect storm water runoff and to deflect the runoff to acceptable outlets that convey it without erosion;
- Stabilized Construction Entrances to minimize the amount of sediment leaving the Site (gravel pad over filter cloth) in conjunction with vehicle/tire wash station;
- Filter Berms made up of a temporary loose gravel ridge on the roadway that diverts storm water flow from an open traffic area and acts as an efficient form of sediment control (intended for gentle slope, short life span and require maintenance due to clogging from mud/soil on tires);
- Dust control management with a dust control plan (see Sections 6.2 and 7.3).

All measures will be taken on-site to insure that all surface water, process water, and storm water is captured, collected, treated and released to the POTW in accordance with the Metropolitan Sewer District (MSD) and United States Environmental Protection Agency standards for Stockpile Management Locations.

It is expected that the greater part of the WILLCO Plastics building will be stockpiled on-site to the west of the CBI Building across North Spring Avenue in the area identified on Figure 1-1 as "Area for Processed Material Stockpiling". The clean, stockpiled former WILLCO Building material will later be utilized as fill material on-site as required. Stockpile locations for the CBI Building will be chosen based on work flow, sequence of operations, and schedule.



6.0 DEMOLITION

After the demolition of the WILLCO Plastic Building; HRP and their demolition contractor will mobilize to the CBI Building. The first demolition activity will be the complete removal of non critical structural components greater than 100 ppm of total PCBs. The second demolition activity will be the complete, general demolition of the CBI Building from the roof to the first floor slab. The demolition will start in the southeast corner of the CBI Building where the former WILLCO Plastic Building was attached to the CBI Building. For the exterior of the structure CBI Building and in the immediate area of demolition, the brick fascia will be stripped away to expose the building structure, wherever possible. Tracked excavators with concrete processors will raze the roof and concrete columns. The second, third and fourth floor slabs that have been cleared of non critical concrete structural components greater than 100 ppm of total PCBs will demolish the floor slabs into manageable sizes of debris ready for processing with tracked excavators with shear hammers and grapple buckets, all of which will be schedule driven. The remaining columns will be saw cut flush with the foundation slab. The processed CBI Building material will be used as on onsite backfill material, where permissible and as defined by the CBI DWP.

The following sections describe the sequencing of demolition activities based on the following assumptions:

- Concrete, brick, and masonry building materials on the 3rd and 4th floors known to contain 100 ppm PCB will be removed prior to general building demolition (see **Sections 1.2 and 5.6.2**);
- Demolition debris from the WILLCO Plastic Building will be crushed, sampled and stockpiled along western side of North Spring Avenue (see Section 5.11 and WILLCO Demolition Work Plan);
- Dust Suppression water is available and of adequate pressure;
- North Spring Avenue is closed to the public; and
- St. Louis Ave will be closed as needed for the demolition.

6.1 Demolition Material Management

Prior to commencing the standard demolition process, areas of the building will need to be clearly marked to indicate the areas of PCB levels: >100 mg/kg, 25-100 mg/kg, and 1-25 mg/kg (see **Section 1.2**). The first stage of demolition of the CBI building with respect to PCBs is to surgically cut out the concrete contaminated with >100 mg/kg and remove it from the building. This will be done for all total PCB areas >100 mg/kg on the third and fourth floor. Sheeting and/or shoring may be required to be installed as instructed by a Structural Professional Engineer (PE) licensed in the state of Missouri in order to maintain the structural integrity of the building and while ensuring safety of the workers while work continues on these removal activities. These areas of PCB contamination are indicated on Figures 7-3 and 7-4. Once the removal of these areas is complete, overall demolition activities for the CBI Building may commence.



As the demolition of the CBI Building progresses, daily management of the PCB waste segregation piles will be required. It is imperative that the tracked excavator operator be aware and properly observe the high visibility paint markings to ensure the correct PCB wastes are being demolished and segregated correctly on a daily basis.

In order to stress the importance of the PCB segregation system and to ensure that PCB impacted remediation wastes are tracked, managed, and disposed of appropriately; areas of the concrete building floor and walls will be marked with high visibility paint to distinguish between areas containing various ranges of PCB concentrations. Based on historical sampling results and the findings from the supplemental concrete delineation field sampling discussed above, the building demolition debris will be painted with the following colors based on the remediation waste profiles.

- High Visibility Orange: Greater than 100 ppm PCB,
- High Visibility Pink: Greater than 25 ppm, less than 100 ppm PCB, and
- High Visibility Blue: Greater than 1 ppm, less than 25 ppm PCB, and
- No color/no paint: Less than 1 ppm PCB.

A solid line will be painted with the appropriate high visibility paint at the approximate boundary of each waste profile area. Continuous lines of the appropriate high visibility paint color will be spray painted inside each waste profile area at maximum spacing of two feet apart on floors and one foot apart on vertical surfaces (i.e. walls and columns).

Since it is anticipated that RC demolition debris will be re-used on-site as backfill, it will be segregated, resized, and sampled to confirm suitability for re-use (see Section 8.1, Fill Determination). In addition, rebar may need to be addressed in the RC concrete debris. If rebar is encountered during demolition, it will be exposed and a second or third member hydraulic shear will be used to cut the rebar.). Reinforcing material to be cut from sized concrete will be cut with a cutting torch or a shear mounted on a tracked excavator, if available and applicable.

6.1.1 Feed Material

The RC demolition debris will be fed into the mobile rock crusher. The initial location of the feed pile for the crusher plant is depicted on **Figure 1-1**, Site Layout. As the demolition progresses at the Site, the mobile crusher plant may be moved to minimize the handling of the feed stock material and/or mitigate unsafe conditions at the Site.

Material will be crushed into a suitable size to use as backfill material as called for in the specifications.

6.1.2 Stockpile Management

Crushed RC material meeting the particle size specification will be placed in temporary stockpiles not to exceed approximately 75 yd³ prior to final verification sampling. Crushed RC material will be sampled as described in Section 4. Following receipt and review of stockpile sampling results, the re-



sized demolition debris may be used as backfill on-site to construct the TSCA approved Die Cast Area CAP or consolidated into stockpiles containing similar concentrations of PCB until the appropriate space in the Die Cast Excavation Area becomes available. Each of the consolidated stockpiles will not exceed 5,000 yd³ while awaiting use as backfill material in the Die Cast Excavation Area.

75 CY Verification Stockpile Constructions

The stockpiles will be conical shaped with anticipated heights of 10 feet, and diameter of 28 feet. Stockpiles will be constructed by placing approximately 4 in. of sand on top of a 6-mil poly liner. The purpose of the poly liner is to keep any water that comes in contact with the crushed material from coming in contact with the ground surface. The sand layer acts as a cushioning barrier between the crushed material and the poly liner. An additional 6 mil poly liner will be placed on top of the exposed sand to minimize possible cross contamination between the crushed material and the sand. A cross section of a typical 75 yd³ stockpile is depicted on **Figure 5-3**. A 4- to 6-mil poly liner will be placed over (cover) the stockpile to prevent wind erosion and act as a rain barrier. The poly cover will be placed as to allow precipitation to shed off the pile, not be absorbed by the sand cushion and to allow the precipitation to flow into the designed *Surface Water Runoff Management impoundment(s)* (see Section 5.11).

Material Staging Stockpile Construction

Stockpiles will be constructed by placing approximately 4 in. of sand on top of a 6-mil poly liner. The purpose of the poly liner is to keep any water that comes in contact with the crushed material from coming in contact with the ground surface. The sand layer acts as a cushioning barrier between the crushed material and the poly liner. An additional 6 mil poly liner will be placed on top of the exposed sand to minimize possible cross contamination between the crushed material and the sand. A cross section of a typical 5,000 CY stockpile is depicted on **Figure 5-3**. A 4 to 6-mil poly liner will be placed over (cover) the stockpile to prevent wind erosion and act as a rain barrier. The poly cover will be placed as to allow precipitation to shed off the pile, not be absorbed by the sand cushion and to allow the precipitation to flow into the designed *Surface Water Runoff Management impoundment(s)* (see **Section 5.11**).

On-site Material Movement

Material being moved from the crusher to a 75 yd³ stockpile or from a 75 yd³ stockpile to a 5,000 yd³ stockpile will be moved using a combination of excavator, wheel loader and dump truck. The material will be wetted prior to disturbing to avoid the generation of dust. The travel path of the wheel loader or the dump truck will be wetted to avoid the generation of dust while traversing the Site. All stockpiles will be covered at the end of each shift and not uncovered unless adding additional material or sampling.



6.2 Dust Control during Demolition

Contractor will implement a fugitive dust suppression program in accordance with the project specifications to prevent the off-site migration of particulate matter and/or dust resulting from excavation, loading, transportation, and filling operations associated with site materials. It will also be the Contractor's responsibility to: 1) supervise fugitive dust control measures, 2) to monitor airborne particulate matter and 3) to coordinate with the USEPA for perimeter air monitoring.

The area of the Site to be used for vehicle traffic, moving stockpiles or operating in an area of the Site that is not paved or may be covered with fine material that may cause dust will be periodically wetted. It is the intent of this dust control action to avoid any fugitive dust generated from leaving the Site.

6.3 <u>Road Closures</u>

Road closures are depicted on Figure 11-2 of the RAWP.

6.3.1 North Spring Avenue

North Spring Avenue will be closed prior to the start of demolition activities for Utility Abandonment (see **Section 2.1**). The purpose of this street closure is to allow for the unfettered access to the area beneath North Spring Avenue so the utilities (Laclede Gas, City of St. Louis Water and MSD) can be terminated properly by the demolition contractor. In addition to that, the area to the west of the CBI Building and North Spring Avenue between the alley and the fence will be utilized for the WILLCO Building as the "Area for Processed Material Stockpiling". The former ACF Laboratory Building foundation along the west side of North Spring Avenue may also be used for temporary PCB Waste Pile Storage as the demolition of the CBI Building progresses. It is anticipated that this entire area will west of the CBI Building will be used for stockpiling material anticipated for re-use as backfill prior, during and after the completion of the Die Cast Area excavation activities; thus, necessitating the need to permanently close North Spring Avenue.

6.3.2 Saint Louis Avenue

Prior to the start of demolition activities for the WILLCO Plastics Building and the demolition of the south side of the CBI Building, Saint Louis Avenue will be closed to through traffic during the demolition. Barricades on St. Louis Avenue will be placed at 1.5 times the fall height of the WILLCO Plastics/CBI Building. Saint Louis Avenue will be re-opened once the WILLCO Plastics Building and southern portion of the CBI Building has been demolished and is no longer a safety issue for vehicular or foot traffic.

6.3.3 Dodier Street

At a point during nearing the end of demolition activities, Dodier Street will be closed to through traffic for the demolition of the northern portion of the CBI Building. Barricades will be placed at 1.5 times the fall height of the CBI Building. The expected location of the fall height barricades is the



northern portion of the sidewalk along the Boys and Girls Club of Greater St. Louis, Herbert Hoover Chapter (HHBGC), which will ensure the safety of the children and adults of the Club. Not only will this location will ensure the safest route for pedestrian traffic traversing the area from North Grand Avenue, it is anticipated that the North Spring Avenue entrance will be closed and unavailable during the demolition of the northern portion of the CBI Building, so it will be the only available route for a short time. Dodier Street will be re-opened once the northern portion of the CBI Building has been demolished and is no longer a safety issue for vehicular or foot traffic. ACF and HRP will work very hard to insure that the CBI Building demolition gets completed as quickly and safely as possible once it nears the HHBGC due to limited club access.



7.0 CRUSHER OPERATIONS

In order to reutilize the demolished RC debris and potentially minimize the handling of the feed stock material, the material will be resized using a mobile crusher.

7.1 <u>Crusher Location</u>

The initial on-site location of the mobile crusher is depicted on **Figure 1-1**, Site Layout. This location was selected to minimize the distance between the generation point of feed material and the crusher hopper. As previously stated in **Section 6.1.1**, the location of the crusher may be moved as the demolition of the CBI Building progresses to keep the generation point of feed material as close as possible to the crusher hopper.

7.2 **Operations**

Feed material will be placed in the hopper and crushed to meet the desired particle size for use as backfill. As feed material is placed in the hopper a magnetic system will remove any extraneous rebar that was contained in the feed material. This extraneous metal will be segregated, sampled as required, and categorized for proper disposal. The material will be resized, sampled and stockpiled.

Any blockage or jamming of the crusher will require the crusher to be de-energized while the blockage or jam is cleared and only re-energized when the blockage or jam is cleared and any safety devices are re-installed as designed (it must be noted that all safety procedures must be followed and documented, including, but not limited to: all Lock Out/Tag Out Procedures, mechanical de-energizing procedures, etc.). **Only qualified personnel will operate the crusher plant.** As qualified personnel will be operating mechanical equipment on a Superfund Site known to contain hazardous chemicals, minimum training requirements include, but are not limited to; 29CFR1910.120 training (40-Hour HAZWOPER) and OSHA 10-Hour Construction Safety. All subcontractor workers will be required to have the appropriate level of HAZWOPER training for the task to be performed (see above).

Personnel operating the crusher will be required to wear hearing protection as a best management practice. The average noise level generated from a typical jaw type crusher is 80 A-weighted decibels (dbA). If the noise level of the particular crusher plant utilized at the Site has a noise level in excess of 85 dbA, personnel in the affected area will be required to wear hearing protection. It is not anticipated that the noise generated from crusher operations will adversely affect nearby businesses or residents.

7.3 <u>Dust Control</u>

Dust control on a crusher is accomplished by placing water misting systems at the point of dust generation. There are three main points of dust generation on a typical jaw or cone type crusher; the feed hopper/crusher, the point of crushed material dropping onto the conveyor/the conveyor length of travel and finally the end of the conveyor or material drop point. Contractor shall implement a fugitive dust suppression program in accordance with the project specifications to prevent the off-



site migration of particulate matter and/or dust resulting from excavation, loading, transportation, and filling operations associated with site materials.

Most mobile crusher plants do not come standard with water misting systems installed, as this feature is not an integral part of the crusher plant. Therefore most water misting systems must be retro-fitted to comply with local air/dust emission standards. The crusher plants are designed to crush slightly wet to moist material but not sticky.

There is a balance point for the amount of water being used for dust suppression and the generation of sticky material (mud). Every effort will be made to fine tune the dust suppression system to minimize fugitive dust from leaving the Site. If the water misting system is not capable of preventing fugitive dust from leaving the Site, additional measures will be employed to prevent fugitive dust from leaving the Site. Additional measures may be; not to perform crusher operations during high winds, perform water misting adjacent to the crusher in the area of the fugitive dust generation to "knock" it down before leaving the Site and employing heavy plastic or rubber covers over the conveyor and the material drop point.



8.0 RE-USE OF DEMOLITION DEBRIS

8.1 <u>Fill Determination</u>

Select RC, brick, and masonry demolition debris will be re-used on-site as backfill in the Die Cast excavation area. To permit usage of the CBI Building debris as Die Cast Area backfill, the debris will be segregated, resized, and sampled with laboratory analysis performed to confirm suitability for beneficial re-use.

For beneficial use as fill material, the demolition debris material must meet specific certain physical and chemical specifications. The demolition debris will be processed on-site using a crusher to generate a material that can be compacted. The types of physical specifications that will be established and must be met to have a compactable backfill material include:

- Maximum moisture content (not exceeded);
- Maximum particle size (not exceeded); and
- Demolition material that is free of trash and other debris that is not brick, concrete, or masonry;

The material physical specifications for the RC demolition debris that will be re-used on-site as backfill are briefly discussed in **Section 6.1**. It should be noted that the RC demolition debris will be segregated, resized, and sampled to confirm suitability for re-use (Section 6.1).

Processed beneficial reuse material shall have a maximum size of 6 inches with gradation to make the material compactable. Prior to the start of placement, all beneficial reuse material shall be stockpiled (see Section 6.1.2 Stockpile Management), sampled and tested to assure the material conforms to the project Work Plans by having less than 100 mg/kg concentrations of total PCBs. After all excavation has been completed, beneficial reuse stockpile material shall be deposited in layers not exceeding 10 inches in depth over the areas. In exceptional cases, the Engineer may permit the first layer to be thicker than 10 inches. Each layer shall be leveled off by the use of blade graders or bulldozers with adequate power for the work involved. The entire area of each layer shall be compacted by use of vibratory, pneumatic-tired or tread-type compaction equipment approved by the Engineer. Special attention shall be given to compaction in places close to walls and footings where motorized vehicular equipment cannot reach. Within 3 feet of the back face of walls and footings each layer shall be compacted only by mechanical rammers, vibrators or pneumatic tampers. Compaction shall be continued until the dry density over the entire area of each layer is not less than 95% of the dry density achieved by AASHTO T180, Method D. If a layer is formed from reclaimed miscellaneous aggregate containing bituminous concrete, the wet density after compaction on this layer shall not be less than 95% of the wet density for that reuse stockpile structural fill when tested in accordance with AASHTO T180, Method D. Where the plans call for compacted fill adjacent to reuse stockpile processed beneficial material, the materials shall be placed simultaneously, and at no time shall there be a difference more than 2 feet in elevation of the two classes of material.



The building demolition debris will painted with the following colors based on the remediation waste profiles.

- High Visibility Orange: Greater than 100 ppm PCB,
- High Visibility Pink: Greater than 25 ppm, less than 100 ppm PCB, and
- High Visibility Blue: Greater than 1 ppm, less than 25 ppm PCB, and
- No color/no paint: Less than 1 ppm PCB.

A solid line will be painted with the appropriate high visibility paint at the approximate boundary of each waste profile area. Continuous lines of the appropriate high visibility paint color will be spray painted inside each waste profile area at maximum spacing of two feet apart on floors and one foot apart on vertical surfaces (i.e. walls and columns).

The chemical specifications required to determine if demolition debris is suitable for reuse will be based on the sampling plan as discussed in **Section 1.2, Section 4** and below. The COCs detected in materials for on-site reuse must meet:

- the applicable site-specific criteria for PCBs to be placed at varying depths:
- less than 1 ppm Total PCB for material placed from ground level to 3 feet below ground surface (bgs), which in essence is the TSCA CAP;
- greater than 1 ppm Total PCB but less than 25 ppm Total PCB for demolition material placed within 3 feet bgs to 10 feet bgs of the ground surface;
- greater than 25 ppm Total PCB but less than 100 ppm Total PCB for material placed below 10 feet bgs to the bottom of the Die Cast Excavation.
- RCRA hazardous waste toxicity characteristics leaching procedure (TCLP) for lead (Pb) impacted concrete, which is impacted from lead based paint.

8.2 PCB Verification Sampling for Reuse and Disposal

As discussed in **Section 4**, samples of various media will be collected during building demolition to verify total concentrations of PCBs. The types of sample media related to disposal include:

- Wastewater,
- Concrete ,
- Masonry, and
- Non Porous Surface(s).

For determination of PCB concentration, the samples will be submitted to an analytical laboratory for analysis by EPA Method 8082. Prior to analysis of solid phase samples, the samples will be extracted consistent with the procedure used during EE/CA site characterization..



8.3 <u>Waste Disposal Sampling</u>

Demolition debris containing total PCBs at concentrations of 100 ppm or greater; and "additional unfit demolition debris" that cannot otherwise be used on-site as fill material, will be shipped off-site for disposal at properly licensed Landfill. Samples will be collected and compared with the waste acceptance criteria for the RCRA licensed landfill that accepts TSCA waste or a TSCA landfill for TSCA generated waste. For wastes that cannot be disposed of on-site, but are not TSCA waste, each waste will be characterized to see if it is a RCRA waste or a general construction debris landfill waste. Given that most likely the material will be a homogenous mixture of crushed concrete, brick and masonry (or metal rebar, in which case a wipe test will suffice), a single composite 5-aliquot sample will be collect for RCRA waste characterization analysis. Specific test to be performed are:

- pH (corrosivity);
- Reactivity (Sulfide and Cyanide);
- Flash Point/Ignitibility;
- RCRA 8 metals by TCLP; and
- Volatile Organic Compounds;

The sampling frequency and testing parameters may vary depending on disposal facility requirements.



9.0 SAMPLING OF CBI FOOTPRINT

9.1 Chemical of Concern Identification

Site historical records and chemical data indicate that the following chemicals are present onsite in concentrations sufficient to be of anticipated concern when the Subsurface Investigation is undertaken for the CBI Building after the removal of the concrete slab on grade:

- Volatile organic compounds (VOCs);
- Total petroleum hydrocarbons (TPH)-GRO;
- TPH-DRO;
- TPH-ORO;
- Polyaromatic hydrocarbons (PAHs);
- PCBs; and
- RCRA Metals.

PCBs originated from the PCB-containing (AR1242/AR1248) hydraulic fluids (Pydraul[®]) which were used in the manufacturing process and dielectric fluids from Utility owned Ameren UE transformers on-site (AR1254/AR1260). TCE was an industrial cleaning solvent reportedly used on-site for degreasing applications. TPH resulted from fuels (diesel fuel and gasoline) and waste oils associated with the application of dielectric fluid and other industrial oils in the manufacturing process onsite. RCRA Metals were the result of years of heavy industrial use by Carter Carburetor, Inc.

9.2 Sample Collection Methodology

The purpose of subsurface soil sampling is to evaluate any impact that PCBs or other contaminants of concern may have had on the subsurface soils beneath the CBI Building. All subsurface soil samples will be discrete samples collected as described in **Section 4**.

9.3 Sample Collection Location Determination

Samples locations will be biased to possible release mechanisms and contaminant transport models. Samples will be collected at high bias locations as field sampling permits, such as: adjacent to utility corridors, expansion joints/cracks in concrete, and/or stained soils. Soil sampling will also include a representation of sub-slab soil at the interface with the CBI Building first floor slab.

Additional random sample locations will be identified and sampled in a manner very similar to the CBI Building PCB Investigation performed under the ASA AOC EE/CA Field Investigation in 2006/2007 by MACTEC. Proposed biased and random sample locations are presented on Figure 8-1, CBI Building Sample Locations.



9.4 Sub-Surface Investigation Work Plan

A Sub-Surface Investigation Work Plan will be prepared and will include:

- 1. Sampling and Analysis Plan;
- 2. Quality Assurance Project Plan; and a
- 3. discussion of how they relate to the Sub-Surface Investigation of the CBI Building Concrete Slab and Pump Room Floor.

This Plan and Figures will delineate locations where biased and random samples will be collected, boring depths and locations, decon pads (if required) and any other information required.



10.0 TRANSPORTATION AND DISPOSAL

Demolition debris that is not suitable reuse as backfill on Site will be transported off-site to the appropriate disposal facility. Transportation conveyances will be inspected prior to loading to ensure they are in good working order. Trucks with obvious safety defects, such as bald tires or leaking fluid, shall not be loaded or utilized and will not be allowed back onsite until defects are corrected. A vehicle inspection will be documented for each transportation conveyance. In addition, a tracking sheet will be developed to identify the date, time, weight/volume, waste/material, trucking company, driver, and vehicles used for each trip.

A discussion for the traffic routes is included in **Section 11 of the RAWP**. This section discusses the road closures and traffic routes specific to the CBI Building demolition.

10.1 <u>Material Loading</u>

10.1.1 Off-Site Transportation

Demolition debris not suitable for reuse as backfill generated from either the Pre-Demolition activities or the structural demolition of the CBI Building will be loaded in to permitted trucks for transport off-site and disposal at an appropriately regulated landfill. Material will be loaded in a manner to minimize spillage on the outside of the conveyance and minimize the generation of dust. This upfront care taken to load the conveyance will minimize any cleaning of the conveyance body or tires prior to further movement on the Site and subsequent transportation to the off-site disposal facility. A water mist will be used if material presents a fugitive dust generation issue. If waste material is noticed on the outside of the truck, it will be removed by dry wiping or by wet method (truck wash) to prevent the spread of demolition debris off-site

10.1.2 On-Site Transportation

Demolition debris will be moved from the point of structural demolition to the sizing area to be resized by mechanical means prior to placement in the crusher feed pile. Dust suppression measures will be utilized during all sizing and demolition operations to prevent fugitive dust from leaving the Site. Crushed reinforced concrete is expected to be moved either by wheel loader or tandem truck on-site to the sample piles for sampling and storage. The travel path of the loader or tandem truck will be wetted to prevent the generation of dust. Care will be taken not overload the loader bucket or the tandem truck to avoid spillage of material along the travel path.

Material that is determined to be unsuitable for reuse as backfill will be handled as described above in Section 10.1.1. Material that is suitable for reuse as backfill will be moved to a reuse stockpile for storage until used as backfill. Material will be loaded into the on-site transportation conveyance in such a manner to minimize spillage on the outside of the conveyance and minimize the generation of dust. This upfront care taken to load the conveyance will minimize any cleaning of the conveyance body or tires prior to further movement on the Site and subsequent transportation to the off-site disposal facility.



10.2 <u>Truck Scale</u>

To ensure compliance with local, state and federal weight regulations, trucks loaded with demolition debris will be weighed before leaving the Site. On-site scales will be utilized to ensure trucks do not exceed 72,000 lbs or the maximum rating for the specific type of truck. Trucks that are overweight will be directed back to the material loading area to have excess material removed. The equipment operator and truck driver will communicate during loading operations to avoid overloading that would require removal of excess material from the truck. After initial setup, the truck scales will be calibrated by the contractor. The scales will be maintained and re-calibrated based on the manufacture's recommendations. Additionally, weight tickets from the disposal facility will be used to verify the accuracy of outgoing loads. The scales will be inspected and cleaned as necessary to ensure proper operation. The contractor will perform calibration checks at least weekly to ensure the scales are within the manufacturer's tolerance limits. Scale calibration logs will be used to document scale calibration, inspections, and weekly calibration checks.

10.3 Visual Inspection

After the soil is loaded into the transport trucks, the soil shall be covered and otherwise contained to prevent material from blowing or spilling out of the truck during transport to the designated facility for final disposition. All vehicles shall be decontaminated by the Contractor prior to leaving the loadout areas. For track-out prevention and control, all truck exteriors shall be broom cleaned after loading. If this method is not successful, the truck will be directed to the truck wash for cleaning prior to leaving Site. The dump truck or roll-off bin portion of the truck shall then be covered with a tarp to prevent soil and/or dust from spilling out of the truck during transport to the designated facility for final disposition. Prior to leaving the loadout areas, each truck shall be inspected by the Contractor to ensure that the payloads are adequately covered, the trucks are cleaned of spilled material, and the shipment is properly manifested or documented. Proper hazardous waste placarding shall be required for transportation of hazardous waste.

10.4 Truck Wash

Trucks that have debris or material that that cannot be dry brushed off shall utilize the onsite truck wash before leaving the site and be re-inspected to verify the effectiveness of the cleaning procedures. The cleaning procedure will include a double-wash double-rinse of all areas where potential contact with PCBs may have occurred. The truck wash area will be constructed to contain the cleaning water and to prevent any demolition debris from contacting non-impacted areas of the site. Trucks will not be allowed to leave the designated work zone or cleaning area until a designated representative has verified all material has been removed from the tires and outside of truck bed.

Once the trucks arrive at the designate RCRA/TSCA approved landfill location (to be determined at time of contract award) and are off-loaded; the trucks THAT REQUIRE decontamination will be cleaned and decontaminated within the designated wash-down area, as dictated by the designated, approved Landfill. In addition, all equipment, tools, and non-porous surfaces that come in direct contact with PCBs will be required to be cleaned using the double wash/rinse procedure outlined in



Subpart S of §761 or equivalent. Since this decontamination procedure is considered selfimplementing by USEPA (76 1.79(c)), no confirmation testing is required prior to reuse of the equipment for TSCA or non TSCA activities. 40CFR, Subpart S, Part 761, Subpart D, Section 761.79(c)) Decontamination Standards and Procedures - establishes decontamination standards and procedures for removing PCBs, which are regulated for disposal, from water, organic liquids, nonporous surfaces (including scrap metal from disassembled electrical equipment), concrete, and nonporous surfaces covered with a porous surface, such as paint or coating on metal. Surfaces on nonporous equipment or surfaces that have previously been in contact with non-liquid PCBs may also be cleaned using other methods, then visually inspected to verify that these surfaces have been cleaned to Visual Standard No. 2, Near-White Blast Cleaned Surface Finish, of the National Association of Corrosion Engineers (NACE) (NACE, 1994) or equivalent standard. Any and all equivalent methods and/or standards that are being substituted must be submitted in writing in advance of the first load of inbound PCBs, of the implementation of the Work at the Landfill for the Carter Carburetor Superfund Site and approved by ACF, its contactor and the USEPA.

10.5 Public Road Inspection

Public streets utilized by the trucks transporting material for off-site disposal will be inspected at least daily in order to ensure that the trucks are being adequately cleaned and that no spillage is occurring. The street inspection will be conducted near the end of the daily work shift, with more frequent inspections to occur if spills of impacted material are documented in public streets. Any identified spills will be cleaned up immediately. The daily inspection will be documented in a log book to be maintained at the site.



EPA ARCHIVE DOCUMENT S



FIGURES

EPA ARCHIVE DOCUMENT S

APPENDIX A

Proposed Project Schedule



APPENDIX B

ECOBOND Specifications

