

WEST FORK INCINERATOR ABATEMENT



Millcreek Road
Cincinnati, OH 45223

FOR THE
Port of Greater Cincinnati Development Authority

3 East Fourth Street, Suite 300

Cincinnati, OH 45202

513.621.3000

www.cincinnatiport.org

Contract 2601.01

June 2, 2025



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**Contractor shall confirm and comply with current Prevailing Wage Rates for associated asbestos workers.*

WEST FORK INCINERATOR ABATEMENT



DOCUMENT 000101 - PROJECT TITLE PAGE

1.1 PROJECT MANUAL Review Set

- A. Project: West Fork Incinerator Abatement
Millcreek Road
Cincinnati OH 45223
- B. Owner: Hamilton County Land Reutilization Corporation (HCLRC), a
managed entity of
The Port of Greater Cincinnati Development Authority
3 East 4th Street, Suite 300
Cincinnati Ohio 45202
www.cincinnatiport.org
513.621.3000
- C. Issued: June 2, 2025

END OF DOCUMENT 000101



DOCUMENT 001116 - INVITATION TO BID

1.2 PROJECT INFORMATION

Notice to Bidders: Prequalified bidders are invited to submit bids for Project as described in this Document according to the Instructions to Bidders.

Project Identification: **West Fork Incinerator Abatement**

Project Location: **Millcreek Road, Cincinnati, OH 45223**

Owner: Hamilton County Land Reutilization Corporation (HCLRC), a managed entity of The Port of Greater Cincinnati Development Authority (The Port). The Port is the contracting party initiating the project and this bid, as set forth in the Contract, acting through their authorized representative(s) and in accordance with specific duties delegated to such representatives.

Project Manager: The Port

Project Description: The Port is working with the City of Cincinnati to facilitate the abatement and demolition of the former West Fork Incinerator site located on Millcreek Road, Cincinnati, OH 45226. The existing structures must be abated of hazardous/non-hazardous materials, demolished, and the site must be remediated and graded before any suitable development can be planned. **The scope for this bid includes Abatement of asbestos-containing materials, hazardous materials, and universal waste on site.**

Terracon is an environmental consultant working for The Port to assist in creating documentation and reports related to hazardous and nonhazardous materials. The winning bidder shall collaborate with Terracon as directed by this bid package, and additionally as required by The Port to maintain compliance with local, state, and federal requirements.

A separate General Contractor would be selected at a later date to perform all the selective demolition related activities on the site for the project. The Bidder shall coordinate services and schedules with the other General Contractor for demolition related activities concerning asbestos abatement.

1.3 BID SUBMITTAL AND OPENING

Owner will receive electronic emailed, mailed or hand-delivered, sealed hard copy bids until the bid time and date at the location indicated below. Owner will consider bids prepared in compliance with the Instructions to Bidders issued by Owner, and delivered as follows:

Bid Date/Time: June 27, 2025, 11 a.m.

Address: 3 East 4th Street, Cincinnati OH 45202.

Submit Bids to: Jen Lintz, Director of Brownfields, jlintz@cincinnatiport.org



All bids are to be made only on the proposal forms furnished by The Port and included in this document. In the event a discrepancy exists between the proposal forms and the emailed bid, this document shall take precedence.

Bid prices in the Bidding Schedule are to be written both by words and by figures, and in case of any conflict, the former will apply. No bid will be accepted which does not contain an adequate or reasonable price for each and every item named in the Bidding Schedule on the Contract bid upon.

Only proposals, which are made out upon the regular proposal forms included in this document, will be considered.

1.4 BID SECURITY

No proposal will be considered unless accompanied by a certified check or bid bond in the amount of 10% of the total bid, payable to The Port as guarantee that if the bid were accepted, the bidder will execute and file the proposed Contract within ten (10) days from the date of the award of the Contract. On failure of the successful bidder to execute the Contract and required bonds, they shall forfeit the deposit as agreed liquidated damages, and the acceptance of the proposal will be contingent upon the bidder agreeing to this provision.

The bid security of the three lowest and best formal bidders for each Contract will be held until the Contract is executed and approved.

1.5 MANDATORY PREBID CONFERENCE

A mandatory prebid conference for all bidders will be held at the project site at Millcreek Road, Cincinnati, OH 45223 on June 10, 2025 at 9:00 a.m., local time. Prospective bidders are required to attend.

The Port will make the site available to General Contractors and Subcontractors at pre-scheduled times. The time of site availability will be announced at the pre-bid conference.

1.6 DOCUMENTS

Printed Procurement and Contracting Documents: Obtain by contacting The Port. Documents will be made available for pickup at a local print shop at bidder's expense.

Contact Port for printing information.

Online Procurement and Contracting Documents: Obtain access after contacting The Port.



1.7 TIME OF COMPLETION AND LIQUIDATED DAMAGES

Bidders shall begin the Work on receipt of the Notice to Proceed and shall complete the Work within the Contract Time. Work is subject to liquidated damages as specified in the General Conditions.

Anticipated project completion date is December 31, 2025.

1.8 BIDDER'S QUALIFICATIONS

- A. Bidders must be prequalified by Owner.
- B. Bidders must be properly licensed under the laws governing their respective trades and be able to obtain insurance and bonds required for the Work.
- C. Each bidder may submit with their bid, and, in the event required by The Port shall submit the following data within five (5) days of a receipt of notice from The Port for said data:
 - a. A statement that the bidder maintains a permanent place of business and address thereof.
 - b. A statement of the items of equipment which the bidder proposes to use on the Project, together with a statement noting which of these items of equipment the bidder owns, and separately those items which they do not own but is certain they will be able to rent or otherwise procure for use on the project.
 - c. A financial statement, duly sworn to, in form approved by The Port, listing assets and liabilities.
 - d. A letter from a qualified surety addressed to The Port demonstrating the bidder's ability to obtain the Payment and Performance Bonds required hereunder.
 - e. Statement listing projects of similar nature, which the bidder has constructed, or in the construction of which the bidder was actively engaged in a responsible capacity.

Any bidder may be required by The Port to submit additional data to satisfy The Port that such bidder is prepared to fulfill the Contract if it is awarded to them.

1.8 INVITATION TO BID LETTER

Attached after end of document.

END OF DOCUMENT 001116



DOCUMENT 002113 - INSTRUCTIONS TO BIDDERS

PART 1 - GENERAL

1.1 DESCRIPTION OF IMPROVEMENTS

- A. Proposals are invited by The Port for the scope mentioned in this document.

1.2 PREPARATION OF PROPOSAL

- A. Each bidder's proposal shall be firmly sealed in an envelope labeled "Contract Proposal" and delivered to the location described in the Invitation for Bids. The "Contract Proposal" shall consist of:

A hard copy of the proposal forms from this document.

All bids are to be made only on the proposal forms furnished by The Port and included in this document. Each proposal form in this document shall be properly completed, signed and executed. In the event a discrepancy exists between the proposal forms and the duplicate proposal sets, this document shall take precedence.

Bid prices in the Bidding Schedule are to be written both by words and by figures, and in case of any conflict, the former will apply. No bid will be accepted which does not contain an adequate or reasonable price for each and every item named in the Bidding Schedule on the Contract bid upon.

Only proposals which are made out upon the regular proposal forms included in this document will be considered.

1.3 THE PORT'S TAX-EXEMPT STATUS

- A. The Port is a tax-exempt organization. No sales tax shall be paid on purchased materials. The exemption from sales taxes shall be factored into each Contractor's bid.

1.4 BID SECURITY

- A. No proposal will be considered unless accompanied by a certified check or bid bond in the amount of 10% of the total bid, payable to The Port as guarantee that if the bid were accepted, the bidder will execute and file the proposed Contract within ten (10) days from the date of the award of the Contract. On failure of the successful bidder to execute the Contract and required bonds, they shall forfeit the deposit as agreed liquidated damages, and the acceptance of the proposal will be contingent upon the bidder agreeing to this provision.
- B. The bid security of the three lowest and best formal bidders for each Contract will be held until the Contract is executed and approved.



1.5 BIDDERS REPRESENTATIONS:

- A. By submitting a Bid the Bidder represents that:
 - 1. The Bidder has read and understands the bidding documents
 - 2. The Bidder understands how the bidding documents relate to other portions of the project, if any, being bid concurrently or presently under construction
 - 3. The Bid complies with the bidding documents;
 - 4. The Bidder has visited the site, become familiar with local conditions under which the work is to be performed, and has correlated the Bidder's observations with the requirements of the proposed contract documents;
 - 5. The bid is based on the materials, equipment, and systems required by the bidding documents without exception; and
 - 6. The Bidder has read and understands the provisions for liquidated damages if any, set forth in the form of Agreement between the Owner and Contractor.
 - 7. The Bid takes into account all federal requirements, including but not limited to the wage determination and requirements of the Davis-Bacon Act.

1.6 BIDDING DOCUMENTS

- A. Bidders shall use complete Bidding Documents in preparing Bids. The Port or its consultants shall be responsible for errors or misinterpretations resulting from the use of incomplete Bidding Documents.
- B. The Bidding Documents will be available for the sole purpose of obtaining Bids on the work. No license or grant of use is conferred by distribution of the Bidding Documents.

1.7 BIDDING REQUIREMENT

- A. If the Work included in the proposal covers general construction and if the Proposal Forms include alternates, each bidder must bid on each alternate.
- B. Each bidder shall submit only one bid.
- C. Each bidder must submit with their proposal special data, if any, in respect to items of equipment, alternates, or other items, which any section of the Contract Document requires to be submitted with each proposal.

1.8 LUMP SUM CONTRACT

- A. Each bidder shall make their own estimate from the Contract Drawings and site inspections of the quantities required on each item and calculate their bid for each item accordingly. Bids will be compared based on number of units stated in the Bidding Schedule. Payment on the contract will be lump sum.



1.9 CONDITIONS IN THE CONTRACTOR'S PROPOSAL

- A. A bidder shall not stipulate in their proposal any conditions not contained in the Form of Proposal included in the Contract Documents. Such stipulations may be cause for rejection of the Proposal.

1.10 SUB-CONTRACTS

- A. A Bidder will be permitted to sublet a portion of the Work, subject to approval from The Port, and in case such approval is given, the Contractor will be permitted to sublet a portion thereof, but shall perform with his own organization Work amounting to not less than 50 percent of the total contract cost.
- B. See also General Conditions, A201, for Sub-Contracts.

1.11 MODIFICATION OR INTERPRETATION OF THE BIDDING DOCUMENTS.

- A. The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Port of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation.
- B. If any person contemplating submitting a bid for any contract on this Project is in doubt as to the true meaning of any part of the Contract Drawings, Specifications, or other sections of the Contract Document, they may submit to The Port a written request for an interpretation thereof. The person submitting the request will be responsible for its prompt delivery.
- C. All requests must be received in writing or email by The Port. Address requests to Jen Lintz, Director of Brownfields, 3 East Fourth St., Suite 300, Cincinnati, OH 45202, at jlintz@cincinnatiport.org.
- D. Any interpretation of the Contract Document or Contract Drawings will be made only by addendum duly issued or delivered to each person receiving a set of such documents. The Port will not be responsible for any other explanations or interpretations of the Contract Documents or Contract Drawings.
- E. No statement, representation, opinion, promise or instruction contained in any of the Contract Documents or made in connection with performance of this Contract by a Port employee, during and in the scope and course of the officer or employee's employment with The Port, shall be deemed to constitute a statement, representation, opinion, promise or instruction of such person in their individual capacity, and neither The Port President/CEO by virtue of authorizing the execution of this Agreement, nor The Port President/CEO by virtue of having executed it shall be held personally liable or accountable for such activity in connection with this Agreement.

1.12 ADDENDA

- A. Addenda will be transmitted to Bidders known by the issuing office to have received complete bidding documents.



- B. Addenda will be issued no later than three days prior to the date for receipt of Bids, except and Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.
- C. Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.
- D. See section 00 91 13 for Addenda.

1.13 ECONOMIC INCLUSION

- A. While there are no set-asides or preferences for suppliers, providers, or developers, The Port is committed to empowering Minority Business Enterprises (MBEs), Women's Business Enterprises (WBEs), and Small Business Enterprises (SBEs). To that end, The Port will be vigilant in monitoring, encouraging, and facilitating the satisfaction of its goals in relation to participation by MBEs, WBEs, and SBEs in all Port related work. The goals of The Port in this regard are specified in its Economic Inclusion Policy (attached). Contractor shall actively solicit MBEs, WBEs, and SBEs for the maximum practicable opportunity to participate in the performance of the Work as part of the Economic Inclusion Policy. The Contractor agrees to comply with the requirements of 40 CFR 33.301, including maintaining documentation of compliance with the good faith efforts required.
- B. The Contractor acknowledges and agrees that it is familiar with the policy of The Port pertaining to the inclusion of minority-owned, women-owned, and small business enterprises (the "Inclusion Policy"), a copy of which is included as an appendix. The Contractor acknowledges that it is familiar with The Port's commitment to the Inclusion Policy and the goals and procedures implemented by The Port to promote the Inclusion Policy. The Contractor's preliminary inclusion plan must be submitted with their bid for the bid to be considered complete.
- C. The Contractor agrees that it will provide a copy of the Inclusion Policy to each subcontractor with which it contracts in any capacity with respect to the construction of the Project.
- D. The Contractor further agrees that it will consult and cooperate with The Port and otherwise exercise reasonable best efforts with respect to, and that it will require each subcontractor with respect to the construction of the Project to consult and cooperate with The Port with respect to, The Port's procedures and promote the policy goals of the Inclusion Policy in connection with the construction of the Project.
- E. Upon execution and delivery of this Contract, monthly during the construction of the Project, upon completion of the construction of the Project, and at such other times as The Port reasonably requests, the Contractor shall provide The Port with evidence, reasonably satisfactory to The Port, with respect to its efforts and the efforts of its subcontractors to comply with the Inclusion Policy, including such data, reports



(including the Inclusion Reporting Requirements set forth in Appendix 5 attached hereto), and analyses as The Port shall request.

- F. At such times as The Port requests, the Contractor shall be required to provide The Port with evidence, reasonably satisfactory to The Port, that there has been compliance with this Section. Upon completion of the Project, the Contractor shall provide a sworn affidavit of compliance.

1.14 SUBMISSION OF BIDS

- A. See section 001116 for bid submission information.

1.15 ANTI-KICKBACK

- A. Contractor affirms and declares that it has not accepted or given any money, fee commission, credit, gift, gratuity, thing of value, or compensation of any kind provided, directly or indirectly, from any person for the purpose of improperly obtaining or rewarding favorable treatment in connection with this Contract or in connection with a subcontract relating to this Contract.
- B. Contractor shall submit the Non-Collusion Affidavit, spec 004116.2, with the Bid Form.

1.16 WITHDRAWAL OF BID

- A. Any bidder may withdraw their proposal at any time prior to the opening of proposals by The Port. No bid may be withdrawn after the opening of proposals without the prior written consent of The Port.

1.17 TABULATION OF BIDS

- A. After Bids are received they will be tabulated by The Port.

1.18 REJECTION OF BIDS

- A. The Port may reject the proposal of any bidder that is in arrears to The Port or any of its managed entities from any cause, or who in former contracts with the State of Ohio, Hamilton County, the City of Cincinnati, or The Port performed the work unsatisfactorily, either in the character of the work or the time consumed in its completion by neglect or willful delay. The Port may also reject the proposal of any bidder that is on any federal, state or local debarment list.
- B. See also section 1.20, Award.

1.19 SIGNING OF PROPOSAL

- A. Proposals which are not signed by individuals making them should have attached thereto a power of attorney evidencing authority to sign the proposal in the name of the person for whom it is signed.



- B. Proposals which are signed for a partnership should be signed by all of the partners, or by an authorized partner. If signed by an authorized partner, there should be attached to the proposal a partnership management decision evidencing the partner's authority to sign the proposal.
- C. Proposals which are signed for a corporation should have the correct corporate name thereof signed in handwriting or in typewriting, and the signature of the president or other authorized officer of the corporation should be manually written below the written or typewritten corporate name followed by the word "By _____".
- D. If proposals are signed for any other legal entity, the authority of the person signing for such legal entity should be attached to the proposal.

1.20 AWARD

- A. Subject to the right of The Port to reject each and every bid, The Port will award the contract for the Work to the lowest and best bidder. In determining which bid is the lowest and best, The Port may take into consideration not only the amount of the bid, but such of the following criteria as The Port, in its discretion, deems appropriate, and The Port may give such weight thereto as it deems appropriate:
 - a. The bidder's financial condition and ability to complete the Contract successfully without resort to its surety;
 - b. The bidder's prior experience, including experience with similar work on comparable or more complex projects;
 - c. The competency and experience of the bidder's proposed supervisory and management staff;
 - d. The bidder's prior history for the successful and timely completion of projects;
 - e. The bidder's equipment and facilities;
 - f. The adequacy, in numbers and experience, of the bidder's work force to complete the Contract successfully and on time;
 - g. The bidder's prior experience on other projects of The Port, including the bidder's demonstrated ability to complete its work on these projects in accordance with the Contract and on time;
 - h. The bidder's history of compliance with federal, state, and local laws, rules, and regulations;
 - i. The Port's prior experience with the bidder's surety;
 - j. The bidder's interest in the Work as evidenced by its attendance at any pre-bid meetings or conferences for bidder;
 - k. The bidder's ability to work with The Port and its agent(s) personnel as a willing, cooperative and successful team member;
 - l. The bidder shall certify it has not had a professional license revoked in the past five years in Ohio or in any other state;
 - m. The bidder shall certify it has not been debarred from any public contract, federal, state or local, in the past five years;



1.21 DEFINITION OF AWARD

- A. The Contract shall be deemed to have been awarded when formal written notice of award has been duly served upon the intended awardee (i.e., the bidder to whom The Port contemplates awarding a contract) by some officer or agent of The Port duly authorized to give such notice.
- B. The Port reserves the right to withhold award of the Contract for a period not to exceed (120) calendar days from date of bid opening. The bidder understands and agrees to hold their bid and its bid security valid for this period of time.
- C. At any time during the (120) calendar days The Port, at its sole discretion and without recourse by the bidder, may decide not to award the Contract as bid. If the Contract is not awarded within the (120) calendar days, the bid will be determined to be void and null and the bidder's bid security will be returned in full.

1.22 EXECUTION OF CONTRACTS AND BONDS

- A. Each Contract must be executed in three (3) counterparts and no more, and there shall be executed original counterparts of the Contract Bond in equal number to the executed counterparts of the Contract. Two (2) copies of such executed documents will be retained by The Port; the other one (1) will be delivered to the Contractor. The successful Contractor must provide compensation insurance, public liability and property damage insurance, and other insurance, all as outlined in the General Conditions of the Contract. The costs of executing the bonds and contract and insurance, including all notarial fees and expenses, are to be paid by the Contractor to whom the contract is awarded.

1.23 FORM OF CONTRACT

- A. The Port shall provide a modified version of the AIA A101 form for use as the Contract, and it shall be included as part of the Contract Documents.
- B. The AIA A101 form shall reference the AIA A201 form, and it shall be included as part of the Contract Documents.

1.24 PAYMENT

- A. Contractors will be paid at intervals stated in the General Conditions of the Contract.

1.25 EXECUTION OF AFFIDAVIT AND WAIVER OF LIEN

- A. All Contractors shall submit an executed "Lien and Waiver Release" (included herein) with each application for payment.



1.26 RETAINAGE

- A. Retainage, in the amount of ten percent (10%), will be withheld from each Draw to a Contractor and shall be returned, less deductions for cost of completion, if any, incurred by The Port in accordance with the terms of the General Conditions.
- B. No interest shall be paid or shall accrue or accumulate on money withheld by The Port as retainage.

1.27 FAILURE TO APPROPRIATE FUNDS

- A. The Port reserves the right to cancel this Contract if for any reason The Port Board of Directors, JobsOhio or the City of Cincinnati fail to appropriate funds necessary to make payment for items and/or services requested in this document.

1.28 LIQUIDATED DAMAGES

- A. If the Contractor fails to achieve Substantial Completion within the Contract Time, the Contractor shall be liable for the sum of \$500.00 per day as liquidated damages, and not as a penalty, for each calendar day beginning of the first day after the Contractor fails to achieve Substantial Completion within the Contract Time until the date that Substantial Completion is achieved. The Port shall have at its sole discretion, the right to waive Liquidated Damages for justifiable cause.

1.29 COMMENCEMENT AND COMPLETION OF WORK

- A. Attention of bidders is directed to the provision of paragraphs 34, 35 and 36 in the General Conditions of the Contract included herewith requiring the successful Contractor to pay liquidated damages as therein defined. Attention of bidders is further directed to the schedule stating completion dates.

1.30 REIMBURSEMENT/WORKER'S COMPENSATION

- A. The Port requires reimbursement by the successful bidder for any expenses paid to The Port employees, by way of Worker's Compensation, when that injury has been caused by the negligence of the provider of services or goods required by this Contract.

1.31 PRODUCT ORIGIN REQUIREMENTS

- A. USE OF AMERICAN-MADE PRODUCTS
- B. The Port may, in evaluating the bids, take into consideration the use of American made products from local vendors and manufacturers or Hamilton County vendors and manufacturers, or State of Ohio vendors and manufacturers, or vendors and manufacturers within the United States of America, when all other considerations are equal.



1.32 PREFERENCE FOR OHIO CONTRACTORS

- A. In accordance with Section 153.012, Ohio Revised Code, preference shall be given to contractors having their principal place of business in Ohio over contractors in states who provide a preference to resident contractors, except for a contract financed in whole or in part by contributions or loans from any agency of the United States government. Where a preference is provided by another state for contractors of that state, contractors having their principle place of business in Ohio are to be granted in Ohio the same preference over them in the same manner and on the same basis and to the same extent as the preference is granted in letting contacts for the same type of work by the other state.

1.33 NOTICE OF FURNISHING

- A. Contractor shall promptly forward a copy of any Notice of Furnishing served upon it in the same manner provided in Section 4, at the time of entering into any contract with a subcontractor or materialman, Contractor shall provide each such subcontractor or materialman with written notice of its name and address and the name and address of The Port as set forth in the preceding sentence.
- B. Contractor acknowledges and agrees that upon receipt of an affidavit of a claim ("Claim") as provided by Section 1311.26 of the Ohio Revised Code, The Port shall deposit the amount of the Claim in an escrow account and hold such sum in escrow: (i) until The Port is ordered by the Hamilton County Common Pleas Court to release the escrowed amount in a certain fashion; (ii) until The Port is presented with written instructions signed by the Contractor and the claimant directing The Port to disburse the escrowed amount in a certain fashion; or (iii) until the passage of the statutory time for the claimant to commence suit on the Claim and the claimant has failed to do so.
- C. The Port will serve the Contractor with a copy of any Claim served upon it. If, within twenty (20) days after receipt of The Port's notice that a Claim has been filed, the Contractor fails to serve The Port with written notice of its intention to dispute the Claim, the Contractor shall be deemed to have assented to the correctness of the Claim and The Port shall be authorized to pay the Claim from the escrowed funds as provided by law. The Port will retain in escrow funds to pay any disputed Claim in the amount and for the period of time prescribed by law.
- D. Contractor covenants and agrees that in the event that The Port approves of a subcontract, Contractor shall specifically provide in the subcontract that the subcontractor shall comply with the provisions of Sections 1311.25 to 1311.32 of the Ohio Revised Code.

1.34 OSHA REQUIREMENTS

- A. Whether or not evident on the face of the bid document, each bidder's bid shall assume that any and all Work performed for The Port by contract must be performed in a manner which complies with all current and applicable federal and state Occupational



Safety and Health Administration (OSHA) rules and regulations. Therefore, in bidding upon Work for The Port, the bidder is hereby specifically instructed to take into account and incorporate such cost into its bid as is necessary to comply with all federal and state OSHA rules and regulations, which are applicable to the Work sought by the Contract being bid. Further, in actually performing the Contract between The Port and the bidder, the bidder shall perform the Work in a manner, which complies with all current and applicable federal and state Occupational Safety and Health Administration (OSHA) rules and regulations.

- B. Before awarding the Contract, The Port reserves the right to inspect the safety programs and records of any Contractor or a Subcontractor that seeks to undertake Work by the Contract with The Port. During performance of the Contract The Port reserves the right to inspect the Work being performed for OSHA compliance and insist on compliance with applicable OSHA rule and regulations.

1.35 DETAILED SCOPE

A. SCOPE: Asbestos Abatement, Universal Waste Removal and Disposal

1. Contractor shall provide all superintendence, labor, materials, tools, equipment, technologies, specialized techniques, identification and all other appurtenances necessary to locate and remove all asbestos containing materials. Price shall include, but is not limited to: identification of ACMs, providing protection and isolation of areas containing asbestos, removal and containerization of all asbestos containing materials, providing final cleanup of areas cleared of asbestos containing materials, handling and transportation to a licensed landfill the removed asbestos containing materials, permits, disposal fees, and complete record keeping, complete in place. Payment shall be Lump sum.
2. The Quantities of Asbestos Containing Materials (ACMs) are estimates only. It is the responsibility of the Contractor to determine exact quantities and base their best bid on their estimation for the removal and disposal of all ACMs. No additional funds will be paid for quantities in excess of Contractor's determination.
3. The Contractor will need to coordinate with another General Contractor (selected at a later date) for all the demolition related activities relevant to the Asbestos Abatement.
4. The Project requires to pay Davis Bacon Prevailing wage on the entire Scope. Bidder is required to utilize the wage determinations provided in the bid package and comply with all Davis-Bacon Act requirements including, but not limited to overtime, weekly payroll reporting, and payment of prevailing wages.

END OF DOCUMENT 002113

**002200 GENERAL CONDITIONS****DEFINITIONS**

- A. The Contract: The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Owner and a Subcontractor or a Sub-subcontractor, (2) between any persons or entities other than the Owner and the Contractor.
- B. The Contract Documents: The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Owner. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.
- C. Contract Time: Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.
- D. Contractor: The person, persons, firm or corporation to whom the within Contract is awarded by the Port Authority, and who is subject to the terms of said Contract. Also, the agents, employees, work person, or assignees of the Contractor. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.
- E. Date of Commencement: The date of commencement of the Work is the date established in the Agreement
- F. Date of Substantial Completion: The date of Substantial Completion is the date certified by the Owner as the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.
- G. Day: In the contract documents the term "day" shall mean calendar day unless otherwise specifically defined.
- H. HCLRC: The Hamilton County Land Reutilization Corporation (HCLRC) has the authority to implement the project and serves as the owner for the purposes of this project. HCLRC is managed by The Port of Greater Cincinnati Development Authority (The Port).

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- I. The Port: The contracting party initiating the Project, as set forth in the Contract, acting through its authorized representative(s) and in accordance with specific duties delegated to such representative.
- J. Project: The entire improvement proposed by the Port Authority to be constructed in whole or in part pursuant to the within Contract or Contracts
- K. Specifications: The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.
- L. Sub-Contractor: A person, firm or corporation, other than the Contractor, supplying labor and materials, or labor only, on Work at the site of the Project.
- M. Surety: The person, firm, or corporation that has executed as Surety the Contractor's Performance Bond securing the performance of the within contract. Also, the person, firm, or corporation that has executed as Surety the Contractor's Payment Bond which guarantees payment to all persons supplying labor and material utilized in the prosecution of the work included in the within Contract.
- N. Work: All materials, labor, supervision, use of tools and equipment necessary to complete the Project in full compliance with the terms of the Contract.

GENERAL PROVISIONS

- A. Bid Acceptance:
 - 1. The Port reserves the right to reject any and all contractors or proposals, to waive any informalities or irregularities in the proposals received, or to accept any proposal which is deemed most favorable to The Port.
- B. Maximum Subcontractor Markup
 - 1. The maximum total subcontractor markup on change orders shall not exceed 15%.
- C. Drug Free Workplace:
 - 1. Contractor agrees to maintain a drug-free workplace, prohibiting the unlawful manufacture, distribution, possession, or use of illegal drugs or alcohol either on its property or as a part of any activity by its employees, pursuant to federal, state, and local laws. Failure to comply with this provision may be grounds for termination. This provision applies without regard to time, place, or presence of The Port or its representatives.
- D. Preference for Ohio Contractors
 - 1. In accordance with Section 153.012, Ohio Revised Code, preference shall be given to contractors having their principal place of business in Ohio over contractors in states who provide a preference to resident contractors, except for a contract financed in whole or in part by contributions or loans from any agency of the United States government. Where a preference is provided by another state for contractors of that state, contractors having their principle place of business in Ohio are to be granted in Ohio the same preference over them in the same manner and on the same basis and to the same extent as the preference is granted in letting contacts for the same type of work by the other state.
- E. Product Origin Requirements
 - 1. Use Of American-Made Products

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- a. The Port may, in evaluating the bids, take into consideration the use of American made products from local vendors and manufacturers or Hamilton County vendors and manufacturers, or State of Ohio vendors and manufacturers, or vendors and manufacturers within the United States of America, when all other considerations are equal.
- 2. Steel Products
 - a. Steel products used in the construction of this Project shall be products made in the United States per Section 153.011 Ohio Revised Code.
- F. Anti-Kickback
 - 1. Contractor affirms and declares that it has not accepted or given any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind provided, directly or indirectly, from any person for the purpose of improperly obtaining or rewarding favorable treatment in connection with this Contract or in connection with a subcontract relating to this Contract.
- G. The Port's Tax-Exempt Status
 - 1. The Port and the Hamilton County Land Reutilization Corporation are both tax-exempt organizations. No sales tax shall be paid on purchased materials. The exemption from sales taxes shall be factored into each Contractor's bid.
 - 2. The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect. This does not include taxes that the Port and the HCLRC are exempt from.
- H. Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.
- I. No action or failure to act by the Owner or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

OWNER

- A. The Owner is the entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number.
- B. Owner's Right to Stop the Work: If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.
- C. Owner's Right to Carry Out the Work: If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. The Owner may withhold or nullify a Certificate for



Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

OWNER'S CONTRACT ADMINISTRATION

- A. The Owner will provide administration of the Contract as described in the Contract during construction until the date the Owner issues the final Certificate for Payment.
- B. The Owner will visit the site at intervals appropriate to the stage of construction to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Owner will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Owner will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.
- C. On the basis of the site visits, the Owner will be reasonably informed about the progress and quality of the portion of the Work completed.

CONTRACTOR

- A. The Contractor shall perform the Work in accordance with the Contract Documents.
- B. Supervision and Construction Procedures:
 - 1. The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner, and shall propose alternative means, methods, techniques, sequences, or procedures. The Owner shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Owner objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.
 - 2. The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.
 - 3. The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.



- C. Labor, Materials, And Utilities:
1. Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.
 2. Except in the case of minor changes in the Work approved or ordered by the Owner, the Contractor may make substitutions only with the consent of the Owner, after evaluation and in accordance with a Change Order or Construction Change Directive
 3. The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.
- D. Permits
1. Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.
- E. Concealed Or Unknown Conditions
1. If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner before conditions are disturbed and in no event later than 7 days after first observance of the conditions. The Owner will promptly investigate such conditions and, if the Owner determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Owner determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Owner shall promptly notify the Contractor, stating the reasons.
- F. Allowances
1. The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.
 2. Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order.
- G. Superintendent
1. The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The

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superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

H. Construction Schedule

1. The Contractor, promptly after being awarded the Contract, shall submit for the Owner's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.
2. The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner.

I. Use Of Site

1. The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.
2. The Contractor shall provide the Owner with access to the Work in preparation and progress wherever located.

J. Warranty

1. The Contractor warrants to the Owner that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage.
2. All materials, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the owner, or shall be transferable to the Owner.
3. Warranties shall begin from the date of substantial completion unless noted otherwise in the Contract Documents.

K. Notice Of Furnishing

1. Contractor shall promptly forward a copy of any Notice of Furnishing served upon it as required. At the time of entering into any contract with a subcontractor or materialman, Contractor shall provide each such subcontractor or materialman with written notice of its name and address and the name and address of The Port as set forth in the preceding sentence.
2. Contractor acknowledges and agrees that upon receipt of an affidavit of a claim ("Claim") as provided by Section 1311.26 of the Ohio Revised Code, The Port shall deposit the



amount of the Claim in an escrow account and hold such sum in escrow: (i) until The Port is ordered by the Hamilton County Common Pleas Court to release the escrowed amount in a certain fashion; (ii) until The Port is presented with written instructions signed by the Contractor and the claimant directing The Port to disburse the escrowed amount in a certain fashion; or (iii) until the passage of the statutory time for the claimant to commence suit on the Claim and the claimant has failed to do so.

3. The Port will serve the Contractor with a copy of any Claim served upon it. If, within twenty (20) days after receipt of The Port's notice that a Claim has been filed, the Contractor fails to serve The Port with written notice of its intention to dispute the Claim, the Contractor shall be deemed to have assented to the correctness of the Claim and The Port shall be authorized to pay the Claim from the escrowed funds as provided by law. The Port will retain in escrow funds to pay any disputed Claim in the amount and for the period of time prescribed by law.
4. Contractor covenants and agrees that in the event that The Port approves of a subcontract, Contractor shall specifically provide in the subcontract that the subcontractor shall comply with the provisions of Sections 1311.25 to 1311.32 of the Ohio Revised Code.

PAYMENT

- A. Schedule of Values
 1. The Contractor shall submit a schedule of values to the Owner as part of the bid submittal package. See Specification 002113 Instructions to Bidders.
 2. The Contractor shall submit a schedule of values to the Owner before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Owner. This schedule shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Owner and supported by such data to substantiate its accuracy as the Owner may require and shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.
- B. Retainage
 1. Retainage, in the amount of ten percent (10%), will be withheld from each Draw to a Contractor and shall be returned, less deductions for cost of completion, if any, incurred by The Port in accordance with the terms of the General Conditions.
 2. No interest shall be paid or shall accrue or accumulate on money withheld by The Port as retainage.
- C. Application for Payment
 1. At least seven days before the date established for each progress payment, the Contractor shall submit to the Owner an itemized Application for Payment prepared in accordance with the schedule of values for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner requires, such as copies of requisitions, and



releases and waivers of liens from Subcontractors and suppliers and shall reflect retainage.

2. The Owner will, within forty-five days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Owner determines is properly due, and notify the Contractor of the Owner's reasons for withholding certification in part as provided in these specifications; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the reason for withholding certification in whole as provided in these specifications.

D. Decisions Withhold Payment

1. The Owner may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Owner's opinion the representations to the Owner required by these specifications cannot be made. If the Owner is unable to certify payment in the amount of the Application, the Owner will notify the Contractor as provided in these specifications. If the Contractor and Owner cannot agree on a revised amount, the Owner will promptly issue a Certificate for Payment for the amount for which the Owner can substantiate. The Owner may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Owner's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in these specifications, because of:
 - a. defective Work not remedied;
 - b. third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
 - c. failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
 - d. reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
 - e. damage to the Owner or a Separate Contractor;
 - f. reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
 - g. repeated failure to carry out the Work in accordance with the Contract Documents.
2. When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

E. Progress Payments to Subcontractors

1. The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.



2. The Owner will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Owner on account of portions of the Work done by such Subcontractor.
 3. The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. The Owner shall not have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.
- F. Failure of Payment
1. If the Owner does not pay the Contractor within thirty days after the date established in the Contract Documents, then the Contractor may, upon seven additional days' notice to the Owner, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

SUBSTANTIAL AND FINAL COMPLETION

- A. Substantial Completion
1. When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Owner a comprehensive list ("punchlist") of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.
 2. Upon receipt of the Contractor's list, the Owner will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Owner's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Owner. In such case, the Contractor shall then submit a request for another inspection by the Owner to determine Substantial Completion.
 3. When the Work or designated portion thereof is substantially complete, the Owner will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.



4. The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.
- B. Partial Occupancy or Use
1. The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Owner as provided in these specifications. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor.
 2. Immediately prior to such partial occupancy or use, the Owner and Contractor shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.
- C. Final Completion and Final Payment
1. Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Owner will promptly make such inspection. When the Owner finds the Work acceptable under the Contract Documents and the Contract fully performed, the Owner will promptly issue a final Certificate for Payment stating that to the best of the Owner's knowledge, information and belief, and on the basis of the Owner's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable.
 2. Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Owner:
 - a. an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied,
 - b. a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect,
 - c. a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents,
 - d. consent of surety, if any, to final payment,



- e. documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and
- f. if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner.

If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

CHANGE ORDERS AND OTHER CHANGES IN THE WORK

- A. Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this document and elsewhere in the Contract Documents.
- B. Change Order shall be based upon agreement among the Owner and Contractor. A Construction Change Directive requires agreement by the Owner and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Owner alone.
- C. Change Orders
 - 1. A Change Order is a written instrument signed by the Owner and Contractor stating their agreement upon The change in the Work; the amount of the adjustment, if any, in the Contract Sum; and the extent of the adjustment, if any, in the Contract Time.
 - 2. In the event that a change order is agreed upon, The Contractor shall provide a written draft of the Change Order to the Owner.
- D. Construction Change Directives
 - 1. A Construction Change Directive is a written order signed by the Owner, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.
 - 2. A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order. If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:
 - a. Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
 - b. Unit prices stated in the Contract Documents or subsequently agreed upon;
 - c. Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
 - d. As provided in this specification.



3. If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Owner shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, the Contractor shall keep and present an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this section shall be limited to the following:
 - a. Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Owner;
 - b. Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
 - c. Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
 - d. Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
 - e. Costs of supervision and field office personnel directly attributable to the change.
 4. Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Owner of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.
 5. Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment.
- E. Minor Changes to The Work
1. The Owner may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Owner's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Owner and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Owner's order for a minor change without prior notice to the Owner that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

TIME

- A. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the work.
- B. The Contractor shall achieve Substantial Completion within the Contract Time.
- C. Delays

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1. If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with these specifications, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Owner determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Owner may determine.
2. Delays caused by weather or seasonal conditions or regulatory permitting should be anticipated and will be considered as the basis for an extension of time only when the actual workdays lost exceeds the number of workdays lost each month due to inclement weather as determined by the following schedule:

1)	January	5
2)	February	5
3)	March	5
4)	April	5
5)	May	4
6)	June	4
7)	July	4
8)	August	4
9)	September	4
10)	October	5
11)	November	5
12)	December	5

D. Liquidated Damages

1. If the Contractor fails to achieve Substantial Completion within the Contract Time, the Contractor shall be liable for the sum of \$500.00 per day as liquidated damages, and not as a penalty, for each calendar day beginning of the first day after the Contractor fails to achieve Substantial Completion within the Contract Time until the date that Substantial Completion is achieved. The Port shall have, at its sole discretion, the right to waive Liquidated Damages for justifiable cause.

INSURANCE AND BONDS

A. Indemnification

1. To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Owner's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorney's fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury or destruction of tangible property (other than the Work itself) but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described these specifications.



B. Contractor's Insurance and Certificates of Insurance

1. Contractor shall deliver to The Port certificates of insurance, together with complete duplicates of the insurance policies on which the certificates are based, fully executed by the officers of the insurance company for all insurance required to be carried by the Contractor under this insurance paragraph at least five (5) days business days prior to the scheduled commencement of the Contractor's Work.
2. The Port shall be named as additional insured on all policies of insurance specified.
3. Should the Work not be completed prior to any renewal of the required insurances, then at least ten (10) days prior to each anniversary of each policy required to be carried by the Contractor, the Contractor shall submit a new certificate to The Port.
4. The Contractor shall not allow any Subcontractor to commence Work on its subcontract until all similar insurance required of the Subcontractor has been so obtained and approved by The Port. All Subcontractors are required to submit certificates of insurance and copies of the insurance policies on which they are based at least five (5) business days prior to the commencement of any Work.
5. All required policies of insurance shall contain a provision stating that it shall not be cancelled, permitted to expire, or be changed without ninety (90) days advance notice to The Port, the contents of which notice shall be consented to by The Port. Certificates of insurance containing a cancellation clause including the phrases "will endeavor to" and "but failure to mail such notice shall impose no obligation or liability of any kind on this company, its agents, or representatives" (or phrases that have the same meaning) shall have these phrases deleted.
6. All policies of insurance required by this specification shall be underwritten by insurers having an A.M. Best's rating of not less than "A".
7. Where any insurance listed hereinafter requires that the policy of insurance name The Port as additional insured, the policy shall be endorsed to state that the insurance provided to The Port shall be primary insurance with respect to such additional insured, and any other insurance policy such additional insured may have shall be deemed to be excess and not contributory.
8. If the Contractor fails to procure and maintain such insurance as is required by this Section, The Port shall have the right, but not the obligation, to procure and maintain said insurance for and in the name of the Contractor and the Contractor will pay the cost and all associated expenses thereof and shall furnish all necessary information to make effective and maintain such insurance.
9. Contractor and its Subcontractors shall submit Worker's Compensation, Commercial General Liability and Business Auto Liability accident reports to their respective insurers immediately after any accident or occurrence and shall furnish a copy of each such report to The Port.

C. Worker's Compensation Insurance

1. Before any Work is commenced, the Contractor shall acquire and maintain, during the life of this Contract, Worker's Compensation Insurance, in the form required by law, for all of its employees employed at the Project and all employees elsewhere working on this Project. In case any Work is sublet, the Contractor shall require the Subcontractor similarly to provide Worker's Compensation Insurance, in the form required by law, for all of the latter's employees, unless such employees are covered by the protection afforded by the Contractor. In case any class of employees engaged in Work at the Project is not protected under the Workers' Compensation Statute, the Contractor shall provide for any

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such of its employees, and shall provide or cause such Subcontractor to provide Employer's Liability Insurance for the protection of its employees not protected.

D. Reimbursement

1. The Port requires reimbursement by the successful bidder for any expenses paid to The Port employees, by way of Worker's Compensation, when that injury has been caused by the negligence of the provider of services or goods required by this Contract.

E. General Liability Insurance

1. The Contractor shall acquire and maintain during the existence of this Contract, comprehensive general liability insurance, on a Commercial General Liability form and on an occurrence basis, providing, without limitation, such coverage as personal injury, bodily injury, contractual liability, broad form property damages, independent contractor, completed operations and products, coverages for premises/operations, Ohio Stop Gap Liability, underground explosions, collapse hazard, and public liability coverage as shall protect it, The Port and any Subcontractor during the performance of Work covered by this Contract from claims or damages for personal injury, including accidental death, as well as for claims for property damage, which may arise from activities under this Contract, whether such activities be by itself or by any Subcontractor, or by anyone directly or indirectly employed by either of them, or in such a manner as to impose liability on The Port. Such insurance shall name The Port as additional insured on a primary and non-contributing basis and shall hold harmless The Port against all suits and claims arising from or as a result of the activities of the Contractor or its Subcontractors.

a. The amount of **General Liability Coverage** shall be **Ten Million Dollars (\$10,000,000)** per person and per occurrence.

b. The completed operations insurance will be maintained in effect for a period of five (5) years from the date of final acceptance of the Project. The Contractor shall furnish The Port evidence satisfactory to The Port of continuance of such insurance during this five-year period. Valid certificates of insurance shall constitute satisfactory evidence.

2. If the General Liability policy the Contractor provided in compliance with these insurance requirements contains a general aggregate limitation, then the policy shall be endorsed to provide **Ten Million Dollars (\$10,000,000) specific aggregate** for the specific Work performed under this Contract.

F. The Port's, Contractors Protective Liability Insurance

1. Contractor shall obtain in the name of The Port an Owner's and Contractors Protective Liability (OCP) policy protecting The Port against liability arising out of activities performed by the Contractor and against any acts or omissions in connection with the general supervision of the Contractor by The Port. The OCP policy shall have attached a personal injury endorsement that modifies the policy's definition of bodily injury to include false arrest, detention or imprisonment. The OCP policy shall be obtained at the expense of the Contractor and its cost is not billable to The Port as a part of the Contract Price.



- G. Comprehensive Automobile Liability Insurance
1. The Contractor shall acquire and maintain during the life of this Contract, Comprehensive Automobile Liability Insurance, on an occurrence basis, providing, without limitation, such coverage as liability and non-owned and hired car coverage. Such insurance shall cover the use of all motor vehicles engaged in operating within the terms of this Contract both on and off of the site of the Work to be performed there under. Such insurance shall name The Port as additional insured and shall hold harmless The Port against all suits and claims arising from or as the result of the activities of the Contractor.
 - a. The amount of **Comprehensive Automobile Liability Insurance** coverage shall be **One Million Dollars (\$1,000,000)** combined single limit.
- H. Subcontractor's Insurance
1. The Contractor shall require Subcontractors, if any, not protected under the Contractor's insurance policy to acquire and maintain insurance of the same kind and in the same amounts as required to be carried by the Contractor for General Liability, Automobile liability and other insurances required to be carried by the Contractor. Notwithstanding the foregoing, in the interest of facilitating economic inclusion, Subcontractors may be eligible for commercially reasonable reduced insurance coverage limits subject to The Port approval, such approval will not be unreasonably withheld. Any deviation from insurance requirements must be approved in writing by The Port before commencement of any Work.
- I. Property Insurance
1. The Contractor shall acquire and maintain a property insurance policy that insures against "all risks of physical damage" protecting the Contractor and The Port up to the date on final acceptance of the completed Work under this Contract. If the property insurance policy is subject to a "cause of loss" form, that form shall be a "special causes of loss" form. At a minimum, the property insurance policy obtained by the Contractor shall include coverage for all perils and vandalism and malicious mischief
 2. In the event that the property insurance policy or any Builder's Risk insurance carried on this Project contains any deductible or self-insured retention applicable to any loss covered thereby, the risk of loss by reason of such deductible or self-insured retention shall be upon the Contractor, and in any event, Contractor's right to recover all or any part of any loss or damage attributed to Contractor's Work is limited to such recovery, therefore, as may be made by The Port or the Contractor under the applicable insurance.
- J. Waiver of Subrogation
1. The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; and (2) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance.
 2. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Separate Contractors,

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subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims shall not prohibit this waiver of subrogation.

3. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or entity had an insurable interest in the damaged property.

K. Insurance Covering Special Hazards

1. Professional Liability shall be acquired and maintained during the tenure of this contract if it is determined that a professional liability exposure will exist during the performance of this contract. This Professional Liability insurance will be on an occurrence basis. If it is issued on a claims-made basis, the policy shall contain an endorsement or a separate document continuing it for a period of time equal to the period of time required for completed operations in connection with the completed operations period indicated under general liability coverage.

a. The minimum Professional Liability Insurance amount shall be: **\$3,000,000**

2. Contractors Environmental Liability and Response Policy shall be acquired and maintained during the tenure of this contract if it is determined that an environmental hazard liability exposure will exist during the performance of this contract. This environmental response insurance will be on an occurrence basis. If it is issued on a claims-made basis, the policy shall contain an endorsement or a separate document continuing it for a period of time equal to the period of time required for completed operations in connection with the completed operations period indicated under general liability coverage.

a. The minimum **Contractors Environmental Liability and Response Policy insurance** amount shall be: **\$5,000,000**

3. Satisfactory evidence must be provided to The Port that the completed operations coverage shall be maintained for a period of 5 years after completion of this project.
4. No policy offered in compliance with these insurance standards shall contain an exclusion eliminating any pollution hazard including lead paint, lead, asbestos, or similar pollutants. No policy offered in compliance with these insurance standards shall contain a pollution exclusion based on underground and aboveground storage tanks removal, high voltage transformers removal, removal of contaminated soils or similar activities.
5. Successful Bidder and their proposed subcontractors shall at the request of The Port provide copies of their current insurance policies for review and acceptance.

L. Notice of Cancellation or Expiration of Contractor's Required Insurance

1. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract



Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

M. The Port's Insurance

1. The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.
2. Failure to Purchase Required Property Insurance.
 - a. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.
3. Notice of Cancellation or Expiration of Owner's Required Property Insurance.
 - a. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

**UNCOVERING AND CORRECTION OF WORK**

- A. Uncovering Work
 - 1. If a portion of the Work is covered contrary to the Owner's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Owner, be uncovered for the Owner's examination and be replaced at the Contractor's expense without change in the Contract Time.
 - 2. If a portion of the Work has been covered that the Owner has not specifically requested to examine prior to its being covered, the Owner may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.
- B. Correction of Work
 - 1. The Contractor shall promptly correct Work rejected by the Owner or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Owner's services and expenses made necessary thereby, shall be at the Contractor's expense.
- C. After Substantial Completion
 - 1. If, within one year after the date of Substantial Completion of the Work or designated portion thereof, or after the date for commencement of warranties, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition.
 - 2. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty.
 - 3. The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.
- D. Acceptance of Nonconforming Work
 - 1. If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

**TERMINATION OR SUSPENSION OF THE CONTRACT**

- A. Termination by the Contractor
 - 1. If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner, terminate the Contract
- B. Termination by the Owner for Cause:
 - 1. The Owner may terminate the Contract if the Contractor:
 - a. Repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
 - b. Fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
 - c. Repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
 - d. Otherwise is guilty of substantial breach of a provision of the Contract Documents.
- C. Suspension by the Owner for Convenience
 - 1. The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.
 - 2. The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 9. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent:
 - a. that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
 - b. that an equitable adjustment is made or denied under another provision of the Contract.
- D. Termination by the Owner for Convenience
 - 1. The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.
 - 2. Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall
 - a. Cease operations as directed by the Owner in the notice;
 - b. take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
 - c. except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.
 - 3. In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.



- E. Failure to Appropriate Funds
 - 1. The Port reserves the right to cancel this Contract if for any reason The Port Board of Directors, JobsOhio the City of Cincinnati, or other agency or organization providing funding to The Port or the HCLRC fail to appropriate funds necessary to make payment for items and/or services requested in this document.

DISPUTE RESOLUTION

- A. Claims shall be resolved in a competent court of record in Hamilton County, Ohio, or the United States District Court for the Southern District of Ohio, as appropriate.

SAFETY

- A. OSHA REQUIREMENTS
 - 1. Whether or not evident on the face of the bid document, each bidder's bid shall assume that any and all Work performed for The Port by contract must be performed in a manner which complies with all current and applicable federal and state Occupational Safety and Health Administration (OSHA) rules and regulations. Therefore, in bidding upon Work for The Port, the bidder is hereby specifically instructed to take into account and incorporate such cost into its bid as is necessary to comply with all federal and state OSHA rules and regulations, which are applicable to the Work sought by the Contract being bid. Further, in actually performing the Contract between The Port and the bidder, the bidder shall perform the Work in a manner, which complies with all current and applicable federal and state Occupational Safety and Health Administration (OSHA) rules and regulations.
 - 2. Before awarding the Contract, The Port reserves the right to inspect the safety programs and records of any Contractor or a Subcontractor that seeks to undertake Work by the Contract with The Port. During performance of the Contract The Port reserves the right to inspect the Work being performed for OSHA compliance and insist on compliance with applicable OSHA rule and regulations.
- B. SAFETY STANDARDS
 - 1. With respect to all work performed under this Contract, the Contractor shall:
 - a. Comply with the safety standards provisions of applicable laws, building and construction codes and the latest editions of the "Manual of Accident Prevention in Construction" published by the Associated General Contractors of American, the requirements of the Occupational Safety and Health Act, and the requirements of Title 29 of the Code of Federal Regulations, Section 1518 as published in the Federal Register.
 - b. Exercise every precaution at all times for the prevention of accidents and the protection of persons and property.
 - c. Maintain at his office or other well know location on the job site, all articles necessary for fiving first aid to the injured, and shall make standing arrangements for the immediate removal to a hospital or doctor's care of persons who may be injured on the job site before the Owner has made a standing arrangement for the removal of injured persons to a hospital or doctor's care.
- C. The Contractor shall not permit any part of the construction of site to be loaded so as to cause damage or create an unsafe condition.

**HAZARDOUS MATERIALS AND SUBSTANCES**

- A. The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner of the condition.
- B. Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor will promptly reply to the Owner in writing stating whether or the Contractor has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor has no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.
- C. To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in these specifications and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

ECONOMIC INCLUSION

- A. See The Port's Economic Inclusion Policy, included within these specifications.
- B. While there are no set-asides or preferences for suppliers, providers, or developers, The Port is committed to empowering Minority Business Enterprises (MBEs), Women's Business Enterprises (WBEs), and Small Business Enterprises (SBEs). To that end, The Port will be vigilant in monitoring, encouraging, and facilitating the satisfaction of its goals in relation to participation by MBEs, WBEs, and SBEs in all Port related work. The goals of The Port in this regard are specified in its Economic Inclusion Policy (attached). Contractor shall actively solicit MBEs, WBEs, and SBEs for the maximum practicable opportunity to participate in the performance of the Work as part of the Economic Inclusion Policy.
- C. The Contractor acknowledges and agrees that it is familiar with the policy of The Port pertaining to the inclusion of minority-owned, women-owned, and small business enterprises (the

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"Inclusion Policy"), a copy of which is included as an appendix. The Contractor acknowledges that it is familiar with The Port's commitment to the Inclusion Policy and the goals and procedures implemented by The Port to promote the Inclusion Policy. The Contractor's preliminary inclusion plan must be submitted with their bid for the bid to be considered complete.

- D. The Contractor agrees that it will provide a copy of the Inclusion Policy to each subcontractor with which it contracts in any capacity with respect to the construction of the Project.
- E. The Contractor further agrees that it will consult and cooperate with The Port and otherwise exercise reasonable best efforts with respect to, and that it will require each subcontractor with respect to the construction of the Project to consult and cooperate with The Port with respect to, The Port's procedures and promote the policy goals of the Inclusion Policy in connection with the construction of the Project.
- F. Upon execution and delivery of this Contract, monthly during the construction of the Project, upon completion of the construction of the Project, and at such other times as The Port reasonably requests, the Contractor shall provide The Port with evidence, reasonably satisfactory to The Port, with respect to its efforts and the efforts of its subcontractors to comply with the Inclusion Policy, including such data, reports (including the Inclusion Reporting Requirements set forth in Appendix 5 attached hereto), and analyses as The Port shall request.
- G. At such times as The Port requests, the Contractor shall be required to provide The Port with evidence, reasonably satisfactory to The Port, that there has been compliance with this Section. Upon completion of the Project, the Contractor shall provide a sworn affidavit of compliance.

END OF DOCUMENT 002200



1.0 BRIEF PROJECT DESCRIPTION

- A. Asbestos and hazardous materials abatement of the former West Fork Incinerator in advance of demolition activities.

1.1 SCOPE OF WORK

- A. Asbestos Abatement
 - 1. See specification 02 82 00 – Asbestos Abatement.
 - 2. Remove asbestos containing materials throughout the building as described.
 - 3. Asbestos containing materials includes, but may not be limited to, pipe insulation, drywall system, floor tile, tank insulation, transite wall panels, kiln gaskets, duct coating, corrugated wall panels, galbestos, metal conduit wrapping, window caulking, and roofing.
- B. Universal Waste Abatement
 - 1. See 02 84 00 – Universal Waste Specification.
 - 2. Remove batteries, used oil, PCBs, mercury lamps, and freon as described.
- C. Permitting
 - 1. Apply for all necessary permits, including but not limited to, permits with the City of Cincinnati and all required asbestos abatement permits with authorities having jurisdiction.
- D. Coordinate with Terracon.
 - 1. The Owner's Environmental Consultant, Terracon, will be performing environmental oversight and activities inside and outside the building.
 - 2. General Contractor shall coordinate sequencing and scheduling of their work to allow the Environmental Consultant to implement their work.
- E. Available Information:
 - 1. See Appendix showing the existing information about the building.

END OF DOCUMENT 002113



DOCUMENT 002513 - PREBID MEETINGS

1.1 PREBID MEETING

The Port will conduct a Prebid meeting as indicated below:

1. Meeting Date: Tuesday, June 10, 2025
2. Meeting Time: 9 A.M. EST
3. Location: Millcreek Road, Cincinnati, OH 45223

Attendance:

1. Prime Bidders: Attendance at Prebid meeting is mandatory.
2. Subcontractors: Attendance at Prebid meeting is recommended.
3. Notice: Bids will only be accepted from prime bidders represented on Prebid Meeting sign-in sheet.

Agenda: Prebid meeting agenda will include review of topics that may affect proper preparation and submittal of bids, including the following:

1. Procurement and Contracting Requirements:
 - a. Advertisement for Bids.
 - b. Instructions to Bidders.
 - c. Bonding.
 - d. Insurance.
 - e. Bid Security.
 - f. Bid Form and Attachments.
 - g. Bid Submittal Requirements.
 - h. Bid Submittal Checklist.
 - i. Notice of Award.
2. Communication during Bidding Period:
 - a. Obtaining documents.
 - b. Bidder's Requests for Information.
 - c. Bidder's Substitution Request/Prior Approval Request.
 - d. Addenda.
3. Contracting Requirements:
 - a. Agreement.
 - b. The General Conditions.
 - c. Other Owner requirements.
4. Construction Documents:
 - a. Scopes of Work.
 - b. Temporary Facilities.



- c. Use of Site.
 - d. Work Restrictions.
 - e. Alternates, Allowances, and Unit Prices.
 - f. Substitutions following award.
5. Separate Contracts:
- a. Work of Other Contracts.
6. Schedule:
- a. Project Schedule.
 - b. Contract Time.
 - c. Liquidated Damages.
 - d. Other Bidder Questions.
7. Site/facility visit or walkthrough.
8. Post-Meeting Addendum.

Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes to attendees. Minutes of meeting are issued as Available Information and do not constitute a modification to the Procurement and Contracting Documents. Modifications to the Procurement and Contracting Documents are issued by written Addendum only.

9. Sign-in Sheet: Minutes will include list of meeting attendees.
10. List of Planholders: Minutes will include list of Planholders.

1.2 EXAMINATION OF SITE AND SPECIFICATIONS

Bidders shall inform themselves of all the conditions under which the Work is to be performed concerning the site of the Work, the structures of the ground, the obstacles which may be encountered, whether shown on the plans or not, and all other relevant matters concerning the Work to be performed. The Contractor to whom a Contract is awarded will not be allowed any extra compensation by reason of any such matters or things concerning which the Contractor did not inform himself prior to bidding. The successful Contractor must employ, as far as possible, such methods and means in the carrying out of his Work as will not cause any interruption or interference with any other Contractors.

The Bidder is expected to base their bid on materials and equipment complying fully with the Contract Drawings and Specifications, and, in the event, they name or include in their bid materials or equipment which does not conform, they will, if awarded a



Contract, be responsible for furnishing materials and equipment which fully conform at no additional charge in their Contract price.

Bidders must satisfy themselves by personal examination of the locations of the proposed Work and by such other means as they may prefer as to the correctness of any quantities listed in the proposal and shall not, after submission of their proposal, dispute or complain of such estimate, or assert that there was any misunderstanding in regard to the nature or amount of Work to be done. For security and safety reasons, the bidder and or potential subcontractors are required to obtain from The Port, access to the Project site. Additional access may be obtained by coordinating specific times and dates for examination with The Port.

The bidder and or his potential subcontractors shall make whatever investigations they deem necessary to satisfy themselves of the full scope of the Work. This shall include, but not be limited to, test soil excavations/testing of in situ and stockpiled material, and if applicable, minor demolition for the purposes of exposing areas for examination that may or reasonably may be assumed as, requiring special demolition or remediation, such as asbestos. Minor demolition shall not adversely affect the structural or environmental stability of the Project site.

The Port assumes no responsibility for any conclusions drawn by the bidder and or their potential subcontractors, and consultants, as they may relate to existing markings and portals within the Project site.

Before submitting a proposal, each Contractor shall read the complete Contract Document, including but not limited to; Invitation, Instructions to Bidders, General Conditions, Special Conditions, the Form of Contract, and the Specifications, all of which contain provisions applicable not only to the successful bidder but also to any of their Subcontractors.

1.3 SITE OPEN FOR REVIEW BY GENERAL CONTRACTORS AND SUBCONTRACTORS

1. The Port shall make the site available for review and informal visits by contractors and subcontractors for a period of two days on June 16 & 17th, between 8 am – 4 pm.

2. At The Port's discretion, additional times may be available by request from a General Contractor.

END OF DOCUMENT 002513



DOCUMENT 003119 - EXISTING CONDITION INFORMATION

1.1 EXISTING CONDITION INFORMATION

- A. This Document with its referenced attachments is part of the Procurement and Contracting Requirements for the Project. They provide Owner's information for Bidders' convenience and are intended to supplement rather than serve in lieu of the Bidders' own investigations. They are made available for Bidders' convenience and information but are not a warranty of existing conditions.
- B. Existing drawings that include information on existing conditions including previous assessment work at the Project site are provided as Appendix 1.
- C. Related Requirements:
 - 1. Document 002113 "Instructions to Bidders" for the Bidder's responsibilities for examination of Project site and existing conditions.

END OF DOCUMENT 003119



DOCUMENT 003126 - EXISTING HAZARDOUS MATERIAL INFORMATION

This Document with its referenced attachments is part of the Procurement and Contracting Requirements for Project. They are not a warranty of existing conditions.

An Ohio EPA Voluntary Action Program (VAP) Phase I Property Assessment, prepared by Terracon, dated January 10, 2025 is available for **viewing as appended to this Document. (Appendix: 2)**

A Pre-OEPA VAP Phase II Property Assessment, prepared by Terracon, dated May 10, 2023 is available for **viewing as appended to this Document. (Appendix: 3)**

An Asbestos Inspection Report, prepared by Terracon, dated November 14, 2022, is available for viewing **and is included in 02 82 00 Asbestos Abatement Specification of this Document.**

An Observations for Hazardous Material Items Report, prepared by Terracon, dated November 14, 2022, is available for viewing **and is included in 02 84 00 Universal Waste Specification of this Document.**

Related Requirements:

1. Document 002113 "Instructions to Bidders" for the Bidder's responsibilities for examination of Project site and existing conditions.
2. Document 003119 "Existing Condition Information" for information about existing conditions that is made available to bidders.

END OF DOCUMENT 003126

WEST FORK INCINERATOR ABATEMENT



DOCUMENT 003143 - PERMIT APPLICATION

1.1 PERMIT APPLICATION INFORMATION

- A. Contractor shall pay for all permit costs, including but not limited to the permits acquired from Hamilton County, Ohio EPA, the City of Cincinnati, or others as applicable to the bid package. Additional permit costs may include, but are not limited to, utility fees such as GCWW, MSD, Duke Energy, etc.
- B. A Demolition Permit may be required to complete the Asbestos Abatement at West Fork Incinerator, Cincinnati, OH 45226. The winning bidder shall use the bid documents to apply for the relevant permits and complete the application and file with authorities having jurisdiction within 15 days of the date of execution of the Contract.
 - 1. Provide a copy of the approved permits to The Port.

END OF DOCUMENT 003143

WEST FORK INCINERATOR ABATEMENT



DOCUMENT 004113 - BID FORM - STIPULATED SUM (SINGLE-PRIME CONTRACT)

BID INFORMATION

- A. Bidder: _____.
- B. Project Name: West Fork Incinerator Abatement
- C. Project Location: Millcreek Road, Cincinnati, OH 45223
- D. Owner: Hamilton County Land Reutilization Corporation, a managed entity of The Port of Greater Cincinnati Development Authority
- E. Owner Project Number: 2601.01

CERTIFICATIONS, BID SCHEDULE, AND BASE BID

- A. Base Bid, Single-Prime (All Trades) Contract: The undersigned Bidder, having carefully examined the Procurement and Contracting Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment and services, including all scheduled allowances, necessary to complete the construction of the above-named project, according to the requirements of the Procurement and Contracting Documents, per the schedule below as detailed in Section 002113 – Instruction to Bidders.

Scope Item: Asbestos Abatement, Universal Waste Removal & Disposal

See also 002113 - Instruction To Bidders

See also A101 and A201 – Construction Agreement and General Conditions

See also Appendix 5 for Davis Bacon Prevailing Wage Requirements

See also specification 003143 – Permit Application

See also 003126 – Existing Hazardous Material Information

See also 028200 – Asbestos Abatement Specification

See also 028400 – Universal Waste Specification

_____ **Dollars (\$_____)**

BID GUARANTEE

- A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within 10 days after a written Notice of Award, if offered within 90 days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as

WEST FORK INCINERATOR ABATEMENT



liquidated damages for such failure, in the following amount constituting ten percent (10%) of the Base Bid amount above:

_____ **Dollars (\$_____).**

- B. In the event Owner does not offer Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

SUBCONTRACTORS AND SUPPLIERS

- A. The following companies shall execute subcontracts for the portions of the Work indicated:

Subcontractor 1

Name: _____.

Work: _____.

Subcontractor 2

Name: _____.

Work: _____.

ECONOMIC INCLUSION

- A. Complete the attached Port Economic Inclusion Subcontractor Utilization Plan and submit said form with your bid.

THE PORT'S TAX-EXEMPT STATUS

- A. The Port is a tax-exempt organization. No sales tax shall be paid on purchased materials. The exemption from sales taxes shall be factored into each Contractor's bid.

TIME OF COMPLETION

- A. The undersigned Bidder proposes and agrees hereby to commence the Work of the Contract Documents on a date specified in a written Notice to Proceed to be issued by Owner and shall fully complete the Work by December 31, 2025.

ACKNOWLEDGEMENT OF ADDENDA

- A. The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

Addendum No. 1, dated _____.

Addendum No. 2, dated _____.

Addendum No. 3, dated _____.



CONFIRMATION OF PERFORMANCE BOND AND INSURANCE

- A. Bidder confirms that if awarded the Project, the Payment and Performance Bond can be provided in the amount indicated_____ (initial).
- B. Bidder verifies that if awarded the Project, the Certificate of Insurance can be provided in the amount indicated_____ (initial).

BID SUPPLEMENTS

- A. The following supplements are a part of this Bid Form and are attached hereto.
 - Bid Form Supplement - Allowances**
 - Bid Form Supplement - Bid Bond Form**
 - Non-Collusion Affidavit**
 - Property Tax Declaration**
 - Economic Inclusion Form**

CONTRACTOR'S LICENSE

- A. The undersigned further states that it is a duly licensed contractor, for the type of work proposed, in the City of Cincinnati, State of Ohio, and that all fees, permits, etc., pursuant to submitting this proposal have been paid in full.

THE PORT'S RIGHT

- A. The Port reserves the right to reject any and all contractors or proposals, to waive any informalities or irregularities in the proposals received, or to accept any proposal which is deemed most favorable to The Port.

WEST FORK INCINERATOR ABATEMENT



SUBMISSION OF BID

- A. Respectfully submitted this ____ day of _____, 2025.
- B. Submitted By: _____ (Name of bidding firm or corporation).
- C. Authorized Signature: _____ (Handwritten signature).
- D. Signed By: _____ (Type or print name).
- E. Title: _____ (Owner/Partner/President/Vice President).
- F. Witnessed By: _____ (Handwritten signature).
- G. Attest: _____ (Handwritten signature).
- H. By: _____ (Type or print name).
- I. Title: _____ (Corporate Secretary or Assistant Secretary).
- J. Street Address: _____.
- K. City, State, Zip: _____.
- L. Phone: _____.
- M. License No.: _____.
- N. Federal ID No.: _____ (Affix Corporate Seal Here).

END OF DOCUMENT 004113

WEST FORK INCINERATOR ABATEMENT



KNOW ALL MEN BY THESE PRESENTS, that we, the bidder (hereafter identified as "principal"), and the undersigned surety, are hereby held and firmly bound unto the Port Authority (identified hereafter as "obligee") in the penal sum of the dollar amount of the bid submitted by the principal to the obligee to undertake the proposal to which this Bid Security Form is attached. The penal sum referred to herein shall be the dollar amount of the principal's bid to the obligee, incorporating any additive or deductive alternate proposals made by the principal to the obligee, which are accepted by the obligee.

For the payment of the penal sum well and truly to be made, principal and surety hereby jointly and severally bind themselves, their heirs, executors, administrators, successors and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH, that whereas the above-named principal has submitted a bid for the proposal to which this form is attached.

Now, therefore, if the obligee accepts the bid of the principal and the principal either fails or refuses to enter into a contract in accordance with the bid, plans, details, specifications and bills of material; then this undertaking shall be void if:

1. the principal pays to the obligee the difference (not to exceed ten percent of the penalty hereof) between the amount specified in the bid and such larger amount for which the obligee may in good faith contract with the next lowest bidder to perform the work covered by the bid; or,
2. in the event the obligee does not award the contract to the next lowest bidder and resubmits the project for bidding, the principal pays to the obligee the difference (not to exceed ten percent of the penalty hereof) between the amount specified in the bid, or the costs, in connection with the resubmission, of printing new contract documents, required advertising and printing and mailing notices to prospective bidders, whichever is less.

If the obligee accepts the bid of the principal and the principal within ten days after the awarding of the contract enters into an enforceable contract with obligee in accordance with the bid, plans, details, specifications and bills of material, which contract shall be a part of this bond the same as though set forth herein, then this obligation shall be null and void. Otherwise, the obligation shall remain in full force and effect.

Signed this _____ day of _____, _____.

SURETY:

Address: _____

Phone: _____

By: _____

Name of Attorney in Fact

PRINCIPAL:

Name: _____

Title: _____

Principal's Full Name

☐ Corporation ☐ Partnership ☐ Sole Proprietorship

For: _____
Name of Surety Company

*Note: Attorney in fact shall attach proof of authorization by Surety to execute bonds on behalf of the identified Surety. Failure to do so shall result in the Bond being considered incomplete.

WEST FORK INCINERATOR ABATEMENT



State of Ohio)

) SS:

County of Hamilton)

The undersigned being first duly sworn as provided by law, deposes and says:

1. Their Name is _____ residing at _____

_____ and their office is located at _____

_____.

2. They make this affidavit with the knowledge and intent that it is to be filed with the Port of Greater Cincinnati Development Authority, and that it will be relied upon by said Port Authority in any consideration, which it may give to, and any action, which it may take with respect to this proposal.

3. They make and are authorized to make this affidavit on behalf of:

_____ (Name of Corporation, Partnership, Individual, etc.),

a ☐ Corporation, ☐ Partnership, ☐ Sole Proprietorship, or ☐ Other: _____,

formed under the laws of the State of Ohio, of which they are ☐ Partner, ☐ President, or

☐ Other: _____
(please specify)

4. Neither the undersigned nor any other person, firm or corporation, named in above paragraph 3 nor anyone else to the knowledge of the undersigned, have themselves solicited or employed anyone else to solicit favorable action for this proposal by the Port Authority; also that no head of any department or employee therein, or any officer of the Port of Greater Cincinnati Development Authority is directly or indirectly interested therein.

5. This proposal is genuine and not collusive or a sham; the person, firm or corporation named above in paragraph 3 has not colluded, conspired, connived or agreed directly or indirectly with any bidder or person, firm or corporation to put in a sham proposal, or that such other person, firm or corporation shall refrain from bidding, and has not in any manner, directly or indirectly, sought by agreement or collusion, or communication or conference with any person, firm or corporation, to fix the unit prices of said proposal or proposals of any other bidder, or to secure any advantage against the Port of Greater Cincinnati Development Authority or any person, firm or corporation interested in the proposed contract; all statements contained in the proposal or proposals described above are true; and

WEST FORK INCINERATOR ABATEMENT



Further, neither the undersigned, nor the person, firm or corporation named above in paragraph 3, has directly or indirectly submitted said proposal or the contents thereof, or divulged information or data relative thereto, to any association, or to any member or agent thereof.

(Affiant)

Sworn to before me and subscribed in my presence this ____ day of _____, _____.

(Notarial Seal)

Notary Public

WEST FORK INCINERATOR ABATEMENT



Declaration of Personal Property Tax Delinquency

Per ORC §5719.042

State of Ohio, County of Hamilton,

I, _____ hereby affirm that _____
(Name) (Name of Firm)

Bidder, herein, IS ☐ IS NOT ☐ charged at the time of submitting this Bid with any delinquent
(check one)
personal property taxes on the general tax list of personal property of the County of Hamilton.

The amount of such due and unpaid delinquent tax and any due and unpaid penalties and interest is

\$_____.

Signature

Title

Date

Sworn to before me and subscribed in my presence this _____ day of _____,
_____.

(Notarial Seal)

Notary Public

THE PORT - ECONOMIC INCLUSION SUBCONTRACTOR UTILIZATION PLAN

Submit this document with the project bid

rev. 1/28/2021

Contractor Business Name:	_____	Project Name:	WEST FORK INCINERATOR ABATEMENT
Contractor Street Address:	_____	Project Number:	2601.01
Contractor City/State/Zip:	_____	Project Description:	Asbestos, Hazmat Abatement
Contractor Federal Tax ID #	_____		
Contractor Contact Person:	_____		
Contractor email/phone:	_____		
		Base bid value:	\$ -
		Alternates Value	\$ -
		Total Bid Value (TBV):	\$ -

A	B	C	D	E	F	G	H
No.	Subcontractor Name	Certification Agency	Subcontractor Address (street/city/zip)	Subcontractor phone	Description of work	Scheduled Value	% (G÷TBV)

MBEs

1						\$ -	0.0%
2						\$ -	0.0%
3						\$ -	0.0%
4						\$ -	0.0%
MBE subtotal						\$ -	0.0%

WBEs

5						\$ -	0.0%
6						\$ -	0.0%
7						\$ -	0.0%
8						\$ -	0.0%
WBE subtotal						\$ -	0.0%

SBEs

9						\$ -	0.0%
10						\$ -	0.0%
11						\$ -	0.0%
12						\$ -	0.0%
SBE subtotal						\$ -	0.0%

TOTAL \$ - 0.0%_____
Company Representative_____
Signature_____
Date

THE PORT - ECONOMIC INCLUSION TRACKING FORM

Submit this form with monthly pay application submittals

rev. 1/28/2021

Project Name: WEST FORK INCINERATOR ABATEMENT
 Project Number: 2601.01
 Contractor Name:
 Contact Person:
 Contact email/phone:

Reporting Period
 Payment Application No.
 Original Contract Value
 Total Change Orders:
 Current Contract Value

A	B	C	D	E	F	G	H	J	K	L
No.	Subcontractor Name	Sched. start date	Sched. end date	Description of work	Scheduled Value	Work Completed			% (F÷J)	Balance to Finish (F-J)
						From Previous Application	This Period	Total		

MBEs

1	<insert company name>				\$ -	\$ -	\$ -	\$ -	0.0%	\$ -
2					\$ -	\$ -	\$ -	\$ -	0.0%	\$ -
3					\$ -	\$ -	\$ -	\$ -	0.0%	\$ -
4					\$ -	\$ -	\$ -	\$ -	0.0%	\$ -
MBE subtotal					\$ -	\$ -	\$ -	\$ -	0.0%	\$ -

WBEs

5					\$ -	\$ -	\$ -	\$ -	0.0%	\$ -
6					\$ -	\$ -	\$ -	\$ -	0.0%	\$ -
7					\$ -	\$ -	\$ -	\$ -	0.0%	\$ -
8					\$ -	\$ -	\$ -	\$ -	0.0%	\$ -
WBE subtotal					\$ -	\$ -	\$ -	\$ -	0.0%	\$ -

SBEs

9					\$ -	\$ -	\$ -	\$ -	0.0%	\$ -
10					\$ -	\$ -	\$ -	\$ -	0.0%	\$ -
11					\$ -	\$ -	\$ -	\$ -	0.0%	\$ -
12					\$ -	\$ -	\$ -	\$ -	0.0%	\$ -
SBE subtotal					\$ -	\$ -	\$ -	\$ -	0.0%	\$ -

TOTALS \$ - \$ - \$ - \$ - 0% \$ -

Signature

Date



DOCUMENT 004313 - BID SECURITY FORMS

1.1 BID FORM SUPPLEMENT

- A. A completed bid bond form is required to be attached to the Bid Form.

1.2 BID BOND FORM

- A. All bonds shall be on the form required by O.R.C. 153.57 and O.R.C. 153.571.
- B. Copies of such bonds may be obtained from Ohio Laws and Administrative Rules Legislative Service Commission at <https://codes.ohio.gov/ohio-revised-code/section-153.57> and <https://codes.ohio.gov/ohio-revised-code/section-153.571>

END OF DOCUMENT 004313

WEST FORK INCINERATOR ABATEMENT



DOCUMENT 004321 - ALLOWANCE FORM

1.1 BID INFORMATION

- A. Bidder: _____.
- B. Project Name: West Fork Incinerator Abatement
- C. Project Location: Millcreek Road, Cincinnati, OH 45223
- D. Owner: Hamilton County Land Reutilization Corporation, a managed entity of The Port
- E. Owner Project Number: 2601.01

1.2 BID FORM SUPPLEMENT

- A. This form is required to be attached to the Bid Form.
- B. The undersigned Bidder certifies that Base Bid submission to which this Bid Supplement is attached includes the allowance described in the Contract Documents and scheduled in Section 012100 "Allowances."
 - 1. Allowance No. 1: Owner Directed Concealed/Unforeseen Abatement Allowance.
\$50,000

1.3 SUBMISSION OF BID SUPPLEMENT

- A. Respectfully submitted this ____ day of _____, 2025.
- B. Submitted By: _____ (Insert name of bidding firm or corporation).
- C. Authorized Signature: _____ (Handwritten signature).
- D. Signed By: _____ (Type or print name).
- E. Title: _____ (Owner/Partner/President/Vice President).

END OF DOCUMENT 004321

WEST FORK INCINERATOR ABATEMENT



DOCUMENT 004393 - BID SUBMITTAL CHECKLIST

1.1 BID INFORMATION

- A. Bidder: _____.
- B. Project Name: West Fork Incinerator Abatement
- C. Project Location: Millcreek Road, Cincinnati OH 45223
- D. Owner: Hamilton County Land Reutilization Corporation, a managed entity of The Port
- E. Owner Project Number: 2601.01

1.2 BIDDER'S CHECKLIST

- A. In an effort to assist the Bidder in properly completing all documentation required, the following checklist is provided for the Bidder's convenience. The Bidder is solely responsible for verifying compliance with bid submittal requirements.
- B. Use this checklist to ensure a complete submittal. Put an "X" next to each item to show completion.
 - 1. _____ Used the Bid Form provided in the Project Manual.
 - 2. _____ Prepared the Bid Form as required by the Instructions to Bidders.
 - 3. _____ Indicated on the Bid Form the Addenda received.
 - 4. _____ Acknowledge The Port's tax-exempt status per 001443-1.6.
 - 5. _____ Attached to the Bid Form: Bid Supplement Form - Allowances.
 - 6. _____ Attached to the Bid Form: The Port's Economic Inclusion Subcontractor Utilization Plan
 - 7. _____ Attached to the Bid Form: Bid Bond OR a certified check for the amount required.
 - 8. _____ Attached to the Bid Form: Non-Collusion Affidavit.
 - 9. _____ Attached to the Bid Form: Personal Property Tax Declaration.

END OF DOCUMENT 004393

WEST FORK INCINERATOR ABATEMENT



DOCUMENT 005100 - NOTICE OF INTENT TO AWARD

1.1 BID INFORMATION

- A. Bidder: _____
- B. Bidder's Address: _____
- C. Project Name: West Fork Incinerator Abatement
- D. Project Location: Millcreek Road, Cincinnati OH 45223
- E. Owner: Hamilton County Land Reutilization Corporation, a managed entity of The Port
- F. Owner Project Number: 2601.01

1.2 NOTICE OF INTENT TO AWARD CONTRACT

- A. Notice: The above Bidder is hereby notified that their bid, dated _____, for the above Contract has been considered and is the preferred bid by The Port.
- B. Contract Sum: The Contract Sum is (written) _____ dollars
(numeric) _____ dollars

1.3 EXECUTION OF CONTRACT

- A. Contract Documents: Copies of the Contract Documents will be made available to the Bidder immediately. The Bidder must comply with the following conditions precedent within 15 days of the above date of issuance of the Notice:
 - 1. Deliver to Owner one set of fully executed copies of the Contract Documents.
 - 2. Deliver with the executed Contract Documents Bonds and Certificates of Insurance required by the Contract Documents.
- B. Compliance: Failure to comply with conditions of this Notice within the time specified will entitle Owner to consider the Bidder in default, annul this Notice, and declare the Bidder's Bid security forfeited.
 - 1. Within ten days after the Bidder complies with the conditions of this Notice, Owner will return to the Bidder one fully executed copy of the Contract Documents.

WEST FORK INCINERATOR ABATEMENT



1.4 NOTIFICATION

A. This Notice is issued by:

1. The Port:_____.
2. Authorized Signature:_____ (Handwritten signature).
3. Signed By:_____ (Type or print name).
4. Title:_____

END OF DOCUMENT 005100



SECTION 006000 - PROJECT FORMS

1.1 FORM OF AGREEMENT AND GENERAL CONDITIONS

- A. The following form of Owner/Contractor Agreement and form of the General Conditions shall be used for Project:
 - 1. AIA Document A101-2017 "Standard Form of Agreement between Owner and Contractor Where the Basis of Payment is a Stipulated Sum."
 - 2. The General Conditions for Project are AIA Document A201-2017 "General Conditions of the Contract for Construction."

1.2 ADMINISTRATIVE FORMS

- A. Preconstruction Forms:
 - 1. Form of Performance Bond and Labor and Material Bond as required by O.R.C. 153.57 and O.R.C. 153.571.
 - 2. Form of Certificate of Insurance: AIA Document G715-2017 "Supplemental Attachment for ACORD Certificate of Insurance 25."
- B. Notice of Commencement:
 - 1. Per ORC Section 1311.252, The Port shall file a notice of commencement at the beginning of the Construction Project. The winning bidder shall post the Notice of Commencement at the job site in a place that's clearly visible for the duration of the project.
 - 2. The Notice of Commencement is included in these documents as specification 006001
- C. Information and Modification Forms:
 - 1. Form for Requests for Information (RFIs): AIA Document G716-2004 "Request for Information (RFI)" or equivalent.
 - 2. Change Order Form: AIA Document G701-2017 "Change Order" or equivalent.
- D. Payment Forms:
 - 1. Schedule of Values Form: AIA Document G703-1992 "Continuation Sheet."
 - 2. Payment Application: AIA Document G702-1992/703-1992 "Application and Certificate for Payment and Continuation Sheet" or equivalent.
 - 3. Form of Contractor's Affidavit: AIA Document G706-1994 "Contractor's Affidavit of Payment of Debts and Claims" or equivalent.

WEST FORK INCINERATOR ABATEMENT



4. Economic Inclusion: Port of Greater Cincinnati Development Authority Economic Inclusion Subcontractor Utilization Plan – Pay App Form, Section 004113.4
5. Davis-Bacon Weekly Payroll Reporting: Form WH-347 from the Department of Labor Wage and Hour Division.

END OF SECTION 006000

WEST FORK INCINERATOR ABATEMENT



SECTION 006001 – NOTICE OF COMMENCEMENT

PORT OF GREATER CINCINNATI DEVELOPMENT AUTHORITY
NOTICE OF COMMENCEMENT FOR PUBLIC PROJECT
Section 1311.252, Ohio Revised Code

STATE OF OHIO)
) SS:
COUNTY OF HAMILTON)

Notice is hereby given by The Port of Greater Cincinnati Development Authority ("The Port"), 3 East Fourth Street, Suite 200, Cincinnati OH 45202 of the commencement of a public improvement as follows:

1. The public improvement is identified as:

Project Name: West Fork Incinerator Abatement
Project Number: 2601.01
Location: Millcreek Road
 Cincinnati, OH 45223

2. The principal contractor on the public improvement and its trade and surety of are as follows:

Trade: Abatement
Date of Contract: TBD

Principal Contractor:	Surety:
NAME:	NAME
ADDRESS:	ADDRESS
ADDRESS	ADDRESS
ADDRESS	ADDRESS

3. The representative of The Port upon whom service may be made for the purposes of serving an affidavit pursuant to Section 1311.26 of the Ohio Revised Code is:

Laura N. Brunner
President/CEO
Port of Greater Cincinnati Development Authority
3 East Fourth Street, Suite 300
Cincinnati, OH 45202

WEST FORK INCINERATOR ABATEMENT



4. Further the undersigned representative of The Port says not.

Port of Greater Cincinnati Development Authority

By: _____
(signature)

Name: Laura N. Brunner
Title: President/CEO

STATE OF OHIO)
COUNTY OF HAMILTON) SS.

Sworn to before me and subscribed in my presence by _____, who acknowledged the execution of the foregoing on behalf of The Port of Greater Cincinnati Development Authority this _____ day of _____, 2025.

Notary Public

This instrument prepared by:
Calfee, Halter & Griswold LLP
Attn: Mara Cushwa
225 East 5th Street, Suite 2800
Cincinnati OH 45202-4728
(02963248.DOCX;2)
Re-drafted by Jen Lintz

WEST FORK INCINERATOR ABATEMENT



EXHIBIT "A"- LEGAL DESCRIPTION

PARCEL I

FOR INFORMATION: PARCEL NO. 192-0069-0016

15401 01447

**CITY OF CINCINNATI
DEPARTMENT OF TRANSPORTATION
AND ENGINEERING**

**Legal Description
April 2025**

Situate in Section 27, Town 3, Fractional Range 2, Millcreek Township, City of Cincinnati, Hamilton County, Ohio and being all of Lot 1 of Millcreek Incinerator Subdivision as recorded in Plat Book 506 Page 89 of the Hamilton County Recorder's Office. Containing 1.0503 acres of land more or less. Subject to all legal highways, easements and restrictions of record.

192-69-161



DESCRIPTION ACCEPTABLE
HAMILTON COUNTY ENGINEER
4/23/25 JL
Tax Map - _____
CAGIS - _____



SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Project information.
 - 2. Work covered by Contract Documents.
 - 3. Future work not part of this Bid Package.
 - 4. Contractor's use of site and premises.
 - 5. Work restrictions.
 - 6. Specification and Drawing conventions.

1.3 PROJECT INFORMATION

- A. Project Identification: West Fork Incinerator Abatement, 2601.01
 - 1. Project Location: Millcreek Road, Cincinnati OH 45223
- B. Owner: Hamilton County Land Reutilization Corporation, a managed entity of the Port of Greater Cincinnati Development Authority

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and includes, but is not limited to, the following:
 - 1. See specification 002113 for complete project and bid package scope.
 - 2. Other Work indicated in the Contract Documents

1.5 CONTRACTOR'S USE OF SITE AND PREMISES

- A. Unrestricted Use of Site: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work.
- B. Work After Regular Hours
 - 1. To the extent permitted by Davis-Bacon Act, the Contractor shall have an employee or employees who will be available and responsible for taking care of complaints and any necessary Work at night, on Saturdays, Sundays, and



Holidays while the job is under construction, so The Port will not incur any liability or expense during construction. The names of the employee or employees, their addresses and phone numbers shall be given to The Port.

1.6 WORK RESTRICTIONS

- A. Comply with restrictions on construction operations
 - 1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.
 - 2. Comply with RCRA and various other environmental and use limitations placed on the site by various agencies.
 - 3. Comply with the requirements (including but not limited to federal safety and Davis-Bacon Act requirements).

1.7 Specifications and Drawing Conventions

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
 - 3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
 - 4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.
- C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.



D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000



SECTION 012100 - ALLOWANCES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
- B. Types of allowances include the following:
 - 1. Contingency allowances.

1.2 DEFINITIONS

- A. Allowance: A quantity of work or dollar amount included in the Contract, established in lieu of additional requirements, used to defer selection of actual materials and equipment, and labor, to a later date when direction will be provided to Contractor.

1.3 INFORMATIONAL SUBMITTALS

- A. Submit invoices or delivery slips to show actual quantities of materials for use in fulfillment of each allowance.
- B. Submit time sheets and other documentation to show labor time and cost for implementation of allowance items.

1.4 LUMP-SUM ALLOWANCES

- A. Allowance shall include cost to Contractor of specific products, materials, and work ordered by Owner under allowance and shall include delivery to Project site.

1.5 ADJUSTMENT OF ALLOWANCES

- A. Allowance Adjustment: To adjust allowance amounts, contractor shall prepare an allowance draw request to describe the work to be funded through the allowance. Include information, such as labor costs and material costs, to substantiate the draw request.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.



3.2 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: Lump-Sum allowance of \$50,000 to address unforeseen conditions in the West Fork Incinerator structure, including, but not limited to, unaccounted asbestos, asbestos encountered after the removal of walls or ceilings, etc.

END OF SECTION 012100



SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.3 MINOR CHANGES IN THE WORK

- A. Owner will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710 or equal.

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Owner will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Owner are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request or 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity



duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

- e. Quotation Form: Use form acceptable to owner.

- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Owner.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Proposal Request Form: Use form acceptable to owner.

1.5 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Change Proposal Request, Owner will issue a Change Order for signatures of Owner and Contractor.

1.6 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Owner may issue a Construction Change Directive.
 1. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 2. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

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- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

- 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600



SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
 - 1. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Section 013100 "Project Management and Coordination" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the schedule of values to Owner at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
- C. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Owner's name.
 - c. Owner's Project number.
 - d. Contractor's name and address.
 - e. Date of submittal.



2. Arrange schedule of values consistent with format of AIA Document G703.
3. Arrange the schedule of values in tabular form, with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent. Round dollar amounts to whole dollars, with total equal to Contract Sum.
 - 1) Labor.
 - 2) Materials.
 - 3) Equipment.
4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of 5 percent of the Contract Sum.
5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site.
6. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
7. Temporary Facilities: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
8. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.4 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments, as certified by owner and paid for by Owner.



- B. Payment Application Times: Submit Application for Payment to owner by the 15th of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
 - 1. Submit draft copy ("pencil copy") of Application for Payment seven days prior to due date for review by Owner.
- C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 or equal as form for Applications for Payment.
 - 1. Other Application for Payment forms proposed by the Contractor may be acceptable to Owner. Submit forms for approval with initial submittal of schedule of values.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Owner will return incomplete applications without action.
 - 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 - 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 - 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 - 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
 - 1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment for stored materials.
 - 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 - 3. Provide summary documentation for stored materials indicating the following:
 - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
 - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
 - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.



- F. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Submittal schedule (preliminary if not final).
 5. List of Contractor's staff assignments.
 6. List of Contractor's principal consultants.
 7. Copies of building permits.
 8. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 9. Report of preconstruction conference.
 10. Weekly payrolls and all documentation as required by the Davis-Bacon Act.
- H. Application for Payment at Substantial Completion: After Certificate of Substantial Completion is issued, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 - a. Complete administrative actions, submittals, and Work preceding this application, as described in Section 017700 "Closeout Procedures."
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- I. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.

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2. Certification of completion of final punch list items.
3. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
4. Updated final statement, accounting for final changes to the Contract Sum.
5. AIA Document G706 or equal.

1.5 DAVIS-BACON PREVAILING WAGE

- A. Weekly Payroll Reports: Contractor shall prepare and submit weekly payroll reports on form WH-347 for each week in which any contract work is performed with a copy of all payrolls (including Subcontractor payrolls) to the Port, a Statement of Compliance, and all other documentation as required by the Davis-Bacon Act and the Cincinnati Ohio Port Authority RLF Agreement, dated September 3, 2020. Failure to submit weekly payroll reports may result in suspension of any further payment and may be grounds for debarment action pursuant to 29 CFR 5.12.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900



SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project, including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Information Submittals.
 - 3. RFIs.
 - 4. Digital project management procedures
 - 5. Project meetings.
- B. Related Requirements:
 - 1. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

- A. RFI: Request for Information. Request from Owner or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
 - 2. Number and title of related Specification Section(s) covered by subcontract.
- B. Key Personnel Names: Within seven days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses, cellular telephone numbers, and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.



1. Post copies of list in Project meeting room, in temporary field office, and in prominent location in each built facility. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
 1. Schedule construction operations in sequence required to obtain the best results, where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 1. Preparation of Contractor's construction schedule.
 2. Preparation of the schedule of values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Preinstallation conferences.
 7. Project closeout activities.
 8. Startup and adjustment of systems.

1.6 REQUEST FOR INFORMATION (RFI)

- A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 1. Owner will return without response those RFIs submitted by other entities controlled by Contractor.
 2. Coordinate and submit RFIs in a prompt manner to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
 1. Project name.
 2. Owner name.
 3. Owner's Project number.



4. Contractor's Project number.
 5. Developer Name.
 6. Date.
 7. Name of Contractor.
 8. RFI number, numbered sequentially.
 9. RFI subject.
 10. Specification Section number and title and related paragraphs, as appropriate.
 11. Drawing number and detail references, as appropriate.
 12. Field dimensions and conditions, as appropriate.
 13. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 14. Contractor's signature.
 15. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: AIA Document G716 or equal
1. Attachments shall be electronic files in PDF format.
- D. Owner's Action: Owner will review each RFI, determine action required, and respond. Allow three days for Owner's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Incomplete RFIs or inaccurately prepared RFIs.
 2. Owner's action may include a request for additional information, in which case time for response will date from time of receipt of additional information.
 3. Action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Owner in writing within five days of receipt of the RFI response.



- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log at project meetings.
 - 1. Project name.
 - 2. Name and address of Contractor.
 - 3. Name and address of Engineer or Consultant.
 - 4. RFI number, including RFIs that were returned without action or withdrawn.
 - 5. RFI description.
 - 6. Date the RFI was submitted.
 - 7. Date response was received.
 - 8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
 - 9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.
- F. On receipt of Owner's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Owner within three days if Contractor disagrees with response.

1.7 PROJECT MEETINGS

- A. General:
 - 1. Location: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
 - 2. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner of scheduled meeting dates and times a minimum of seven days prior to meeting.
 - 3. Agenda: General Contractor shall prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 4. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, and Architect or Engineer, within three days of the meeting.
- B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner, but no later than 15 days after execution of the Agreement.
 - 1. Attendees: Authorized representatives of Owner, Architect, Engineer, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Discuss items of significance that could affect progress, including the following:



- a. Responsibilities and personnel assignments.
 - b. Tentative construction schedule.
 - c. Phasing.
 - d. Coordination with Environmental consultants.
 - e. Critical work sequencing and long lead items.
 - f. Designation of key personnel and their duties.
 - g. Lines of communications.
 - h. Procedures for processing field decisions and Change Orders.
 - i. Procedures for RFIs.
 - j. Procedures for testing and inspecting.
 - k. Procedures for processing Applications for Payment.
 - l. Distribution of the Contract Documents.
 - m. Submittal procedures.
 - n. Preparation of Record Documents.
 - o. Use of the premises and existing building
 - p. Work restrictions.
 - q. Responsibility for temporary facilities and controls.
 - r. Procedures for disruptions and shutdowns.
 - s. Construction waste management and recycling.
 - t. Parking availability.
 - u. Office, work, and storage areas.
 - v. Equipment deliveries and priorities.
 - w. First aid.
 - x. Security.
 - y. Progress cleaning.
3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Progress Meetings: Conduct progress meetings at weekly intervals.
- 1. Coordinate dates of meetings with preparation of payment requests.
 - 2. Attendees: In addition to representatives of Owner and Architect/Engineer, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from



parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

- 1) Review schedule for next period.
- b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of sustainable design documentation
 - 4) Deliveries.
 - 5) Off-site fabrication
 - 6) Access.
 - 7) Site use.
 - 8) Temporary facilities and controls.
 - 9) Progress cleaning.
 - 10) Quality and work standards.
 - 11) Status of correction of deficient items.
 - 12) Field observations.
 - 13) Status of RFIs.
 - 14) Status of Proposal Requests.
 - 15) Pending changes.
 - 16) Status of Change Orders.
 - 17) Pending claims and disputes.
 - 18) Documentation of information for payment requests.
4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
 - a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting, where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100



SECTION 013233 - PHOTOGRAPHIC DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. General provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Purpose: Photographic documentation of the Millcreek Road, Cincinnati OH 45226 asbestos abatement and related demolition will be used for the purposes of project records and for marketing and communications efforts.
- B. Section includes administrative and procedural requirements for the following:
 - 1. Preconstruction photographs.
 - 2. Periodic construction photographs.
 - 3. Final Completion construction photographs.
- C. Related Requirements:
 - 1. Section 017700 "Closeout Procedures" for submitting photographic documentation as Project Record Documents at Project closeout.
 - 2. Section 024116 "Structure Demolition" for photographic documentation before building demolition operations commence.

1.3 INFORMATIONAL SUBMITTALS

- A. Digital Photographs: Submit image files within three days of taking photographs.
 - 1. Submit photos on thumb-drive or web based file sharing.
 - 2. Identification: Provide the following information with each image description:
 - a. Name of Project.
 - b. Name and contact information for photographer.
 - c. Name of Contractor.
 - d. Date photograph was taken.
 - e. Description of location, vantage point, and direction.
 - f. Unique sequential identifier keyed to accompanying key plan.

1.4 QUALITY ASSURANCE

- A. Photographer Qualifications: An individual who has been regularly engaged as a professional photographer of construction projects for not less than three years.



1.5 FORMATS AND MEDIA

- A. Digital Photographs: Provide color images in JPG format, produced by a digital camera with minimum sensor size of 12 megapixels, and at an image resolution of not less than 3200 by 2400 pixels. Use flash in low light levels or backlit conditions.
- B. Metadata: Record accurate date and time and GPS location data from camera.
- C. File Names: Name media files with project name, date, and sequential numbering suffix.

1.6 CONSTRUCTION PHOTOGRAPHS

- A. Photographer: Engage a photographer qualified to take construction photographs.
- B. General: Take photographs with maximum depth of field and in focus.
 - 1. Maintain key plan with each set of construction photographs that identifies each photographic location.
- C. Preconstruction Photographs: Before commencement of the Work, take photographs of Project site and surrounding properties, including existing items to remain during construction, from different vantage points.
 - 1. Take an adequate number of photographs to show existing conditions adjacent to property before starting the Work.
 - 2. Take an adequate number of photographs of existing buildings either on or adjoining property, to accurately record physical conditions at start of construction, abatement or demolition.
 - 3. Provide approximately 100 preconstruction photographs to The Port.
- D. Periodic Construction Photographs: Take a minimum of 20 photographs weekly. Select vantage points to show status of construction and progress since last photographs were taken. Provide photographs at construction meetings.
- E. Final Completion Construction Photographs: Take an adequate number of photographs after date of Substantial Completion for submission as Project Record Documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013233



SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.3 UTILITIES AND USE CHARGES

- A. Installation, removal, and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, testing agencies, and authorities having jurisdiction.
- B. The cost of all utilities required during the project shall be paid by the contractor. On the date of contract execution with the contractor, The Port shall transfer the utilities into the name of the contractor, including:
 - 1. Sewer Service. MSD
 - 2. Water Service. GCWW
 - 3. Electric Power Service. Duke
 - 4. Natural Gas service. Duke
 - 5. Internet/Data: Contractor to pay internet/data service use charges for internet/data used by all entities for construction
 - 6. Fire Sprinkler Monitoring: Contractor to pay fire sprinkler monitoring service for duration of project or until sprinkler system is no longer required.
 - 7. Burglar Alarm. Contractor to pay for burglar alarm service or discontinue at their discretion.



1.4 INFORMATIONAL SUBMITTALS

- A. Operational Plan. Provide operational plan as required by Excavation and Fill permit. Provide a copy of the plan to The Port
- B. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.
- C. Fire-Safety Program: Show compliance with requirements of NFPA 241 (Standard for Safeguarding Construction, Alteration, and Demolition Operations) and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire prevention program.

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.6 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Chain-Link Fencing: Minimum 2-inch, 0.148-inch-thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch-OD line posts and 2-7/8-inch-OD corner and pull posts.
- B. Portable Chain-Link Fencing: Minimum 2-inch, 0.148-inch-thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch-OD line posts and 2-7/8-inch-OD corner and pull posts, with 1-5/8-inch-OD top and bottom rails. Provide bases for supporting posts.



- C. Fencing Windscreen Privacy Screen: Polyester fabric scrim with grommets for attachment to chain-link fence, sized to height of fence, in color selected by Architect from manufacturer's standard colors.

2.2 TEMPORARY FACILITIES

- A. Field Offices: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Common-Use Field Office: Of sufficient size to accommodate needs of Owner, Project Designer, and construction personnel office activities and to accommodate Project meetings specified in other Division 01 Sections. Keep office clean and orderly. Furnish and equip offices as follows:
 - 1. Furniture required for Project-site documents, including file cabinets, plan tables, plan racks, and bookcases.
 - 2. Conference room of sufficient size to accommodate meetings of 8 individuals. Provide electrical power service and 120-V ac duplex receptacles, with no fewer than one receptacle on each wall. Furnish room with conference table, chairs, and 4-foot-square tack and marker boards.
 - 3. Drinking water and private toilet.
 - 4. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
 - 5. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.
- C. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. Store combustible materials apart from building.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.



PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

- A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

3.2 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
 - 1. Locate facilities to limit site disturbance as specified in Section 011000 "Summary."
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.3 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
- C. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- D. Sanitary Facilities: Provide temporary toilets, wash facilities, safety shower and eyewash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.



- E. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
- F. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- G. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install WiFi cell phone access equipment.
 - 1. Post a list of important telephone numbers.
 - a. Police and fire departments.
 - b. Ambulance service.
 - c. Contractor's home office.
 - d. Contractor's emergency after-hours telephone number.
 - e. Engineers' offices.
 - f. Owner's office.
 - g. Principal subcontractors' field and home offices.
- H. Electronic Communication Service: Provide secure WiFi wireless connection to internet with provisions for access by Owner and Owner's Representatives.

3.4 SUPPORT FACILITIES INSTALLATION

- A. Temporary Roads and Paved Areas: Construct and maintain temporary roads and paved areas adequate for construction operations. Locate temporary roads and paved areas as indicated on Drawings.
 - 1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain, including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- C. Parking: Provide temporary offsite or Use designated areas of Owner's existing parking areas for construction personnel, as directed by Owner.



- D. Storage and Staging: Use designated areas of Project site for storage and staging needs.
- E. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
 - 2. Remove snow and ice as required to minimize accumulations.
- F. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
 - 1. Identification Signs: Provide Project identification signs as indicated on Drawings.
 - 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
 - 3. Maintain and touch up signs, so they are legible at all times.
- G. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction.
- H. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
 - 1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- C. Temporary Erosion and Sedimentation Control: Comply with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.



1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant-protection zones.
 2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
 4. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.
1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.
- F. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.
- G. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- H. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition in accordance with requirements of authorities having jurisdiction.
 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.



4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign, stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 2. Remove temporary roads and paved areas not intended for or acceptable for integration into permanent construction. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 3. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000



SECTION 017300 - EXECUTION

1.1 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work, including, but not limited to, the following:
 - 1. Installation of the Work.
 - 2. Cutting and patching.
 - 3. Progress cleaning.
 - 4. Starting and adjusting.
 - 5. Protection of installed construction.

1.2 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.

1.3 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, or when encountering the need for cutting and patching of elements whose structural function is not known, notify The Port of locations and details of cutting and await directions from The Port before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
 - 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety
 - 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
 - a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Exterior curtain-wall construction.
 - d. Sprayed fire-resistive material.

WEST FORK INCINERATOR ABATEMENT



- e. Equipment supports.
- f. Piping, ductwork, vessels, and equipment.
- g. Noise- and vibration-control elements and systems.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical, electrical, gas, plumbing, and data systems, and other construction affecting the Work.

3.2 CUTTING AND PATCHING

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Temporary Support: Provide temporary support of Work to be cut.
- C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- D. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 3. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.

END OF SECTION 017300



SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Disposing of nonhazardous demolition and construction waste.

1.3 DEFINITIONS

- A. Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building, structure, and site improvement materials resulting from demolition operations.
- C. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction, or designated spoil areas on Owner's property.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition and construction waste become property of Contractor.
- B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items



of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.5 INFORMATIONAL SUBMITTALS

- A. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.6 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- B. Regulatory Requirements: Comply with transportation and disposal regulations of authorities having jurisdiction.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION

3.1 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Burning: Do not burn waste materials. C. Demolition Debris shall be removed by a City of Cincinnati franchised commercial waste collection service per Cincinnati Municipal Code Chapter 730. Current franchise holders include Rumpke of Ohio, Republic Services of Ohio, Best Way of Indiana, and Bavarian Trucking Company.

END OF SECTION 017419



SECTION 017700 – CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for Contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
- B. Related Requirements:
 - 1. Section 012900 "Payment Procedures" for requirements for Applications for Payment for Substantial Completion and Final Completion.
 - 2. Section 013233 "Photographic Documentation" for submitting Final Completion construction photographic documentation.
 - 3. Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

1.3 DEFINITIONS

- A. List of Incomplete Items: Contractor-prepared list of items to be completed or corrected, prepared for the Owner's use prior to Owner's inspection, to determine if the Work is substantially complete.

1.4 ACTION SUBMITTALS

- A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- B. Certified List of Incomplete Items: Final submittal at Final Completion.

1.5 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.



1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's "punch list"), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction as specified in respective sections.
 - 2. Submit closeout submittals specified in other Division 01 Sections, including Project Record Documents, damage or settlement surveys, property surveys, and similar final record information.
 - 3. Submit closeout submittals specified in individual Sections
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 15 days prior to requesting inspection for determining date of Substantial Completion.
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 3. Complete startup and testing of systems and equipment.
 - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 - 5. Advise Owner of changeover in utility services.
 - 6. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 - 7. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 8. Complete final cleaning requirements.
 - 9. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, The Port will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Owner, that must be completed or corrected before certificate will be issued.
 - 1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - 2. Results of completed inspection will form the basis of requirements for Final Completion.



1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:
 - 1. Submit a final Application for Payment in accordance with Section 012900 "Payment Procedures."
 - 2. Certified List of Incomplete Items: Submit certified copy of Owner's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Owner. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 - 3. Submit Final Completion photographic documentation.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, The Port will either proceed with inspection or notify Contractor of unfulfilled requirements. Owner will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
 - 1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Owner for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

END OF SECTION 017700



SECTION 017839 – PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.
- B. Related Requirements:
 - 1. Section 017700 "Closeout Procedures" for general closeout procedures.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set(s) of marked-up record prints.
 - 2. Number of Copies: Submit copies of Record Drawings as follows:
 - a. Initial Submittal:
 - 1) Submit PDF electronic files of scanned record prints and one set(s) of file prints.
 - 2) The Port will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.
 - b. Final Submittal:
 - 1) Submit PDF electronic files of scanned Record Prints.

1.4 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation, where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar



entity, to provide information for preparation of corresponding marked-up record prints.

- a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding photographic documentation.
2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Locations and depths of underground utilities.
 - d. Changes made by Change Order or Change Directive.
 - e. Changes made following Architect's written orders.
 - f. Details not on the original Contract Drawings.
 - g. Field records for variable and concealed conditions.
 - h. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 4. Mark important additional information that was either shown schematically or omitted from original Drawings.
 5. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 017839

Asbestos Abatement Specification



West Fork Incinerator

3200 Millcreek Road

Cincinnati, Ohio 45223

Terracon Project Number: N1227040



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SECTION 02 82 00
ASBESTOS ABATEMENT SPECIFICATION

PART 1 - GENERAL

1.1 SUMMARY OF THE WORK

1.1.1 CONTRACT DOCUMENTS AND RELATED REQUIREMENTS

Drawings, general provisions of the contract, including general and supplementary conditions and other specifications, shall apply to the work of this section. The contract documents show the work to be done under the contract and related requirements and conditions impacting the project. Related requirements and conditions include applicable codes and regulations, notices and permits, existing site conditions and restrictions on use of the site, requirements for partial Owner occupancy during the work, coordination with other work and the phasing of the work. In the event the Asbestos Abatement Contractor discovers a conflict in the contract documents and/or requirements or codes, the conflict must be brought to the immediate attention of the Owner for resolution. Whenever there is a conflict or overlap in the requirements, the most stringent shall apply. Any actions taken by the Contractor without obtaining guidance from the Owner shall become the sole risk and responsibility of the Asbestos Abatement Contractor. All costs incurred due to such action are also the responsibility of the Asbestos Abatement Contractor.

1.1.2 EXTENT OF WORK

The site is located at 3200 Millcreek Road in Cincinnati, Hamilton County, Ohio. The subject building is a former incinerator building located at 3200 Millcreek Road in Cincinnati, Ohio and consists of a three-story, approximately 25,000 square foot building constructed in 1948 with an attached approximately 2,000 square foot office space. The western portion of the building is a covered garage space, the eastern and southern portions of the building include the incinerator system and smokestacks, and the northern portion of the building is office space.

The goal is to address all asbestos-containing materials (ACM) located at the site prior to demolition of the structure. An asbestos inspection for the site building was conducted by Terracon Consultants, Inc. in September/October 2022, and various types of ACM were identified as a result of the inspection. A copy of the asbestos inspection report is included as Attachment #6 and the asbestos addendum inspection report as Attachment #7. Attachment #5 contains a list of identified ACM which shall be included in the asbestos abatement extent of work for this project; please note that contractors are solely responsible for their developing their own opinions regarding quantities of ACM (quantities of ACM listed in Attachment #5 are for general informational purposes only). All regulated asbestos-containing materials (RACM) including Category II Non-Friable ACM and any associated debris (asbestos-contaminated elements {ACE}) listed in Attachment #5 must be removed from the site building prior to demolition in accordance with all applicable federal, state, and local asbestos regulations as well as this specification. Regarding Category I Non-Friable ACM, per the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulation, Category I Non-Friable ACM must also be removed prior to demolition if, the material has become friable, or will be or has been subjected to sanding, grinding, cutting, or abrading. Recycling of concrete with ACM (e.g., Category I Non-Friable mastic attached) is strictly prohibited by the EPA. Additionally, per the Ohio

EPA, floor tile broken into pieces smaller than 4 square inches is considered RACM and would require removal prior to demolition. Any Category I Non-Friable ACM if left in place for demolition, must be placed in a construction and demolition debris landfill that is permitted to also accept Category I Non-Friable ACM. It shall be the responsibility the demolition contractor to address Category I Non-Friable ACM for federal, state, and local asbestos regulatory compliance. For any Category I Non-Friable ACM that the demolition contractor believes cannot remain non-friable for demolition, then the asbestos abatement contractor must appropriate removed first prior to demolition in accordance with all applicable federal, state, and local asbestos regulations as well as this specification. For any concrete that may have asbestos-containing tile or mastic attached, the concrete cannot be recycled or otherwise the tile and mastic would need to be first properly abated. Additionally, the demolition contractor must comply with OSHA asbestos regulations for any Category I Non-Friable ACM left in place for demolition, and this includes materials containing <1% asbestos.

All ACM waste must be properly removed, transported, and disposed from the site in accordance with applicable federal, state, and local laws and regulations. Please note that no electrical power or water is readily available for connection and use at the site. The asbestos abatement contractor will be responsible for providing and supplying sufficient temporary electrical power and sufficient water necessary to properly maintain operations to conduct asbestos abatement activities in accordance with all applicable federal, state, and local asbestos laws and regulations. The Contractor shall provide sanitary facilities for abatement personnel and maintain them in a clean and sanitary condition throughout the abatement project.

The contractor shall apply for and have all required permits/licenses and prior abatement notifications in place to perform asbestos abatement work as required by federal, state, and local regulations before start of site work.

Please note that the Owner reserves the right to retain the services of and provide a third-party consultant (i.e., Owner's Representative) on behalf of the Owner to make site observations, site monitoring, etc. related to abatement activities at the site.

1.1.3 TASKS

The work tasks are summarized briefly as follows:

- A. Pre-abatement activities including pre-abatement meeting(s), inspection(s), notifications, permits, submittal approvals, work-site preparations, emergency procedures arrangements, and standard operating procedures for asbestos abatement work.
- B. Abatement activities including removal, clean-up and disposal of ACM waste, recordkeeping, security, monitoring, and inspections.
- C. Cleaning and decontamination activities including final visual inspection, air monitoring and certification of decontamination.

1.1.4 ABATEMENT CONTRACTOR USE OF PREMISES

- A. The Abatement Contractor (Contractor) and Abatement Contractor's personnel shall cooperate fully with the Owner and the Owner's representative/consultant to facilitate efficient use of the site and buildings and areas within buildings. The Contractor shall perform the work in accordance with the specifications, drawings, phasing plan and in compliance with any/all applicable federal, state and local regulations and requirements.

- B. The Contractor shall use the existing site within the limits indicated in contract documents. Any variation from the arrangements in contract documents shall be secured in writing from the Owner through the pre-abatement plan of action.

1.2 QUANTITIES

The ACM quantities and location descriptions listed in Attachment #5 are for informational purposes only. The Abatement Contractor is solely responsible for determining their opinion of actual quantities of the ACMs listed in Attachment #5. However, if newly discovered suspect ACM (e.g. previously concealed) is discovered during the course of abatement and determined to be asbestos-containing as verified through sampling by the Owner's Representative (certified asbestos inspector) and analysis by a NVLAP-accredited laboratory, the Abatement Contractor will be requested by the Owner or Owner's Representative to provide a detailed cost break-down, including an expected duration in hours, for removal of newly discovered ACM.

1.3 STOP ASBESTOS REMOVAL

If the Owner; their field representative; (the Safety Officer/Manager or their designee, or the third-party consultant (Owner's Representative) presents a verbal Stop Asbestos Removal Order, the Contractor/Personnel shall immediately stop all asbestos removal and adequately wet any exposed ACM. If a verbal Stop Asbestos Removal Order is issued, the Owner shall follow-up with a written order to the Contractor as soon as practicable. The Contractor shall not resume any asbestos removal activity until authorized to do so in writing by the Owner. A stop asbestos removal order may be issued at any time the Owner or his/her Representative determines abatement conditions/activities are not within specification, regulatory requirements or that an imminent hazard exists to human health or the environment. Work stoppage will continue until conditions have been corrected to the satisfaction of the Owner and his/her Representative. Standby time and costs for corrective actions will be borne by the Contractor, including the third-party consultant (Owner's Representative) time. The occurrence of any of the following events shall be reported immediately by the Contractor's competent person to the Owner or Owner's Representative using the most expeditious means (e.g., verbal, email, or telephonic), followed up with written notification to the Owner as soon as it is practical. The Contractor shall immediately stop asbestos removal/disturbance activities and initiate fiber reduction activities:

- A. airborne PCM analysis results equal to or greater than 0.05 f/cc outside a regulated area;
- B. breach or break in any regulated area containment barrier(s);
- C. serious injury/death at the site;
- D. fire/safety emergency at the site;
- E. respiratory protection system failure;
- F. power failure or loss of wetting agent; or
- G. dry removal and/or any visible emissions observed outside the regulated area.

1.4 DEFINITIONS

1.4.1 GENERAL

Definitions and explanations here are neither complete nor exclusive of all terms used in the contract documents but are general for the work to the extent they are not stated more explicitly in another element of the contract documents. Drawings must be recognized as diagrammatic in nature and not completely descriptive of the requirements indicated therein.

1.4.2 GLOSSARY

- Abatement - Procedures to control fiber release from asbestos-containing materials. Includes removal, encapsulation, enclosure, demolition, and renovation activities related to asbestos containing materials (ACM).
- Aerosol - Solid or liquid particulate suspended in air.
- Adequately wet - Sufficiently mixed or penetrated with liquid to prevent the release of particulates. If visible emissions are observed coming from the ACM, then that material has not been adequately wetted.
- Aggressive method - Removal or disturbance of building material by sanding, abrading, grinding, or other method that breaks, crumbles, or disintegrates intact ACM.
- Aggressive sampling - EPA AHERA defined clearance sampling method using air moving equipment such as fans and leaf blowers to aggressively disturb and maintain in the air residual fibers after abatement.
- AHERA - Asbestos Hazard Emergency Response Act. Asbestos regulations for schools issued in 1987.
- Aircell - Pipe or duct insulation made of corrugated cardboard which contains asbestos.
- Air monitoring - The process of measuring the fiber content of a known volume of air collected over a specified period of time. The NIOSH 7400 Method, Issue 2 is used to determine the fiber levels in air. For personal samples and clearance air testing using Phase Contrast Microscopy (PCM) analysis. NIOSH Method 7402 can be used when it is necessary to confirm fibers counted by PCM as being asbestos. The AHERA TEM analysis may be used for background, area samples and clearance samples when required by this specification, or at the discretion of the Owner and/or Owner's Representative as appropriate.
- Air sample filter - The filter used to collect fibers which are then counted. The filter is made of mixed cellulose ester membrane for PCM (Phase Contrast Microscopy) and polycarbonate for TEM (Transmission Electron Microscopy)
- Amended water - Water to which a surfactant (wetting agent) has been added to increase the penetrating ability of the liquid.
- Asbestos - Includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated or altered. Asbestos also includes PACM, as defined below.
- Asbestos Hazard Abatement Plan (AHAP) - Asbestos work procedures required to be submitted by the contractor before work begins.
- Asbestos-containing material (ACM) - Any material containing more than one percent of asbestos.
- Asbestos-contaminated elements (ACE) – Non-asbestos-containing materials, components, and/surfaces that are contaminated with and/or mixed with friable asbestos-containing material (>1%) debris; smooth non-porous surfaces may be cleaned of visible contamination, however, non-cleanable materials surfaces/contaminated materials such as non-asbestos-containing ceiling tiles, cloth materials, soil, etc. must be treated as and disposed as if containing friable asbestos (>1%).
- Asbestos-contaminated soil (ACS) – Soil found in a work area or in adjacent areas such as crawlspaces or pipe tunnels which is contaminated with asbestos-containing material debris and cannot be easily separated from the material.

- Asbestos-containing waste (ACW) material - Asbestos-containing material or asbestos contaminated objects requiring disposal.
- Asbestos Project Monitor – Some states require that any person conducting asbestos abatement clearance inspections and clearance air sampling be licensed as an asbestos project monitor.
- Asbestos waste decontamination facility - A system consisting of drum/bag washing facilities and a temporary storage area for cleaned containers of asbestos waste. Used as the exit for waste and equipment leaving the regulated area. In an emergency, it may be used to evacuate personnel.
- Authorized person - Any person authorized by the Owner, the Contractor, or Owner's Representative and required by work duties to be present in regulated areas.
- Authorized visitor - Any person approved by the Owner; the contractor; or any government agency representative having jurisdiction over the regulated area (e.g., OSHA, Federal and State EPA).
- Barrier - Any surface that isolates the regulated area and inhibits fiber migration from the regulated area.
- Containment Barrier - An airtight barrier consisting of walls, floors, and/or ceilings of sealed plastic sheeting which surrounds and seals the outer perimeter of the regulated area.
- Critical Barrier - The barrier responsible for isolating the regulated area from adjacent spaces, typically constructed of plastic sheeting secured in place at openings such as doors, windows, or any other opening into the regulated area.
- Primary Barrier – Plastic barriers placed over critical barriers and exposed directly to abatement work.
- Secondary Barrier - Any additional plastic barriers used to isolate and provide protection from debris during abatement work.
- Breathing zone - The hemisphere forward of the shoulders with a radius of about 150 - 225 mm (6 - 9 inches) from the worker's nose.
- Bridging encapsulant - An encapsulant that forms a layer on the surface of the ACM.
- Building/facility Owner - The legal entity, including a lessee, which exercises control over management and recordkeeping functions relating to a building and/or facility in which asbestos activities take place.
- Bulk testing - The collection and analysis of suspect asbestos containing materials.
- Certified Industrial Hygienist (CIH) - A person certified in the comprehensive practice of industrial hygiene by the American Board of Industrial Hygiene.
- Class I asbestos work - Activities involving the removal of Thermal System Insulation (TSI) and surfacing ACM and Presumed Asbestos Containing Material (PACM).
- Class II asbestos work - Activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastic.
- Clean room/Changing room - An uncontaminated room having facilities for the storage of employee's street clothing and uncontaminated materials and equipment.
- Clearance sample - The final air sample taken after all asbestos work has been done and visually inspected. Performed by the Owner's Representative (professional industrial hygiene consultant).

- Closely resemble - The major workplace conditions which have contributed to the levels of historic asbestos exposure, are no more protective than conditions of the current workplace.
- Competent person - In addition to the definition in 29 CFR 1926.32(f), one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f); in addition, for Class I and II work who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR 763) for supervisor.
- Count - Refers to the fiber count or the average number of fibers greater than five microns in length with a length-to-width (aspect) ratio of at least 3 to 1, per cubic centimeter of air.
- Crawlspace – An area which can be found either in or adjacent to the work area. This area has limited access and egress and may contain asbestos materials and/or asbestos contaminated soil.
- Decontamination area/unit - An enclosed area adjacent to and connected to the regulated area and consisting of an equipment room, shower room, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.
- Demolition - The wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.
- Disposal bag - Typically 6 mil thick sift-proof, dustproof, leak-tight container used to package and transport asbestos waste from regulated areas to the approved landfill. Each bag/container must be labeled/marked in accordance with EPA, OSHA, and DOT requirements.
- Disturbance - Activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. Disturbance includes cutting away small amounts of ACM or PACM, no greater than the amount that can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or disposal bag which shall not exceed 60 inches in length or width.
- Drum - A rigid, impermeable container made of cardboard fiber, plastic, or metal which can be sealed in order to be sift-proof, dustproof, and leak-tight.
- Employee exposure - The exposure to airborne asbestos that would occur if the employee were not wearing respiratory protection equipment.
- Encapsulant - A material that surrounds or embeds asbestos fibers in an adhesive matrix and prevents the release of fibers.
- Encapsulation - Treating ACM with an encapsulant.
- Enclosure - The construction of an airtight, impermeable, permanent barrier around ACM to control the release of asbestos fibers from the material and also eliminate access to the material.
- Equipment room - A contaminated room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.
- Fiber - A particulate form of asbestos, 5 microns or longer, with a length to width (aspect) ratio of at least 3 to 1.
- Fibers per cubic centimeter (f/cc) - Abbreviation for fibers per cubic centimeter, used to describe the level of asbestos fibers in air.

- Filter - Media used in respirators, vacuums, or other machines to remove particulate from air.
- Firestopping - Material used to close the open parts of a structure in order to prevent a fire from spreading.
- Friable asbestos containing material - Any material containing more than one (1) percent or asbestos as determined using the method specified in appendix A, Subpart F, 40 CFR 763, section 1, Polarized Light Microscopy, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.
- Glovebag - Not more than a 60 x 60-inch impervious plastic bag-like enclosure affixed around an asbestos-containing material, with glove-like appendages through which materials and tools may be handled.
- High efficiency particulate air (HEPA) filter – An ASHRAE MERV 17 filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter.
- HEPA vacuum - Vacuum collection equipment equipped with a HEPA filter system capable of collecting and retaining asbestos fibers.
- Homogeneous area - An area of surfacing, thermal system insulation or miscellaneous ACM that is uniform in color, texture, and date of application.
- HVAC - Heating, Ventilating, and Air Conditioning
- Industrial hygienist (IH) - A professional qualified by education, training, and experience to anticipate, recognize, evaluate, and develop controls for occupational health hazards. Meets definition requirements of the American Industrial Hygiene Association (AIHA).
- Industrial hygienist technician (IH Technician; Owner's Representative) - A person working under the direction the Owner who has special training, experience, certifications and licenses required for the industrial hygiene work assigned. Some states require that an industrial hygienist technician conducting asbestos abatement clearance inspection and clearance air sampling be licensed as an asbestos project monitor.
- Intact - The ACM has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix.
- Lockdown - Applying encapsulant, after a final visual inspection, on all abated surfaces at the conclusion of ACM removal prior to removal of critical barriers.
- National Emission Standards for Hazardous Air Pollutants (NESHAP) - EPA's rule to control emissions of asbestos to the environment (40 CFR Part 61, Subpart M).
- Negative initial exposure assessment - A demonstration by the employer which complies with the criteria in 29 CFR 1926.1101 (f)(2)(iii), that employee exposure during an operation is expected to be consistently below the PEL's.
- Negative pressure - Air pressure which is lower than the surrounding area, created by exhausting air from a sealed regulated area through HEPA equipped filtration units. OSHA requires maintaining -0.02" water column gauge inside the negative pressure enclosure.
- Negative pressure respirator - A respirator in which the air pressure inside the facepiece is negative during inhalation relative to the air pressure outside the respirator facepiece.
- Non-friable ACM - Material that contains more than 1 percent asbestos but cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- Organic vapor cartridge - The type of cartridge used on air purifying respirators to remove organic vapor hazardous air contaminants.

- Outside air - The air outside buildings and structures, including, but not limited to, the air under a bridge or in an open ferry dock.
- Owner/operator - Any person who owns, leases, operates, controls, or supervises the facility being demolished or renovated or any person who owns, leases, operates, controls, or supervises the demolition or renovation operation, or both.
- Owner's representative – a third-party industrial hygiene consultant hired by the Owner to oversee abatement work for compliance with applicable federal and state asbestos regulations and this specification.
- Penetrating encapsulant - Encapsulant that is absorbed into the ACM matrix without leaving a surface layer.
- Personal protective equipment (PPE) – equipment designed to protect user from injury and/or specific job hazard. Such equipment may include protective clothing, hard hats, safety glasses, and respirators.
- Personal sampling/monitoring - Representative air samples obtained in the breathing zone for one or workers within the regulated area using a filter cassette and a calibrated air sampling pump to determine asbestos exposure.
- Permissible exposure limit (PEL) - The level of exposure OSHA allows for an 8 hour time weighted average. For asbestos fibers, the eight (8) hour time weighted average PEL is 0.1 fibers per cubic centimeter (0.1 f/cc) of air and the 30-minute Excursion Limit is 1.0 fibers per cubic centimeter (1 f/cc).
- Pipe tunnel – An area, typically located adjacent to mechanical spaces or boiler rooms in which the pipes servicing the heating system in the building are routed to allow the pipes to access heating elements. These areas may contain asbestos pipe insulation, asbestos fittings, or asbestos-contaminated soil.
- Polarized light microscopy (PLM) - Light microscopy using dispersion staining techniques and refractive indices to identify and quantify the type(s) of asbestos present in a bulk sample.
- Polyethylene sheeting - Strong plastic barrier material 4 to 6 mils thick, semi-transparent, flame retardant per NFPA 241.
- Positive/negative fit check - A method of verifying the seal of a facepiece respirator by temporarily occluding the filters and breathing in (inhaling) and then temporarily occluding the exhalation valve and breathing out (exhaling) while checking for inward or outward leakage of the respirator respectively.
- Presumed ACM (PACM) - Thermal system insulation, surfacing, and flooring material installed in buildings prior to 1981. If the building Owner has actual knowledge or should have known through the exercise of due diligence that other materials are ACM, they too must be treated as PACM. The designation of PACM may be rebutted pursuant to 29 CFR 1926.1101 (b).
- Professional IH - An IH who meets the definition requirements of AIHA; meets the definition requirements of OSHA as a "Competent Person" at 29 CFR 1926.1101 (b); has completed two specialized EPA approved courses on management and supervision of asbestos abatement projects; has formal training in respiratory protection and waste disposal; and has a minimum of four projects of similar complexity with this project of which at least three projects serving as the supervisory IH.
- Project designer - A person who has successfully completed the training requirements for an asbestos abatement project designer as required by 40 CFR 763 Appendix C, Part I; (B)(5).
- Assigned Protection factor - A value assigned by OSHA/NIOSH to indicate the expected protection provided by each respirator class, when the respirator is

properly selected and worn correctly. The number indicates the reduction of exposure level from outside to inside the respirator facepiece.

- Qualitative fit test (QLFT) - A fit test using a challenge material that can be sensed by the wearer if leakage in the respirator occurs.
- Quantitative fit test (QNFT) - A fit test using a challenge material which is quantified outside and inside the respirator thus allowing the determination of the actual fit factor.
- Regulated area - An area established by the employer to demarcate where Class I, II, III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work may accumulate; and a work area within which airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed the PEL.
- Regulated ACM (RACM) - Friable ACM; Category I non-friable ACM that has become friable; Category I non-friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading or; Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of the demolition or renovation operation.
- Removal - All operations where ACM, PACM and/or RACM is taken out or stripped from structures or substrates, including demolition operations.
- Renovation - Altering a facility or one or more facility components in any way, including the stripping or removal of asbestos from a facility component which does not involve demolition activity.
- Repair - Overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM or PACM attached to structures or substrates.
- Shower room - The portion of the PDF where personnel shower before leaving the regulated area.
- Supplied air respirator (SAR) - A respiratory protection system that supplies minimum Grade D respirable air per ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989.
- Surfacing ACM - A material containing more than 1 percent asbestos that is sprayed, troweled on or otherwise applied to surfaces for acoustical, fireproofing and other purposes.
- Surfactant - A chemical added to water to decrease water's surface tension thus making it more penetrating into ACM.
- Thermal system ACM - A material containing more than 1 percent asbestos applied to pipes, fittings, boilers, breeching, tanks, ducts, or other structural components to prevent heat loss or gain.
- Transmission electron microscopy (TEM) - A microscopy method that can identify and count asbestos fibers.
- Visible emissions - Any emissions, which are visually detectable without the aid of instruments, coming from ACM/PACM/RACM/ACS or ACM waste material.
- Waste/Equipment decontamination facility (W/EDF) - The area in which equipment is decontaminated before removal from the regulated area.
- Waste generator - Any Owner or operator whose act or process produces asbestos-containing waste material.
- Waste shipment record - The shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of asbestos-containing waste material.

- Wet cleaning - The process of thoroughly eliminating, by wet methods, any asbestos contamination from surfaces or objects.

1.4.3 REFERENCED STANDARDS ORGANIZATIONS

The following acronyms or abbreviations as referenced in contract/ specification documents are defined to mean the associated names. Names and addresses may be subject to change.

- A. AIHA American Industrial Hygiene Association
2700 Prosperity Avenue, Suite 250
Fairfax, VA 22031
703-849-8888
- B. ANSI American National Standards Institute
1430 Broadway
New York, NY 10018
212-354-3300
- C. ASTM American Society for Testing and Materials
1916 Race St.
Philadelphia, PA 19103
215-299-5400
- D. CFR Code of Federal Regulations
Government Printing Office
Washington, DC 20420
- E. CGA Compressed Gas Association
1235 Jefferson Davis Highway
Arlington, VA 22202
703-979-0900
- F. CS Commercial Standard of the National Institute of Standards and Technology (NIST)
U. S. Department of Commerce
Government Printing Office
Washington, DC 20420
- G. EPA Environmental Protection Agency
401 M St., SW
Washington, DC 20460
202-382-3949
- H. MIL-STD Military Standards/Standardization Division
Office of the Assistant Secretary of Defense
Washington, DC 20420
- I. NIST National Institute for Standards and Technology
U. S. Department of Commerce
Gaithersburg, MD 20234
301-921-1000
- J. NEC National Electrical Code (by NFPA)
- K. NEMA National Electrical Manufacturer's Association
2101 L Street, NW
Washington, DC 20037
- L. NFPA National Fire Protection Association
1 Batterymarch Park
P.O. Box 9101

Quincy, MA 02269-9101
800-344-3555

- M. NIOSH National Institutes for Occupational Safety and Health
4676 Columbia Parkway
Cincinnati, OH 45226
513-533-8236
- N. OSHA Occupational Safety and Health Administration
U.S. Department of Labor
Government Printing Office
Washington, DC 20402
- O. UL Underwriters Laboratory
333 Pfingsten Rd.
Northbrook, IL 60062
312-272-8800

1.5 APPLICABLE CODES AND REGULATIONS

1.5.1 GENERAL APPLICABILITY OF CODES, REGULATIONS, AND STANDARDS

- A. All work under shall be done in strict accordance with all applicable federal, state, and local regulations, standards and codes governing asbestos abatement, and any other trade work done in conjunction with the abatement. All applicable codes, regulations and standards are adopted into this specification and will have the same force and effect as this specification.
- B. The most recent edition of any relevant regulation, standard, document or code shall be in effect. Where conflict among the requirements or with these specifications exists, the most stringent requirement(s) shall be utilized.
- C. Copies of all standards, regulations, codes and other applicable documents, including this specification and those listed in Section 1.5 shall be available at the worksite.

1.5.2 CONTRACTOR RESPONSIBILITY

The Asbestos Abatement Contractor (Contractor) shall assume full responsibility and liability for compliance with all applicable Federal, State and Local regulations related to any and all aspects of the asbestos abatement project. The Contractor is responsible for providing and maintaining training, accreditations, medical exams, medical records, personal protective equipment (PPE) including respiratory protection including respirator fit testing, as required by applicable federal, state and local regulations. The Contractor shall hold the Owner and third-party consultant (Owner's Representative) harmless for any Contractor's failure to comply with any applicable work, packaging, transporting, disposal, safety, health, or environmental requirement on the part of himself, his employees, or his subcontractors. The Contractor will incur all costs of the third-party consultant (Owner's Representative), including all sampling/analytical costs to assure compliance with OSHA/EPA/State requirements related to failure to comply with the regulations applicable to the work.

1.5.3 FEDERAL REQUIREMENTS

Federal requirements which govern some aspect of asbestos abatement include, but are not limited to, the following regulations.

- A. Occupational Safety and Health Administration (OSHA)
 - 1. Title 29 CFR 1926.1101 - Construction Standard for Asbestos
 - 2. Title 29 CFR 1910.132 - Personal Protective Equipment

3. Title 29 CFR 1910.134 - Respiratory Protection
4. Title 29 CFR 1926 - Construction Industry Standards
5. Title 29 CFR 1910.20 - Access to Employee Exposure and Medical Records
6. Title 29 CFR 1910.1200 - Hazard Communication
7. Title 29 CFR 1910.151 - Medical and First Aid
8. Title 29 CFR 1910.1001 – Asbestos General Industry
9. Title 29 CFR 1910.145 - Accident Prevention Signs and Tags
- B. Environmental Protection Agency (EPA)
 1. 40 CFR 61 Subpart A and M (Revised Subpart B) - National Emission Standard for Hazardous Air Pollutants - Asbestos.
 2. 40 CFR 763.80 - Asbestos Hazard Emergency Response Act (AHERA)
 3. 40 CFR 763, Subpart G (Worker Protection)
 4. 40 CFR 763, Subpart E (Asbestos Regulations in Schools)
 5. 40 CFR 763, Subpart E, Appendix C (Asbestos Model Accreditation Plan)
- C. Department of Transportation (DOT)
 - Title 49 CFR 100 - 185 – Transportation

1.5.4 STATE REQUIREMENTS

State requirements that apply to the asbestos abatement work, disposal, clearance, etc., include, but are not limited to, the following:

1. The Ohio Administrative Code (OAC) 3745-20 contains regulations for controlling asbestos emissions from demolition and renovation projects. Ohio's regulations are consistent with U.S. EPA's National Emission Standards for Hazardous Air Pollutants (NESHAP) regarding asbestos. The regulations require that contractors do several things, such as provide a notification, conduct thorough inspections to determine the presence of asbestos, follow specific work practices, and ensure proper disposal of asbestos-containing material.
2. The Ohio EPA's asbestos program licenses and certifies companies and persons directly involved with the asbestos abatement industry. OAC 3745-22 contains regulations pertaining to contractors performing asbestos removal projects, project supervisors, project designers, workers removing asbestos, persons inspecting buildings for asbestos-containing materials and developing plans to manage asbestos found in a facility, persons conducting air sampling for asbestos and the companies that provide required asbestos training. The asbestos program ensures the safety and quality of asbestos services by requiring persons to take approved training that is specific to the asbestos related activities in which they will be involved and by inspecting/auditing the activities of the program participants.

At the project location, the Southwest Ohio Air Quality Agency (SOAQA) is responsible for enforcing the state asbestos regulations and federal EPA NESHAP asbestos regulations. Contact: SOAQA; 250 William Howard Taft Road, Cincinnati, OH 45219; Ms. Dawn Mays; (513) 946-7777.

1.5.5 LOCAL REQUIREMENTS

If local requirements are more stringent than federal or state standards, the local standards are to be followed.

1.5.6 STANDARDS

- A. Standards which govern asbestos abatement activities include, but are not limited to, the following:
 - 1. American National Standards Institute (ANSI) Z9.2-79 - Fundamentals Governing the Design and Operation of Local Exhaust Systems and ANSI Z88.2 - Practices for Respiratory Protection.
 - 2. Underwriters Laboratories (UL)586-90 - UL Standard for Safety of HEPA filter Units, 7th Edition.
- B. Standards which govern encapsulation work include, but are not limited to, the following:
 - 1. American Society for Testing and Materials (ASTM)
- C. Standards which govern the fire and safety concerns in abatement work include, but are not limited to, the following:
 - 1. National Fire Protection Association (NFPA) 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations.
 - 2. NFPA 701 - Standard Methods for Fire Tests for Flame Resistant Textiles and Film.
 - 3. NFPA 101 - Life Safety Code

1.5.7 EPA GUIDANCE DOCUMENTS

- A. EPA guidance documents which discuss asbestos abatement work activities are listed below. These documents are made part of this section by reference. EPA publications can be ordered from (800) 424-9065.
- B. Guidance for Controlling ACM in Buildings (Purple Book) EPA 560/5-85-024
- C. Asbestos Waste Management Guidance EPA 530-SW-85-007
- D. A Guide to Respiratory Protection for the Asbestos Abatement Industry EPA-560-OPTS-86-001
- E. Guide to Managing Asbestos in Place (Green Book) TS 799 20T July 1990

1.5.8 NOTICES

- A. State and Local agencies: Send written notification as required by state and local regulations including the local fire department prior to beginning any work on ACM.
- B. Copies of notifications shall be submitted to the Owner for the facility's records at the same time frame notification is given to EPA, State, and Local authorities.

1.5.9 PERMITS/LICENSES

- A. The contractor shall apply for and have all required permits and licenses to perform asbestos abatement work as required by federal, state, and local regulations prior to start of site work.

1.5.10 POSTING AND FILING OF REGULATIONS

- A. Maintain two (2) copies of applicable federal, state, and local regulations. Post one copy of each at the regulated area where workers will have daily access to the regulations and keep another copy in the Contractor's office.

1.5.11 OWNER RESPONSIBILITIES

Prior to commencement of work:

- A. For occupied sites/facilities, notify any occupants adjacent to regulated areas of project dates and requirements for relocation, if needed. Arrangements must be made prior to starting work for relocation of desks, files, equipment, and personal possessions to avoid

unauthorized access into the regulated area. Note: Notification of adjacent personnel is required by OSHA in 29 CFR 1926.1101 (k) to prevent unnecessary or unauthorized access to the regulated area.

- B. Submit to the Contractor results of any background air sampling, if any; including location of samples, person who collected the samples, equipment utilized, calibration data and method of analysis. During abatement, submit to the Contractor, results of bulk material analysis and air sampling data collected during the course of the abatement. This information shall not release the Contractor from any responsibility for OSHA compliance.

1.5.12 SITE SECURITY

- A. Regulated area access is to be restricted only to authorized, trained/accredited and protected personnel. These may include the Contractor's employees, employees of Subcontractors, Owner employees and representatives, State and local inspectors, and any other designated individuals. A list of authorized personnel shall be established prior to commencing the project and be posted at entry to the regulated work area.
- B. Entry into the regulated area by unauthorized individuals shall be reported immediately to the Competent Person by anyone observing the entry. The Competent person shall immediately notify the Owner.
- C. A logbook shall be maintained at the entry to the regulated work area. Anyone who enters the regulated area must record their name, affiliation, time in, and time out for each entry.
- D. The Contractor's Competent Person shall control site security during abatement operations in order to isolate work in progress and protect adjacent personnel.
- F. The Contractor will have the Owner's assistance in notifying adjacent personnel of the presence, location, and quantity of ACM in the regulated area and enforcement of restricted access by the Owner's employees.
- G. The regulated area shall be locked during non-working hours and secured by Owner or Competent Person.

1.5.13 EMERGENCY ACTION PLAN AND ARRANGEMENTS

- A. An Emergency Action Plan shall be developed by prior to commencing abatement activities and shall be agreed to by the Contractor and the Owner. The Plan shall meet the requirements of 29 CFR 1910.38 (a);(b).
- B. Emergency procedures shall be in written form and prominently posted in the clean room and equipment room of the decontamination unit. Everyone, prior to entering the regulated area, must read and sign these procedures to acknowledge understanding of the regulated area layout, location of emergency exits and emergency procedures.
- C. Emergency planning shall include written notification of police, fire, and emergency medical personnel of planned abatement activities; work schedule; layout of regulated area; and access to the regulated area, particularly barriers that may affect response capabilities.
- D. Emergency planning shall include consideration of fire, explosion, hazardous atmospheres, electrical hazards, slips/trips and falls, confined spaces, and heat stress illness. Written procedures for response to emergency situations shall be developed and employee training in procedures shall be provided.
- E. Employees shall be trained in regulated area/site evacuation procedures in the event of workplace emergencies.
 - 1. For non-life-threatening situations - employees injured or otherwise incapacitated shall decontaminate following normal procedures with assistance from fellow workers, if necessary, before exiting the regulated area to obtain proper medical treatment.

2. For life-threatening injury or illness, worker decontamination shall take least priority after measures to stabilize the injured worker, remove them from the regulated area, and secure proper medical treatment.
- F. Telephone numbers of any/all emergency response personnel shall be prominently posted at the entry to the regulated work area, along with the location of the nearest telephone.
- G. The Contractor shall provide verification of first aid/CPR training for personnel responsible for providing first aid/CPR. OSHA requires medical assistance within 3-4 minutes of a life-threatening injury/illness. Bloodborne Pathogen training shall also be verified for those personnel required to provide first aid/CPR.
- H. The Emergency Action Plan shall provide for a Contingency Plan in the event that an incident occurs that may require the modification of the standard operating procedures during abatement. Such incidents include, but are not limited to, fire; accident; power failure; negative pressure failure; and supplied air system failure. The Contractor shall detail procedures to be followed in the event of an incident assuring that asbestos abatement work is stopped and wetting is continued until correction of the problem.

1.5.14 PRE-CONSTRUCTION MEETING

Prior to commencing the work, the Contractor shall meet with the Owner and/or Owner's Representative to present and review, as appropriate, the items following this paragraph. The Contractor's Competent Person(s) who will be on-site shall participate in the pre-start meeting. The pre-start meeting is to discuss and determine procedures to be used during the project.

- A. Proof of Contractor licensing.
- B. Proof the Competent Person is trained and accredited and approved for working in this State. Verification of the experience of the Competent Person shall also be presented.
- C. A list of all workers who will participate in the project, including experience and verification of training and accreditation.
- D. A list of and verification of training for all personnel who have current first-aid/CPR training. A minimum of one person per shift must have adequate training.
- E. Current medical written opinions for all personnel working on-site meeting the requirements of 29 CFR 1926.1101(m).
- F. Current fit tests for all personnel wearing respirators on-site meeting the requirements of 29 CFR 1926.1101(h) and Appendix C.
- G. A copy of the Contractor's Asbestos Hazard Abatement Plan. In these procedures, the following information must be detailed, specific for this project.
 1. Regulated area preparation procedures;
 2. Notification requirements procedure of Contractor as required in 29 CFR 1926.1101(d);
 3. If required, decontamination area set-up/layout and decontamination procedures for employees;
 4. Abatement methods/procedures and equipment to be used; and
 5. Personal protective equipment to be used.
- H. At this meeting the Contractor shall provide all submittals as required.
- I. Procedures for handling, packaging, and disposal of asbestos waste.
- J. Emergency Action Plan and Contingency Plan Procedures.

1.6 PROJECT COORDINATION

The following are the minimum administrative and supervisory personnel necessary for coordination of the work.

1.6.1 PERSONNEL

- A. Administrative and supervisory personnel shall consist of a qualified Competent Person(s) as defined by OSHA in the Construction Standards and the Asbestos Construction Standard. These employees are the Contractor's representatives responsible for compliance with these specifications and all other applicable requirements.
- B. Non-supervisory personnel shall consist of an adequate number of qualified personnel to meet the schedule requirements of the project. Personnel shall meet required qualifications. Personnel utilized on-site shall be pre-approved by the Owner's Representative. A request for approval shall be submitted for any person to be employed during the project giving the person's name; social security number; qualifications; accreditation card with color picture; Certificate of Worker's Acknowledgment; and Affidavit of Medical Surveillance and Respiratory Protection and current Respirator Fit Test.
- C. Minimum qualifications for Contractor and assigned personnel are:
 - 1. The Contractor has conducted within the last three (3) years, three (3) projects of similar complexity and dollar value as this project; has not been cited and penalized for serious violations of federal (and state as applicable) EPA and OSHA asbestos regulations in the past three (3) years; has adequate liability/occurrence insurance for asbestos work as required by the state; is licensed in applicable states; has adequate and qualified personnel available to complete the work; has comprehensive standard operating procedures for asbestos work; and has adequate materials, equipment and supplies to perform the work.
 - 2. The Competent Person has three (3) years of abatement experience of which two (2) years were as the Competent Person on the project; meets the OSHA definition of a Competent Person; has been the Competent Person on two (2) projects of similar size and complexity as this project within the past three (3) years; has completed EPA AHERA/OSHA/State/Local training requirements/accreditation(s) and refreshers; and has all required OSHA documentation related to medical and respiratory protection.
 - 4. The Abatement Personnel shall have completed the EPA AHERA/OSHA abatement worker course; have training on the standard operating procedures of the Contractor; has applicable medical and respiratory protection documentation; and has certificate of training/current refresher and State accreditation/license.

All personnel shall be in compliance with OSHA construction safety training as applicable and submit certification.

1.7 RESPIRATORY PROTECTION

1.7.1 GENERAL - RESPIRATORY PROTECTION PROGRAM

The Contractor shall develop and implement a written Respiratory Protection Program (RPP) which is in compliance with the January 8, 1998 OSHA requirements found at 29 CFR 1926.1101 and 29 CFR 1910.Subpart I;134. ANSI Standard Z88.2-1992 provides excellent guidance for developing a respiratory protection program. All respirators used must be NIOSH approved for asbestos abatement activities. The written RPP shall, at a minimum, contain the basic requirements found at 29 CFR 1910.134 (c)(1)(i - ix) - Respiratory Protection Program.

1.7.2 RESPIRATORY PROTECTION PROGRAM COORDINATOR

The Respiratory Protection Program Coordinator (RPPC) must be identified and shall have three (3) years of experience coordinating RPP of similar size and complexity. The RPPC must submit a signed statement attesting to the fact that the program meets the above requirements.

1.7.3 SELECTION AND USE OF RESPIRATORS

The procedure for the selection and use of respirators must be submitted to the Owner as part of the Contractor's qualifications. The procedure must be written clearly enough for workers to understand. A copy of the Respiratory Protection Program must be available at the entry to the regulated work area for reference by employees or authorized visitors.

1.7.4 MINIMUM RESPIRATORY PROTECTION

Minimum respiratory protection shall be a half face, HEPA filtered, air purifying respirator when fiber levels are maintained consistently at or below 0.1 f/cc. A higher level of respiratory protection may be provided or required, depending on fiber levels. Respirator selection shall meet the requirements of 29 CFR 1926.1101 (h); Table 1, except as indicated in this paragraph. Abatement personnel must have a respirator for their exclusive use.

1.7.5 MEDICAL WRITTEN OPINION

No employee shall be allowed to wear a respirator unless a physician or other licensed health care professional has provided a written determination that they are medically qualified to wear the class of respirator to be used on the project while wearing whole body impermeable garments and subjected to heat or cold stress

1.7.6 RESPIRATOR FIT TEST

All personnel wearing respirators shall have a current quantitative fit test which was conducted in accordance with 29 CFR 1910.134 (f) and Appendix A. Fit tests shall be done for PAPRs which have been put into a failure mode.

1.7.7 RESPIRATOR FIT CHECK

The Competent Person shall assure that the positive/negative pressure user seal check is done each time the respirator is donned by an employee. Head coverings must cover respirator head straps. Any situation that prevents an effective facepiece to face seal as evidenced by failure of a user seal check shall preclude that person from wearing a respirator inside the regulated area until resolution of the problem.

1.7.8 MAINTENANCE AND CARE OF RESPIRATORS

The Respiratory Protection Program Coordinator shall submit evidence and documentation showing compliance with 29 CFR 1910.134 (h) Maintenance and care of respirators.

1.8 WORKER PROTECTION

1.8.1 TRAINING OF ABATEMENT PERSONNEL

Prior to beginning any abatement activity, all personnel shall be trained in accordance with OSHA 29 CFR 1926.1101 (k)(9) and any additional State/Local requirements. Training must include, at a minimum, the elements listed at 29 CFR 1926.1101 (k)(9)(viii). Training shall have been conducted by a third party, EPA/State approved trainer meeting the requirements of EPA 40 CFR 763 Appendix C (AHERA MAP). Initial training certificates and current refresher and accreditation proof must be submitted for each person working at the site.

1.8.2 MEDICAL EXAMINATIONS

Medical examinations meeting the requirements of 29 CFR 1926.1101 (m) shall be provided for all personnel working in the regulated area, regardless of exposure levels. A current physician's written opinion as required by 29 CFR 1926.1101 (m)(4) shall be provided for each person and shall include in the medical opinion the person has been evaluated for working in a heat and cold stress environment while wearing personal protective equipment (PPE) and is able to perform the work without risk of material health impairment.

1.8.3 PERSONAL PROTECTIVE EQUIPMENT

Provide whole body clothing, head coverings, foot coverings and any other personal protective equipment as determined by conducting the hazard assessment required by OSHA at 29 CFR 1910.132 (d). The Competent Person shall ensure the integrity of personal protective equipment worn for the duration of the project. Duct tape shall be used to secure all suit sleeves to wrists and to secure foot coverings at the ankle. Worker protection shall meet the most stringent requirements.

1.8.4 REGULATED AREA ENTRY PROCEDURE

The Competent Person shall ensure that each time workers enter the regulated area, they remove ALL street clothes in the designated decontamination area (per OSHA requirements) and put on new disposable coveralls, head coverings, and a clean respirator.

1.8.5 DECONTAMINATION PROCEDURE

The Competent Person shall require all personnel to adhere to following decontamination procedures whenever they leave the regulated area.

- A. When exiting the regulated area, remove all disposable PPE and dispose of in a disposal bag provided in the regulated area.
- B. Carefully decontaminate and clean the respirator. Put in a clean container/bag.
- C. Where containment is not required for ACM removal, an adequate decontamination/changing/washing station which meets OSHA requirements must be provided for the employees for removal of disposable PPE and to clean the respirator.

1.8.6 REGULATED AREA REQUIREMENTS

The Competent Person shall meet all requirements of 29 CFR 1926.1101 (o) and assure that all OSHA requirements for regulated areas at 29 CFR 1926.1101 are met. All

personnel in the regulated area shall not be allowed to eat, drink, smoke, chew tobacco or gum, apply cosmetics, or in any way interfere with the fit of their respirator.

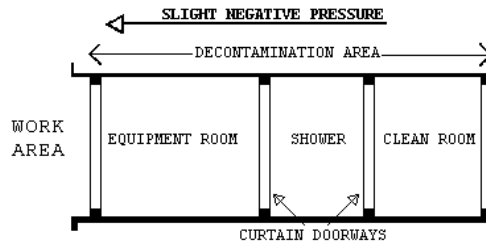
1.9 DECONTAMINATION FACILITIES

1.9.1 DESCRIPTION:

- A. Description: Provide each regulated area with separate personnel decontamination facilities (PDF) and waste/equipment decontamination facilities (W/EDF). Ensure that the PDF are the only means of ingress and egress to the regulated area and that all equipment, bagged waste, and other material exit the regulated area only through the W/EDF.
- B. General Requirements: All personnel entering or exiting a regulated area must go through the PDF and shall follow the requirements at 29 CFR 1926.1101 (j)(1) and these specifications. All waste, equipment and contaminated materials must exit the regulated area through the W/EDF and be decontaminated in accordance with these specifications. Walls and ceilings of the PDF and W/EDF must be constructed of a minimum of 3 layers of 6-mil opaque fire-retardant polyethylene sheeting and be securely attached to existing building components and/or an adequate temporary framework. A minimum of 3 layers of 6-mil poly shall also be used to cover the floor under the PDF and W/EDF units. Construct doors so that they overlap and secure to adjacent surfaces. Weight inner doorway sheets with layers of duct tape or approved equivalent so that they close quickly after release. Put arrows on sheets so they show direction of travel and overlap. If the building adjacent area is occupied, construct a solid barrier on the occupied side(s) to protect the sheeting and reduce potential for non-authorized personnel entering the regulated area.
- C. Temporary Facilities to the PDF and W/EDF: The Competent Person shall provide temporary water service connections to the PDF and W/EDF. Backflow prevention must be provided at the point of connection to the VA system. Water supply must be of adequate pressure and meet requirements of 29 CFR 1910.141(d)(3). Provide adequate temporary overhead electric power with ground fault circuit interruption (GFCI) protection. Provide a sub-panel equipped with GFCI protection for all temporary power in the clean room. Provide adequate lighting to provide a minimum of 50-foot candles in the PDF and W/EDF. Provide temporary heat, if needed, to maintain 70 degrees F throughout the PDF and W/EDF.
- D. Personnel Decontamination Facility (PDF): The Competent Person shall provide a PDF consisting of shower room which is contiguous to a clean room and equipment room which is connected to the regulated area. The PDF must be sized to accommodate the number of personnel scheduled for the project. The shower room, located in the center of the PDF, shall be fitted with as many portable showers as necessary to insure all employees can complete the entire decontamination procedure within 15 minutes. The PDF shall be constructed of opaque poly for privacy. The PDF shall be constructed to eliminate any parallel routes of egress without showering.
 - 1. Clean Room: The clean room must be physically and visually separated from the rest of the building to protect the privacy of personnel changing clothes. The clean room shall be constructed of at least 3 layers of 6-mil opaque fire-retardant poly to provide an air tight room. Provide a minimum of 2 - 900 mm (3 foot) wide 6-mil poly opaque fire-retardant doorways. One doorway shall be the entry from outside the PDF and the second doorway shall be to the shower room of the PDF. The floor of the clean room shall be maintained in a clean, dry and sanitary condition. Shower overflow shall not be allowed into the clean room. Provide 1 storage locker per person. A portable fire extinguisher, minimum 10 pounds capacity, Type ABC, shall be provided in

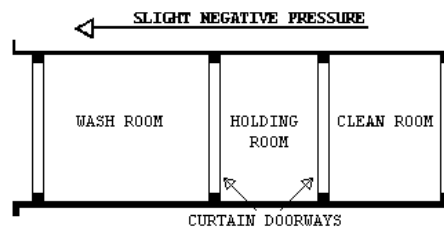
accordance with OSHA and NFPA Standard 10. All persons entering the regulated area shall remove all street clothing in the clean room and dress in disposable protective clothing and respiratory protection. Any person entering the clean room does so either from the outside with street clothing on or is coming from the shower room completely naked and thoroughly washed. Male/Females required to enter the regulated area shall be ensured of their privacy throughout the entry/exit process by posting guards at both entry points to the PDF so no male/female can enter or exit the PDF during his/her stay in the PDF.

2. Shower Room: The Competent Person shall assure that the shower room is a completely watertight compartment to be used for the movement of all personnel from the clean room to the equipment room and for the showering of all personnel going from the equipment room to the clean room. Each shower shall be constructed so water runs down the walls of the shower and into a drip pan. Install a freely draining smooth floor on top of the shower pan. The shower room shall be separated from the rest of the building and from the clean room and equipment room using airtight walls made from at least 3 layers of 6-mil opaque fire retardant poly. The shower shall be equipped with a shower head and controls, hot and cold water, drainage, soap dish and continuous supply of soap, and shall be maintained in a sanitary condition throughout its use. The controls shall be arranged so an individual can shower without assistance. Provide a flexible hose shower head, hose bibs and all other items shown on Shower Schematic. Wastewater will be pumped to a drain after being filtered through a minimum of a 100-micron sock in the shower drain; a 20-micron filter; and a final 5 micron filter. Filters will be changed a minimum of daily or more often as needed. Filter changes must be done in the shower to prevent loss of contaminated water. Hose down all shower surfaces after each shift and clean any debris from the shower pan. Residue is to be disposed of as asbestos waste.
3. Equipment Room: The Competent Person shall provide an equipment room which shall be an airtight compartment for the storage of work equipment/tools, reusable personal protective equipment, except for a respirator and for use as a gross decontamination area for personnel exiting the regulated area. The Competent Person shall ensure that most gross contamination is removed from the outside of PPE, suits and respirators in the regulated work area, prior to entering the Equipment Room. The equipment room shall be separated from the regulated area by a minimum 3-foot-wide door made with 2 layers of 6-mil opaque fire-retardant poly. The equipment room shall be separated from the regulated area, the shower room and the rest of the building by airtight walls and ceiling constructed of a minimum of 3 layers of 6-mil opaque fire retardant poly. Damp wipe all surfaces of the equipment room after each shift change. Provide an additional loose layer of 6-mil fire retardant poly per shift change and remove this layer after each shift. If needed, provide a temporary electrical sub-panel equipped with GFCI in the equipment room to accommodate any equipment required in the regulated area.
4. The PDF shall be as follows: Clean room at the entrance followed by a shower room followed by an equipment room leading to the regulated area. Each doorway in the PDF shall be a minimum of 2 layers of 6-mil opaque fire-retardant poly.



E. Waste/Equipment Decontamination Facility (W/EDF):

1. The Competent Person shall provide a W/EDF consisting of a Washroom, Holding Room, and Clean Room for removal of waste, equipment and contaminated material from the regulated area. Personnel shall not enter or exit the W/EDF except in the event of an emergency. Clean debris and residue in the W/EDF daily. All surfaces in the W/EDF shall be wiped/hosed down after each shift and all debris shall be cleaned from the shower pan. The W/EDF shall consist of the following:
 - a. Wash Down Station: Provide an enclosed shower unit in the regulated area just outside the Washroom as an equipment bag and container cleaning station.
 - b. Washroom: Provide a wash room for cleaning of bagged or containerized asbestos containing waste materials passed from the regulated area. Construct the Washroom using 50 x 100 mm (2 inches x 4 inches) wood framing or approved equivalent and 3 layers of 6-mil fire retardant poly. Locate the Washroom so that packaged materials, after being wiped clean, can be passed to the Holding Room. Doorways in the Washroom shall be constructed of 2 layers of 6-mil fire retardant poly.
 - c. Holding Room: Provide a holding room as a drop location for bagged materials passed from the Washroom. Construct the holding room using 50 x 100 mm (2 inches x 4 inches) wood framing or approved equivalent and 3 layers of 6-mil fire retardant poly. The holding room shall be located so that bagged material cannot be passed from the Washroom to the clean room unless it goes through the holding room. Doorways in the holding room shall be constructed of 2 layers of 6-mil fire retardant poly.
 - d. Clean Room: Provide a clean room to isolate the holding room from the exterior of the regulated area. Construct the clean room using 2 inches x 4 inches wood framing or approved equivalent and 2 layers of 6-mil fire retardant poly. The clean room shall be located so as to provide access to the holding room from the building exterior. Doorways to the clean room shall be constructed of 2 layers of 6-mil fire retardant poly. When a negative pressure differential system is used, a rigid enclosure separation between the W/EDF clean room and the adjacent areas shall be provided.
 - e. The W/EDF shall be as follows: Washroom leading to a Holding Room followed by a Clean Room leading to outside the regulated area. See diagram.



- F. Waste/Equipment Decontamination Procedures: At the washdown station in the regulated area, thoroughly wet clean contaminated equipment and/or sealed polyethylene bags and pass into Washroom after visual inspection. When passing anything into the Washroom, close all doorways of the W/EDF, other than the doorway between the washdown station and the Washroom. Keep all outside personnel clear of the W/EDF. Once inside the Washroom, wet clean the equipment and/or bags. After cleaning and inspection, pass items into the Holding Room. Close all doorways except the doorway between the Holding Room and the Clean Room. Workers from the Clean Room/Exterior shall enter the Holding Room and remove the decontaminated/cleaned equipment/bags for removal and disposal. At no time shall personnel from the clean side be allowed to enter the Washroom.

PART 2 - PRODUCTS, MATERIALS AND EQUIPMENT

2.1 MATERIALS AND EQUIPMENT

2.1.1 GENERAL REQUIREMENTS (ALL ABATEMENT PROJECTS)

Prior to the start of work, the contractor shall provide and maintain a sufficient quantity of materials and equipment to assure continuous and efficient work throughout the duration of the project. Work shall not start unless the Contractor's Competent Person has verified all necessary materials and equipment are onsite.

- A. All materials shall be delivered in their original package, container or bundle bearing the name of the manufacturer and the brand name (where applicable).
- B. Store all materials subject to damage off the ground, away from wet or damp surfaces and under cover sufficient enough to prevent damage or contamination. Flammable and combustible materials cannot be stored inside buildings. Replacement materials shall be stored outside of the regulated area until abatement is completed.
- C. The Contractor shall not block or hinder use of buildings by patients, staff, and visitors to the Owner in partially occupied buildings by placing materials/equipment in any unauthorized location.
- D. The Competent Person shall inspect for damaged, deteriorating or previously used materials. Such materials shall not be used and shall be removed from the worksite and disposed of properly.
- E. As applicable, polyethylene sheeting for any walls in the regulated area shall be a minimum of 4-mils. For floors and all other uses, sheeting of at least 6-mil shall be used in widths selected to minimize the frequency of joints. Fire retardant poly shall be used throughout.
- F. As applicable, the method of attaching polyethylene sheeting shall be agreed upon in advance by the Contractor and the Owner and selected to minimize damage to equipment and surfaces. Method of attachment may include any combination of moisture resistant duct tape furring strips, spray glue, staples, nails, screws, lumber and plywood for enclosures or other effective procedures capable of sealing polyethylene to dissimilar finished or unfinished surfaces under both wet and dry conditions.
- G. Polyethylene sheeting utilized for the PDF shall be opaque white or black in color, 6 mil fire retardant poly.
- H. Installation and plumbing hardware, showers, hoses, drain pans, sump pumps and waste water filtration system shall be provided by the Contractor.
- I. An adequate number of HEPA vacuums, scrapers, sprayers, nylon brushes, brooms, disposable mops, rags, sponges, staple guns, shovels, ladders and scaffolding of suitable height and length as well as meeting OSHA requirements, fall protection devices, water hose to reach all areas in the regulated area, airless spray equipment, and any other tools,

materials or equipment required to conduct the abatement project. All electrically operated hand tools, equipment, electric cords shall be connected to GFCI protection.

- J. Special protection for objects in the regulated area shall be detailed (e.g., plywood over carpeting or hardwood floors to prevent damage from scaffolds, water and falling material).
- K. Disposal bags – 2 layers of 6 mil poly for asbestos waste shall be pre-printed with labels, markings and address as required by OSHA, EPA, and DOT regulations.
- L. The Owner shall be provided an advance copy of the SDS as required for all hazardous chemicals under OSHA 29 CFR 1910.1200 - Hazard Communication in the pre-project submittal. Chlorinated compounds shall not be used with any spray adhesive, mastic remover or other product. Appropriate encapsulant(s) shall be provided.
- M. OSHA DANGER demarcation signs, as many and as required by OSHA 29 CFR 1926.1101 shall be provided and placed by the Competent Person. All other posters and notices required by Federal and State regulations shall be posted in the Clean Room.
- N. Adequate and appropriate PPE for the project and number of personnel/shifts shall be provided. All personal protective equipment issued must be based on a written hazard assessment conducted under 29 CFR 1910.132(d).

2.1.2 NEGATIVE PRESSURE FILTRATION SYSTEM

For all building interior work, the Contractor shall provide enough HEPA negative air machines to continuously maintain a pressure differential of -0.02" water column gauge. The Competent Person shall determine the number of units needed for the regulated area by dividing the cubic feet in the regulated area by 15 and then dividing that result by the cubic feet per minute (CFM) for each unit to determine the number of units needed to continuously maintain a pressure differential of -0.02" WCG. Provide a standby unit in the event of machine failure and/or emergency in an adjacent area. NIOSH has done extensive studies and has determined that negative air machines typically operate at ~50% efficiency. The Contractor shall consider this in their determination of number of units needed to continuously maintain a pressure differential of -0.02" water column gauge. The Contractor shall use 8 air changes per hour or double the number of machines, based on their calculations, or submit proof their machines operate at stated capacities, at a 2" pressure drop across the filters.

2.1.3 DESIGN AND LAYOUT

- A. Before start of work, submit the design and layout of the regulated area and the negative air machines. The submittal shall indicate the number of, location of and size of negative air machines. The point(s) of exhaust, air flow within the regulated area, anticipated negative pressure differential, and supporting calculations for sizing shall be provided. In addition, submit the following:
 - 1. Method of supplying power to the units and designation/location of the panels.
 - 2. Description of testing method(s) for correct air volume and pressure differential.
 - 3. If auxiliary power supply is to be provided for the negative air machines, provide a schematic diagram of the power supply and manufacturer's data on the generator and switch.

2.1.4 NEGATIVE AIR MACHINES (HEPA UNITS)

- A. Negative Air Machine Cabinet: The cabinet shall be constructed of steel or other durable material capable of withstanding potential damage from rough handling and transportation. The width of the cabinet shall be less than 30" in order to fit in standard doorways. The cabinet must be factory sealed to prevent asbestos fibers from being

released during use, transport, or maintenance. Any access to and replacement of filters shall be from the inlet end. The unit must be on casters or wheels.

- B. Negative Air Machine Fan: The rating capacity of the fan must indicate the CFM under actual operating conditions. Manufacturer's typically use "free-air" (no resistance) conditions when rating fans. The fan must be a centrifugal type fan.
- C. Negative Air Machine Final Filter: The final filter shall be a HEPA filter. The filter media must be completely sealed on all edges within a structurally rigid frame. The filter shall align with a continuous flexible gasket material in the negative air machine housing to form an airtight seal. Each HEPA filter shall be certified by the manufacturer to have an efficiency of not less than 99.97%. Testing shall have been done in accordance with Military Standard MIL-STD-282 and Army Instruction Manual 136-300-175A. Each filter must bear a UL586 label to indicate ability to perform under specified conditions. Each filter shall be marked with the name of the manufacturer, serial number, air flow rating, efficiency and resistance, and the direction of test air flow.
- D. Negative Air Machine Pre-filters: The pre-filters, which protect the final HEPA filter by removing larger particles, are required to prolong the operating life of the HEPA filter. Two stages of pre-filtration are required. A first stage pre-filter shall be a low efficiency type for particles 10 µm or larger. A second stage pre-filter shall have a medium efficiency effective for particles down to 5 µm or larger. Pre-filters shall be installed either on or in the intake opening of the negative air machine and the second stage filter must be held in place with a special housing or clamps.
- E. Negative Air Machine Instrumentation: Each unit must be equipped with a gauge to measure the pressure drop across the filters and to indicate when filters have become loaded and need to be changed. A table indicating the cfm for various pressure readings on the gauge shall be affixed near the gauge for reference or the reading shall indicate at what point the filters shall be changed, noting cfm delivery. The unit must have an elapsed time meter to show total hours of operation.
- F. Negative Air Machine Safety and Warning Devices: An electrical/ mechanical lockout must be provided to prevent the fan from being operated without a HEPA filter. Units must be equipped with an automatic shutdown device to stop the fan in the event of a rupture in the HEPA filter or blockage in the discharge of the fan. Warning lights are required to indicate normal operation; too high a pressure drop across filters; or too low of a pressure drop across filters.
- G. Negative Air Machine Electrical: All electrical components shall be approved by the National Electrical Manufacturer's Association (NEMA) and Underwriters Laboratories (UL). Each unit must be provided with overload protection and the motor, fan, fan housing, and cabinet must be grounded.
- H. It is essential that replacement HEPA filters be tested using an "in-line" testing method, to ensure the seal around the periphery was not damaged during replacement. Damage to the outer HEPA filter seal could allow contaminated air to bypass the HEPA filter and be discharged to an inappropriate location. Contractor will provide written documentation of test results for negative air machine units with HEPA filters changed by the contractor or documentation when changed and tested by the contractor filters.

2.1.5 PRESSURE DIFFERENTIAL

For all interior asbestos removal work, the fully operational negative air system within the regulated area shall continuously maintain a pressure differential of -0.02" water column gauge. Before any disturbance of any asbestos material, this shall be demonstrated to the Owner's Representative by use of a pressure differential meter/manometer as required by OSHA 29 CFR 1926.1101(e)(5)(i). The Competent Person shall be responsible for

providing, maintaining, and documenting the negative pressure and air changes as required by OSHA and this specification.

2.1.6 MONITORING

The pressure differential shall be continuously monitored and recorded between the regulated area and the area outside the regulated area with a monitoring device that incorporates a strip chart recorder. The strip chart recorder shall become part of the project log and shall indicate at least -0.02" water column gauge for the duration of the project.

2.1.7 SUPPLEMENTAL MAKE-UP AIR INLETS

Provide, as needed for proper air flow in the regulated area, in a location approved by the Owner's Representative, openings in the plastic sheeting to allow outside air to flow into the regulated area. Auxiliary makeup air inlets must be located as far from the negative air machines as possible, off the floor near the ceiling, and away from the barriers that separate the regulated area from the occupied clean areas. Cover the inlets with weighted flaps which will seal in the event of failure of the negative pressure system.

2.1.8 TESTING THE SYSTEM

The negative pressure system must be tested before any ACM is disturbed in any way. After the regulated area has been completely prepared, the decontamination units set up, and the negative air machines installed, start the units up one at a time. Demonstrate and document the operation and testing of the negative pressure system to the Owner's Representative using smoke tubes and a negative pressure gauge. Verification and documentation of adequate negative pressure differential across each barrier must be done at the start of each work shift.

2.1.9 DEMONSTRATION OF THE NEGATIVE AIR PRESSURE SYSTEM

The demonstration of the operation of the negative pressure system to the Owner's Representative shall include, but not be limited to, the following:

- A. Plastic barriers and sheeting move lightly in toward the regulated area.
- B. Curtains of the decontamination units move in toward regulated area.
- C. There is a noticeable movement of air through the decontamination units. Use the smoke tube to demonstrate air movement from the clean room to the shower room to the equipment room to the regulated area.
- D. Use smoke tubes to demonstrate air is moving across all areas in which work is to be done. Use a differential pressure gauge to indicate a negative pressure of at least -0.02" across every barrier separating the regulated area from the rest of the building. Modify the system as necessary to meet the above requirements.

2.1.10 USE OF SYSTEM DURING ABATEMENT OPERATIONS

- A. Start units before beginning any disturbance of ACM occurs. After work begins, the units shall run continuously, maintaining 4 actual air changes per hour at a negative pressure differential of -0.02" water column gauge, for the duration of the work until a final visual clearance and final air clearance has been successfully completed.
No negative air units shall be shut down at any time unless authorized by the Owner's Representative, verbally and in writing.
- B. Abatement work shall begin at a location farthest from the units and proceed towards them. If an electric failure occurs, the Competent Person shall stop all abatement work

and immediately begin wetting all exposed asbestos materials for the duration of the power outage. Abatement work shall not resume until power is restored and all units are operating properly again.

- C. The negative air machines shall continue to run after all work is completed and until a final visual clearance and a final air clearance has been successfully completed for that regulated area.

2.2 CONTAINMENT BARRIERS AND COVERINGS IN THE REGULATED AREA

2.2.1 GENERAL

Demarcate the regulated work area per OSHA requirements. Any and all HVAC intakes in the regulated area must be covered with 2 layers of 6 mil fire retardant poly. Should adjacent areas become contaminated, immediately stop work and clean up the contamination at no additional cost to the Owner.

2.2.2 PREPARATION PRIOR TO SEALING THE REGULATED AREA

Place all tools, scaffolding, materials and equipment needed for working in the regulated area prior to erecting any plastic sheeting. Remove all uncontaminated removable furniture, equipment and/or supplies from the regulated area before commencing work, or completely cover with 2 layers of 6-mil fire retardant poly sheeting and secure with duct tape. Lock out and tag out any HVAC systems in the regulated area.

2.2.3 CONTROLLING ACCESS TO THE REGULATED AREA

Access to the regulated area is allowed only through the personnel decontamination facility (PDF), if required. All other means of access shall be eliminated, and OSHA Danger demarcation signs posted as required by OSHA. If the regulated area is adjacent to or within view of an occupied area, provide a visual barrier of 6 mil opaque fire retardant poly sheeting to prevent building occupant observation. If the adjacent area is accessible to the public, the barrier must be solid.

2.2.4 CRITICAL BARRIERS

For outdoor work, if there are any openings into the interior of the building, and for HVAC air intakes, completely separate any openings in the regulated area from adjacent areas using fire retardant poly at least 6 mils thick and duct tape. Individually seal with two layers of 6 mil poly and duct tape any and all HVAC openings and any and all openings to the building interior inside the regulated area. Individually seal all lighting fixtures, clocks, doors, windows, convectors, speakers, or any other objects in the regulated area. Heat must be shut off any objects covered with poly.

2.2.5 PRIMARY BARRIERS

- A. Cover the regulated area with two layers of 6 mil fire retardant poly on the floors and two layers of 6 mil, fire retardant poly on the walls, unless otherwise directed in writing by the VA representative. Floor layers must form a right angle with the wall and turn up the wall at least 300 mm (12"). Seams must overlap at least 1800 mm (6') and must be spray glued and taped. Install sheeting so that layers can be removed independently from each other. Carpeting shall be covered with three layers of 6 mil poly. Corrugated cardboard sheets must be placed between the bottom and middle layers of poly. Mechanically support and seal with duct tape and glue all wall layers.

- B. Elevator doors must be covered with 2 layers of 6 mil fire retardant poly. The elevator door must be in a positively pressurized area outside the clean room of the PDF.
- C. If stairs and ramps are covered with 6 mil plastic, two layers must be used. Provide 19 mm (3/4") exterior grade plywood treads held in place with duct tape/glue on the plastic. Do not cover rungs or rails with any isolation materials.

2.2.6 SECONDARY BARRIERS:

A loose layer of 6 mil fire retardant poly shall be used as a drop cloth to protect the floor/horizontal surfaces from debris generated during the Class I and Class II OSHA Asbestos Work, except for floor tile/floor mastic and roofing material abatement. This layer shall be replaced as needed during the work.

2.2.7 EXTENSION OF THE REGULATED AREA

If the regulated area is breached in any way that could allow contamination to occur, the affected area shall be included in the regulated area and constructed as per this section. If the affected area cannot be added to the regulated area, decontamination measures must be started immediately and continue until air monitoring indicates background levels are met.

2.3 MONITORING, INSPECTION AND TESTING

2.3.1 GENERAL

- A. Perform throughout abatement work monitoring, inspection and testing inside and around the regulated area in accordance with the OSHA requirements and these specifications. OSHA requires that the Employee exposure to asbestos must not exceed 0.1 fiber per cubic centimeter (f/cc) of air, averaged over an 8-hour work shift. The Owner's Representative is responsible for and shall inspect and oversee the performance of the Contractor for compliance with this specification and applicable federal and state asbestos regulations. The Owner's Representative shall continuously inspect and monitor conditions inside the regulated area to ensure compliance with these specifications. In addition, the Contractor shall personally manage air sample collection, analysis, and evaluation for personnel, regulated area, and adjacent area samples to satisfy OSHA requirements. Additional inspection and testing requirements are also indicated in other parts of this specification.
- B. The Owner may employ an independent a third-party consultant (Owner's Representative). The Owner's Representative may perform the necessary monitoring, inspection, testing, and other support services to ensure that employees and visitors will not be adversely affected by the abatement work, and that the abatement work proceeds in accordance with these specifications, that the abated areas or abated buildings have been successfully decontaminated. The work of the Owner's Representative consultant in no way relieves the Contractor from their responsibility to perform the work in accordance with contract/specification requirements, to perform continuous inspection, monitoring and testing for the safety of their employees, and to perform other such services as specified. The cost of the Owner's Representative and their services will be borne by the Owner except for any repeat of final inspection and testing that may be required due to unsatisfactory initial results. Any repeated final inspections and/or testing, if required, will be paid for by the Contractor.
- C. If fibers counted by the Owner's Representative during abatement work, either inside or outside the regulated area, utilizing the NIOSH 7400 air monitoring method, exceed the specified respective limits, the Contractor shall stop work. The Contractor may request

confirmation of the results by analysis of the samples by TEM (i.e. NIOSH 7402). Request must be in writing and submitted to the Owner's Representative. Cost for the confirmation of results will be borne by the Contractor for both the collection and analysis of samples and for the time delay that may/does result for this confirmation. Confirmation sampling and analysis will be the responsibility of the Contractor with review and approval of the Owner's Representative. An agreement between the Contractor and the Owner's Representative shall be reached on the exact details of the confirmation effort, in writing, including such things as the number of samples, location, collection, quality control on-site, analytical laboratory, interpretation of results and any follow-up actions. This written agreement shall be co-signed by the Contractor and Owner's Representative and delivered to the Owner.

2.3.2 SCOPE OF SERVICES OF THE OWNER'S REPRESENTATIVE (THIRD-PARTY CONSULTANT)

- A. The Owner reserves the right to retain the services of and provide a third-party consultant to make site observations on the Owner's behalf for compliance with applicable federal, state, and local asbestos regulations, as well as compliance with this specification. The purpose of the work of the Owner's Representative (Third-Party Consultant) is to: assure quality; resolve problems; and prevent the spread of contamination beyond the regulated area. In addition, their work may include performing final inspection and testing to determine whether the regulated area or building has been adequately decontaminated. If conducted, all air monitoring is to be done utilizing PCM. The Consultant may perform the following tasks at the site:
 - 1. Task 1: May establish background levels before abatement begins by collecting background samples. Retain samples for possible TEM analysis.
 - 2. Task 2: May perform continuous air monitoring, inspection, and testing outside the regulated areas during actual abatement work to detect any faults in the regulated area isolation and any adverse impact on the surroundings from regulated area activities.
 - 3. Task 3: May perform unannounced visits inside the regulated work area to spot check overall compliance of work with contract/specifications. These visits may include any inspection, monitoring, and testing inside and outside the regulated area and all aspects of the operation except personnel monitoring.
 - 4. Task 4: May provide support to the Owner such as evaluation of submittals from the Contractor, resolution of unforeseen developments, etc.
 - 5. Task 5: May perform final inspection and testing of decontaminated regulated areas or building at the conclusion of the abatement and clean-up work to certify compliance with all regulations and the Owner requirements/specifications.
- B. All documentation, inspection results and testing results generated by the Owner's Representative will be available to the Contractor for information and consideration. The Contractor shall cooperate with and support the Owner's Representative for efficient and smooth performance of their work.
- C. The monitoring and inspection results of the Owner's Representative will be used by the Owner to issue any Stop Removal orders to the Contractor during abatement work and to accept or reject a regulated area or building as decontaminated.

2.3.3 MONITORING, INSPECTION AND TESTING BY CONTRACTOR

The Contractor is responsible for managing all monitoring, inspections, and testing required by these specifications, as well as any and all regulatory requirements adopted by these specifications. The Contractor is responsible for the continuous monitoring of all

subsystems and procedures which could affect the health and safety of the Contractor's personnel. Safety and health conditions and the provision of those conditions inside the regulated area for all persons entering the regulated area is the exclusive responsibility of the Contractor/Competent Person. The analytic laboratory used by the Contractor to analyze the personal samples shall be AIHA accredited for asbestos PAT. A daily log, shall be maintained by the Contractor, documenting all OSHA requirements for air personal monitoring for asbestos in 29 CFR 1926.1101(f), (g) and Appendix A. This log shall be made available to the Owner representative and the Owner's Representative upon request. The log will contain, at a minimum, information on personnel or area samples, other persons represented by the sample, the date of sample collection, start and stop times for sampling, sample volume, flow rate, and fibers/cc. The Contractor shall collect and analyze samples for each representative job being done in the regulated area, i.e., removal, wetting, clean-up, and load-out. No fewer than 25% of the work crew shall be sampled for asbestos exposure per 29 CFR 1926.1101. The Contractor will perform inspection and testing at the final stages of abatement for each regulated area as specified in the Contractor responsibilities. Additionally, the Contractor will monitor and record pressure readings, for negative pressure containments if applicable, daily with a minimum of two readings at the beginning and at the end of a shift and submit the data in the daily report.

2.4 ASBESTOS HAZARD ABATEMENT PLAN

The Contractor shall have established Asbestos Hazard Abatement Plan (AHAP) in printed form and bound folder consisting of simplified text, diagrams, sketches, and pictures that establish and explain clearly the ways and procedures to be followed during all phases of the work by the Contractor's personnel. The AHAP must be modified as needed to address specific requirements of the project. The AHAP shall be submitted for review and approval prior to the start of any abatement work. The minimum topics and areas to be covered by the AHAP(s) are:

- A. Minimum Personnel Qualifications
- B. Contingency Plans and Arrangements
- C. Security and Safety Procedures
- D. Respiratory Protection/Personal Protective Equipment Program and Training
- E. Medical Surveillance Program and Recordkeeping
- F. Regulated Area Requirements for Abatement
- G. Decontamination Facilities and Entry/Exit Procedures (PDF and W/EDF)
- H. Monitoring, Inspections, and Testing
- I. Disposal of ACM waste
- J. Regulated Area Decontamination/Clean-up
- K. Regulated Area Visual and Air Clearance
- L. Project Completion/Closeout

2.5 SUBMITTALS

2.5.1 PRE-START MEETING SUBMITTALS

Submit to the Owner a minimum of 15 business days prior to the pre-start meeting the following for review and approval. Meeting this requirement is a prerequisite for the pre-start meeting for this project:

- A. Submit a detailed work schedule for the entire project reflecting contract documents and the phasing/schedule requirements.

- B. Submit a staff organization chart showing all personnel who will be working on the project and their capacity/function. Provide their qualifications, training, accreditations, and licenses, as appropriate. Provide a copy of the "Certificate of Worker's Acknowledgment" and the "Affidavit of Medical Surveillance and Respiratory Protection" for each person – see attached for forms.
- C. Submit Asbestos Hazard Abatement Plan developed specifically for this project, incorporating the requirements of the specifications, prepared, signed and dated by the Contractor.
- D. Submit the specifics of the materials and equipment to be used for this project with manufacturer names, model numbers, performance characteristics, pictures/diagrams, and number available for the following:
 - 1. Supplied air system, negative air machines, HEPA vacuums, air monitoring pumps, calibration devices, pressure differential monitoring device and emergency power generating system.
 - 2. Waste water filtration system, shower system, containment barriers.
 - 3. Encapsulants, surfactants, hand held sprayers, airless sprayers, and fire extinguishers.
 - 4. Respirators, protective clothing, personal protective equipment.
 - 5. Fire safety equipment to be used in the regulated area.
- E. Submit the name, location, and phone number of the approved landfill; proof/verification the landfill is approved for ACM disposal; the landfill's requirements for ACM waste; the type of vehicle to be used for transportation; and name, address, and phone number of sub-contractor, if used.
- F. Submit required notifications and arrangements made with regulatory agencies having regulatory jurisdiction and the specific contingency/emergency arrangements made with local health, fire, ambulance, hospital authorities and any other notifications/arrangements.
- G. Submit the name, location and verification of the laboratory and/or personnel to be used for analysis of personal air samples. Personal air monitoring must be done in accordance with OSHA 29 CFR 1926.1101 (f) and Appendix A.
- H. Submit qualifications verification: Submit the following evidence of qualifications. Make sure that all references are current and verifiable by providing current phone numbers and documentation.
 - 1. Asbestos Abatement Company: Project experience within the past 2 years; listing projects first most similar to this project: Project Name; Type of Abatement; Duration; Cost; Reference Name/Phone Number; Final Clearance; and Completion Date
 - 2. List of project(s) halted by owner, A/E, IH, regulatory agency in the last 1 years, if any: Project Name; Reason; Date; Reference Name/Number; Resolution
 - 3. List asbestos regulatory citations (e.g., OSHA), notices of violations (e.g., Federal and state EPA), penalties, and legal actions taken against the company including and of the company's officers (including damages paid) in the last 2 years, if any. Provide copies and all information needed for verification.
- I. Submit information on personnel: provide a resume; address each item completely; copies of certificates, accreditations, and licenses. Submit an affidavit signed by the Competent Person stating that all personnel submitted below have medical records in accordance with OSHA 29 CFR 1926.1101(m) and 29 CFR 1910.20 and that the company has implemented a medical surveillance program and written respiratory protection program and maintains recordkeeping in accordance with the above regulations. Submit the phone number and doctor/clinic/hospital used for medical evaluations.
 - 1. Competent Person(s)/Supervisor(s): Number; names; years of abatement experience as Competent Person/Supervisor; list of similar projects in size/complexity as

- Competent Person/Supervisor; as a worker; certificates, licenses, accreditations; proof of AHERA/OSHA specialized asbestos training; maximum number of personnel supervised on a project; medical opinion (asbestos surveillance and respirator use); and current respirator fit test.
2. Workers: Numbers; names; years of abatement experience; certificates, licenses, accreditations; training courses in asbestos abatement and respiratory protection; medical opinion (asbestos surveillance and respirator use); and current respirator fit test.
 - J. Submit copies of State license for asbestos abatement; copy of insurance policy, including exclusions with a letter from agent stating in plain language the coverage provided and the fact that asbestos abatement activities are covered by the policy; copy of AHAP(s) incorporating the requirements of this specification; information on who provides your training, how often; who provides medical surveillance, how often; who performs and how is personal air monitoring of abatement workers conducted; a list of references of independent laboratories/IH's familiar with your air monitoring and standard operating procedures; and copies of monitoring results of the five referenced projects listed and analytical method(s) used.
 - K. Rented equipment must be decontaminated prior to returning to the rental agency.
 - L. Submit, before the start of work, the manufacturer's technical data for all types of encapsulants, all SDS, and application instructions.

2.5.2 SUBMITTALS DURING ABATEMENT

- A. The Competent Person shall maintain and submit a daily log at the regulated area documenting the dates and times of the following: purpose, attendees and summary of meetings; all personnel entering/exiting the regulated area; document and discuss the resolution of unusual events such as barrier breeching, equipment failures, emergencies, and any cause for stopping work; representative air monitoring and results/TWAs/ELs. This information must be available daily upon request by the Owner or Owner's Representative.
- B. The Owner's Representative shall document (written logs) and maintain the inspection and approval of the regulated area preparation prior to start of work and daily during work.

2.5.3 SUBMITTALS AT COMPLETION OF ABATEMENT

The Contractor shall submit a project report consisting of the daily log book requirements and documentation of events during the abatement project including Waste Shipment Records signed by the landfill's agent. It will also include information on the regulated work areas and transportation of waste from the work areas with applicable Chain of Custody forms. All personnel air sample results shall be included. The report shall include a certificate of completion, signed, and dated by the Contractor in accordance with Attachment #1 (see attached). Also see Section 3.8.1

PART 3 - EXECUTION

3.1 PRE-ABATEMENT ACTIVITIES

3.1.1 PRE-ABATEMENT MEETING

The Owner and/or Owner's Representative, upon receipt, review, and substantial approval of all pre-abatement submittals and verification by the Contractor that all materials and equipment required for the project are on the site, will arrange for a pre-abatement meeting between the Contractor, the Competent Person(s), the Owner's representative(s), and the

Owner. The purpose of the meeting is to discuss any aspect of the submittals needing clarification or amplification and to discuss any aspect of the project execution and the sequence of the operation. The Contractor shall be prepared to provide any supplemental information/documentation to the Owner's Representative regarding any submittals, documentation, materials or equipment. Upon satisfactory resolution of any outstanding issues, the Owner's will issue a written order to proceed to the Contractor. No abatement work of any kind described in the following provisions shall be initiated prior to the Owner's written order to proceed.

3.1.2 PRE-ABATEMENT CONSTRUCTION AND OPERATIONS

- A. Perform all preparatory work for the first regulated area in accordance with the approved work schedule and with this specification.
- B. Upon completion of all preparatory work, the Contractor will inspect the work and systems and will notify the Owner and/or Owner's Representative when the work is completed in accordance with this specification. The Owner and/or Owner's Representative may inspect the regulated area and the systems with the Contractor and may require that upon satisfactory inspection, the Contractor's employees perform all major aspects of the approved SOP's, especially worker protection, respiratory systems, contingency plans, decontamination procedures, and monitoring to demonstrate satisfactory operation.
- C. The Contractor shall document the pre-abatement activities described above and include in the final report documentation.
- D. Upon satisfactory inspection of the installation of and operation of systems, the Owner and/or Owner's Representative may notify the Contractor to proceed with the asbestos abatement work in accordance with this specification.

3.2 REGULATED AREA PREPARATIONS

3.2.1 OSHA DANGER SIGNS

Post OSHA DANGER signs meeting the specifications of OSHA 29 CFR 1926.1101 at any location and approaches to the regulated area where airborne concentrations of asbestos may exceed ambient background levels. Signs shall be posted at a distance sufficiently far enough away from the regulated area to permit any personnel to read the sign and take the necessary measures to avoid exposure. Additional signs will be posted following construction of the regulated area enclosure.

3.2.2 SHUT DOWN - LOCK OUT ELECTRICAL

For any energized electrical components at the site, shut down and lock out/tag out electric power to the regulated area. Provide temporary power and lighting. Ensure safe installation including GFCI of temporary power sources and equipment by compliance with all applicable electrical code requirements and OSHA requirements for temporary electrical systems. Sufficient temporary electricity shall be provided at the site by the Contractor.

3.2.3 SHUT DOWN - LOCK OUT HVAC

For any operational/energized equipment, shut down and lock out/tag out heating, cooling, and air conditioning system (HVAC) components that are in, supply or pass through the regulated area.

Investigate the regulated area and agree on pre-abatement conditions. Seal all intake and exhaust vents in the regulated area with duct tape and 2 layers of 6-mil poly. Also, seal any seams in system components that pass through the regulated area. If present, remove all contaminated HVAC system filters and place in labeled 6-mil poly disposal bags for disposal as asbestos waste.

3.2.4 SANITARY FACILITIES

The Contractor shall provide sanitary facilities for abatement personnel and maintain them in a clean and sanitary condition throughout the abatement project.

3.2.5 WATER FOR ABATEMENT

The Contractor must provide sufficient water at the site for abatement purposes. If applicable to the system, the service to the regulated work area shall be supplied with backflow prevention.

3.2.6 PRE-CLEANING MOVABLE OBJECTS

Pre-cleaning of ACM contaminated items shall be performed after the enclosure has been erected and negative pressure has been established in the work area. After items have been pre-cleaned and decontaminated, they may be removed from the work area for storage until the completion of abatement in the work area.

Pre-clean all movable objects within the regulated area using a HEPA filtered vacuum and/or wet cleaning methods as appropriate. After cleaning, these objects shall be removed from the regulated area and carefully stored in an uncontaminated location.

3.2.7 PRE-CLEANING FIXED OBJECTS

Pre-cleaning of ACM contaminated items shall be performed after the enclosure has been erected and negative pressure has been established in the work area. Pre-clean all fixed objects in the regulated area using HEPA filtered vacuums and/or wet cleaning techniques as appropriate. Careful attention must be paid to machinery behind grills or gratings where access may be difficult, but contamination may be significant. Also, pay particular attention to wall, floor and ceiling penetration behind fixed items. After pre-cleaning, enclose fixed objects with 2 layers of 6-mil poly and seal securely in place with duct tape. Objects (e.g., permanent fixtures, shelves, electronic equipment, laboratory tables, sprinklers, alarm systems, closed circuit TV equipment and computer cables) which must remain in the regulated area and that require special ventilation or enclosure requirements should be designated here along with specified means of protection. Contact the manufacturer for special protection requirements.

3.2.8 PRE-CLEANING SURFACES IN THE REGULATED AREA

Pre-cleaning of ACM contaminated items shall be performed after the enclosure has been erected and negative pressure has been established in the work area. PPE must be donned during all pre-cleaning activities. Pre-clean all surfaces in the regulated area using HEPA filtered vacuums and/or wet cleaning methods as appropriate. Do not use any methods that would raise dust such as dry sweeping or vacuuming with equipment not equipped with HEPA filters. Do not disturb asbestos-containing materials during this pre-cleaning phase.

3.3 BARRIERS AND COVERINGS FOR THE REGULATED AREA

3.3.1 GENERAL

The perimeter of the regulated area shall meet and be clearly demarcated per OSHA requirements. Two layers of 6 mil fire retardant poly shall be used to cover any openings into the interior of the building and any HVAC air intakes to prevent contamination and to facilitate clean-up. Should adjacent areas become contaminated, immediately stop work and clean up the contamination at no additional cost to the Owner.

3.3.2 PREPARATION PRIOR TO SEALING OFF

Place all tools, scaffolding, materials and equipment needed for working in the regulated area prior to erecting any plastic sheeting. Remove all uncontaminated removable furniture, equipment and/or supplies from the regulated area before commencing work, or completely cover with 2 layers of 6-mil fire retardant poly sheeting and secure with duct tape. Lock out and tag out any energized/operational HVAC systems in the regulated area.

3.3.3 CONTROLLING ACCESS TO THE REGULATED AREA

Access to the regulated area is allowed only through the personnel decontamination facility (PDF), if required. All other means of access shall be eliminated, and OSHA Danger demarcation signs posted as required by OSHA. If the regulated area is adjacent to or within view of an occupied area, provide a visual barrier of 6 mil opaque fire retardant poly sheeting to prevent building occupant observation. If the adjacent area is accessible to the public, the barrier must be solid.

3.3.4 CRITICAL BARRIERS

For indoor abatement operations, the regulated area must be completely separated from the adjacent areas, and the outside by at least 2 layers of 6 mil, fire retardant poly and duct tape/spray adhesive. Individually seal all supply and exhaust ventilation openings, lighting fixtures, clocks, doorways, windows, convectors, speakers, and other openings into the regulated area with 2 layers of 6 mil fire retardant poly and taped securely in place with duct tape/spray adhesive. Critical barriers must remain in place until all work and clearances have been completed. Light fixtures shall not be operational during abatement. Auxiliary lighting shall be provided. If needed, provide plywood squares 6" x 6" x 3/8" (150mm x 150mm x 18mm) held in place with one 6d smooth masonry/galvanized nail driven through the center of the plywood square and duct tape on the poly so as to clamp the poly to the wall/surface. Locate plywood squares at each end, corner, and 4' (1200mm) maximum on centers.

3.3.5 PRIMARY/SECONDARY BARRIERS

- A. Floors: Cover the floor of the regulated area with at least two layers of 6 mil, fire retardant poly, turning up the walls at least 12" (300mm). The poly must form a right angle at the floor-wall juncture so there is no radius which can be stepped on, possibly causing detachment of the poly. Spray glue and duct tape must both be used for floor seams. Floor seams must overlap a minimum of 6 feet (1800mm) or be at right angles to each other. The top sheet of poly must be able to be removed independently of the bottom layer. A third loose layer of 6 mil poly shall be used in the area of removal and periodically picked up to reduce contamination of the initial layers.
- B. Walls: All walls in the regulated area, including critical barriers, shall be covered with 2 layers of 6 mil fire retardant poly, mechanically supported and sealed with duct tape and/or

spray glue. Tape all joints, including the floor-wall joint, with duct tape/spray glue. All wall joints must overlap at least 6 feet (1800mm).

- C. Stairs and Ramps: Stairs or ramps covered in poly must be provided with 3/4" (36mm) exterior grade plywood treads securely held in place over the poly. Do not cover stairs or ramps with unsecured poly. Do not cover rungs or rails with any protective materials.

3.3.6 EXTENSION OF THE REGULATED AREA

If the regulated area is breached in any way that could allow contamination to occur, the affected area shall be included in the regulated area and constructed as per this section. If the affected area cannot be added to the regulated area, decontamination measures must be started immediately and continue until air monitoring indicates background levels are met.

3.3.7 FLOOR BARRIERS

Except for floor/floor mastic and roof removal, all floors in the regulated area shall be covered with 2 layers of 6 mil fire retardant poly and brought up the wall 12 inches. An additional 6 mil layer of poly shall be used as a drop cloth beneath all Class I and Class II OSHA Asbestos Work.

3.4 REMOVAL

3.4.1 GENERAL

All applicable requirements of OSHA, EPA, and DOT shall be followed during removal, transporting, and disposal. Keep materials intact; do not disturb; wet while working with it; wrap as soon as possible with 2 layers of 6 mil plastic for disposal.

Strictly follow all applicable provisions of OSHA 1926.1101 as applicable to Class I Asbestos Work for removal of TSI and surfacing ACM and PACM, and Class II Asbestos Work involving the removal of ACM which is not TSI or surfacing material (this includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and transite™ cement board materials, and construction mastics).

Note: All asbestos-contaminated elements are included in the extent of work. Smooth non-porous surfaces may be cleaned of visible contamination, if feasible; however, non-asbestos-containing materials, components, and/surfaces that are contaminated and/or mixed with friable asbestos-containing material (>1%) debris must be treated as and disposed as if containing asbestos (>1%). This may include, but may not be limited to, contaminated items such as non-asbestos-containing ceiling tile, cloth materials, soil, paper, cardboard, non-asbestos-containing construction debris, etc.

The Owner and/or Owner's Representative must be notified at least two business days in advance of any waste intended to be removed and transported from the site.

3.4.2 WET REMOVAL OF ACM

In no event shall dry removal occur; all materials and any debris/ACE must be adequately wetted prior to its removal. In no event shall any removed wetted material be allowed to accumulate and dry-out. All removed wetted materials must be containerized and sealed once the container is full immediately upon its removal.

- A. Use amended water for the wetting of ACM/debris/ACE prior to removal. The Competent Person shall assure the wetting of ACM meets the definition of "adequately wet" in the EPA NESHAP regulation and OSHA's "wet methods" for the duration of the project. A removal encapsulant may be used instead of amended water with written approval of the Owner.
- B. Amended Water: Provide water to which a surfactant has been added shall be used to wet the ACM and reduce the potential for fiber release during disturbance of ACM. The mixture must be equal to or greater than the wetting provided by water amended by a surfactant consisting of one ounce of 50% polyoxyethylene ester and 50% polyoxyethylene ether mixed with 5 gallons (19L) of water.
- C. Removal Encapsulant: When authorized by Owner's Representative, provide a penetrating encapsulant designed specifically for the removal of ACM. The material must, when used, result in adequate wetting of the ACM and retard fiber release during removal.
- D. Adequately and thoroughly wet the ACM/debris/ACE to be removed prior to removal to reduce/prevent fiber release to the air. Adequate time must be allowed for the amended water to saturate the ACM. Abatement personnel must not disturb dry ACM/debris/ACE. Use a fine spray of amended water or removal encapsulant. Saturate the material sufficiently to wet to the substrate without causing excessive dripping. The material must be sprayed repeatedly/continuously during the removal process in order to maintain adequately wet conditions. Removal encapsulants must be applied in accordance with the manufacturer's written instructions. Perforate or carefully separate, using wet methods, an outer covering that is painted or jacketed in order to allow penetration and wetting of the material. Where necessary, carefully remove covering while wetting to minimize fiber release. In no event shall dry removal occur except in the case of electrical hazards or a greater safety issue is possible.
- E. If ACM does not wet well with amended water due to coating or jacketing, remove as follows:
 - 1. Mist work area continuously with amended water whenever necessary to reduce airborne fiber levels.
 - 2. Remove saturated ACM/debris/ACE in small sections. Do not allow material to dry out. As material is removed, bag material, while still wet into disposal bags. Twist the bag neck tightly, bend over (gooseneck) and seal with a minimum of three tight wraps of duct tape. Clean /decontaminate the outside of the bag of any residue and move to washdown station adjacent to W/EDF.

3.4.3 OUTDOOR WORK AREAS

For outdoor work, all applicable OSHA, state and local regulations must be followed to ensure that outdoor work areas are in compliance so that workers, the general public and the environment are protected.

3.4.4 SCAFFOLD FALL PROTECTION

For any work requiring scaffolding, each employee more than 10 feet above a lower level shall be protected from falls by guardrails or a fall arrest system. Fall arrest system

includes harnesses, components of the harness/belt such as Dee-rings, and snap hooks, lifelines, and anchorage points. Lifelines must be independent of supports lines and suspension ropes and not attached to the same anchorage point as the support or suspension rope. OSHA's scaffolding standard defines a competent person as "one who is capable of identifying existing and predictable hazards in the surroundings or working conditions, which are unsanitary, hazardous to employees, and who has authorization to take prompt corrective measures to eliminate them." The competent person will determine if it is safe for employees to work on or from a scaffold or roof during storms or high winds and to ensure that a personal fall arrest system will protect the employees. The competent person will also inspect the scaffold and scaffold components for visible defects before each work shift and after any occurrence which could affect the structural integrity and to authorize prompt corrective measures.

3.4.5 ROOF FALL PROTECTION

For any roof work, the Competent Person shall determine if the walking/working surfaces on which the employees are to work have the strength and structural integrity to support the employees safely. Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet or more above a lower level shall be protected from falling by the use of guardrail systems, safety net systems, or personal fall arrest system.

3.4.9 LOCKDOWN ENCAPSULATION

General: Lockdown encapsulation is an integral part of the ACM removal. At the conclusion of ACM removal and before removal of the primary barriers, all surfaces shall be encapsulated with an asbestos lockdown encapsulant.

3.5 DISPOSAL OF WASTE MATERIAL

3.5.1 GENERAL

Any waste stored temporarily onsite prior to being transported to the landfill, must be stored in a fully enclosed, locked container and labeled according to all applicable federal, state, and local regulations. No unsecured storage, open-top storage, or open-top dumpsters storage shall be permitted onsite.

Dispose of waste ACM and debris which is packaged in accordance with these specifications, OSHA, EPA and DOT. The landfill requirements for packaging must also be met. Transport will be in compliance with 49 CFR 100–185 regulations. Disposal shall be done only at approved landfills that accept the particular type of ACM (e.g., RACM, Category I Non-Friable, Category II Non-Friable, and materials containing 1% or less asbestos). All RACM and asbestos-contaminated elements with/from RACM, must be disposed at a regulated EPA asbestos landfill in accordance with applicable regulations. Disposal of non-friable ACM and materials with 1% or less asbestos shall be done in accordance with applicable regulations at construction and demolition debris landfills that have permits to accept such type wastes.

3.5.2 PROCEDURES

- A. The Owner and/or Owner's Representative must be notified at least two business days in advance of any waste to be removed and transported from the site to the landfill.
- B. Asbestos waste shall be packaged and moved through the W/EDF into a covered transport container in accordance with procedures in this specification. Waste shall be

double-bagged and wetted with amended water prior to disposal. Wetted waste can be very heavy. Bags shall not be overfilled. Bags shall be securely sealed to prevent accidental opening and/or leakage. The top shall be tightly twisted and goose necked prior to tightly sealing with at least three wraps of duct tape. Ensure that unauthorized persons do not have access to the waste material once it is outside the regulated area. All transport containers must be covered at all times when not in use. NESHAP/OSHA signs must be on containers during loading and unloading. Material shall not be transported in open vehicles. If drums are used for packaging, the drums shall be labeled properly and shall not be re-used.

- C. Waste Load Out: Waste load out shall be done in accordance with the procedures in W/EDF Decontamination Procedures. Sealed waste bags shall be decontaminated on exterior surfaces by wet cleaning and/or HEPA vacuuming before being placed in the second waste bag and sealed, which then must also be wet wiped or HEPA vacuumed.
- D. Asbestos waste with sharp edged components, i.e., nails, screws, lath, strapping, tin sheeting, jacketing, metal mesh, etc., which might tear poly bags shall be wrapped securely in burlap before packaging and, if needed, use a poly lined fiber drum as the second container, prior to disposal.

3.6 PROJECT DECONTAMINATION

3.6.1 GENERAL

- A. The entire work related to project decontamination shall be performed under the close supervision and monitoring of the Contractor's Competent Person.
- B. If the asbestos abatement work is in an area which was contaminated prior to the start of abatement, the decontamination will be done by cleaning the primary barrier poly prior to its removal and cleanings of the surfaces of the regulated area after the primary barrier removal.
- C. If the asbestos abatement work is in an area which was uncontaminated prior to the start of abatement, the decontamination will be done by cleaning the primary barrier poly prior to its removal, thus preventing contamination of the building when the regulated area critical barriers are removed.

3.6.2 REGULATED AREA CLEARANCE

The Contractor's Competent Person shall be responsible for conducting a visual inspection to ensure that all applicable ACM has been completely and adequately removed from non-ACM substrates, and that no dust/debris/contamination remains in the regulated work area prior to removal of regulated work area components. The Owner and/or Owner's Representative reserves the right to conduct a visual inspection. If remaining ACM, dust, debris, contamination, etc. is observed by the Owner and/or Owner's Representative, the ACM, dust, debris, contamination, etc. must be fully removed/cleaned by the contractor to the Owner's and/or Owner's Representative's satisfaction prior to removal of the regulated work area components.

3.6.3 WORK DESCRIPTION

Decontamination includes the cleaning the decontamination and removal of the enclosures/facilities installed prior to the abatement work including primary/critical barriers, PDF and W/EDF facilities.

3.6.4 PRE-DECONTAMINATION CONDITIONS

- A. Before decontamination starts, all ACM waste from the regulated area shall be removed, all waste collected and removed, and the secondary barrier of poly removal and disposed of along with any gross debris generated by the work.
- B. At the start of decontamination, the following shall be in place:
 - 1. Critical barriers over all openings consisting of two layers of 6 mil poly which is the sole barrier between the regulated area and the rest of the building or outside.
 - 2. Decontamination facilities, if required for personnel and equipment in operating condition.

3.6.5. CLEANING

Carry out a first cleaning of all surfaces of the regulated area including items of remaining poly sheeting, tools, scaffolding, ladders/staging by wet methods and/or HEPA vacuuming. Do not use dry dusting/sweeping/air blowing methods. Use each surface of a wetted cleaning cloth one time only and then dispose of as contaminated waste. Continue this cleaning until there is no visible residue from abated surfaces or poly or other surfaces. Remove all filters in the air handling system and dispose of as ACM waste in accordance with these specifications. The negative pressure system shall remain in operation during this time. Additional cleaning(s) may be needed as determined by the Owner's Representative.

3.7 VISUAL INSPECTION AND AIR CLEARANCE TESTING

Given that the building is being demolished and not re-occupied, air clearance is not required. However, the Owner and/or Owner's Representative reserve the right to conduct final visual inspections and air clearance testing during the project. The Owner may utilize a third-party to conduct any final visual inspections and air clearance testing services.

3.7.1 GENERAL

The Contractor's Competent Person shall be responsible for conducting a visual inspection to ensure that all applicable ACM has been completely and adequately removed from non-ACM substrates, and that no dust/debris/contamination remains in the regulated work area prior to removal of regulated work area components. The Owner and/or Owner's Representative reserves the right to conduct a visual inspection. Notify the Owner's Representative two business days in advance for the performance of the final visual inspection and any air clearance testing.

3.7.2 VISUAL INSPECTION

The final visual inspection will include the entire regulated area, all poly sheeting, seals over HVAC openings, doorways, windows, and any other openings. If any debris, residue, dust or any other suspect material is detected, the cleaning shall be repeated at no cost to the Owner. Dust/material samples may be collected and analyzed at no cost to the Owner at the discretion of the Owner and/or Owner's Representative to confirm visual findings. When the regulated area is visually clean the final testing, if applicable, can be done.

3.7.3 AIR CLEARANCE TESTING

- A. Air clearance testing will not be required. However, the visual inspection must meet with the approval of the Contractor's Competent Person. The Owner's Representative reserves the right to conduct a final visual inspection during the project, and if conducted, must meet with the Owner's and/or Owner's Representative's satisfaction.
- B. Once the final visual inspection is deemed successful by the Contractor's Competent, or by the Owner's Representative if conducted by the Owner's Representative, and if air clearance testing is conducted, a minimum of three air samples by NIOSH 7400 – PCM shall be collected. The laboratory for PCM analysis must be proficient and current in the AIHA PAT program, and the results must be available to the Owner and Owner Representative within one business day of sampling completion. The final visual inspection and any air clearance testing results shall be documented in the Contractor's final closeout report. The Owner and/or Owner's representative reserves the right to review any and all air sampling analytical data and reports, and also reserves the right to conduct and collect their own PCM air clearance. For any air clearance that "fails", either conducted by the Contractor or the Owner's Representative, the Contractor shall reclean and re-test until each of the three air samples has a result of at or below 0.01 f/cc.

3.7.4 FINAL AIR CLEARANCE PROCEDURES

- A. Work in a regulated area is complete when the regulated area is visually clean and, if conducted, airborne fiber levels have been reduced to or below 0.01 f/cc as measured by the NIOSH 7400 – PCM with the collection and analysis of a minimum of three air samples (each of the three air samples must have a result at or below 0.01 f/cc).

3.7.5 LABORATORY TESTING OF PCM CLEARANCE SAMPLES

If PCM clearance is conducted, the accredited laboratory shall be successfully participating in the AIHA Proficiency Analytical Testing (PAT) program. Failed clearance tests will require the Contractor to reclean the work area at their own expense until passing results have been successfully achieved.

3.8 ABATEMENT CLOSEOUT AND CERTIFICATE OF COMPLIANCE

3.8.1 COMPLETION OF ABATEMENT WORK

- A. After thorough decontamination, complete asbestos abatement work upon meeting the regulated area clearance criteria and fulfilling the following:
 1. Remove all equipment, materials, and debris from the project area.
 2. Package and dispose of all asbestos waste as required.
 3. Repair or replace all interior finishes damaged during the abatement work.
 4. Fulfill other project closeout requirements as specified elsewhere in this specification. Include a final closeout report to the Owner within 20 business days of project completion. The Contractor's final closeout report shall include at a minimum, the following:
 - A written summary of the completed abatement work (e.g., summary listing the ACMs, approximately total quantities of ACMs, and locations of ACMs removed from the site)
 - A copy of any abatement notifications
 - A copy of all applicable worker and competent person training certificates, and state licenses

- A copy of the abatement contractor's state license to perform asbestos abatement work
- Copies of the completed forms attached to this specification as Attachments #1 through #4
- A copy of all personal air samples results
- A copy of all visual inspection and air clearance results/documentation
- A copy of all waste manifests.

3.8.2 CERTIFICATE OF COMPLETION BY CONTRACTOR

The Contractor shall complete and sign the "Certificate of Completion" in accordance with Attachment 1 at the completion of the abatement and decontamination of the regulated areas.

3.8.3 WORK SHIFTS

All work shall be done during normal business hours (8:00 AM to 5:00 PM) Monday - Friday excluding Federal Holidays. Any change in the work schedule must be approved in writing by the Owner.

ATTACHMENT #1
CERTIFICATE OF COMPLETION

DATE: _____ Owner's Project #: _____

PROJECT NAME: _____ Abatement Contractor: _____

ADDRESS: _____

1. I certify that I have personally inspected, monitored and supervised the abatement work of (specify regulated area or Building):
which took place from / / to / /
2. That throughout the work all applicable requirements/regulations and the specifications were met.
3. That any person who entered the regulated area was protected with the appropriate personal protective equipment and respirator and that they followed the proper entry and exit procedures and the proper operating procedures for the duration of the work.
4. That all employees of the Abatement Contractor engaged in this work were trained in respiratory protection, were experienced with abatement work, had proper medical surveillance documentation, were fit-tested for their respirator, and were not exposed at any time during the work to asbestos without the benefit of appropriate respiratory protection.
5. That I performed and supervised all inspection and testing specified and required by applicable regulations and Owner specifications.
6. That the conditions inside the regulated area were always maintained in a safe and healthy condition and the maximum fiber count never exceeded 0.5 f/cc, except as described below.
7. That all abatement work was done in accordance with OSHA requirements and the manufacturer's recommendations.

Contractor Signature/Date: _____

Contractor Print Name: _____

ATTACHMENT #2

CERTIFICATE OF WORKER'S ACKNOWLEDGMENT

PROJECT NAME: _____ DATE: _____

PROJECT ADDRESS: _____

ABATEMENT CONTRACTOR'S NAME: _____

WORKING WITH ASBESTOS CAN BE HAZARDOUS TO YOUR HEALTH. INHALING ASBESTOS HAS BEEN LINKED WITH VARIOUS TYPES OF CANCERS. IF YOU SMOKE AND INHALE ASBESTOS FIBERS, YOUR CHANCES OF DEVELOPING LUNG CANCER IS GREATER THAN THAT OF THE NON-SMOKING PUBLIC.

Your employer's contract with the Owner for the above project requires that: You must be supplied with the proper personal protective equipment including an adequate respirator and be trained in its use. You must be trained in safe and healthy work practices and in the use of the equipment found at an asbestos abatement project. You must receive/have a current medical examination for working with asbestos. These things shall be provided at no cost to you. By signing this certificate, you are indicating to the Owner that your employer has met these obligations.

RESPIRATORY PROTECTION: I have been trained in the proper use of respirators and have been informed of the type of respirator to be used on the above indicated project. I have a copy of the written Respiratory Protection Program issued by my employer. I have been provided for my exclusive use, at no cost, with a respirator to be used on the above indicated project.

TRAINING COURSE: I have been trained by a third party, State/EPA accredited trainer in the requirements for an AHERA/OSHA Asbestos Abatement Worker training course, 32 hours minimum duration. I currently have a valid State accreditation certificate. The topics covered in the course include, as a minimum, the following:

- Physical Characteristics and Background Information on Asbestos

- Potential Health Effects Related to Exposure to Asbestos

- Employee Personal Protective Equipment

- Establishment of a Respiratory Protection Program

- State of the Art Work Practices

- Personal Hygiene

- Additional Safety Hazards

- Medical Monitoring

- Air Monitoring

- Relevant Federal, State and Local Regulatory Requirements, Procedures, and Standards

- Asbestos Waste Disposal

MEDICAL EXAMINATION: I have had a medical examination within the past 12 months which was paid for by my employer. This examination included: health history, occupational history, pulmonary function test, and may have included a chest x-ray evaluation. The physician issued a positive written opinion after the examination.

Signature: _____

Printed Name: _____

ATTACHMENT #3

AFFIDAVIT OF MEDICAL SURVEILLANCE, RESPIRATORY PROTECTION AND
TRAINING/ACCREDITATION

PROJECT NAME AND NUMBER: _____

FACILITY: _____

ABATEMENT CONTRACTOR'S NAME AND ADDRESS: _____

1. I verify that the following individual
Name: _____
who is proposed to be employed in asbestos abatement work associated with the above project by the named Abatement Contractor, is included in a medical surveillance program in accordance with 29 CFR 1926.1101(m), and that complete records of the medical surveillance program as required by 29 CFR 1926.1101 (m)(n) and 29 CFR 1910.20 are kept at the offices of the Abatement Contractor at the following address.
Address: _____
2. I verify that this individual has been trained, fit-tested and instructed in the use of all appropriate respiratory protection systems and that the person is capable of working in safe and healthy manner as expected and required in the expected work environment of this project.
3. I verify that this individual has been trained as required by 29 CFR 1926.1101(k). This individual has also obtained a valid State accreditation certificate. Documentation will be kept on-site.
4. I verify that I meet the minimum qualifications criteria of the specifications.

Signature of Contractor: _____ Date: _____

Printed Name of Contractor: _____

ATTACHMENT #4

ABATEMENT CONTRACTOR REVIEW AND ACCEPTANCE OF THE OWNER'S ASBESTOS SPECIFICATIONS

Project Location: _____

Owner's Project #: _____

Project Description: _____

This form shall be signed by the Asbestos Abatement Contractor prior to any start of work at the site related to this Specification. If the Asbestos Abatement Contractor has not signed this form, they shall not be allowed to work on-site.

I, the undersigned, have read the Asbestos Abatement Specification regarding the asbestos abatement requirements. I understand the requirements of the Owner's Asbestos Specification and agree to follow these requirements as well as all required rules and regulations of OSHA/EPA/DOT and State/Local requirements. I have been given ample opportunity to read the Asbestos Abatement Specification and have been given an opportunity to ask any questions regarding the content and have received a response related to those questions. I do not have any further questions regarding the content, intent, and requirements of the Asbestos Abatement Specification.

At the conclusion of the asbestos abatement, I will certify that all asbestos abatement work was done in accordance with the Asbestos Abatement Specification and all ACM was removed properly and no fibrous residue remains on any abated surfaces.

Abatement Contractor Signature _____ Date _____

Abatement Contractor Printed Name _____

ATTACHMENT #5: EXTENT OF ABATEMENT WORK

Former West Fork Incinerator Building
3200 Millcreek Road
Cincinnati, Hamilton County, Ohio 45223

Material Description	Material Location(s)	% and Type Asbestos	EPA NESHAP Material Category	Friability/Condition	Estimated Quantity*
Gray Interior Door Caulking	Basement, southeast door to incinerators	8% Chrysotile	Regulated Asbestos-Containing Material (RACM); due to poor condition	Friable/Poor	~ 3 Square Feet (SF) or 1 Door
White Interior Window Glazing	Associated with interior side of windows in 2 nd level south conveyor room	1.3% Chrysotile by Point Count (PC)	RACM; due to poor condition	Friable/Poor	~ 13 SF or 13 Windows
Gray Interior Window Caulking	Associated with interior side of windows in 2 nd level south conveyor room	5% Chrysotile	RACM; due to poor condition	Friable/Poor	~ 13 SF or 13 Windows
Black Tar	Associated with the expansion joints in the concrete flooring of the basement/ash level	5% Chrysotile	Category II Non-Friable	Non-Friable/Good	~ 50 SF
White Gasket Material	Associated with access door to incinerators	65% Chrysotile	RACM	Friable/Good	~ 20 SF
Fire Door Insulation	Door to boiler room, stairwell doors, 1 st / furnace level north and south closet doors	65% Chrysotile	RACM	Friable/Good	~ 256 SF or 8 Doors
White Exterior Window Glazing	Associated with locker room windows, office windows, northwest restroom window, hallway to office window, north and south room of 1 st level windows	0.50% Chrysotile by PC	Not Regulated (<1%) under NESHAP, however, regulated under OHSA	Friable/Poor	~ 24 SF or 24 Windows
White Exterior Window Glazing	Associated with main windows throughout the building	0.50% Chrysotile by PC	Not Regulated (<1%) under NESHAP, however, regulated under OHSA	Friable/Poor	~ 404 SF or 404 Windows Panes
Tar Paper Layer within Non-Asbestos-Containing Tar Built-Up Roof	Garage roof	20% Chrysotile	Category I Non-Friable	Non-Friable/Good	~ 6,500 SF
Tar Roof Flashing	Garage roof flashing	20% Chrysotile	Category I Non-Friable	Non-Friable/Good	~ 350 SF

Material Description	Material Location(s)	% and Type Asbestos	EPA NESHAP Material Category	Friability/ Condition	Estimated Quantity*
White Interior Window Glazing	Associated with window to the crane operator boxes	1.5% Chrysotile by PC	RACM; due to poor condition	Friable/Poor	~ 21 SF or 42 Windows Panes
Black Backer Board	Fuse boxes associated with crane control systems	20% Chrysotile	Category II Non-Friable	Non-Friable/ Good	~ 500 SF
Cementitious Panels	Within the 2 nd level northeast electrical box	15% Chrysotile	Category II Non-Friable	Non-Friable/ Good	~ 2 SF
Gray Exterior Door Caulking	Associated with the exterior side of the Northeast garage doors and adjacent doors, northwest door to office	7% Chrysotile	RACM; due to poor condition	Friable/Poor	~ 8 SF or 4 Doors
White Paper Backing	Associated with light at north entrance to office area	65% Chrysotile	RACM	Friable/Good	~ 1 SF or 1 Light Fixture
Black Mastic under Non-Asbestos-Containing 12"x12" Gray Floor Tile	Office flooring	5% Chrysotile	Category I Non-Friable	Non-Friable /Good	~ 1,000 SF
Brown Glue Dots associated with Non-Asbestos-Containing 12"x12" White Ceiling Tile with Pinhole Patterns	Office ceiling	2% Chrysotile	Category II Non-Friable	Non-Friable/ Good	~ 1,000 SF
9"x9" Blue and Red Checkered Floor Tile and Black Mastic	Office restroom	Floor Tile: 7% Chrysotile Mastic: 5% Chrysotile	Category I Non-Friable	Non-Friable/ Good	~ 300 SF
Built-Up Tar Roof	Central incinerator roof	Not Sampled, Assumed ACM (>1%)	Category I Non-Friable	Non-Friable/ Good	~ 5,000 SF
Air-Cell Pipe Insulation and Mudded Fitting Insulation	Associated with steam and hot water pipes throughout the building	50% Chrysotile	RACM	Friable/Poor	~ 2,500 Linear Feet (LF)
Cementitious Pipe Fitting Insulation	Associated with fiberglass insulated pipes throughout the building	30% Chrysotile	RACM	Friable/Poor	~ 150 LF or 150 Fittings

Material Description	Material Location(s)	% and Type Asbestos	EPA NESHAP Material Category	Friability/ Condition	Estimated Quantity*
Cementitious Insulation and Wire Mesh	Furnace breeching on the 1 st Level	35% Chrysotile	RACM	Friable/Poor	~ 100 SF
Preformed Block Pipe Insulation	Hot water storage tank in boiler room basement	20% Chrysotile	RACM	Friable/Poor	~ 150 SF
Preformed Block Insulation	Small package boiler in boiler room basement near furnaces 1 and 2	5% Amosite, 2% Chrysotile, 5% Crocidolite	RACM	Friable/Poor	~ 200 SF
Rope Gasket Material	In debris pile in small storage room adjacent to furnace 3 and 4	80% Chrysotile	RACM	Friable/Poor	~ 50 SF
Mineral/Glass Wool Insulation	Inside expansion chamber sidewalls	5% Chrysotile	RACM	Friable/Poor	~ 22,000 SF
Mineral/Glass Wool Insulation	Exterior of the metal jacket encasing the portions of the rectangular expansion chambers	4% Chrysotile	RACM	Friable/Poor	
Trowel-Applied Fibrous Insulation	Inside the side walls of the expansion chambers leading to the incinerator exhaust stacks	40% Chrysotile	RACM	Friable/Poor	~ 5,000 SF
Asphalt-Based Roofing Membrane	Roof of the expansion chamber/tunnel leading to the incinerator stacks	15% Chrysotile	Category I Non-Friable	Non-Friable/ Good	~ 4,000 SF
Transite Panels	Lining the parapet wall around the perimeter of the roof of the expansion chamber/tunnel	20% Chrysotile	Category II Non-Friable	Non-Friable/ Good	~ 300 SF
4" Band of Cement	Expansion Chambers - Ceilings Around Refractory and Block	Assumed to be Asbestos Containing as Noted on the As-Built Drawing and Present	RACM	Friable/ Unknown	6,400 Square Feet (SF)

Material Description	Material Location(s)	% and Type Asbestos	EPA NESHAP Material Category	Friability/ Condition	Estimated Quantity*
¼" Corrugated Paper in Vertical Wall Joints	Expansion Chambers - Walls (Every 27" to 45")	Assumed to be Asbestos Containing as Noted on the As-Built Drawing and Present	RACM	Friable/ Unknown	500 SF

***The Abatement Contractor is solely responsible for determining their opinion of quantities to be removed.**

NESHAP Material Categories:

RACM - Must be properly removed and disposed by a state-licensed asbestos abatement contractor prior to demolition.

Category I Non-Friable - Must be properly removed and disposed prior to demolition by a state-licensed asbestos abatement contractor if, the material has become friable, or will be or has been subjected to sanding, grinding, cutting, or abrading. Vinyl floor tile cannot be broken into pieces smaller than 4 square inches, if it will, it must first be removed as it would be considered RACM by the Ohio EPA. If any Category I Non-friable ACM is left in place for demolition, the contractor must comply with OSHA 1926.1101 when disturbing and disposing. If left in place and the material has remained non-friable, the non-friable asbestos waste mixed with non-ACM demolition debris must be disposed at a construction and demolition debris landfill which is permitted to accept non-friable asbestos waste. Concrete with asbestos-containing tile/mastic cannot be recycled and would need to be first properly removed if the concrete were to be recycled.

Category II Non-Friable - Must be removed prior to demolition.

1% or <1% Asbestos (not regulated by NESHAP) - Contractors who disturb and dispose of such materials are responsible for OSHA compliance when disturbing and disposing.

--- E N D ---

ATTACHMENT #6: ASBESTOS INSPECTION REPORT

Asbestos Inspection Report

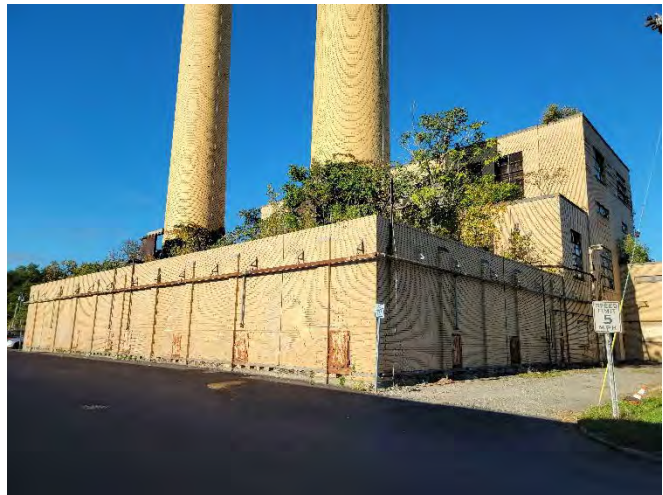
Former West Fork Incinerator

3200 Millcreek Road

Cincinnati, Hamilton County, Ohio 45223

November 14, 2022

Terracon Project No. N1227040



Prepared for:

City of Cincinnati
Cincinnati, Ohio 45202

Prepared by:

Terracon Consultants, Inc.
Cincinnati, Ohio

terracon.com

Terracon

Environmental



Facilities



Geotechnical



Materials



November 14, 2022

City of Cincinnati
Office of Environment and Sustainability
801 Plum Street, Suite 130
Cincinnati, Ohio 45202

Attention: Mr. Howard Miller, CPG, CHMM
Senior Environmental Safety Specialist

Re: Asbestos Inspection Report
Former West Fork Incinerator
3200 Millcreek Road
Cincinnati, Hamilton County, Ohio 45223
Terracon Project No. N1227040

Dear Mr. Miller:

Terracon Consultants, Inc. (Terracon) is pleased to submit the attached asbestos inspection report for the above-referenced site to City of Cincinnati (Client). The purpose of this report is to present the results of an asbestos inspection, which was performed at the site on September 28 and 29, 2022 and October 26, 2022, and which was conducted in general accordance with our proposal number PN1227040, dated February 24, 2022. We understand that this inspection was requested for the purpose of the future planned demolition regarding the former West Fork Incinerator building located at 3200 Millcreek Road in Cincinnati, Ohio.

Asbestos-containing materials (ACM) were identified as a result of this inspection. Please refer to the attached report for details.

Terracon appreciates the opportunity to provide this service to the City of Cincinnati. If you have any questions regarding this report, please contact the undersigned at 513-321-5816.

Sincerely,
Terracon Consultants, Inc.

Joshua Vogel
Group Manager

Joseph Tussey, CHMM
Senior Associate

Terracon Consultants, Inc. 611 Lunken Park Drive Cincinnati, OH 45226-1813
P (513) 321-5816 F (513) 321-0294 terracon.com

Asbestos Inspection Report

Former West Fork Incinerator Building ■ 3200 Millcreek Rd., Cincinnati, OH
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ASBESTOS INSPECTION REPORT
Former West Fork Incinerator Building
3200 Millcreek Road
Cincinnati, Hamilton County, Ohio 45223
Terracon Project No. N1227040
November 14, 2022

1.0 INTRODUCTION

Terracon Consultants, Inc. (Terracon) conducted an asbestos inspection of the former West Fork Incinerator building located at 3200 Millcreek Road in Cincinnati, Ohio. The inspection was conducted at the site on September 28 and 29, 2022 and October 26, 2022 by Ohio EPA (OEPA)-certified Asbestos Hazard Evaluation Specialists (AHES) in general accordance with Terracon proposal number PN1227040, dated February 24, 2022. Accessible interior and exterior building components associated with the building were inspected. Accessible homogeneous areas of suspect asbestos-containing materials (ACM) were visually identified and documented. Although reasonable effort was made to inspect accessible suspect materials, additional suspect but un-sampled materials could be located in walls, below the subsurface, in voids, or in other concealed areas. Bulk samples from suspect ACM were collected in general accordance with the sampling protocols outlined in United States Environmental Protection Agency (USEPA) 40 Code of Federal Regulations (CFR) Part 763, Subpart E, known as the Asbestos Hazard Emergency Response Act (AHERA). Samples were delivered to an accredited laboratory for analysis of asbestos-content by polarized light microscopy (PLM) analysis.

A previous asbestos report for the site was provided by the Client to Terracon for review prior to the field inspection. Pertinent information from previous report was utilized where feasible in conjunction with our current inspection (e.g., Terracon did not re-collect samples of suspect ACM which had been previously confirmed by laboratory analysis to contain asbestos). A copy of previous report information is included in **Appendix G (Client-Provided Information)**.

1.1 Project Objective

We understand that this inspection was requested for the purpose of a future planned demolition of the former West Fork Incinerator building located at 3200 Millcreek Road in Cincinnati, Ohio. Asbestos inspections are required prior to renovation and demolition activities to satisfy requirements of the USEPA 40 CFR Part 61, Subpart M, the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulation and Ohio Administrative Code (OAC) 3745-20.

1.2 Reliance

This report is for the exclusive use of the City of Cincinnati (Client) for the project being discussed. Reliance by any other party on this report is prohibited without written authorization of Terracon

and the Client. Reliance on this report by the Client and all authorized parties will be subject to the terms, conditions, and limitations stated in the proposal, this report, and the Agreement between Terracon and the Client. The limitations of liability defined in the Agreement is the aggregate limit of Terracon's liability to the Client.

2.0 BUILDING DESCRIPTION

The subject building is a former incinerator building located at 3200 Millcreek Road in Cincinnati, Ohio and consists of a three-story, approximately 25,000 square foot building constructed in 1948 with an attached approximately 2,000 square foot office space. The western portion of the building is a covered garage space, the eastern and southern portion of the building includes the incinerator system and smokestacks, and the northern portion of the building is office space. The building's flat roof sections consist of built-up tar roofs. **Appendix F** includes general floor plan diagrams (not to scale) of the site structure.

3.0 FIELD ACTIVITIES

The inspection was conducted by Mr. Joshua Vogel, Mr. Lem Weyer, and Mr. Michael Sulken who are OEPA certified AHES. Copies of their current OEPA AHES credentials are attached in **Appendix D**. The inspection was conducted in general accordance with the sample collection protocols established in USEPA 40 CFR Part 763, Subpart E, Section 763.86, AHERA. A summary of inspection activities is provided below.

3.1 Visual Assessment

Inspection activities were initiated with visual observation of the accessible interior and exterior areas of the subject site structure to identify homogeneous areas of suspect ACM. A homogeneous area (HA) consists of building materials that appear similar throughout in terms of color and texture with consideration given to the date of application.

3.2 Physical Assessment

A physical assessment of each HA of suspect ACM was conducted to assess the friability and condition of the materials. A friable material is defined by the USEPA as a material which can be crumbled, pulverized, or reduced to powder by hand pressure when dry. Friability was assessed by physically touching suspect materials.

3.3 Sample Collection

Based on results of the visual observation, bulk samples of suspect ACM were collected in general accordance with USEPA AHERA sampling protocols. Samples of suspect materials were collected from randomly selected locations in each homogeneous area. Bulk samples were

collected using wet methods as applicable to reduce the potential for fiber release. Samples were placed in sealable containers and labeled with unique sample numbers using an indelible marker. The selection of sample locations and frequency of sampling were based on Terracon's observations and the assumption that like materials in the same area are homogeneous in content.

Terracon collected a total of 133 bulk samples from 44 homogeneous areas of suspect ACM. A summary of samples collected from homogenous areas of suspect ACM is included in **Appendix B**. Sample locations are indicated on drawings included in **Appendix F**.

3.4 Sample Analysis

Bulk samples were submitted under chain of custody to Eurofins CEI, Inc. (CEI) of Cary, North Carolina for analysis by polarized light microscopy (PLM) with dispersion staining techniques per USEPA methodology 600/R-93/116. The percentage of asbestos, where applicable, was determined by microscopic visual estimation using PLM. When applicable for friable materials identified by PLM to contain a low concentration of asbestos, the additional point count method (400 points) was utilized for a more accurate quantification. CEI is accredited for PLM analysis under the National Voluntary Laboratory Accreditation Program (NVLAP), accreditation number 101768-0. A summary of results is included with the summary of collected samples in **Appendix B**. The laboratory analytical report is included in **Appendix C**.

4.0 REGULATORY OVERVIEW

The federal asbestos NESHAP (40 CFR Part 61, Subpart M) regulates asbestos fiber emissions and asbestos waste disposal practices. The asbestos NESHAP regulation also requires the identification and classification of existing ACM according to friability prior to demolition or renovation activity. Friable ACM is a material containing more than 1% asbestos that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. All friable ACM is considered regulated asbestos-containing material (RACM).

The asbestos NESHAP regulation classifies material subject to demolition or renovation as either RACM, Category I Non-Friable ACM, or Category II Non-Friable ACM. RACM includes all friable ACM (pre-disturbance), along with Category I Non-Friable ACM that becomes friable (during disturbance), and Category I Non-Friable ACM subject to sanding, grinding, cutting, or abrading, or Category II Non-Friable ACM with a high probability of becoming crumbled, pulverized, or reduced to powder by forces expected to act on the material during disturbance. Category I Non-Friable ACM are exclusively asbestos-containing packings, gaskets, resilient floor coverings, and asphalt roofing products that contain more than 1% asbestos. Category II Non-Friable ACM are all other non-friable materials (other than Category I Non-Friable ACM) that contain more than 1% asbestos. Category II Non-Friable ACM generally includes (but is not limited to) cementitious

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material such as: cement pipes, cement siding (Transite™), cement panels, glazing, mortar, and grouts.

The OEPA adopted Chapter 3745-20 of the Ohio Administrative Code (OAC) and implements the federal Asbestos NESHAP. The owner or operator must provide the OEPA district office or local air agency with written notification at least 10 business days prior to the commencement of demolition projects. The OEPA also regulates friable asbestos abatement activities, asbestos personnel training, and issuance of asbestos professional certifications under OAC 3745-22. OEPA audits asbestos abatement projects and responds to public health emergencies where friable ACMs has been released; licensed contractors must submit a 10-business day notification prior to an abatement project where friable ACMs in quantities greater than 50 linear or 50 square feet are to be removed. Please note that per OEPA regulations, non-friable floor tile if broken into pieces four (4) square inches or smaller are considered friable, and thus, RACM.

The United States Occupational Safety and Health Administration (USOSHA) asbestos standard for construction (29 CFR 1926.1101) regulates workplace exposure to asbestos. The USOSHA standard requires that employee exposure to airborne asbestos must not exceed 0.1 fibers per cubic centimeter of air (0.1 f/cc) as an eight-hour time weighted average (TWA) and not exceed 1.0 fibers per cubic centimeter of air (1.0 f/cc) over a 30-minute time period known as an excursion limit (EL). The TWA and EL are known as USOSHA's asbestos permissible exposure limits (PEL). The USOSHA standard classifies construction and maintenance activities which could disturb ACM and specifies work practices and precautions which employers must follow when engaging in each class of regulated work.

5.0 FINDINGS AND RECOMMENDATIONS

Based on the results of laboratory analysis regarding samples collected and based on information from Client-provided previous asbestos report documentation, the materials listed below were identified to contain asbestos. Additionally, when applicable for certain suspect materials that could not be safely sampled, such materials have been assumed to contain asbestos and are also listed below.

ACM Description	Material Location(s)	% and Type Asbestos	EPA NESHAP Material Category	Condition	Estimated Quantity*
Gray Interior Door Caulking	Basement, southeast door to incinerators	8% Chrysotile	Regulated Asbestos-Containing Material (RACM); due to poor condition	Friable/Poor	~ 3 Square Feet (SF) or 1 Door
White Interior Window Glazing	Associated with interior side of windows in 2 nd level south conveyor room	1.3% Chrysotile by Point Count (PC)	RACM; due to poor condition	Friable/Poor	~ 13 SF or 13 Windows

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ACM Description	Material Location(s)	% and Type Asbestos	EPA NESHAP Material Category	Condition	Estimated Quantity*
Gray Interior Window Caulking	Associated with interior side of windows in 2 nd level south conveyor room	5% Chrysotile	RACM; due to poor condition	Friable/Poor	~ 13 SF or 13 Windows
Black Tar	Associated with the expansion joints in the concrete flooring of the basement/ash level	5% Chrysotile	Category II Non-Friable	Non-Friable/Good	~ 50 SF
White Gasket Material	Associated with access door to incinerators	65% Chrysotile	RACM	Friable/Good	~ 20 SF
Fire Door Insulation	Door to boiler room, stairwell doors, 1 st / furnace level north and south closet doors	65% Chrysotile	RACM	Friable/Good	~ 256 SF or 8 Doors
White Exterior Window Glazing	Associated with locker room windows, office windows, northwest restroom window, hallway to office window, north and south room of 1 st level windows	0.50% Chrysotile by PC	Not Regulated (<1%) under NESHAP, however, regulated under OSHA	Friable/Poor	~ 24 SF or 24 Windows
White Exterior Window Glazing	Associated with main windows throughout the building	0.50% Chrysotile by PC	Not Regulated (<1%) under NESHAP, however, regulated under OSHA	Friable/Poor	~ 404 SF or 404 Windows Panes
Tar Paper Layer within Non-Asbestos-Containing Tar Built-Up Roof	Garage roof	20% Chrysotile	Category I Non-Friable	Non-Friable/Good	~ 6,500 SF
Tar Roof Flashing	Garage roof flashing	20% Chrysotile	Category I Non-Friable	Non-Friable/Good	~ 350 SF
White Interior Window Glazing	Associated with window to the crane operator boxes	1.5% Chrysotile by PC	RACM; due to poor condition	Friable/Poor	~ 21 SF or 42 Windows Panes
Black Backer Board	Fuse boxes associated with crane control systems	20% Chrysotile	Category II Non-Friable	Non-Friable/Good	~ 500 SF
Cementitious Panels	Within the 2 nd Level northeast electrical box	15% Chrysotile	Category II Non-Friable	Non-Friable/Good	~ 2 SF
Gray Exterior Door Caulking	Associated with the exterior side of the northeast garage doors and adjacent doors, northwest door to office	7% Chrysotile	RACM; due to poor condition	Friable/Poor	~ 8 SF or 4 Doors

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ACM Description	Material Location(s)	% and Type Asbestos	EPA NESHAP Material Category	Condition	Estimated Quantity*
White Paper Backing	Associated with light at north entrance to office area	65% Chrysotile	RACM	Friable/Good	~ 1 SF or 1 Light Fixture
Black Mastic under Non-Asbestos-Containing 12"x12" Gray Floor Tile	Office flooring	5% Chrysotile	Category I Non-Friable	Non-Friable/Good	~ 1,000 SF
Brown Glue Dots associated with Non-Asbestos-Containing 12"x12" White Ceiling Tile with Pinhole Patterns	Office ceiling	2% Chrysotile	Category II Non-Friable	Non-Friable/Good	~ 1,000 SF
9"x9" Blue and Red Checkered Floor Tile and Black Mastic	Office restroom	Floor Tile: 7% Chrysotile Mastic: 5% Chrysotile	Category I Non-Friable	Non-Friable/Good	~ 300 SF
Built-Up Tar Roof	Central incinerator roof	Not Sampled, Assumed ACM (>1%)	Category I Non-Friable	Non-Friable/Good	~ 5,000 SF
Air-Cell Pipe Insulation and Mudded Fitting Insulation**	Associated with steam and hot water pipes throughout the building	50% Chrysotile	RACM	Friable/Poor	~ 2,500 Linear Feet (LF)
Cementitious Pipe Fitting Insulation**	Associated with fiberglass insulated pipes throughout the building	30% Chrysotile	RACM	Friable/Poor	~ 150 LF or 150 Fittings
Cementitious Insulation and Wire Mesh**	Furnace breeching on the 1 st level	35% Chrysotile	RACM	Friable/Poor	~ 100 SF
Preformed Block Pipe Insulation**	Hot water storage tank in boiler room basement	20% Chrysotile	RACM	Friable/Poor	~ 150 SF
Preformed Block Insulation**	Small package boiler in boiler room basement near furnaces 1 and 2	5% Amosite, 2% Chrysotile, 5% Crocidolite	RACM	Friable/Poor	~ 200 SF
Rope Gasket Material**	In debris pile in small storage room adjacent to furnace 3 and 4	80% Chrysotile	RACM	Friable/Poor	~ 50 SF
Mineral/Glass Wool Insulation**	Inside expansion chamber sidewalls	5% Chrysotile	RACM	Friable/Poor	~22,000 SF
Mineral/Glass Wool Insulation**	Exterior of the metal jacket encasing the portions of the rectangular expansion chambers	4% Chrysotile	RACM	Friable/Poor	

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ACM Description	Material Location(s)	% and Type Asbestos	EPA NESHAP Material Category	Condition	Estimated Quantity*
Trowel-Applied Fibrous Insulation**	Inside the side walls of the expansion chambers leading to the incinerator exhaust stacks	40% Chrysotile	RACM	Friable/Poor	~ 5,000 SF
Asphalt-Based Roofing Membrane**	Roof of the expansion chamber/tunnel leading to the incinerator stacks	15% Chrysotile	Category I Non-Friable	Non-Friable/Good	4,000 SF
Transite Panels**	Lining the parapet wall around the perimeter of the roof of the expansion chamber/tunnel	20% Chrysotile	Category II Non-Friable	Non-Friable/Good	300 SF

***Estimated quantities** listed above are based on a cursory field evaluation, and actual quantities may vary significantly, especially if ACMs are present in hidden and/or inaccessible areas not evaluated as part of this inspection. This is not a bidding document and contractors would be responsible for drawing their own conclusions on quantities present.

****** Material indicated as asbestos containing by laboratory analysis in prior asbestos report documentation – see Client-provided information in **Appendix G**.

The above-listed materials are reiterated in **Appendix A**. A summary of samples collected and results is included in **Appendix B**. The laboratory analytical report is included in **Appendix C**. A log showing example photos of the identified ACM is included in **Appendix E**. Sample location drawings with floor plans (not to scale) are included in **Appendix F**. Prior asbestos report documentation is included in **Appendix E**.

The identified ACM which contain >1% asbestos will need to be taken into consideration by the owner and operator (i.e., contractor) per the federal NESHAP and state-equivalent NESHAP regulations. Under these regulations, it's the owner and operator's responsibility to properly address Regulated Asbestos-Containing Materials (RACM), Category I Non-Friable ACM, and Category II Non-Friable ACM for federal and state regulatory compliance regarding demolition and renovation activities. The federal and state-equivalent NESHAP regulation states remove all RACM (friable ACM) from a facility being demolished or renovated before any activity begins that would break up, dislodge, or similarly disturb the material or preclude access to the material for subsequent removal. Category I Non-Friable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading (or for vinyl floor tile in Ohio, broken into 4 square inches or smaller) is also considered as RACM. Category II Non-Friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduce to power by the forces expected to act on the material in the course of demolition is also considered RACM. A state-licensed asbestos contractor must be retained to remove all RACM prior to building demolition for compliance with the federal and state-equivalent NESHAP regulations. RACM must be properly disposed at a state permitted RACM landfill. The state-licensed asbestos abatement contractor is required to

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notify the Ohio EPA 10-business days prior to removal of RACM when project quantities exceed 50 square or 50 linear feet. Also, the owner or operator is responsible for a 10-business day notification to the state EPA regarding demolition (regardless of the presence or lack of ACM). Additionally, all contractors who disturb materials containing any concentration of asbestos, whether greater than or less than 1% asbestos, must comply with Occupational Safety and Health Administration (OSHA) asbestos regulations.

If additional but unsampled suspect material are discovered during the course of demolition activities (e.g., materials concealed/hidden in walls), those materials should be assumed as asbestos-containing until sampled by an accredited asbestos inspector and laboratory analysis refutes the positive assumption.

6.0 LIMITATIONS/GENERAL COMMENTS

In addition to limitations indicated in other sections of this report, if any, Terracon did not perform sampling which required demolition such as knocking large holes in walls, dismantling of equipment or removal of protective coverings. Reasonable efforts to access suspect materials within known areas of restricted access (e.g., crawl spaces) were made; however, confined spaces or areas which may pose a health or safety risk to Terracon personnel were not sampled. Sampling did not include suspect materials which could not be safely reached with available ladders/man-lifts.

This asbestos inspection was conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the same locale. The results, findings, conclusions, and recommendations expressed in this report are based on conditions observed during our inspection of the building. The information contained in this report is relevant to the date on which this inspection was performed and should not be relied upon to represent conditions at a later date. This report has been prepared on behalf of and exclusively for use by the City of Cincinnati for specific application to their project as discussed. This report is not a bidding document. **Contractors or consultants reviewing this report must draw their own conclusions regarding quantities, further investigation or remediation deemed necessary.** Terracon does not warrant the work of regulatory agencies, laboratories, or other third parties supplying information which may have been used in the preparation of this report. No warranty, express or implied is made.

APPENDIX A

IDENTIFIED ASBESTOS-CONTAINING MATERIALS BY HOMOGENEOUS AREA (HA)

Former West Fork Incinerator Building
3200 Millcreek Road
Cincinnati, Hamilton County, Ohio 45223
Terracon Project No. N1227040

HA No.	Material Description	Material Location(s)	% and Type Asbestos	EPA NESHAP Material Category	Friability/Condition	Estimated Quantity*
22	Gray Interior Door Caulking	Basement, southeast door to incinerators	8% Chrysotile	Regulated Asbestos-Containing Material (RACM); due to poor condition	Friable/Poor	~ 3 Square Feet (SF) or 1 Door
23	White Interior Window Glazing	Associated with interior side of windows in 2 nd level south conveyor room	1.3% Chrysotile by Point Count (PC)	RACM; due to poor condition	Friable/Poor	~ 13 SF or 13 Windows
24	Gray Interior Window Caulking	Associated with interior side of windows in 2 nd level south conveyor room	5% Chrysotile	RACM; due to poor condition	Friable/Poor	~ 13 SF or 13 Windows
25	Black Tar	Associated with the expansion joints in the concrete flooring of the basement/ash level	5% Chrysotile	Category II Non-Friable	Non-Friable/Good	~ 50 SF
26	White Gasket Material	Associated with access door to incinerators	65% Chrysotile	RACM	Friable/Good	~ 20 SF
27	Fire Door Insulation	Door to boiler room, stairwell doors, 1 st /furnace level north and south closet doors	65% Chrysotile	RACM	Friable/Good	~ 256 SF or 8 Doors
28	White Exterior Window Glazing	Associated with locker room windows, office windows, northwest restroom window, hallway to office window, north and south room of 1 st level windows	0.50% Chrysotile by PC	Not Regulated (<1%) under NESHAP, however, regulated under OSHA	Friable/Poor	~ 24 SF or 24 Windows

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HA No.	Material Description	Material Location(s)	% and Type Asbestos	EPA NESHAP Material Category	Friability/Condition	Estimated Quantity*
29	White Exterior Window Glazing	Associated with main windows throughout the building	0.50% Chrysotile by PC	Not Regulated (<1%) under NESHAP, however, regulated under OHSA	Friable/Poor	~ 404 SF or 404 Windows Panes
30	Tar Paper Layer within Non-Asbestos-Containing Tar Built-Up Roof	Garage roof	20% Chrysotile	Category I Non-Friable	Non-Friable/Good	~ 6,500 SF
31	Tar Roof Flashing	Garage roof flashing	20% Chrysotile	Category I Non-Friable	Non-Friable/Good	~ 350 SF
32	White Interior Window Glazing	Associated with window to the crane operator boxes	1.5% Chrysotile by PC	RACM; due to poor condition	Friable/Poor	~ 21 SF or 42 Windows Panes
33	Black Backer Board	Fuse boxes associated with crane control systems	20% Chrysotile	Category II Non-Friable	Non-Friable/Good	~ 500 SF
34	Cementitious Panels	Within the 2 nd level northeast electrical box	15% Chrysotile	Category II Non-Friable	Non-Friable/Good	~ 2 SF
38	Gray Exterior Door Caulking	Associated with the exterior side of the Northeast garage doors and adjacent doors, northwest door to office	7% Chrysotile	RACM; due to poor condition	Friable/Poor	~ 8 SF or 4 Doors
39	White Paper Backing	Associated with light at north entrance to office area	65% Chrysotile	RACM	Friable/Good	~ 1 SF or 1 Light Fixture
40	Black Mastic under Non-Asbestos-Containing 12"x12" Gray Floor Tile	Office flooring	5% Chrysotile	Category I Non-Friable	Non-Friable/Good	~ 1,000 SF
41	Brown Glue Dots associated with Non-Asbestos-Containing 12"x12" White Ceiling Tile with Pinhole Patterns	Office ceiling	2% Chrysotile	Category II Non-Friable	Non-Friable/Good	~ 1,000 SF
42	9"x9" Blue and Red Checkered Floor Tile and Black Mastic	Office restroom	Floor Tile: 7% Chrysotile Mastic: 5% Chrysotile	Category I Non-Friable	Non-Friable/Good	~ 300 SF

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HA No.	Material Description	Material Location(s)	% and Type Asbestos	EPA NESHAP Material Category	Friability/Condition	Estimated Quantity*
45	Built-Up Tar Roof	Central incinerator roof	Not Sampled, Assumed ACM (> 1%)	Category I Non-Friable	Non-Friable/Good	~ 5,000 SF
-	Air-Cell Pipe Insulation and Mudded Fitting Insulation**	Associated with steam and hot water pipes throughout the building	50% Chrysotile	RACM	Friable/Poor	~ 2,500 Linear Feet (LF)
-	Cementitious Pipe Fitting Insulation**	Associated with fiberglass insulated pipes throughout the building	30% Chrysotile	RACM	Friable/Poor	~ 150 LF or 150 Fittings
-	Cementitious Insulation and Wire Mesh**	Furnace breeching on the 1 st Level	35% Chrysotile	RACM	Friable/Poor	~ 100 SF
-	Preformed Block Pipe Insulation**	Hot water storage tank in boiler room basement	20% Chrysotile	RACM	Friable/Poor	~ 150 SF
-	Preformed Block Insulation**	Small package boiler in boiler room basement near furnaces 1 and 2	5% Amosite, 2% Chrysotile, 5% Crocidolite	RACM	Friable/Poor	~ 200 SF
-	Rope Gasket Material**	In debris pile in small storage room adjacent to furnace 3 and 4	80% Chrysotile	RACM	Friable/Poor	~ 50 SF
-	Mineral/Glass Wool Insulation**	Inside expansion chamber sidewalls	5% Chrysotile	RACM	Friable/Poor	~ 22,000 SF
-	Mineral/Glass Wool Insulation**	Exterior of the metal jacket encasing the portions of the rectangular expansion chambers	4% Chrysotile	RACM	Friable/Poor	
-	Trowel-Applied Fibrous Insulation**	Inside the side walls of the expansion chambers leading to the incinerator exhaust stacks	40% Chrysotile	RACM	Friable/Poor	~ 5,000 SF
-	Asphalt-Based Roofing Membrane**	Roof of the expansion chamber/tunnel leading to the incinerator stacks	15% Chrysotile	Category I Non-Friable	Non-Friable/Good	~ 4,000 SF

Asbestos Inspection Report

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November 14, 2022 ■ Terracon Project No. N1227040



HA No.	Material Description	Material Location(s)	% and Type Asbestos	EPA NESHAP Material Category	Friability/ Condition	Estimated Quantity*
-	Transite Panels**	Lining the parapet wall around the perimeter of the roof of the expansion chamber/tunnel	20% Chrysotile	Category II Non-Friable	Non-Friable/ Good	~ 300 SF

***Estimated quantities** listed above are based on a cursory field evaluation, and actual quantities may vary significantly, especially if ACMs are present in hidden and/or inaccessible areas not evaluated as part of this inspection. This is not a bidding document and contractors would be responsible for drawing their own conclusions on quantities present.

Materials were identified as asbestos containing by laboratory analysis in previous asbestos inspection report. See **Appendix G for prior report documentation. Terracon updated locations and quantities, if necessary, regarding the previously identified ACMs.

See **Appendix B** for a summary of samples collected and results, **Appendix C** for detailed analytical results, **Appendix E** for photo examples of ACMs, and **Appendix F** for sample location field sketch drawings.

It should be noted that inaccessible/concealed suspect materials, other than those identified during this inspection, may exist. Should additional suspect materials be uncovered prior to or during demolition activities, those materials must be assumed as asbestos-containing >1% unless sampled by an Ohio AHES and analysis refutes the positive assumption.

APPENDIX B

**Former West Fork Incinerator Building
3200 Millcreek Road
Cincinnati, Hamilton County, Ohio 45223
Terracon Project No. N1227040**

ASBESTOS INSPECTION SAMPLE & RESULTS SUMMARY

Sample #		Sample Material Description	Sample Location	HA Location(s)	Results (% / Type of Asbestos)
HA #	SEQ. #				
01	01	Refractory	Access Door on West Side of Incinerator	Unit 1 Basement/Ash Level Incinerator Access Door	None Detected (ND)
	02		Access Door on West Side of Incinerator		ND
	03		Access Door on West Side of Incinerator		ND
02	04	Refractory	South Wall	Unit 1 Basement/Ash Level Incinerator Interior Walls	ND
	05		East Wall		ND
	06		North Wall		ND
03	07	Refractory Brick with Red Grout	South Wall	Unit 1 Basement/Ash Level Incinerator Interior Walls	Brick: ND Grout: ND
	08		North Wall		Brick: ND Grout: ND
	09		Beginning of Tunnel		Brick: ND Grout: ND
04	10	Refractory	Access Door on West Side of Incinerator	Unit 2 Basement/Ash Level Incinerator Access Door	ND
	11		Access Door on West Side of Incinerator		ND

Asbestos Inspection Report

Former West Fork Incinerator Building ■ 3200 Millcreek Rd., Cincinnati, OH
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Sample #		Sample Material Description	Sample Location	HA Location(s)	Results (% / Type of Asbestos)
HA #	SEQ. #				
	12		Access Door on West Side of Incinerator		ND
05	13	Refractory	South Wall	Unit 2 Basement/Ash Level Incinerator Interior Walls	ND
	14		South Wall		ND
	15		South Wall		ND
06	16	Refractory Brick with Red Grout	Access Doorway	Unit 2 Basement/Ash Level Incinerator Interior Walls	Brick: ND Grout: ND
	17		Access Doorway		Brick: ND Grout: ND
	18		Start of Tunnel		Brick: ND Grout: ND
07	19	Refractory	Access Door on West Side of Incinerator	Unit 3 Basement/Ash Level Incinerator Access Door	ND
	20		Access Door on West Side of Incinerator		ND
	21		Access Door on West Side of Incinerator		ND
08	22	Refractory	North Wall	Unit 3 Basement/Ash Level Incinerator Interior Walls	ND
	23		North Wall		ND
	24		South Wall		ND
09	25	Refractory Brick with Red Grout	South Wall	Unit 3 Basement/Ash Level Incinerator Interior Walls	Brick: ND Grout: ND
	26		North Wall		Brick: ND Grout: ND
	27		At Start of Tunnel		Brick: ND Grout: ND

Asbestos Inspection Report

Former West Fork Incinerator Building ■ 3200 Millcreek Rd., Cincinnati, OH
 November 14, 2022 ■ Terracon Project No. N1227040



Sample #		Sample Material Description	Sample Location	HA Location(s)	Results (% / Type of Asbestos)
HA #	SEQ. #				
10	28	Refractory	Access Door on West Side of Incinerator	Unit 4 Basement/Ash Level Incinerator Access Door	ND
	29		Access Door on West Side of Incinerator		ND
	30		Access Door on West Side of Incinerator		ND
11	31	Refractory	East Side	Unit 4 Basement/Ash Level Incinerator Interior Walls	ND
	32		East Side		ND
	33		West Side		ND
12	34	Refractory Brick with Red Grout	North Wall	Unit 4 Basement/Ash Level Incinerator Interior Walls	Brick: ND Grout: ND
	35		South Wall		Brick: ND Grout: ND
	36		East Wall		Brick: ND Grout: ND
13	37	Refractory Brick with Red Grout	Northeast Wall	Unit 1 & 2 Stack Interior Walls	Brick: ND Grout: ND
	38		West Wall		Brick: ND Grout: ND
	39		South Wall		Brick: ND Grout: ND
14	40	Refractory	Northwest Door	Unit 1 1 st /Furnace Level Access Door	ND
	41		Northwest Door		ND
	42		Northwest Door		ND
15	43	Refractory	Northwest Corner of Furnace		ND

Asbestos Inspection Report

Former West Fork Incinerator Building ■ 3200 Millcreek Rd., Cincinnati, OH
 November 14, 2022 ■ Terracon Project No. N1227040



Sample #		Sample Material Description	Sample Location	HA Location(s)	Results (% / Type of Asbestos)
HA #	SEQ. #				
	44		Northwest Corner of Furnace	Unit 1 1 st /Furnace Level Interior Walls	ND
	45		North Side of Furnace		ND
16	46	Refractory	Southwest Door	Unit 2 1 st /Furnace Level Access Door	ND
	47		Southwest Door		ND
	48		Northwest Door		ND
17	49	Refractory	Northwest Corner of Furnace	Unit 2 1 st /Furnace Level Interior Walls	ND
	50		Northwest Corner		ND
	51		East Side		ND
18	52	Refractory	Southeast Door	Unit 3 1 st /Furnace Level Access Door	ND
	53		Southeast Door		ND
	54		Southeast Door		ND
19	55	Refractory	Southeast Corner	Unit 3 1 st /Furnace Level Interior Walls	ND
	56		Southeast Corner		ND
	57		Southeast Corner		ND
20	58	Refractory	Southwest Door	Unit 4 1 st /Furnace Level Access Door	ND
	59		Southeast Door		ND

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Former West Fork Incinerator Building ■ 3200 Millcreek Rd., Cincinnati, OH
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Sample #		Sample Material Description	Sample Location	HA Location(s)	Results (% / Type of Asbestos)
HA #	SEQ. #				
	60		Northeast Door		ND
21	61	Refractory	Southeast Corner	Unit 4 1 st /Furnace Level Interior Walls	ND
	62		Southeast Corner		ND
	63		Southwest Corner		ND
22	64	Gray Interior Door Caulking	Southeast Door	Basement-Southeast Door to Incinerators	8% Chrysotile
	65		Southeast Door		8% Chrysotile
	66		Southeast Door		8% Chrysotile
23	67	White Interior Window Glazing	Northwest Window	Associated with Interior Side of Windows in 2 nd Level South Conveyor Room	1.3% Chrysotile by Point Count (PC)
	68		Southwest Window		2% Chrysotile
	69		Southeast Window		2% Chrysotile
24	70	Gray Interior Window Caulking	Northwest Window	Associated with Interior Side of Windows in 2 nd Level South Conveyor Room	5% Chrysotile
	71		Southwest Window		5% Chrysotile
	72		Southeast Window		5% Chrysotile
25	73	Black Tar	At Unit 4 Incinerator	Associated with the Expansion Joints in the Concrete Flooring of the Basement/Ash Level	5% Chrysotile
	74		Center of Floor		5% Chrysotile
	75		Near North Garage Door		5% Chrysotile

Asbestos Inspection Report

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Sample #		Sample Material Description	Sample Location	HA Location(s)	Results (% / Type of Asbestos)
HA #	SEQ. #				
26	76	White Gasket Material	Basement Unit 4 Access Door	Associated with Access Doors to Incinerators	65% Chrysotile
	77		Basement Unit 2 Access		65% Chrysotile
	78		1 st Level Unit 4 Access Door		65% Chrysotile
27	79	Fire Door Insulation	Boiler Room Door	Door to Boiler Room, Stairwell Doors, 1 st / Furnace Level North and South Closet Doors	65% Chrysotile
	80		Boiler Room Door		65% Chrysotile
	81		Boiler Room Door		65% Chrysotile
28	82	White Exterior Window Glazing	Northeast Window of Locker Room	Associated with Locker Room Windows, Office Windows, Northwest Restroom Window, Hallway to Office Window, North and South Room of 1 st Level Windows	0.25% Chrysotile by PC
	83		Northwest Corner of Office		0.25% Chrysotile by PC
	84		South Wall of 1 st Level		0.50% Chrysotile by PC
29	85	White Exterior Window Glazing	Northeast Corner of 1 st Floor	Associated with Windows throughout Building	0.50% Chrysotile by PC
	86		Northeast Corner of 2 nd Level		0.25% Chrysotile by PC
	87		Southwest Corner of Garage		0.50% Chrysotile by PC
30	88	Built-Up Tar Roof with Tar Paper	At Access Door	Garage Roof	Built-up Roof: ND, Tar Paper: 20% Chrysotile
	89		At Access Door		Built-up Roof: ND, Tar Paper: 20% Chrysotile

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Sample #		Sample Material Description	Sample Location	HA Location(s)	Results (% / Type of Asbestos)
HA #	SEQ. #				
	90		At Access Door		Built-up Roof: ND, Tar Paper: 20% Chrysotile
31	91	Tar Flashing	At Access Door	Garage Roof Flashing	20% Chrysotile
	92		At Access Door		20% Chrysotile
	93		At Access Door		20% Chrysotile
32	94	White Interior Window Glazing	Northwest Corner of North Box	Associated with Windows to the Crane Operator Box	1.5% Chrysotile by PC
	95		Northwest Corner of North Box		2% Chrysotile
	96		Southeast Corner of South Box		2% Chrysotile
33	97	Black Backer Board	North Crane Box	Fuse Boxes associated with Crane Control System	20% Chrysotile
	98		North Crane Box		20% Chrysotile
	99		South Crane Box		20% Chrysotile
34	100	Cementitious Panels	Northeast Corner of 2 nd Level	2 nd Level Northeast Electrical Box	15% Chrysotile
	101		Northeast Corner of 2 nd Level		15% Chrysotile
	102		Northeast Corner of 2 nd Level		15% Chrysotile
35	103	White Gaskets	South Box	Associated with Heater Unit in South Crane Control Box	ND
	104		South Box		ND
	105		South Box		ND

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 November 14, 2022 ■ Terracon Project No. N1227040



Sample #		Sample Material Description	Sample Location	HA Location(s)	Results (% / Type of Asbestos)
HA #	SEQ. #				
36	106	Gray Grout	West Side of North Stack	Exterior Brick Walls of Stacks	ND
	107		North Side of North Stack		ND
	108		South Side of North Stack		ND
37	109	Gray Grout	Northeast Corner	Exterior Walls of Building	ND
	110		Northwest Corner		ND
	111		Southwest Corner		ND
38	112	Gray Exterior Door Caulking	South Garage Door	Associated with the Exterior Side of the Northeast Garage Doors and Adjacent Doors, Northwest Door to Office	7% Chrysotile
	113		South Door		7% Chrysotile
	114		North Garage Door		7% Chrysotile
39	115	White Paper Backing	Light at Office Entrance	Associated with Light at Entrance to Office Area	65% Chrysotile
	116		Light at Office Entrance		65% Chrysotile
	117		Light at Office Entrance		65% Chrysotile
40	118	12"x12" Gray Floor Tile and Black Mastic	Doorway	Office	Floor Tile: ND Mastic: 5% Chrysotile
	119		Northeast Corner		Floor Tile: ND Mastic: 5% Chrysotile
	120		Northwest Corner		Floor Tile: ND Mastic: 5% Chrysotile

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Sample #		Sample Material Description	Sample Location	HA Location(s)	Results (% / Type of Asbestos)
HA #	SEQ. #				
41	122	12"x12" White Ceiling Tile with Pinhole and Brown Glue Dots	Center	Office	Ceiling Tile: ND, Glue Dot: 2%
	123		Doorway		Ceiling Tile: ND, Glue Dot: 2%
	124		Middle North Side		Ceiling Tile: ND, Glue Dot: 2%
42	125	9"x9" Blue and Red Checkered Floor Tile and Black Mastic	Center	Office Restroom	Floor Tile: 7% Chrysotile Mastic: 5% Chrysotile
	126		Center		Floor Tile: 7% Chrysotile Mastic: 5% Chrysotile
	127		Doorway		Floor Tile: 7% Chrysotile Mastic: 5% Chrysotile
43	128	Refractory Brick	West Wall of Stack	Inner Wall of South Stack	ND
	129		West Wall of Stack		ND
	130		West Wall of Stack		ND
44	131	Refractory Brick	North Wall of Tunnel	Outer Wall of South Stack	ND
	132		North Wall of Tunnel		ND
	133		South Wall of Tunnel		ND
45	-	Built-Up Tar Roof	-	Central Incinerator Roof	Assumed

Inspector Signature: Lem Weyer
 Lem Weyer OH AHES #36337

Asbestos Inspection Report

Former West Fork Incinerator Building ■ 3200 Millcreek Rd., Cincinnati, OH
November 14, 2022 ■ Terracon Project No. N1227040



Inspector Signature: 
Josh Vogel OH AHES #35291

Inspector Signature: 
Michael Sulken OH AHES #34655

Asbestos Inspection Report

Former West Fork Incinerator Building ■ 3200 Millcreek Rd., Cincinnati, OH
November 14, 2022 ■ Terracon Project No. N1227040



APPENDIX C

ASBESTOS ANALYTICAL LABORATORY DATA

October 10, 2022

Terracon Consultants, Inc.
611 Lunken Park Drive
Cincinnati, OH 45226

CLIENT PROJECT: Cincinnati W Fork Incinerator, N1227040
CEI LAB CODE: B2213043

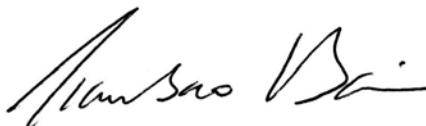
Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on October 3, 2022. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600 Method.

Sample results containing >1% asbestos are considered asbestos-containing materials (ACMs) per EPA regulatory requirements. The detection limit for the EPA 600 Method is <1% asbestos by weight as determined by visual estimation.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,



Tianbao Bai, Ph.D., CIH
Laboratory Director

ASBESTOS ANALYTICAL REPORT

By: Polarized Light Microscopy

Prepared for

Terracon Consultants, Inc.

CLIENT PROJECT: Cincinnati W Fork Incinerator, N1227040

LAB CODE: B2213043

TEST METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORT DATE: 10/10/22

TOTAL SAMPLES ANALYZED: 123

SAMPLES >1% ASBESTOS: 50

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: Cincinnati W Fork Incinerator, N1227040 **LAB CODE:** B2213043

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
01-01		B2213043.001	Brown	Refractory	None Detected
01-02		B2213043.002	Brown	Refractory	None Detected
01-03		B2213043.003	Brown	Refractory	None Detected
02-04		B2213043.004	Tan	Refractory	None Detected
02-05		B2213043.005	Tan	Refractory	None Detected
02-06		B2213043.006	Tan	Refractory	None Detected
03-07	Layer 1	B2213043.007	Tan	Refractory Brick	None Detected
	Layer 2	B2213043.007	Red	Grout	None Detected
03-08	Layer 1	B2213043.008	Tan	Refractory Brick	None Detected
	Layer 2	B2213043.008	Red	Grout	None Detected
03-09	Layer 1	B2213043.009	Tan	Refractory Brick	None Detected
	Layer 2	B2213043.009	Red	Grout	None Detected
04-10		B2213043.010	Tan	Refractory	None Detected
04-11		B2213043.011	Tan	Refractory	None Detected
04-12		B2213043.012	Tan	Refractory	None Detected
05-13		B2213043.013	Tan	Refractory	None Detected
05-14		B2213043.014	Tan	Refractory	None Detected
05-15		B2213043.015	Tan	Refractory	None Detected
06-16	Layer 1	B2213043.016	Tan	Refractory Brick	None Detected
	Layer 2	B2213043.016	Red	Grout	None Detected
06-17	Layer 1	B2213043.017	Tan	Refractory Brick	None Detected
	Layer 2	B2213043.017	Red	Grout	None Detected
06-18	Layer 1	B2213043.018	Tan	Refractory Brick	None Detected
	Layer 2	B2213043.018	Red	Grout	None Detected
07-19		B2213043.019	Tan	Refractory	None Detected
07-20		B2213043.020	Tan	Refractory	None Detected
07-21		B2213043.021	Tan	Refractory	None Detected
08-22		B2213043.022	Gray	Refractory	None Detected
08-23		B2213043.023	Gray	Refractory	None Detected
08-24		B2213043.024	Gray	Refractory	None Detected
09-25	Layer 1	B2213043.025	Tan	Refractory Brick	None Detected

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: Cincinnati W Fork Incinerator, N1227040 **LAB CODE:** B2213043

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
	Layer 2	B2213043.025	Red	Grout	None Detected
09-26	Layer 1	B2213043.026	Gray	Refractory Brick	None Detected
	Layer 2	B2213043.026	Red	Grout	None Detected
09-27	Layer 1	B2213043.027	Tan	Refractory Brick	None Detected
	Layer 2	B2213043.027	Red	Grout	None Detected
10-28		B2213043.028	White	Refractory	None Detected
10-29		B2213043.029	White,Gray	Refractory	None Detected
10-30		B2213043.030	Gray	Refractory	None Detected
11-31		B2213043.031	Gray	Refractory	None Detected
11-32		B2213043.032	Gray	Refractory	None Detected
11-33		B2213043.033	Gray	Refractory	None Detected
12-34	Layer 1	B2213043.034	Tan	Refractory Brick	None Detected
	Layer 2	B2213043.034	Red	Grout	None Detected
12-35	Layer 1	B2213043.035	Tan	Refractory Brick	None Detected
	Layer 2	B2213043.035	Red	Grout	None Detected
12-36	Layer 1	B2213043.036	Tan	Refractory Brick	None Detected
	Layer 2	B2213043.036	Red	Grout	None Detected
13-37	Layer 1	B2213043.037	Tan	Refractory Brick	None Detected
	Layer 2	B2213043.037	Red	Grout	None Detected
13-38	Layer 1	B2213043.038	Tan	Refractory Brick	None Detected
	Layer 2	B2213043.038	Red	Grout	None Detected
13-39	Layer 1	B2213043.039	Tan	Refractory Brick	None Detected
	Layer 2	B2213043.039	Red	Grout	None Detected
14-40		B2213043.040	Gray	Refractory	None Detected
14-41		B2213043.041	Gray	Refractory	None Detected
14-42		B2213043.042	Gray	Refractory	None Detected
15-43		B2213043.043	Gray	Refractory	None Detected
15-44		B2213043.044	Gray	Refractory	None Detected
15-45		B2213043.045	Gray	Refractory	None Detected
16-46		B2213043.046	Tan	Refractory	None Detected
16-47		B2213043.047	Tan	Refractory	None Detected

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: Cincinnati W Fork Incinerator, N1227040 **LAB CODE:** B2213043

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
16-48		B2213043.048	Tan	Refractory	None Detected
17-49		B2213043.049	Gray	Refractory	None Detected
17-50		B2213043.050	Gray	Refractory	None Detected
17-51		B2213043.051	Gray	Refractory	None Detected
18-52		B2213043.052	Gray	Refractory	None Detected
18-53		B2213043.053	Gray	Refractory	None Detected
18-54		B2213043.054	Gray	Refractory	None Detected
19-55		B2213043.055	Gray	Refractory	None Detected
19-56		B2213043.056	Gray	Refractory	None Detected
19-57		B2213043.057	Gray	Refractory	None Detected
20-58		B2213043.058	Gray	Refractory	None Detected
20-59		B2213043.059	Gray	Refractory	None Detected
20-60		B2213043.060	Gray	Refractory	None Detected
21-61		B2213043.061	Gray	Refractory	None Detected
21-62		B2213043.062	Gray	Refractory	None Detected
21-63		B2213043.063	Gray	Refractory	None Detected
22-64		B2213043.064		No Sample Present	
22-65		B2213043.065		No Sample Present	
22-66		B2213043.066		No Sample Present	
23-67	Layer 1	B2213043.067	Gray	Interior Window Glazing	Chrysotile 2%
	Layer 2	B2213043.067	Gray	Interior Window Glazing (400 Point Count)	Chrysotile 1.3%
23-68	Layer 1	B2213043.068	Gray	Interior Window Glazing	Chrysotile 2%
	Layer 2	B2213043.068		Sample Not Analyzed per COC	
23-69	Layer 1	B2213043.069	Gray	Interior Window Glazing	Chrysotile 2%
	Layer 2	B2213043.069		Sample Not Analyzed per COC	
24-70		B2213043.070	Gray	Interior Window Caulking	Chrysotile 5%
24-71		B2213043.071	Gray	Interior Window Caulking	Chrysotile 5%
24-72		B2213043.072	Gray	Interior Window Caulking	Chrysotile 5%
25-73		B2213043.073	Black	Tar	Chrysotile 5%
25-74		B2213043.074	Black	Tar	Chrysotile 5%

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: Cincinnati W Fork Incinerator, N1227040 **LAB CODE:** B2213043

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
25-75		B2213043.075	Black	Tar	Chrysotile 5%
26-76		B2213043.076	White	Gasket Material	Chrysotile 65%
26-77		B2213043.077	White	Gasket Material	Chrysotile 65%
26-78		B2213043.078	White	Gasket Material	Chrysotile 65%
27-79		B2213043.079	White	Fire Door Insulation	Chrysotile 65%
27-80		B2213043.080	White	Fire Door Insulation	Chrysotile 65%
27-81		B2213043.081	White	Fire Door Insulation	Chrysotile 65%
28-82	Layer 1	B2213043.082	White	Exterior Window Glazing	Chrysotile <1%
	Layer 2	B2213043.082	White	Exterior Window Glazing (400 Point Count)	Chrysotile 0.25%
28-83	Layer 1	B2213043.083	White	Exterior Window Glazing	Chrysotile <1%
	Layer 2	B2213043.083	White	Exterior Window Glazing (400 Point Count)	Chrysotile 0.25%
28-84	Layer 1	B2213043.084	White	Exterior Window Glazing	Chrysotile <1%
	Layer 2	B2213043.084	White	Exterior Window Glazing (400 Point Count)	Chrysotile 0.50%
29-85	Layer 1	B2213043.085	White	Exterior Window Glazing	Chrysotile <1%
	Layer 2	B2213043.085	White	Exterior Window Glazing (400 Point Count)	Chrysotile 0.50%
29-86	Layer 1	B2213043.086	White	Exterior Window Glazing	Chrysotile <1%
	Layer 2	B2213043.086	White	Exterior Window Glazing (400 Point Count)	Chrysotile 0.25%
29-87	Layer 1	B2213043.087	White	Exterior Window Glazing	Chrysotile <1%
	Layer 2	B2213043.087	White	Exterior Window Glazing (400 Point Count)	Chrysotile 0.50%
30-88	Layer 1	B2213043.088	Black	Built-up Tar Roof	None Detected
	Layer 2	B2213043.088	Black	Tar Paper	Chrysotile 20%
30-89	Layer 1	B2213043.089	Black	Built-up Tar Roof	None Detected
	Layer 2	B2213043.089	Black	Tar Paper	Chrysotile 20%
30-90	Layer 1	B2213043.090	Black	Built-up Tar Roof	None Detected
	Layer 2	B2213043.090	Black	Tar Paper	Chrysotile 20%
31-91		B2213043.091	Black	Tar Flashing	Chrysotile 20%
31-92		B2213043.092	Black	Tar Flashing	Chrysotile 20%

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: Cincinnati W Fork Incinerator, N1227040 **LAB CODE:** B2213043

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
31-93		B2213043.093	Black	Tar Flashing	Chrysotile 20%
32-94	Layer 1	B2213043.094	White	Interior Window Glazing	Chrysotile 2%
	Layer 2	B2213043.094	White	Interior Window Glazing (400 Point Count)	Chrysotile 1.5%
32-95	Layer 1	B2213043.095	White	Interior Window Glazing	Chrysotile 2%
	Layer 2	B2213043.095		Sample Not Analyzed per COC	
32-96	Layer 1	B2213043.096	White	Interior Window Glazing	Chrysotile 2%
	Layer 2	B2213043.096		Sample Not Analyzed per COC	
33-97		B2213043.097	Brown,Black	Backer Board	Chrysotile 20%
33-98		B2213043.098	Brown,Black	Backer Board	Chrysotile 20%
33-99		B2213043.099	Brown,Black	Backer Board	Chrysotile 20%
34-100		B2213043.100	Gray	Cementitious Panel	Chrysotile 15%
34-101		B2213043.101	Gray	Cementitious Panel	Chrysotile 15%
34-102		B2213043.102	Gray	Cementitious Panel	Chrysotile 15%
35-103		B2213043.103	White	Gasket	None Detected
35-104		B2213043.104	White	Gasket	None Detected
35-105		B2213043.105	White	Gasket	None Detected
36-106		B2213043.106	Gray	Grout	None Detected
36-107		B2213043.107	Gray	Grout	None Detected
36-108		B2213043.108	Gray	Grout	None Detected
37-109		B2213043.109	Gray	Grout	None Detected
37-110		B2213043.110	Gray	Grout	None Detected
37-111		B2213043.111	Gray	Grout	None Detected
38-112		B2213043.112	Gray	Exterior Door Caulking	Chrysotile 7%
38-113		B2213043.113	Gray	Exterior Door Caulking	Chrysotile 7%
38-114		B2213043.114	Gray	Exterior Door Caulking	Chrysotile 7%
39-115		B2213043.115	White	Paper Backing	Chrysotile 65%
39-116		B2213043.116	White	Paper Backing	Chrysotile 65%
39-117		B2213043.117	White	Paper Backing	Chrysotile 65%
40-118		B2213043.118A	Gray	Floor Tile	None Detected
		B2213043.118B	Black	Mastic	Chrysotile 5%

Asbestos Report Summary

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PROJECT: Cincinnati W Fork Incinerator, N1227040 **LAB CODE:** B2213043

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
40-119		B2213043.119A	Gray	Floor Tile	None Detected
		B2213043.119B	Black	Mastic	Chrysotile 5%
40-120		B2213043.120A	Gray	Floor Tile	None Detected
		B2213043.120B	Black	Mastic	Chrysotile 5%
41-122		B2213043.121A	White	Ceiling Tile	None Detected
		B2213043.121B	Brown	Glue Dot	Chrysotile 2%
41-123		B2213043.122A	White	Ceiling Tile	None Detected
		B2213043.122B	Brown	Glue Dot	Chrysotile 2%
41-124		B2213043.123A	White	Ceiling Tile	None Detected
		B2213043.123B	Brown	Glue Dot	Chrysotile 2%
42-125		B2213043.124A	Blue,Red Checkered	Floor Tile	Chrysotile 7%
		B2213043.124B	Black	Mastic	Chrysotile 5%
42-126		B2213043.125A	Blue,Red Checkered	Floor Tile	Chrysotile 7%
		B2213043.125B	Black	Mastic	Chrysotile 5%
42-127		B2213043.126A	Blue,Red Checkered	Floor Tile	Chrysotile 7%
		B2213043.126B	Black	Mastic	Chrysotile 5%

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Terracon Consultants, Inc.
611 Lunken Park Drive
Cincinnati, OH 45226

Lab Code: B2213043
Date Received: 10-03-22
Date Analyzed: 10-10-22
Date Reported: 10-10-22

Project: Cincinnati W Fork Incinerator, N1227040

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
01-01 B2213043.001	Refractory	Homogeneous		75% Silicates	None Detected
		Brown		25% Binder	
		Non-fibrous			
		Bound			
01-02 B2213043.002	Refractory	Homogeneous		75% Silicates	None Detected
		Brown		25% Binder	
		Non-fibrous			
		Bound			
01-03 B2213043.003	Refractory	Homogeneous		75% Silicates	None Detected
		Brown		25% Binder	
		Non-fibrous			
		Bound			
02-04 B2213043.004	Refractory	Homogeneous		75% Silicates	None Detected
		Tan		25% Binder	
		Non-fibrous			
		Bound			
02-05 B2213043.005	Refractory	Homogeneous		75% Silicates	None Detected
		Tan		25% Binder	
		Non-fibrous			
		Bound			
02-06 B2213043.006	Refractory	Homogeneous		75% Silicates	None Detected
		Tan		25% Binder	
		Non-fibrous			
		Bound			
03-07 Layer 1 B2213043.007	Refractory Brick	Homogeneous		70% Silicates	None Detected
		Tan		30% Binder	
		Non-fibrous			
		Bound			

ASBESTOS BULK ANALYSIS

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
Layer 2 B2213043.007	Grout	Homogeneous Red Non-fibrous Bound		75% Silicates 25% Binder	None Detected
03-08 Layer 1 B2213043.008	Refractory Brick	Homogeneous Tan Non-fibrous Bound		70% Silicates 30% Binder	None Detected
Layer 2 B2213043.008	Grout	Homogeneous Red Non-fibrous Bound		75% Silicates 25% Binder	None Detected
03-09 Layer 1 B2213043.009	Refractory Brick	Homogeneous Tan Non-fibrous Bound		70% Silicates 30% Binder	None Detected
Layer 2 B2213043.009	Grout	Homogeneous Red Non-fibrous Bound		75% Silicates 25% Binder	None Detected
04-10 B2213043.010	Refractory	Homogeneous Tan Non-fibrous Bound		75% Silicates 25% Binder	None Detected
04-11 B2213043.011	Refractory	Homogeneous Tan Non-fibrous Bound		75% Silicates 25% Binder	None Detected

ASBESTOS BULK ANALYSIS

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
04-12 B2213043.012	Refractory	Homogeneous		75% Silicates	None Detected
		Tan		25% Binder	
		Non-fibrous			
		Bound			
05-13 B2213043.013	Refractory	Homogeneous		75% Silicates	None Detected
		Tan		25% Binder	
		Non-fibrous			
		Bound			
05-14 B2213043.014	Refractory	Homogeneous		75% Silicates	None Detected
		Tan		25% Binder	
		Non-fibrous			
		Bound			
05-15 B2213043.015	Refractory	Homogeneous		75% Silicates	None Detected
		Tan		25% Binder	
		Non-fibrous			
		Bound			
06-16 Layer 1 B2213043.016	Refractory Brick	Homogeneous		70% Silicates	None Detected
		Tan		30% Binder	
		Non-fibrous			
		Bound			
Layer 2 B2213043.016	Grout	Homogeneous		75% Silicates	None Detected
		Red		25% Binder	
		Non-fibrous			
		Bound			
06-17 Layer 1 B2213043.017	Refractory Brick	Homogeneous		70% Silicates	None Detected
		Tan		30% Binder	
		Non-fibrous			
		Bound			

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
Layer 2 B2213043.017	Grout	Homogeneous Red Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
06-18 Layer 1 B2213043.018	Refractory Brick	Homogeneous Tan Non-fibrous Bound	70% 30%	Silicates Binder	None Detected
Layer 2 B2213043.018	Grout	Homogeneous Red Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
07-19 B2213043.019	Refractory	Homogeneous Tan Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
07-20 B2213043.020	Refractory	Homogeneous Tan Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
07-21 B2213043.021	Refractory	Homogeneous Tan Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
08-22 B2213043.022	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected

ASBESTOS BULK ANALYSIS

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
08-23 B2213043.023	Refractory	Homogeneous		75% Silicates	None Detected
		Gray		25% Binder	
		Non-fibrous			
		Bound			
08-24 B2213043.024	Refractory	Homogeneous		75% Silicates	None Detected
		Gray		25% Binder	
		Non-fibrous			
		Bound			
09-25 Layer 1 B2213043.025	Refractory Brick	Homogeneous		70% Silicates	None Detected
		Tan		30% Binder	
		Non-fibrous			
		Bound			
Layer 2 B2213043.025	Grout	Homogeneous		75% Silicates	None Detected
		Red		25% Binder	
		Non-fibrous			
		Bound			
09-26 Layer 1 B2213043.026	Refractory Brick	Homogeneous		70% Silicates	None Detected
		Gray		30% Binder	
		Non-fibrous			
		Bound			
Layer 2 B2213043.026	Grout	Homogeneous		75% Silicates	None Detected
		Red		25% Binder	
		Non-fibrous			
		Bound			
09-27 Layer 1 B2213043.027	Refractory Brick	Homogeneous		70% Silicates	None Detected
		Tan		30% Binder	
		Non-fibrous			
		Bound			

ASBESTOS BULK ANALYSIS

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
Layer 2 B2213043.027	Grout	Homogeneous Red Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
10-28 B2213043.028	Refractory	Homogeneous White Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
10-29 B2213043.029	Refractory	Homogeneous White, Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
10-30 B2213043.030	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
11-31 B2213043.031	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
11-32 B2213043.032	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
11-33 B2213043.033	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected

ASBESTOS BULK ANALYSIS

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
12-34 Layer 1 B2213043.034	Refractory Brick	Homogeneous		70% Silicates	None Detected
		Tan		30% Binder	
		Non-fibrous			
		Bound			
Layer 2 B2213043.034	Grout	Homogeneous		75% Silicates	None Detected
		Red		25% Binder	
		Non-fibrous			
		Bound			
12-35 Layer 1 B2213043.035	Refractory Brick	Homogeneous		70% Silicates	None Detected
		Tan		30% Binder	
		Non-fibrous			
		Bound			
Layer 2 B2213043.035	Grout	Homogeneous		75% Silicates	None Detected
		Red		25% Binder	
		Non-fibrous			
		Bound			
12-36 Layer 1 B2213043.036	Refractory Brick	Homogeneous		70% Silicates	None Detected
		Tan		30% Binder	
		Non-fibrous			
		Bound			
Layer 2 B2213043.036	Grout	Homogeneous		75% Silicates	None Detected
		Red		25% Binder	
		Non-fibrous			
		Bound			
13-37 Layer 1 B2213043.037	Refractory Brick	Homogeneous		70% Silicates	None Detected
		Tan		30% Binder	
		Non-fibrous			
		Bound			

ASBESTOS BULK ANALYSIS

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
Layer 2 B2213043.037	Grout	Homogeneous	75%	Silicates	None Detected
		Red	25%	Binder	
		Non-fibrous			
		Bound			
13-38 Layer 1 B2213043.038	Refractory Brick	Homogeneous	70%	Silicates	None Detected
		Tan	30%	Binder	
		Non-fibrous			
		Bound			
Layer 2 B2213043.038	Grout	Homogeneous	75%	Silicates	None Detected
		Red	25%	Binder	
		Non-fibrous			
		Bound			
13-39 Layer 1 B2213043.039	Refractory Brick	Homogeneous	70%	Silicates	None Detected
		Tan	30%	Binder	
		Non-fibrous			
		Bound			
Layer 2 B2213043.039	Grout	Homogeneous	75%	Silicates	None Detected
		Red	25%	Binder	
		Non-fibrous			
		Bound			
14-40 B2213043.040	Refractory	Homogeneous	75%	Silicates	None Detected
		Gray	25%	Binder	
		Non-fibrous			
		Bound			
14-41 B2213043.041	Refractory	Homogeneous	75%	Silicates	None Detected
		Gray	25%	Binder	
		Non-fibrous			
		Bound			

ASBESTOS BULK ANALYSIS

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
14-42 B2213043.042	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
15-43 B2213043.043	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
15-44 B2213043.044	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
15-45 B2213043.045	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
16-46 B2213043.046	Refractory	Homogeneous Tan Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
16-47 B2213043.047	Refractory	Homogeneous Tan Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
16-48 B2213043.048	Refractory	Homogeneous Tan Non-fibrous Bound	75% 25%	Silicates Binder	None Detected

ASBESTOS BULK ANALYSIS

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Project: Cincinnati W Fork Incinerator, N1227040

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
17-49 B2213043.049	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
17-50 B2213043.050	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
17-51 B2213043.051	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
18-52 B2213043.052	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
18-53 B2213043.053	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
18-54 B2213043.054	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
19-55 B2213043.055	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
19-56 B2213043.056	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
19-57 B2213043.057	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
20-58 B2213043.058	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
20-59 B2213043.059	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
20-60 B2213043.060	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
21-61 B2213043.061	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
21-62 B2213043.062	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected

ASBESTOS BULK ANALYSIS

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
21-63 B2213043.063	Refractory	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
22-64 B2213043.064	No Sample Present				
22-65 B2213043.065	No Sample Present				
22-66 B2213043.066	No Sample Present				
23-67 Layer 1 B2213043.067	Interior Window Glazing	Homogeneous Gray Non-fibrous Bound	78% 20%	Binder Calc Carb	2% Chrysotile
23-67 Layer 2 B2213043.067	Interior Window Glazing (400 Point Count)	Homogeneous Gray Non-fibrous Bound			1.3% Chrysotile
(5 asbestos points / 400 total) x 100.					
23-68 Layer 1 B2213043.068	Interior Window Glazing	Homogeneous Gray Non-fibrous Bound	78% 20%	Binder Calc Carb	2% Chrysotile
23-68 Layer 2 B2213043.068	Sample Not Analyzed per COC				
23-69 Layer 1 B2213043.069	Interior Window Glazing	Homogeneous Gray Non-fibrous Bound	78% 20%	Binder Calc Carb	2% Chrysotile

ASBESTOS BULK ANALYSIS

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
Layer 2 B2213043.069	Sample Not Analyzed per COC						
24-70 B2213043.070	Interior Window Caulking	Homogeneous Gray Non-fibrous Bound	93%	Caulk	2%	Paint	5% Chrysotile
24-71 B2213043.071	Interior Window Caulking	Homogeneous Gray Non-fibrous Bound	93%	Caulk	2%	Paint	5% Chrysotile
24-72 B2213043.072	Interior Window Caulking	Homogeneous Gray Non-fibrous Bound	93%	Caulk	2%	Paint	5% Chrysotile
25-73 B2213043.073	Tar	Homogeneous Black Non-fibrous Bound	3%	Cellulose	92%	Tar	5% Chrysotile
25-74 B2213043.074	Tar	Homogeneous Black Non-fibrous Bound	3%	Cellulose	92%	Tar	5% Chrysotile
25-75 B2213043.075	Tar	Homogeneous Black Non-fibrous Bound	3%	Cellulose	92%	Tar	5% Chrysotile
26-76 B2213043.076	Gasket Material	Homogeneous White Fibrous Loose	35%	Binder			65% Chrysotile

ASBESTOS BULK ANALYSIS

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Client: Terracon Consultants, Inc.
611 Lunken Park Drive
Cincinnati, OH 45226

Lab Code: B2213043
Date Received: 10-03-22
Date Analyzed: 10-10-22
Date Reported: 10-10-22

Project: Cincinnati W Fork Incinerator, N1227040

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
26-77 B2213043.077	Gasket Material	Homogeneous White Fibrous Loose		35% Binder	65% Chrysotile
26-78 B2213043.078	Gasket Material	Homogeneous White Fibrous Loose		35% Binder	65% Chrysotile
27-79 B2213043.079	Fire Door Insulation	Homogeneous White Fibrous Loose		35% Binder	65% Chrysotile
27-80 B2213043.080	Fire Door Insulation	Homogeneous White Fibrous Loose		35% Binder	65% Chrysotile
27-81 B2213043.081	Fire Door Insulation	Homogeneous White Fibrous Loose		35% Binder	65% Chrysotile
28-82 Layer 1 B2213043.082	Exterior Window Glazing	Homogeneous White Fibrous Loose	80% 20%	Binder Calc Carb	<1% Chrysotile
Layer 2 B2213043.082	Exterior Window Glazing (400 Point Count)	Homogeneous White Fibrous Loose			0.25% Chrysotile

(1 asbestos points / 400 total) x 100.

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Terracon Consultants, Inc.
611 Lunken Park Drive
Cincinnati, OH 45226

Lab Code: B2213043
Date Received: 10-03-22
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Date Reported: 10-10-22

Project: Cincinnati W Fork Incinerator, N1227040

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
28-83 Layer 1 B2213043.083	Exterior Window Glazing	Homogeneous White Fibrous Loose	80% 20%	Binder Calc Carb	<1% Chrysotile
Layer 2 B2213043.083	Exterior Window Glazing (400 Point Count)	Homogeneous White Fibrous Loose			0.25% Chrysotile
(1 asbestos points / 400 total) x 100.					
28-84 Layer 1 B2213043.084	Exterior Window Glazing	Homogeneous White Fibrous Loose	80% 20%	Binder Calc Carb	<1% Chrysotile
Layer 2 B2213043.084	Exterior Window Glazing (400 Point Count)	Homogeneous White Fibrous Loose			0.50% Chrysotile
(2 asbestos points / 400 total) x 100.					
29-85 Layer 1 B2213043.085	Exterior Window Glazing	Homogeneous White Fibrous Loose	80% 20%	Binder Calc Carb	<1% Chrysotile
Layer 2 B2213043.085	Exterior Window Glazing (400 Point Count)	Homogeneous White Fibrous Loose			0.50% Chrysotile
(2 asbestos points / 400 total) x 100.					
29-86 Layer 1 B2213043.086	Exterior Window Glazing	Homogeneous White Fibrous Loose	80% 20%	Binder Calc Carb	<1% Chrysotile

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

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Date Analyzed: 10-10-22
Date Reported: 10-10-22

Project: Cincinnati W Fork Incinerator, N1227040

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
Layer 2 B2213043.086	Exterior Window Glazing (400 Point Count)	Homogeneous White Fibrous Loose					0.25% Chrysotile
(1 asbestos points / 400 total) x 100.							
29-87 Layer 1 B2213043.087	Exterior Window Glazing	Homogeneous White Fibrous Loose		80% 20%	Binder Calc Carb		<1% Chrysotile
Layer 2 B2213043.087	Exterior Window Glazing (400 Point Count)	Homogeneous White Fibrous Loose					0.50% Chrysotile
(2 asbestos points / 400 total) x 100.							
30-88 Layer 1 B2213043.088	Built-up Tar Roof	Homogeneous Black Fibrous Bound	30%	Cellulose	70% Tar		None Detected
Layer 2 B2213043.088	Tar Paper	Homogeneous Black Fibrous Bound	10%	Cellulose	70% Tar		20% Chrysotile
30-89 Layer 1 B2213043.089	Built-up Tar Roof	Homogeneous Black Fibrous Bound	30%	Cellulose	70% Tar		None Detected
Layer 2 B2213043.089	Tar Paper	Homogeneous Black Fibrous Bound	10%	Cellulose	70% Tar		20% Chrysotile

ASBESTOS BULK ANALYSIS

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Client: Terracon Consultants, Inc.
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Lab Code: B2213043
Date Received: 10-03-22
Date Analyzed: 10-10-22
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Project: Cincinnati W Fork Incinerator, N1227040

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID	Lab	Lab	NON-ASBESTOS COMPONENTS				ASBESTOS
Lab ID	Description	Attributes	Fibrous		Non-Fibrous		%
30-90	Built-up Tar Roof	Homogeneous	30%	Cellulose	70%	Tar	None Detected
Layer 1		Black					
B2213043.090		Fibrous					
		Bound					
Layer 2	Tar Paper	Homogeneous	10%	Cellulose	70%	Tar	20% Chrysotile
B2213043.090		Black					
		Fibrous					
		Bound					
31-91	Tar Flashing	Homogeneous	10%	Cellulose	70%	Tar	20% Chrysotile
B2213043.091		Black					
		Fibrous					
		Bound					
31-92	Tar Flashing	Homogeneous	10%	Cellulose	70%	Tar	20% Chrysotile
B2213043.092		Black					
		Fibrous					
		Bound					
31-93	Tar Flashing	Homogeneous	10%	Cellulose	70%	Tar	20% Chrysotile
B2213043.093		Black					
		Fibrous					
		Bound					
32-94	Interior Window Glazing	Homogeneous			78%	Binder	2% Chrysotile
Layer 1		White			20%	Calc Carb	
B2213043.094		Non-fibrous					
		Bound					
Layer 2	Interior Window Glazing	Homogeneous					1.5% Chrysotile
B2213043.094	(400 Point Count)	White					
		Fibrous					
		Loose					
(6 asbestos points / 400 total) x 100.							

ASBESTOS BULK ANALYSIS

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611 Lunken Park Drive
Cincinnati, OH 45226

Lab Code: B2213043
Date Received: 10-03-22
Date Analyzed: 10-10-22
Date Reported: 10-10-22

Project: Cincinnati W Fork Incinerator, N1227040

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
32-95 Layer 1 B2213043.095	Interior Window Glazing	Homogeneous White Non-fibrous Bound	78% 20%	Binder Calc Carb	2% Chrysotile
Layer 2 B2213043.095	Sample Not Analyzed per COC				
32-96 Layer 1 B2213043.096	Interior Window Glazing	Homogeneous White Non-fibrous Bound	78% 20%	Binder Calc Carb	2% Chrysotile
Layer 2 B2213043.096	Sample Not Analyzed per COC				
33-97 B2213043.097	Backer Board	Homogeneous Brown,Black Fibrous Bound	80%	Tar	20% Chrysotile
33-98 B2213043.098	Backer Board	Homogeneous Brown,Black Fibrous Bound	80%	Tar	20% Chrysotile
33-99 B2213043.099	Backer Board	Homogeneous Brown,Black Fibrous Bound	80%	Tar	20% Chrysotile
34-100 B2213043.100	Cementitious Panel	Homogeneous Gray Fibrous Bound	85%	Binder	15% Chrysotile

ASBESTOS BULK ANALYSIS

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Cincinnati, OH 45226

Lab Code: B2213043
Date Received: 10-03-22
Date Analyzed: 10-10-22
Date Reported: 10-10-22

Project: Cincinnati W Fork Incinerator, N1227040

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
34-101 B2213043.101	Cementitious Panel	Homogeneous Gray Fibrous Bound		85% Binder	15% Chrysotile
34-102 B2213043.102	Cementitious Panel	Homogeneous Gray Fibrous Bound		85% Binder	15% Chrysotile
35-103 B2213043.103	Gasket	Homogeneous White Non-fibrous Bound		90% Binder 10% Silicates	None Detected
35-104 B2213043.104	Gasket	Homogeneous White Non-fibrous Bound		90% Binder 10% Silicates	None Detected
35-105 B2213043.105	Gasket	Homogeneous White Non-fibrous Bound		90% Binder 10% Silicates	None Detected
36-106 B2213043.106	Grout	Homogeneous Gray Non-fibrous Bound		75% Silicates 25% Binder	None Detected
36-107 B2213043.107	Grout	Homogeneous Gray Non-fibrous Bound		75% Silicates 25% Binder	None Detected

ASBESTOS BULK ANALYSIS

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Project: Cincinnati W Fork Incinerator, N1227040

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
36-108 B2213043.108	Grout	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
37-109 B2213043.109	Grout	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
37-110 B2213043.110	Grout	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
37-111 B2213043.111	Grout	Homogeneous Gray Non-fibrous Bound	75% 25%	Silicates Binder	None Detected
38-112 B2213043.112	Exterior Door Caulking	Homogeneous Gray Non-fibrous Bound	93%	Caulk	7% Chrysotile
38-113 B2213043.113	Exterior Door Caulking	Homogeneous Gray Non-fibrous Bound	93%	Caulk	7% Chrysotile
38-114 B2213043.114	Exterior Door Caulking	Homogeneous Gray Non-fibrous Bound	93%	Caulk	7% Chrysotile

ASBESTOS BULK ANALYSIS

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ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
39-115 B2213043.115	Paper Backing	Homogeneous White Fibrous Loosely Bound		35% Binder	65% Chrysotile
39-116 B2213043.116	Paper Backing	Homogeneous White Fibrous Loosely Bound		35% Binder	65% Chrysotile
39-117 B2213043.117	Paper Backing	Homogeneous White Fibrous Loosely Bound		35% Binder	65% Chrysotile
40-118 B2213043.118 A	Floor Tile	Homogeneous Gray Non-fibrous Tightly Bound		100% Vinyl	None Detected
B2213043.118 B	Mastic	Homogeneous Black Non-fibrous Bound		95% Mastic	5% Chrysotile
40-119 B2213043.119 A	Floor Tile	Homogeneous Gray Non-fibrous Tightly Bound		100% Vinyl	None Detected
B2213043.119 B	Mastic	Homogeneous Black Non-fibrous Bound		95% Mastic	5% Chrysotile

ASBESTOS BULK ANALYSIS

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Date Reported: 10-10-22

Project: Cincinnati W Fork Incinerator, N1227040

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS				ASBESTOS %
			Fibrous		Non-Fibrous		
40-120 B2213043.120 A	Floor Tile	Homogeneous Gray Non-fibrous Tightly Bound			100%	Vinyl	None Detected
B2213043.120 B	Mastic	Homogeneous Black Non-fibrous Bound			95%	Mastic	5% Chrysotile
41-122 B2213043.121 A	Ceiling Tile	Heterogeneous White Fibrous Loosely Bound	95%	Cellulose	5%	Paint	None Detected
B2213043.121 B	Glue Dot	Homogeneous Brown Non-fibrous Bound			98%	Mastic	2% Chrysotile
41-123 B2213043.122 A	Ceiling Tile	Heterogeneous White Fibrous Loosely Bound	95%	Cellulose	5%	Paint	None Detected
B2213043.122 B	Glue Dot	Homogeneous Brown Non-fibrous Bound			98%	Mastic	2% Chrysotile
41-124 B2213043.123 A	Ceiling Tile	Heterogeneous White Fibrous Loosely Bound	95%	Cellulose	5%	Paint	None Detected

ASBESTOS BULK ANALYSIS

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Project: Cincinnati W Fork Incinerator, N1227040

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
B2213043.123 B	Glue Dot	Homogeneous Brown Non-fibrous Bound		98% Mastic	2% Chrysotile
42-125 B2213043.124 A	Floor Tile	Homogeneous Blue,Red Checkered Non-fibrous Tightly Bound		93% Vinyl	7% Chrysotile
B2213043.124 B	Mastic	Homogeneous Black Non-fibrous Bound		95% Mastic	5% Chrysotile
42-126 B2213043.125 A	Floor Tile	Homogeneous Blue,Red Checkered Non-fibrous Tightly Bound		93% Vinyl	7% Chrysotile
B2213043.125 B	Mastic	Homogeneous Black Non-fibrous Bound		95% Mastic	5% Chrysotile
42-127 B2213043.126 A	Floor Tile	Homogeneous Blue,Red Checkered Non-fibrous Tightly Bound		93% Vinyl	7% Chrysotile
B2213043.126 B	Mastic	Homogeneous Black Non-fibrous Bound		95% Mastic	5% Chrysotile

LEGEND: Non-Anth = Non-Asbestiform Anthophyllite
Non-Trem = Non-Asbestiform Tremolite
Calc Carb = Calcium Carbonate

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORTING LIMIT: <1% by visual estimation

REPORTING LIMIT FOR POINT COUNTS: 0.25% by 400 Points or 0.1% by 1,000 Points

REGULATORY LIMIT: >1% by weight

Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation. *Estimated measurement of uncertainty is available on request.*

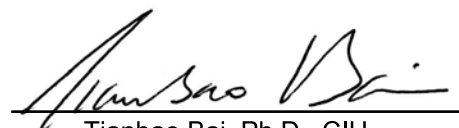
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Information provided by customer includes customer sample ID and sample description.

ANALYST:


Ryan Steele

APPROVED BY:


Tianbao Bai, Ph.D., CIH
Laboratory Director





CEI

CHAIN OF CUSTODY

730 SE Maynard Road, Cary, NC 27511

Tel: 866-481-1412; Fax: 919-481-1442

LAB USE ONLY:

CEI Lab Code:

B2213043

CEI Lab I.D. Range:

124

COMPANY INFORMATION	PROJECT INFORMATION
CEI CLIENT #:	Job Contact:
Company: Terracon Consultants, Inc.	Email / Tel:
Address: 611 Lunkenpark Dr.	Project Name: Cincinnati W Fork Incinerator
Cincinnati, OH 45226	Project ID#: N1227040
Email: Joshua.Vogel@Terracon.com	PO #:
Tel: (513) 612-9002 Fax:	STATE SAMPLES COLLECTED IN:

IF TAT IS NOT MARKED STANDARD 3 DAY TAT APPLIES.

ASBESTOS	METHOD	TURN AROUND TIME					
		4 HR	8 HR	1 DAY	2 DAY	3 DAY	5 DAY
PLM BULK	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (400)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM POINT COUNT (1000)	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM GRAV w POINT COUNT	EPA 600	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PLM BULK	CARB 435	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
PCM AIR	NIOSH 7400	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	EPA AHERA	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	NIOSH 7402	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR (PCME)	ISO 10312	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM AIR	ASTM 6281-15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM BULK	CHATFIELD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST WIPE	ASTM D6480-05 (2010)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM DUST MICROVAC	ASTM D5755-09 (2014)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM SOIL	ASTM D7521-16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM VERMICULITE	CINCINNATI METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEM QUALITATIVE	IN-HOUSE METHOD	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
OTHER:		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REMARKS / SPECIAL INSTRUCTIONS:

BB

Accept Samples

☐

Reject Samples

Relinquished By:	Date/Time	Received By:	Date/Time
Michael Bell	9-30-2022	CS	10/3 9:10

Samples will be disposed of 30 days after analysis

SUSPECT ACM - BULK MATERIAL SAMPLE LOG

Page ____ of ____

Date: 9/28/22-9/29/22
 Inspector: Lem Weyer and Josh Vogel
 Project: Cincinnati West Fork Incinerator Building
 Project #: N1227040

Terracon

611 Lunken Park Drive
 Cincinnati, Ohio 45226
 (513) 321.5816

Sample #		Sample Material Description	Sample Location	HA Location(s)	Results (% / Type of Asbestos)
HA #	SEQ. #				
01	01	Refractory	Access Door on West Side of Incinerator	Unit 1 Basement/Ash Level Incinerator Access Door	
	02		Access Door on West Side of Incinerator		
	03		Access Door on West Side of Incinerator		
02	04	Refractory	South Wall	Unit 1 Basement/Ash Level Incinerator Interior Walls	
	05		East Wall		
	06		North Wall		
03	07	Refractory Brick with Red Grout	South Wall	Unit 1 Basement/Ash Level Incinerator Interior Walls	
	08		North Wall		
	09		Beginning of Tunnel		
04	10	Refractory	Access Door on West Side of Incinerator	Unit 2 Basement/Ash Level Incinerator Access Door	
	11		Access Door on West Side of Incinerator		
	12		Access Door on West Side of Incinerator		
05	13	Refractory	South Wall	Unit 2 Basement/Ash Level Incinerator Interior Walls	
	14		South Wall		
	15		South Wall		

.15

Sample #		Sample Material Description	Sample Location	HA Location(s)	Results (% / Type of Asbestos)
HA #	SEQ. #				
06	16	Refractory Brick with Red Grout	Access Doorway	Unit 2 Basement/Ash Level Incinerator Interior Walls	
	17		Access Doorway		
	18		Start of Tunnel		
07	19	Refractory	Access Door on West Side of Incinerator	Unit 3 Basement/Ash Level Incinerator Access Door	
	20		Access Door on West Side of Incinerator		
	21		Access Door on West Side of Incinerator		
08	22	Refractory	North Wall	Unit 3 Basement/Ash Level Incinerator Interior Walls	
	23		North Wall		
	24		South Wall		
09	25	Refractory Brick with Red Grout	South Wall	Unit 3 Basement/Ash Level Incinerator Interior Walls	
	26		North Wall		
	27		At Start of Tunnel		
10	28	Refractory	Access Door on West Side of Incinerator	Unit 4 Basement/Ash Level Incinerator Access Door	
	29		Access Door on West Side of Incinerator		
	30		Access Door on West Side of Incinerator		
11	31	Refractory	East Side	Unit 4 Basement/Ash Level Incinerator Interior Walls	
	32		East Side		
	33		West Side		

Sample #		Sample Material Description	Sample Location	HA Location(s)	Results (% / Type of Asbestos)
HA #	SEQ. #				
12	34	Refractory Brick with Red Grout	North Wall	Unit 4 Basement/Ash Level Incinerator Interior Walls	
	35		South Wall		
	36		East Wall		
13	37	Refractory Brick with Red Grout	Northeast Wall	Unit 1 & 2 Stack Interior Walls	
	38		West Wall		
	39		South Wall		
14	40	Refractory	Northwest Door	Unit 1 1 st /Furnace Level Access Door	
	41		Northwest Door		
	42		Northwest Door		
15	43	Refractory	Northwest Corner of Furnace	Unit 1 1 st /Furnace Level Interior Walls	
	44		Northwest Corner of Furnace		
	45		North Side of Furnace		
16	46	Refractory	Southwest Door	Unit 2 1 st /Furnace Level Access Door	
	47		Southwest Door		
	48		Northwest Door		
17	49	Refractory	Northwest Corner of Furnace	Unit 2 1 st /Furnace Level Interior Walls	
	50		Northwest Corner		
	51		East Side		

40

Sample #		Sample Material Description	Sample Location	HA Location(s)	Results (% / Type of Asbestos)
HA #	SEQ. #				
18	52	Refractory	Southeast Door	Unit 3 1 st /Furnace Level Access Door	
	53		Southeast Door		
	54		Southeast Door		
19	55	Refractory	Southeast Corner	Unit 3 1 st /Furnace Level Interior Walls	
	56		Southeast Corner		
	57		Southeast Corner		
20	58	Refractory	Southwest Door	Unit 4 1 st /Furnace Level Access Door	
	59		Southeast Door		
	60		Northeast Door		
21	61	Refractory	Southeast Corner	Unit 4 1 st /Furnace Level Interior Walls	
	62		Southeast Corner		
	63		Southwest Corner		
22	64	Gray Interior Door Caulking	Southeast Door	Basement-Southeast Door to Incinerators	
	65		Southeast Door		
	66		Southeast Door		
23	67	White Interior Window Glazing	Northwest Window	Associated with Interior Side of Windows in 2 nd Level South Conveyor Room	
	68		Southwest Window		
	69		Southeast Window		

Sample #		Sample Material Description	Sample Location	HA Location(s)	Results (% / Type of Asbestos)
HA #	SEQ. #				
24	70	Gray Interior Window Caulking	Northwest Window	Associated with Interior Side of Windows in 2 nd Level South Conveyor Room	
	71		Southwest Window		
	72		Southeast Window		
25	73	Black Tar	At Unit 4 Incinerator	Associated with the Expansion Joints in the Concrete Flooring of the Basement/Ash Level	
	74		Center of Floor		
	75		Near North Garage Door		
26	76	White Gasket Material	Basement Unit 4 Access Door	Associated with Access Doors to Incinerators	
	77		Basement Unit 2 Access		
	78		1 st Level Unit 4 Access Door		
27	79	Fire Door Insulation	Boiler Room Door	Door to Boiler Room, Stairwell Doors, 1 st / Furnace Level North and South Closet Doors	
	80		Boiler Room Door		
	81		Boiler Room Door		
28	82	White Exterior Window Glazing	Northeast Window of Locker Room	Associated with Locker Room Windows, Office Windows, Northwest Restroom Window, Hallway to Office Window, North and South Room of 1 st Level Windows	
	83		Northwest Corner of Office		
	84		South Wall of 1 st Level		
29	85	White Exterior Window Glazing	Northeast Corner of 1 st Floor	Associated with Windows throughout Building	
	86		Northeast Corner of 2 nd Level		
	87		Southwest Corner of Garage		

Sample #		Sample Material Description	Sample Location	HA Location(s)	Results (% / Type of Asbestos)
HA #	SEQ. #				
30	88	Built-Up Tar Roof with Tar Paper	At Access Door	Garage Roof	
	89		At Access Door		
	90		At Access Door		
31	91	Tar Flashing	At Access Door	Garage Roof Flashing	
	92		At Access Door		
	93		At Access Door		
32	94	White Interior Window Glazing	Northwest Corner of North Box	Associated with Windows to the Crane Operator Box	
	95		Northwest Corner of North Box		
	96		Southeast Corner of South Box		
33	97	Black Backer Board	North Crane Box	Fuse Boxes associated with Crane Control System	
	98		North Crane Box		
	99		South Crane Box		
34	100	Cementitious Panels	Northeast Corner of 2 nd Level	2 nd Level Northeast Electrical Box	
	101		Northeast Corner of 2 nd Level		
	102		Northeast Corner of 2 nd Level		
35	103	White Gaskets	South Box	Associated with Heater Unit in South Crane Control Box	
	104		South Box		
	105		South Box		

Sample #		Sample Material Description	Sample Location	HA Location(s)	Results (% / Type of Asbestos)
HA #	SEQ. #				
36	106	Gray Grout	West Side of North Stack	Exterior Brick Walls of Stacks	
	107		North Side of North Stack		
	108		South Side of North Stack		
37	109	Gray Grout	Northeast Corner	Exterior Walls of Building	
	110		Northwest Corner		
	111		Southwest Corner		
38	112	Gray Exterior Door Caulking	South Garage Door	Associated with the Exterior Side of the Northeast Garage Doors and Adjacent Doors, Northwest Door to Office	
	113		South Door		
	114		North Garage Door		
39	115	White Paper Backing	Light at Office Entrance	Associated with Light at Entrance to Office Area	
	116		Light at Office Entrance		
	117		Light at Office Entrance		
40	118	12"x12" Gray Floor Tile Black Mastic	Doorway	Office	
	119		Northeast Corner		
	120		Northwest Corner		
41	122	12"x12" White Ceiling Tile with Pinhole and Brown Glue Dots	Center	Office	
	123		Doorway		
	124		Middle North Side		

Sample #		Sample Material Description	Sample Location	HA Location(s)	Results (% / Type of Asbestos)
HA #	SEQ. #				
42	125	9"x9" Blue and Red Checkered Floor Tile with Black Mastic	Center	Office Restroom	
	126		Center		
	127		Doorway		

124

Ivey, William

From: Vogel, Joshua <Joshua.Vogel@terracon.com>
Sent: Monday, October 3, 2022 2:54 PM
To: CEI - Reporting
Cc: Weyer, Lem J
Subject: RE: Cincinnati W Fork Incinerator

Follow Up Flag: Follow up
Flag Status: Flagged

EXTERNAL EMAIL*

Please change sample 10-31 to 10-28 and 10-32 to 10-29.
Ignore the extra 18-52 sample, it was duplicated
And also ignored the numbers 22-64, 22-6 and 22-65 on the COC

The samples should be a 5 day TAT.

Sorry for the confusion

Thanks,
Lem

From: CEI - Reporting <cei-reporting@et.eurofinsus.com>
Sent: Monday, October 3, 2022 1:05 PM
To: Vogel, Joshua <Joshua.Vogel@terracon.com>
Cc: CEI - Reporting <cei-reporting@et.eurofinsus.com>
Subject: Cincinnati W Fork Incinerator

Good afternoon Joshua,

We have received your project "Cincinnati W Fork Incinerator." However, we have extra samples labeled 10-31, 10-32, and 18-52 which are not listed on the COC as well as missing samples 10-28, 10-29, 22-64, 22-65, and 22-66. There was also no TAT marked on the COC. Please advise with how you would like us to move forward with the project.

Sincerely,

William Ivey
Login/Administrative Support Specialist
Eurofins CEI
730 SE Maynard Rd
Cary, NC 27511

Office: (919) 481-1413

November 4, 2022

Terracon Consultants, Inc.
611 Lunken Park Drive
Cincinnati, OH 45226

CLIENT PROJECT: W. Fork Incinerator, N1227040
CEI LAB CODE: B2215021

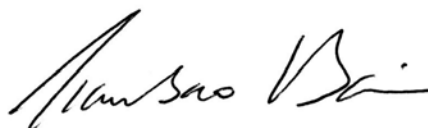
Dear Customer:

Enclosed are asbestos analysis results for PLM Bulk samples received at our laboratory on October 28, 2022. The samples were analyzed for asbestos using polarizing light microscopy (PLM) per the EPA 600 Method.

Sample results containing >1% asbestos are considered asbestos-containing materials (ACMs) per EPA regulatory requirements. The detection limit for the EPA 600 Method is <1% asbestos by weight as determined by visual estimation.

Thank you for your business and we look forward to continuing good relations.

Kind Regards,



Tianbao Bai, Ph.D., CIH
Laboratory Director

ASBESTOS ANALYTICAL REPORT

By: Polarized Light Microscopy

Prepared for

Terracon Consultants, Inc.

CLIENT PROJECT: W. Fork Incinerator, N1227040

LAB CODE: B2215021

TEST METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORT DATE: 11/04/22

TOTAL SAMPLES ANALYZED: 9

SAMPLES >1% ASBESTOS: 3

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: W. Fork Incinerator, N1227040

LAB CODE: B2215021

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
22-64		B2215021.01	Gray	Interior Door Caulking	Chrysotile 8%
22-65		B2215021.02	Gray	Interior Door Caulking	Chrysotile 8%
22-66		B2215021.03	Gray	Interior Door Caulking	Chrysotile 8%
43-128		B2215021.04	Tan,Gray	Refractory Brick	None Detected
43-129		B2215021.05	Tan,Gray	Refractory Brick	None Detected
43-130		B2215021.06	Tan,Gray	Refractory Brick	None Detected
44-131		B2215021.07	Gray,White	Refractory Brick	None Detected
44-132		B2215021.08	Gray,White	Refractory Brick	None Detected
44-133		B2215021.09	Gray,White	Refractory Brick	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Terracon Consultants, Inc.
611 Lunken Park Drive
Cincinnati, OH 45226

Lab Code: B2215021
Date Received: 10-28-22
Date Analyzed: 11-04-22
Date Reported: 11-04-22

Project: W. Fork Incinerator, N1227040

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
22-64 B2215021.01	Interior Door Caulking	Homogeneous Gray Non-fibrous Bound		92% Caulk	8% Chrysotile
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43-128 B2215021.04	Refractory Brick	Homogeneous Tan, Gray Non-fibrous Bound		75% Silicates 25% Binder	None Detected
43-129 B2215021.05	Refractory Brick	Homogeneous Tan, Gray Non-fibrous Bound		75% Silicates 25% Binder	None Detected
43-130 B2215021.06	Refractory Brick	Homogeneous Tan, Gray Non-fibrous Bound		75% Silicates 25% Binder	None Detected
44-131 B2215021.07	Refractory Brick	Homogeneous Gray, White Non-fibrous Bound		75% Silicates 25% Binder	None Detected

ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Terracon Consultants, Inc.
611 Lunken Park Drive
Cincinnati, OH 45226

Lab Code: B2215021
Date Received: 10-28-22
Date Analyzed: 11-04-22
Date Reported: 11-04-22

Project: W. Fork Incinerator, N1227040

ASBESTOS BULK PLM, EPA 600 METHOD

Client ID Lab ID	Lab Description	Lab Attributes	NON-ASBESTOS COMPONENTS		ASBESTOS %
			Fibrous	Non-Fibrous	
44-132 B2215021.08	Refractory Brick	Homogeneous		75% Silicates	None Detected
		Gray,White		25% Binder	
		Non-fibrous			
		Bound			
44-133 B2215021.09	Refractory Brick	Homogeneous		75% Silicates	None Detected
		Gray,White		25% Binder	
		Non-fibrous			
		Bound			

LEGEND: Non-Anth = Non-Asbestiform Anthophyllite
 Non-Trem = Non-Asbestiform Tremolite
 Calc Carb = Calcium Carbonate

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORTING LIMIT: <1% by visual estimation

REPORTING LIMIT FOR POINT COUNTS: 0.25% by 400 Points or 0.1% by 1,000 Points


REGULATORY LIMIT: >1% by weight

Due to the limitations of the EPA 600 method, nonfriable organically bound materials (NOBs) such as vinyl floor tiles can be difficult to analyze via polarized light microscopy (PLM). EPA recommends that all NOBs analyzed by PLM, and found not to contain asbestos, be further analyzed by Transmission Electron Microscopy (TEM). Please note that PLM analysis of dust and soil samples for asbestos is not covered under NVLAP accreditation. *Estimated measurement of uncertainty is available on request.*

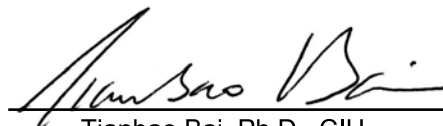
This report relates only to the samples tested or analyzed and may not be reproduced, except in full, without written approval by Eurofins CEI. Eurofins CEI makes no warranty representation regarding the accuracy of client submitted information in preparing and presenting analytical results. Interpretation of the analytical results is the sole responsibility of the client. Samples were received in acceptable condition unless otherwise noted. This report may not be used by the client to claim product endorsement by NVLAP or any other agency of the U.S. Government.

Information provided by customer includes customer sample ID and sample description.

ANALYST:


Ryan Steele

APPROVED BY:


Tianbao Bai, Ph.D., CIH
Laboratory Director



November 4, 2022

Terracon Consultants, Inc.
611 Lunken Park Drive
Cincinnati, OH 45226

CLIENT PROJECT: W. Fork Incinerator, N1227040
CEI LAB CODE: B2215021

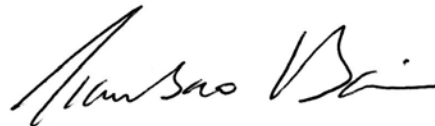
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Thank you for your business and we look forward to continuing good relations.

Kind Regards,



Tianbao Bai, Ph.D., CIH
Laboratory Director

ASBESTOS ANALYTICAL REPORT

By: Polarized Light Microscopy

Prepared for

Terracon Consultants, Inc.

CLIENT PROJECT: W. Fork Incinerator, N1227040

LAB CODE: B2215021

TEST METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

REPORT DATE: 11/04/22

TOTAL SAMPLES ANALYZED: 9

SAMPLES >1% ASBESTOS: 3

Asbestos Report Summary

By: POLARIZING LIGHT MICROSCOPY

PROJECT: W. Fork Incinerator, N1227040

LAB CODE: B2215021

METHOD: EPA 600 / R93 / 116 and EPA 600 / M4-82 / 020

Client ID	Layer	Lab ID	Color	Sample Description	ASBESTOS %
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44-132		B2215021.08	Gray,White	Refractory Brick	None Detected
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ASBESTOS BULK ANALYSIS

By: POLARIZING LIGHT MICROSCOPY

Client: Terracon Consultants, Inc.
611 Lunken Park Drive
Cincinnati, OH 45226

Lab Code: B2215021
Date Received: 10-28-22
Date Analyzed: 11-04-22
Date Reported: 11-04-22

Project: W. Fork Incinerator, N1227040

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By: POLARIZING LIGHT MICROSCOPY

Client: Terracon Consultants, Inc.
611 Lunken Park Drive
Cincinnati, OH 45226

Lab Code: B2215021
Date Received: 10-28-22
Date Analyzed: 11-04-22
Date Reported: 11-04-22

Project: W. Fork Incinerator, N1227040

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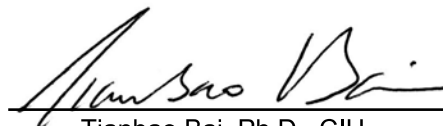
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Information provided by customer includes customer sample ID and sample description.

ANALYST:


Ryan Steele

APPROVED BY:


Tianbao Bai, Ph.D., CIH
Laboratory Director



Asbestos Inspection Report

West Fork Incinerator Building ■ 3200 Millcreek Road, Cincinnati, OH
November 14, 2022 ■ Terracon Project No. N1227040



APPENDIX D

LICENSES AND CERTIFICATIONS



Mike DeWine, Governor
Jon Husted, Lt. Governor
Laurie A. Stevenson, Director

3/8/2022

Michael Sulken
208 Assisiknoll Ct.
Cincinnati, OH 45238

RE: Evaluation Specialist
Certification Number: ES34655
Expiration Date: 4/2/2023

Dear Michael Sulken:

This letter and enclosed certification card approves your request to be certified as an asbestos Evaluation Specialist. You must present your card upon request at any project site while performing duties. Copies of cards are not acceptable as proof of certification.

This certification may be revoked by the Director of the Ohio Environmental Protection Agency (EPA) for violation of any of the requirements of 3745-22 or 3745-20 of the Ohio Administrative Code.

If you have any questions, please contact the Asbestos Program at 614-644-0226 or by email at asbestoslicensing@epa.ohio.gov.

Sincerely,

Joshua S. Koch
Manager, Business Operations Support Section
Ohio EPA - Division of Air Pollution Control

State of Ohio
Environmental Protection Agency
Asbestos Program

Asbestos Hazard Evaluation Specialist

Michael A
Sulken



208 Assisiknoll Ct.
Cincinnati OH 45238

Certification Number Expiration Date
ES34655 4/2/23



DOB: 2/14/85

Card not Valid
if Altered

• Suite 700 • P.O. Box 1049 • Columbus, OH 43216-1049
epa.ohio.gov • (614) 644-3020 • (614) 644-3184 (fax)



Mike DeWine, Governor
Jon Husted, Lt. Governor
Laurie A. Stevenson, Director

6/8/2022

Lemuel Weyer
Terracon Consultants
611 Lunkenpark Dr
Cincinnati, OH 45226

RE: Evaluation Specialist
Certification Number: ES36337
Expiration Date: 8/3/2023

Dear Lemuel Weyer:

This letter and enclosed certification card approves your request to be certified as an asbestos Evaluation Specialist. You must present your card upon request at any project site while performing duties. Copies of cards are not acceptable as proof of certification.

This certification may be revoked by the Director of the Ohio Environmental Protection Agency (EPA) for violation of any of the requirements of 3745-22 or 3745-20 of the Ohio Administrative Code.

If you have any questions, please contact the Asbestos Program at 614-644-0226 or by email at asbestoslicensing@epa.ohio.gov.

Sincerely,

Joshua S. Koch
Manager, Business Operations Support Section
Ohio EPA - Division of Air Pollution Control





Mike DeWine, Governor
Jon Husted, Lt. Governor
Laurie A. Stevenson, Director

1/5/2021

Joshua Vogel
Terracon
611 Lunken Park Drive
Cincinnati, OH 45226

RE: Evaluation Specialist
Certification Number: ES35291
Expiration Date: 3/3/2022

Dear Joshua Vogel:

This letter and enclosed certification card approves your request to be certified as an asbestos Evaluation Specialist. You must present your card upon request at any project site while performing duties. Copies of cards are not acceptable as proof of certification.

This certification may be revoked by the Director of the Ohio Environmental Protection Agency (EPA) for violation of any of the requirements of 3745-22 or 3745-20 of the Ohio Administrative Code.

If you have any questions, please contact the Asbestos Program at 614-644-0226 or by email at asbestoslicensing@epa.ohio.gov.

Sincerely,

Joshua S. Koch
Manager, Business Operations Support Section
Ohio EPA - Division of Air Pollution Control

50 West Town Street • Suite 700 • F
epa.ohio.gov • (614) 644-0226



Asbestos Inspection Report

Former West Fork Incinerator Building ■ 3200 Millcreek Rd., Cincinnati, OH
November 14, 2022 ■ Terracon Project No. N1227040



APPENDIX E

PHOTOS

Asbestos Inspection Report

Former West Fork Incinerator Building ■ 3200 Millcreek Rd., Cincinnati, OH
November 14, 2022 ■ Terracon Project No. N1227040



Photo 2 HA 22: Asbestos-Containing Gray Interior Door Caulking



Photo 2 HA 23: Asbestos-Containing White Interior Window Glazing



Photo 3 HA 24: Asbestos-Containing Gray Interior Window Caulking



Photo 4 HA 25: Asbestos-Containing Black Tar



Photo 5 HA 26: Asbestos-Containing White Gasket Material

No Photo Available

Photo 6 HA 27: Asbestos-Containing Fire Door Insulation

Asbestos Inspection Report

Former West Fork Incinerator Building ■ 3200 Millcreek Rd., Cincinnati, OH
November 14, 2022 ■ Terracon Project No. N1227040

Terracon



Photo 7 HA 28: Asbestos-Containing White Exterior Window Glazing



Photo 8 HA 29: Asbestos-Containing White Exterior Window Glazing



Photo 9 HA 30/31: Asbestos-Containing Tar Paper in the Built-Up Tar Roof System and Asbestos-Containing Flashing



Photo 10 HA 32: Asbestos-Containing White Interior Window Glazing



Photo 11 HA 33: Asbestos-Containing Black Backer Board

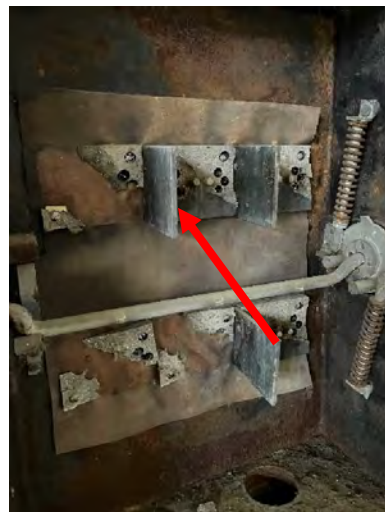








Photo 12 HA 34: Asbestos-Containing Cementitious Panels

Asbestos Inspection Report

Former West Fork Incinerator Building ■ 3200 Millcreek Rd., Cincinnati, OH
November 14, 2022 ■ Terracon Project No. N1227040

Terracon

	
Photo 13 HA 38: Asbestos-Containing Gray Exterior Door Caulking	Photo 14 HA 39: Asbestos-Containing White Paper Backing
	
Photo 15 HA 40: Asbestos-Containing Black Mastic beneath Non-Asbestos-Containing 12"x12" Gray Floor Tile	Photo 16 HA 41: Asbestos-Containing Brown Glue Dots Above Non-Asbestos-Containing 12"x12" White Ceiling Tile with Pinhole Pattern
	
Photo 17 HA 42: Asbestos-Containing 9"x9" Blue and Red Checkered Pattern Floor Tile and Black Mastic	Photo 18 HA 43: Assumed Asbestos-Containing Built-Up Tar Roof

Asbestos Inspection Report

Former West Fork Incinerator Building ■ 3200 Millcreek Rd., Cincinnati, OH
November 14, 2022 ■ Terracon Project No. N1227040

Terracon



Photo 19: Asbestos-Containing Air-Cell Pipe Insulation and Mudded Fittings



Photo 20: Asbestos-Containing Cementitious Pipe Fitting Insulation on Fiberglass Insulated Lines



Photo 21: Asbestos-Containing Cementitious Insulation and Wire Mesh



Photo 22: Asbestos-Containing Preformed Block Insulation



Photo 23: Asbestos-Containing Preformed Block Insulation



Photo 24: Asbestos-Containing Rope Gasket Material

Asbestos Inspection Report

Former West Fork Incinerator Building ■ 3200 Millcreek Rd., Cincinnati, OH
November 14, 2022 ■ Terracon Project No. N1227040



Photo 25: Asbestos-Containing Mineral/Glass Wool Insulation



Photo 26: Asbestos-Containing Trowel-Applied Fibrous Insulation



Photo 27: Asbestos-Containing Asphalt-Based Roofing Membrane



Photo 28: Asbestos-Containing Transite Panels

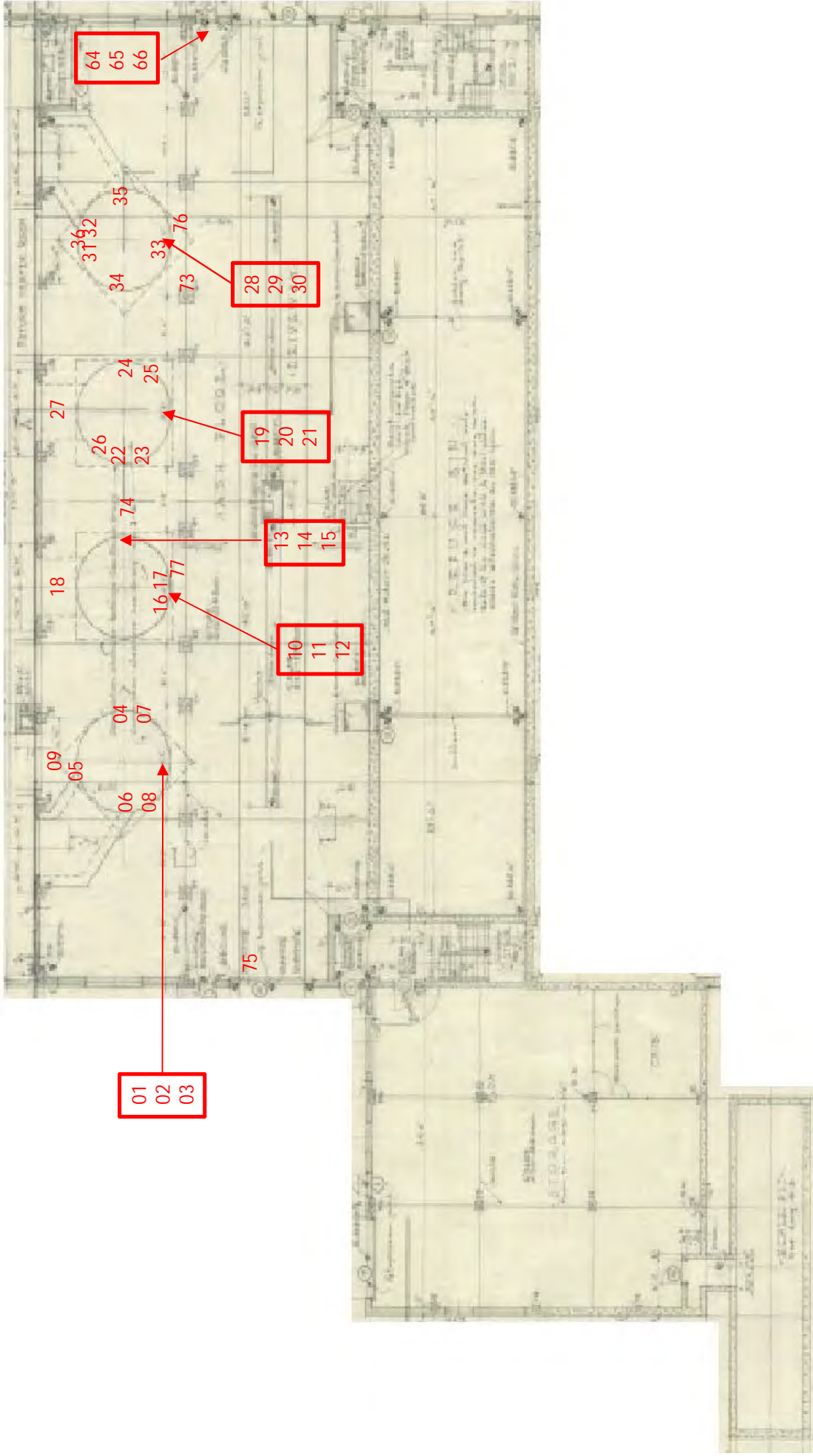
Asbestos Inspection Report

Former West Fork Incinerator Building ■ 3200 Millcreek Rd., Cincinnati, OH
November 14, 2022 ■ Terracon Project No. N1227040



APPENDIX F

SAMPLE LOCATION DRAWINGS



Project No. N1227040

Inspection Date: September 28 & 29, and October 26, 2022

Project Manager: Josh Vogel

APR: Joe Tussey



Consulting Engineers and Scientists

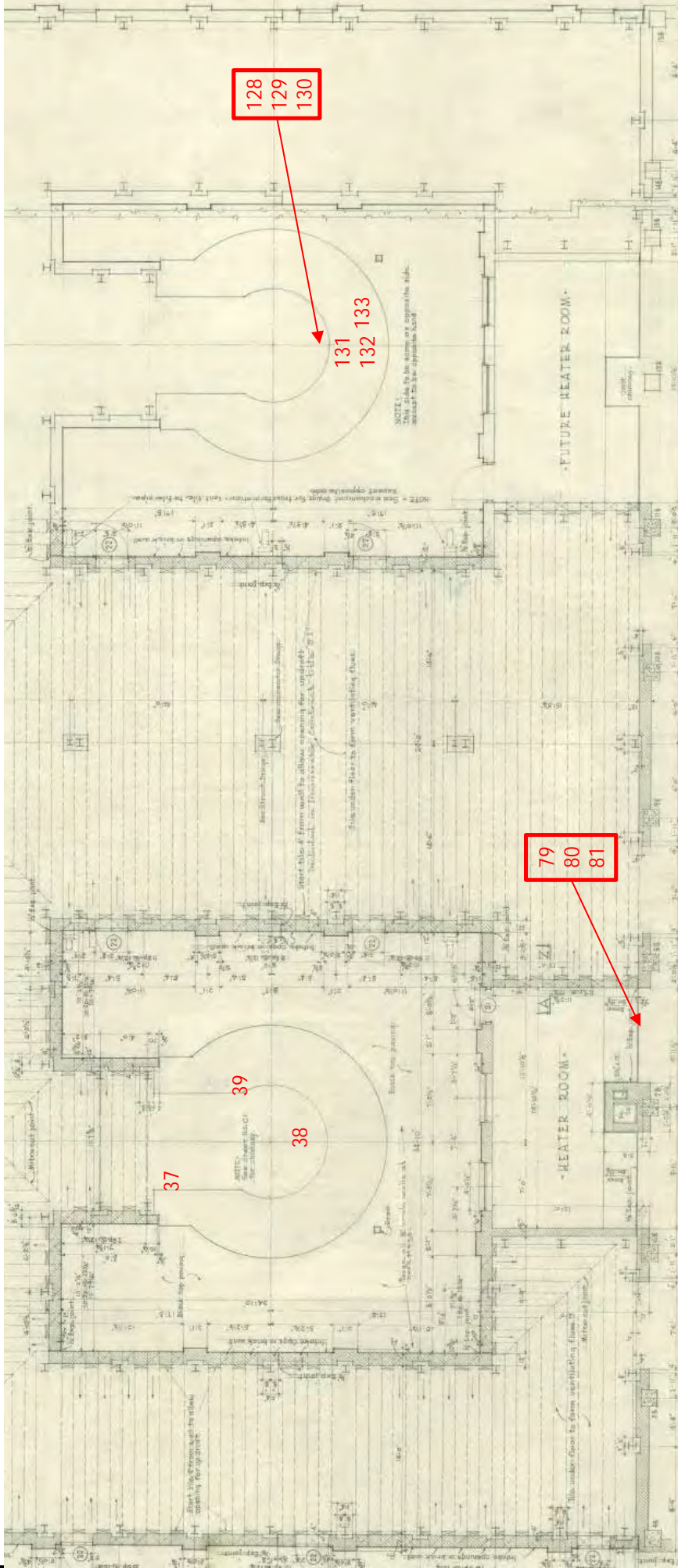
611 Lunken Park Drive
Cincinnati, Ohio 45226
PH: (513) 321-05816
FAX (513) 321-0294

Basement/Ash Level Sample Locations

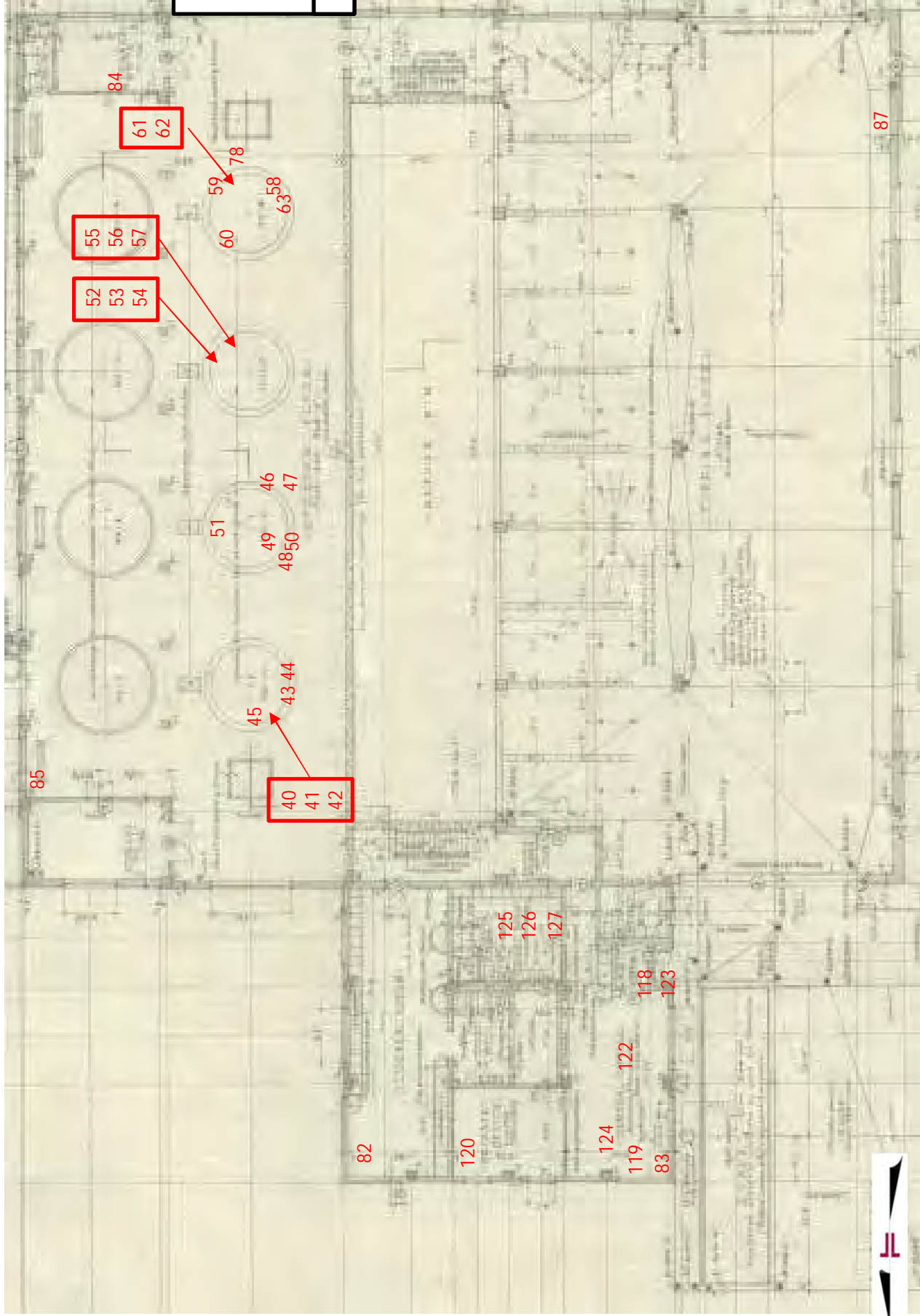
Former West Fork Incinerator
3200 Millcreek Road
Cincinnati, OH

Exhibit

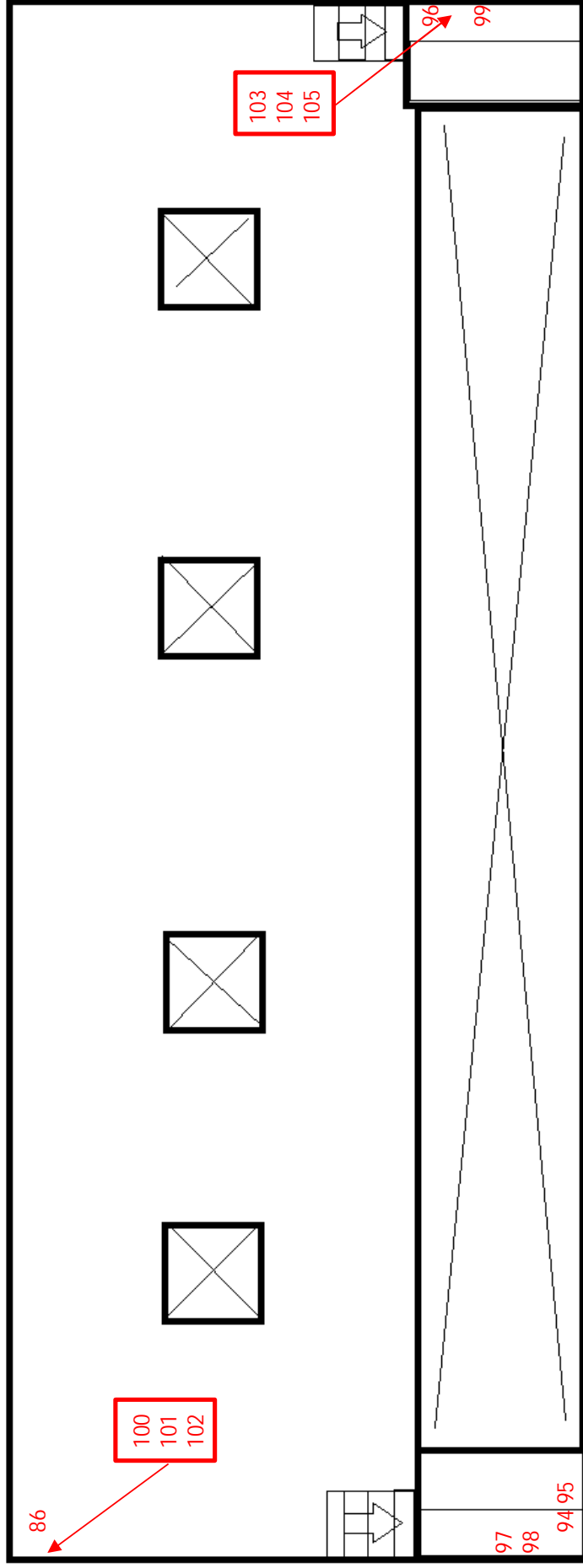
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Project No. N1227040		<div><div>Consulting Engineers and Scientists</div><div>611 Lunken Park Drive Cincinnati, Ohio 45226 PH. (513) 321-05816 FAX (513) 321-0294</div></div>		Expansion Chamber Sample Locations	Exhibit
Inspection Date: September 28 & 29, and October 26, 2022					
Project Manager: Josh Vogel					
APR: Joe Tussey				Former West Fork Incinerator 3200 Millcreek Road Cincinnati, OH	2



<div>Project No. N1227040</div> <div>Inspection Date: Inspection Date: September 28 & 29, and October 26, 2022</div> <div>Project Manager: Josh Vogel</div> <div>APR: Joe Tussey</div>	<div>  <div> Consulting Engineers and Scientists <div> 611 Lunken Park Drive Cincinnati, Ohio 45226 PH: (513) 321-05816 FAX (513) 321-0294 </div> </div> </div>	<div>1st Level Sample Locations</div> <div>Former West Fork Incinerator 3200 Millcreek Road Cincinnati, OH</div>	<div>Exhibit</div> <div>3</div>
--	---	---	---------------------------------



Project No. N1227040 Inspection Date: September 28 & 29, and October 26, 2022 Project Manager: Josh Vogel APR: Joe Tussey	 Consulting Engineers and Scientists 611 Lunken Park Drive Cincinnati, Ohio 45226 PH: (513) 321-05816 FAX (513) 321-0294	2nd Level Sample Locations Former West Fork Incinerator 3200 Millcreek Road Cincinnati, OH	Exhibit
			4

Asbestos Inspection Report

Former West Fork Incinerator Building ■ 3200 Millcreek Rd., Cincinnati, OH
November 14, 2022 ■ Terracon Project No. N1227040



APPENDIX G

CLIENT-PROVIDED DOCUMENTATION

**Hazardous Materials Survey
of the West Fork Incinerator
3320 Millcreek Road
Cincinnati, Ohio 45223**

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September 11, 1998

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EXECUTIVE SUMMARY

BHE Environmental, Inc. (BHE), conducted a detailed environmental and hazardous materials survey specifically for identifying suspect asbestos-containing materials (ACM), mercury-containing lamps, PCB-containing light ballasts, and miscellaneous containers of suspect hazardous materials at the West Fork Incinerator located at 3320 Millcreek Road, Cincinnati, Ohio. The West Fork Incinerator is currently vacant and has not been operational for several years. BHE understands that the City is currently developing plans for demolishing the existing structure.

In addition to identifying the above mentioned hazardous materials, BHE also collected and analyzed samples of residual ash and refractory brick for waste disposal characterization.

The most pertinent findings of the survey are listed below:

Asbestos-Containing Materials

- Asbestos-containing, air-cell paper pipe insulation was identified on hot water/steam distribution lines throughout the building (including the mudded fittings). This ACM should be removed by a licensed asbestos abatement contractor prior to building demolition.
- Asbestos-containing cementitious insulation was identified on pipe fittings and elbows of fiberglass insulated lines throughout the building. This ACM should be removed by a licensed asbestos abatement contractor prior to building demolition.
- Asbestos-containing cementitious insulation and wire mesh were identified on two sections of furnace breeching on the first floor (Stoker Floor Level). This ACM should be removed by a licensed asbestos abatement contractor prior to building demolition.
- Asbestos-containing preformed-block insulation was identified on a hot water storage tank in the Boiler Room in the basement (Ash Floor Level) near Furnace Nos. 1 and 2. This ACM should be removed by a licensed asbestos abatement contractor prior to building demolition.
- Asbestos-containing preformed-block insulation was identified on the small package boiler in the Ash Level Boiler Room near Furnace Nos. 1 and 2. This ACM should be removed by a licensed asbestos abatement contractor prior to building demolition.
- Asbestos-containing gaskets are assumed to be present on flanges and doors/hatches on furnaces and expansion chambers.
- Asbestos-containing gasket material (unused and stored) was identified in the small storage/utility room adjacent to Furnace Nos. 3 and 4. This ACM should be removed from the building prior to demolition.

- Asbestos-containing mineral/glass wool insulation was identified inside expansion chamber sidewalls. This ACM is packed inside the sidewalls at corners, seams, and along structural steel members of the sidewalls.
- Asbestos-containing mineral/glass wool insulation was also identified on the exterior of the metal jacket encasing portions of the rectangular expansion chambers leading to the incinerator exhaust stacks on the exterior of the building. BHE could not confirm the extent of this material but assumed that the ACM covers the entire exterior of the expansion chamber. This ACM should be removed by a licensed asbestos abatement contractor prior to building demolition. Access to and removal of this ACM will require that the asbestos abatement contractor conduct extensive demolition of the structure inside a regulated abatement work area.
- Asbestos-containing trowel-applied fibrous insulation was identified on architectural drawings and confirmed to be present inside the side walls of the expansion chambers in the basement (Ash Level). These chambers begin with a cylindrical-shaped chamber which is followed by a series of rectangular chamber/tunnels leading to the incinerator exhaust stacks. This insulation material is located inside the expansion chamber sidewalls in the area where the ceiling meets the sidewall and at corners where the chamber wall turns. Access to a removal of this ACM will require that the asbestos abatement contractor conduct extensive demolition of the structure inside a regulated abatement work area.
- Asbestos-containing asphalt-based roofing membrane was identified on top of the expansion chamber/tunnel leading to the incinerator exhaust stack. This ACM may need to be removed to gain access to friable ACM on and inside the expansion chambers leading to the incinerator exhaust stack.
- Asbestos-containing Transite panels were identified along the parapet wall around the perimeter of the roof above the rectangular expansion chambers leading to the incinerator exhaust stacks. This ACM should be removed by a licensed asbestos abatement contractor prior to building demolition.

Lead-Containing Paint

- All painted surfaces throughout the buildings are assumed to contain lead

PCB-Containing Light Ballasts and Mercury-Containing Lamps

- Mercury-containing metal halide lamps were identified throughout most areas of the building. Mercury-containing lamps should be properly removed and properly disposed of or recycled prior to building demolition.
- No fluorescent fixtures or suspect PCB-containing ballasts were identified.

Miscellaneous Containers of Suspect Hazardous Materials

- Miscellaneous containers of latex and oil-based paint, cleaning materials, and other maintenance supplies were identified in several storage areas in the basement of the building. All liquid waste materials must be removed from the building prior to demolition and properly disposed or recycled.

Incinerator Ash and Refractory

- Accumulations of incinerator ash were identified inside the furnace chamber and expansion chambers of all four furnaces. The results of hazardous waste characterization analyses indicated that the residual ash contains hazardous levels of cadmium and lead and would therefore be classified as a hazardous waste. BHE recommends that additional samples of ash be collected and analyzed to more accurately characterize the ash.
- The results of hazardous waste characterization analysis of one sample of refractory brick indicated that the refractory contains hazardous levels of lead and would therefore be classified as a hazardous waste. BHE recommends that additional samples of refractory be collected and analyzed to more accurately characterize the refractory.

A summary of bulk sample data for suspect ACM identified is presented in Table 1. A summary inventory of types and estimated quantities of ACM including abatement cost estimates, is presented in Table 2. A summary of bulk sample data for suspect hazardous incinerator ash and refractory brick is presented in Table 3. An inventory of mercury-containing lamps and other hazardous materials identified, including abatement cost estimates, is presented in Table 4. Copies of the analytical reports for the Polarized Light Microscopy (PLM) analyses are presented as Appendix A. Copies of the analytical reports for incinerator ash and refractory brick are presented as Appendix B.

INTRODUCTION

From August 17 through September 3, 1998, BHE conducted a detailed inspection of the West Fork Incinerator for ACM, PCB-containing light ballasts, mercury-containing lamps, and miscellaneous containers of suspect hazardous materials. BHE also collected and analyzed samples of residual ash and refractory brick to hazardous wcharacterize the waste for disposal purposes.

The information generated from this inspection can be used to ensure that appropriate asbestos, mercury and PCB, and any other appropriate removal/disposal procedures are implemented prior and during demolition.

This report summarizes the analytical data and other information generated during the survey and presents BHE's conclusions and recommendations based on our findings.

BUILDING INSPECTION

The building inspection was coordinated with Mr. Jim Mills, the City's Project Manager and Mr. Joe Schwind, The City's Project Architect. Mr. Tom Wenk served as BHE Project Manager. Mr. Wenk and Mr. Dave Gregory, Ohio-certified Asbestos Hazard Evaluation Specialis Lead Inspectors, conducted the inspection. This report was prepared by Mr. Wenk.

BHE did not collect and analyze samples of suspect asbestos-containing floor tile and mastic. These materials were identified and assumed to be ACM. These types of nonfriable materials do not have to be removed prior to building demolition (provided they are currently undamaged).

Although not originally included in BHE's proposed project budget, BHE collected and analyzed samples of asphalt-based roofing materials in areas where removal of roofing may be required to access and remove friable ACM from inside the ash separation and expansion chambers.

BHE also utilized torch-cutting equipment to cut through steel casings on the exterior of incinerator furnaces and expansion chambers to gain access to underlying layers of suspect ACM.

ASBESTOS INSPECTION

BHE conducted a detailed asbestos inspection of the West Fork Incinerator. All accessible areas were visually checked and samples of suspect ACM were collected. Destructive methods of inspection were also utilized to identify suspect ACM behind intact walls and ceilings, and inside some mechanical equipment in selected areas.

During the building inspection, BHE looked for suspect ACM such as thermal system insulation on hot water/steam distribution lines, preformed-block insulation on tanks and boilers, and various types of insulation on furnace components that could contain asbestos. Suspect materials were touched to determine their degree of friability and homogenous sampling areas were identified. BHE used standard forms and building drawings to record pertinent information about the material and the building environment.

Survey Documentation

A summary of bulk sample data for suspect ACM identified is presented in Table 1. A summary inventory of the types and estimated quantities of ACM, including abatement cost estimates, is presented in Table 2. An inventory of mercury-containing lamps and other hazardous materials identified, including abatement cost estimates, is presented in Table 3. Copies of the analytical reports for the polarized-light microscopy (PLM) analyses are presented as Appendix A.

Sampling Methods

To avoid disturbing suspect ACM any more than necessary and to minimize the release of asbestos fibers, BHE performed bulk sampling of suspect materials in accordance with generally accepted procedures outlined in the current Environmental Protection Agency (EPA) guidance documents. Each sample was collected and placed in a clean, sealable plastic container and labeled with a unique sample identification number. This sample number was recorded on the standard forms and on the sample container. Additional information, including the date of the inspection, the name of the inspector, the building name (or number), a brief description of the sample, the exact sampling location, and the type of material sampled (e.g., thermal insulation, ceiling tile, and floor tile) was also recorded on the Facility Description Form.

A total of 66 samples of suspect ACM were collected, including thermal systems insulation on hot water/steam distribution lines, preformed-block insulation on tanks and boilers, various types of insulation on furnace components, asphalt-based roofing, and Transite ceiling and roof panels.

ANALYTICAL METHODS

Polarized-Light Microscopy

Thirty-six samples were selected and submitted to Analytica Solutions Laboratories, in Broomfield, Colorado, for analysis by PLM in accordance with the prescribed EPA Test Method (EPA/600/R-93/116), "*Method for the Determination of Asbestos in Bulk Building Materials*," 40 CFR Part 763, Appendix A to Subpart F.

This analytical method, which the EPA currently recommends for the determination of asbestos in bulk samples of friable insulation materials, is used for the qualitative identification of six morphologically different types of asbestos fibers: chrysotile, amosite, crocidolite, anthophyllite, tremolite, and actinolite.

The method specifies that the asbestos content in a bulk sample shall be determined by visual estimation and reported as a finite percentage (rounded to the nearest percentage) within the range of 0 to 100. Minute quantities of asbestos in bulk samples may be reported as "trace" (tr) or less than 1%. The analytical method determined the "area percentage" asbestos or the percentage of the area of a microscopic field of view that is occupied by asbestos fibers.

The EPA and the Occupational Safety and Health Administration (OSHA) define ACM as any material that contains more than 1% asbestos.

One sample of mineral wool, in which a low percentage of asbestos (<10%) was identified by initial PLM analysis, was reanalyzed by the PLM point-count method to confirm asbestos content. Reanalysis by the point-count method is advised by the EPA NESHAP regulations to confirm and accurately determine the asbestos content of samples that are initially shown to contain low percentages of asbestos (i.e., less than 10%) by the standard PLM visual estimation method.

The Analytica Solutions laboratories are fully accredited for asbestos analysis by the National Institute of Standards and Technology (NIST) under its National Voluntary Laboratory Accreditation Program (NVLAP). The NVLAP is the quality assurance program for laboratories analyzing bulk samples for asbestos content by PLM.

LEAD-BASED PAINT TESTING AND ANALYSIS

A lead-based paint survey was not conducted. However, all painted surfaces were assumed to contain lead.

PCB BALLAST AND MERCURY-CONTAINING LAMPS INSPECTION

BHE conducted a survey for fluorescent light fixtures and metal halide lamps in the West Fork Incinerator to identify any suspect PCB-containing light ballasts and mercury-containing lamps (fluorescent tubes and/or metal halide lamps). BHE identified 115 metal halide lamps in suspended light fixtures. No fluorescent fixtures or suspect PCB-containing ballasts were identified.

MISCELLANEOUS CONTAINERS OF SUSPECT HAZARDOUS MATERIALS

During the survey BHE inspected accessible areas for miscellaneous containers of suspect hazardous materials (i.e., drums, cans, bottles etc.).

INCINERATOR ASH AND REFRACTORY INSPECTION

BHE inspected accessible portions of furnaces and expansion chambers for residual incinerator ash. BHE collected one composite sample of incinerator ash and one sample of refractory brick from the cylindrical expansion chamber of Furnace No. 4 in the basement. Collection of samples was limited to portions of refractory and ash that are safely accessible and encountered during destructive inspection of incinerator components.

The two samples of ash and one sample of refractory were submitted to CT&E Environmental Services Inc., Laboratory Division in Charleston West Virginia for Toxic Characteristic Leachate Procedure (TCLP) for metals; and reactivity (reactive cyanide and sulfide); and PCBs.

INACCESSIBLE AREAS

The West Fork Incinerator is a relatively complex structure. During the survey, BHE relied on detailed architectural drawings to determine where ACM was specified during construction of the incinerator in the early 1950s. BHE utilized an acetylene torch to cut through the metal jacket encasing some of the furnace and expansion chamber components and was able to verify the presence of originally specified materials. BHE identified multiple layers of insulating brick, refractory brick, and asbestos-containing insulation. BHE also identified some ACMs inside sidewalls of the furnace expansion chambers that were not indicated on architectural drawings.

During the survey, BHE was unable to access some areas to visually inspect and determine the presence or absence of asbestos. The following inaccessible areas were encountered during the inspection:

- Most of the exterior and the entire interior of the expansion chambers located on the exterior of the building.
- Incinerator exhaust stacks.

Types and approximate locations of ACM identified in portions of the expansion chambers inspected were assumed to be present in portions of expansion chambers that could not be inspected

Architectural drawings do not indicate the presence of ACM in the incinerator exhaust stacks. Based on review of the information presented on the architectural drawings, the exhaust stacks are not likely to contain ACM. However, BHE recommends that the licensed asbestos abatement contractor conduct some exploratory demolition of the incinerator exhaust stacks to provide access for the visual inspection of sidewall components. This could be conducted in conjunction with or following completion of demolition and abatement of the expansion chambers leading to the exhaust stacks.

DISCUSSION OF RESULTS

SITE DESCRIPTION OF THE WEST FORK INCINERATOR

The West Fork Incinerator is a three-story concrete, brick, and steel frame structure that occupies approximately 60,000 square feet of floor space and was constructed in 1952. The building houses one large refuse bin and four incinerator furnaces. The refuse bin is located on the west side of the building (accessed from the first floor).

When the incinerator was in operation, refuse was hoisted from the bin and placed into one of four hoppers on the second floor (Charge Floor Level) leading into one of four furnaces located on the first floor (Stoker Floor Level). Each furnace is comprised of a cylindrical chamber (approximately 15-feet in diameter and 20-feet high), constructed of multiple layers of insulating and refractory brick, and encased in a metal jacket.

Heavier ash and other solid waste would fall through the bottom of the furnace through a hopper in the basement (Ash Floor Level) and onto an ash conveyer system. Lighter ash and exhaust

smoke flowed through breeching on top of each of the four furnaces and into a series of expansion chambers leading to one of two incinerator exhaust stacks.

The expansion chambers are constructed of multiple layers of insulating brick, refractory brick, mineral/glass wool insulation, and encased in a metal jacket. The first chamber is a large cylindrical room that occupies both the first floor and the basement (approximately 15-feet in diameter and 35-feet high). The cylindrical expansion chambers are connected to the incinerator exhaust stacks through a series of rectangular chambers (also identified on architectural drawings as expansion chambers). The rectangular expansion chambers range from approximately eight feet wide by 10 feet high, to 15 feet wide and 15 feet high and extend approximately 200 feet to the incinerator exhaust stacks. The rectangular chambers extend from the cylindrical chamber, exit the east side of the basement, and wind around two 90-degree turns before entering the incinerator exhaust stacks. On the exterior of the building, the expansion chambers appear to have an additional layer of mineral/glass wool insulation on the exterior of the metal jacket. The entire series of chambers are also housed inside ceramic-block walls and an asphalt-based built-up roof.

ASBESTOS INSPECTION

ACM Identified

The following asbestos-containing materials were identified:

- Asbestos-containing, air-cell paper pipe insulation was identified on hot water/steam distribution lines throughout the building (including the mudded fittings).
- Asbestos-containing cementitious insulation was identified on pipe fittings and elbows of fiberglass insulated lines throughout the building.
- Asbestos-containing cementitious insulation and wire mesh were identified on two sections of furnace breeching on the first floor (Stoker Floor Level).
- Asbestos-containing preformed-block insulation was identified on a hot water storage tank in the Boiler Room in the basement (Ash Floor Level) near Furnace Nos. 1 and 2.
- Asbestos-containing preformed-block insulation was identified on the small package boiler in the Ash Level Boiler Room near Furnace Nos. 1 and 2.
- Asbestos-containing gaskets are assumed to be present on flanges and doors/hatches on furnaces and expansion chambers.
- Asbestos-containing gasket material (unused and stored) was identified in the small storage/utility room adjacent to Furnace Nos. 3 and 4.

- Asbestos-containing mineral/glass wool insulation was identified inside expansion chamber sidewalls. This ACM is packed inside the sidewalls at corners, seams, and along structural steel members of the sidewalls.
- Asbestos-containing mineral/glass wool insulation was also identified on the exterior of the metal jacket encasing the portions of rectangular expansion chambers on the exterior of the building leading to the incinerator exhaust stacks. BHE could not confirm the extent of this material but is assuming that the ACM covers the entire exterior of the expansion chamber..
- Asbestos-containing trowel-applied fibrous insulation was identified on architectural drawings and confirmed to be present inside the side walls of the expansion chambers in the basement (Ash Level). These chambers begin with a cylindrical-shaped room and lead into a series of rectangular chamber/tunnels leading to the incinerator exhaust stacks. This material is located inside the expansion chamber sidewalls in the area where the ceiling meets the sidewall and at corners where the chamber wall turns. Removal of this ACM will require that the asbestos abatement contractor conduct extensive demolition of the structure inside a regulated abatement work area.
- Asphalt-based roofing membrane was identified on top of the expansion chamber/tunnel leading to the incinerator exhaust stack
- Asbestos-containing Transite panels were identified along the parapet wall around the perimeter of the roof above the rectangular expansion chambers leading to the incinerator exhaust stacks.

Pipe Insulation

BHE identified asbestos-containing air-cell paper pipe insulation on steam and hot water circulation lines throughout several areas in the Basement (Ash Level) and the first floor (Stoker Level). Analytical results of one sample of pipe insulation (Sample No. WF-A53A) indicated an asbestos content of 50% chrysotile. Most of the pipe insulation identified by BHE was in relatively good condition; however, asbestos-containing debris was identified on portions of the basement floor. Most of the runs of asbestos-containing pipe insulation are exposed. However, BHE identified some runs of asbestos-containing pipe insulation behind walls, inside pipe chases inside bathrooms and utility rooms.

Cementitious Insulation on Elbows and Pipe Fittings of Fiberglass Insulated Lines

BHE identified asbestos-containing cementitious insulation on elbows and pipe fittings of lines insulated with fiberglass throughout several areas in the Basement (Ash Level) and the first floor (Stoker Level). Analytical results of one sample of cementitious insulation (Sample WF-A40) indicated an asbestos content of 30% chrysotile. Most of the fittings identified during the survey were in fair to good condition.

Cementitious Insulation and Wire Mesh on Furnace Breeching

BHE identified asbestos-containing cementitious insulation on top of wire on two sections of furnace breeching on Furnace No. 1 and Furnace No. 4 at the Stoker Level. Analytical results of one sample of cementitious insulation (Sample No. WF-A1) indicated an asbestos content of 35% chrysotile. This asbestos-containing insulation was in fair to poor condition.

Preformed-Block Insulation on a Hot Water Storage Tank

Asbestos-containing preformed-block insulation was identified on a hot water storage tank in the Basement (Ash Level) Boiler Room near Furnace Nos. 1 and 2. Analytical results of one sample of this material (Sample No. WF-A48) indicated an asbestos content of 20% chrysotile. The asbestos-containing insulation was in fair to poor condition.

Preformed-Block Insulation on a Small Boiler

Asbestos-containing preformed-block insulation was identified on a small boiler in the Ash Level Boiler Room near Furnace Nos. 1 and 2. Analytical results of one sample of this material (Sample No. WF-A50) indicated an asbestos content of 12% asbestos (5% amosite, 2% chrysotile, and 5% crocidolite). This asbestos-containing insulation was in fair condition.

Gasket Material

Asbestos-containing rope-like gasket material was identified in a small storage/utility room near Furnace Nos. 3 and 4. Analytical results of one sample of this material (Sample No. WF-A59) indicated an asbestos content of 80% chrysotile. The gasket material in the storage room was in good condition and appeared to be unused.

BHE also collected a small portion of suspect gasket material from an access hatch/door to Furnace No. 4 on the first floor. No asbestos was detected in this material (Sample No. WF-A58). However, this sample was collected from a small portion of rust-coated material protruding from a flange and may not have been representative. Nonfriable asbestos-containing gaskets do not need to be removed prior to building demolition. However, the demolition contractor should exercise care not to render any gasket material friable during removal.

Mineral/Glass Wool Insulation on Furnace Components and Expansion Chambers

BHE identified asbestos-containing mineral/glass wool insulation inside expansion chamber sidewalls in the following locations:

- Packed alongside a vertical structural steel member inside the sidewall of the cylindrical expansion chamber in the basement (Ash Floor). The cylindrical expansion chamber is

encased in metal and extends up to the first floor (Stoker Floor). The asbestos-containing mineral wool is also assumed to be located alongside structural steel members extending up the entire chamber sidewall (including the first floor).

Results of analysis of one sample of this material (Sample No. WF-A13) indicated an asbestos content of 3% chrysotile.

- Inside the sidewall of the rectangular expansion chambers leading to the incinerator exhaust stacks. The mineral/glass wool insulation was observed at corners where the chamber sidewalls turn. A floor to ceiling brick grating is located inside the chamber separating the portion of rectangular expansion chamber inside the building from the portions of rectangular expansion chamber on the exterior of the building.

Results of analysis of three samples of this material [Sample Nos. WF-A30, WF-A31, and WF-32(B)] indicated asbestos contents of 2% chrysotile, 5% chrysotile, and 5% chrysotile, respectively.

The brick grate/wall may have functioned as some sort of flue dampener or ash sifter and prevented visual access to the portions of the expansion chamber on the exterior of the building. Additionally, access doors to the portions of expansion chamber on the exterior of the building could not be opened and were too thick to be cut with the available torch cutting equipment to cut through. Because BHE could not gain access to the inside of the expansion chambers on the exterior of the building (leading to the stack), asbestos-containing mineral wool insulation is assumed to be present at every corner and/or wall joint in the chamber sidewalls leading to the incinerator exhaust stack.

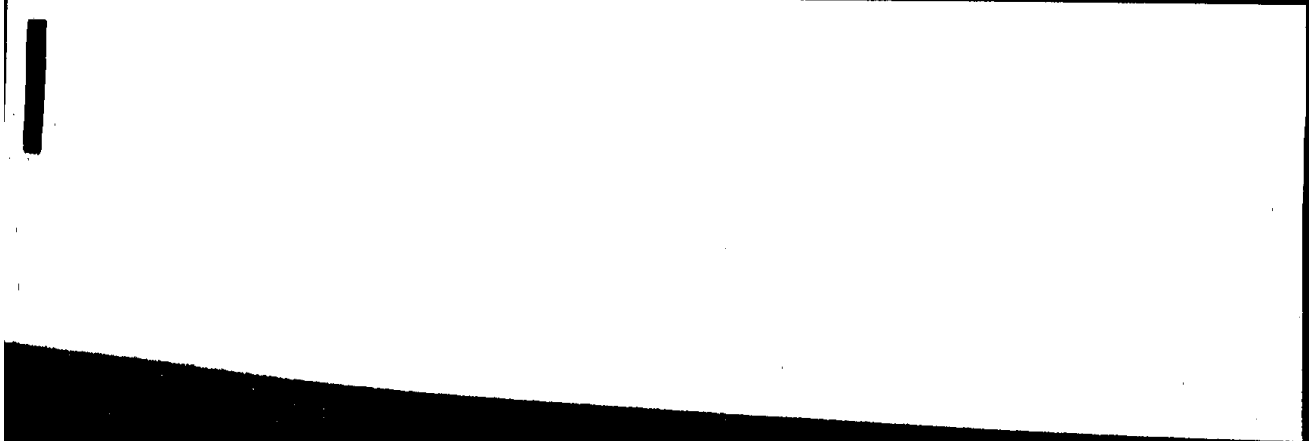
- On the exterior of the metal casing of the portions of expansion chambers that exit the building and connect to the incinerator exhaust stack. Results of analysis of one sample of this material (Sample No. WF-A38) indicated an asbestos content of 2% chrysotile.
- Underneath the metal casing on the portions of expansion chambers that exit the building and connect to the incinerator exhaust stack. This material was identified underneath the metal jacket around the access doors to the expansion chamber. Results of analysis of one sample of this material (Sample No. WF-A38) indicated an asbestos content of 2% chrysotile.

Because of the low percentage of asbestos reported in multiple samples of mineral/glass wool insulation, BHE reanalyzed one sample of mineral wool by the PLM point-count method. Reanalysis by the point-count method is advised by the EPA NESHAP regulations to confirm and accurately determine the asbestos content of samples that are initially shown to contain low percentages of asbestos (i.e., less than 10%) by the standard PLM visual estimation method.

The results of PLM point counting analysis confirmed an asbestos content of >1% asbestos.

The asbestos-containing mineral/glass wool insulation should be removed by a licensed asbestos abatement contractor prior to building demolition. Removal of this ACM will require that the asbestos abatement contractor demolish the expansion chambers inside a regulated asbestos abatement work area.

- Orange-colored insulating brick inside the sidewalls of the furnace and expansion chamber (Sample Nos. WF-A4 and WF-A5).
- Refractory brick mortar inside the sidewalls of the furnace and expansion chambers (Sample Nos. WF-A9, WF-A10, WF-A21, and WF-A16).



Trowel Applied Insulation on Furnace Components and Expansion Chambers

Asbestos-containing trowel applied fibrous insulation was identified on architectural drawings and confirmed to be present inside the sidewalls of the rectangular expansion chambers in the basement (Ash Floor Level). Analytical results of three samples of this material (Sample Nos. WF-A17, WF-A19, and WF-33) indicated asbestos contents of 40% chrysotile, 40% chrysotile, and 10% chrysotile respectively. This material is located inside the rectangular expansion chamber sidewalls in the area where the ceiling meets the sidewall and at corners where the chamber walls turn. This ACM should be removed by a licensed asbestos abatement contractor prior to building demolition. Removal of this ACM will require that the asbestos abatement contractor demolish the expansion chambers inside a regulated asbestos abatement work area.

Transite Panels on the Parapet Wall on the Expansion Chamber Roof

Asbestos-containing Transite panels were identified along the parapet wall around the perimeter of the roof, above the rectangular expansion chambers leading to the incinerator exhaust stacks. Results of analysis of one sample of this material (Sample no. WF-A66) indicated an asbestos content of 20% chrysotile. This ACM should be removed by a licensed asbestos abatement contractor prior to building demolition.

Asphalt-Based Roofing

Asbestos-containing asphalt-based roofing membrane was identified on top of the expansion chamber leading to the incinerator exhaust stack. The results of analysis of two samples of the roof membrane felts and tars [Sample Nos. WF-A61(A) and WF-A63(A)] indicated asbestos content of 15% chrysotile and 5% chrysotile, respectively.

No asbestos was detected in the underlying yellow roof-deck insulation [Sample Nos. WF-A61(B) and WF-A63(B)].

Non-ACM Identified

Asbestos was not detected by PLM analysis in the following suspect materials:

- Lightweight concrete near the perimeter edges of the roof (Sample No. WF-A43).
- Orange-colored insulating brick inside the sidewalls of the furnace and expansion chamber (Sample Nos. WF-A4 and WF-A5).
- Refractory brick mortar inside the sidewalls of the furnace and expansion chambers (Sample Nos. WF-A9, WF-A10, WF-A21, and WF-A16).

- Lightweight concrete on expansion chamber sidewalls (Sample Nos. A24 and A36).

PLM analysis detected only trace amounts (<1%) of asbestos in the following suspect materials:

- Thin layer of flaky material and scale between the outer metal jacket and the outer layer of refractory brick in the rectangular expansion chamber (Sample No. WF-A7).

LEAD-BASED PAINT

A lead-based paint inspection was not conducted; however, all painted surfaces are assumed to contain lead. There are very few painted surfaces inside the incinerator. BHE identified suspect LBP on metal doors and door frames, and on some structural steel components attached to an overhead crane.

PCB-BALLAST AND MERCURY-CONTAINING LAMP INSPECTION RESULTS

BHE identified approximately 115 metal halide lamps in fixtures suspended from the ceilings throughout the facility.

No fluorescent fixtures or suspect PCB-containing light ballasts were identified.

MISCELLANEOUS CONTAINERS OF SUSPECT HAZARDOUS MATERIALS

BHE identified several containers of unused liquid and solid some of which may be hazardous or need to be removed prior to demolition (e.g. five-gallon containers of latex paint, five-gallon containers of commercial cleaning solution, and cases of spill clean-up sorbent) stored in areas of the basement. These materials appeared to current stock maintenance materials still used by the City.

INCINERATOR ASH AND REFRACTORY

BHE identified accumulations of incinerator ash as deep as six inches on the floor in accessible areas of the expansion chambers. The results of analysis of one sample of ash collected from the rectangular expansion chamber of Furnace No. 4 (Sample No. ASH-1) indicated TCLP concentrations of cadmium (2.1 mg/l), chromium (0.09 mg/l), and lead (40 mg/l)

The results of TCLP analysis of a second sample of ash collected from the floor of the cylindrical expansion chamber for Furnace No. 4 (Sample No. ASH-2) indicated TCLP concentrations of arsenic (0.12), cadmium (0.49 mg/l), chromium (0.39 mg/l), and lead (3.2 mg/l).

The TCLP results indicate that Sample No. Ash-1 is characteristically hazardous as defined by RCRA for cadmium and lead and that Sample No. Ash-2 is characteristically hazardous for lead.

The results of TCLP analysis of one sample of refractory collected from the inner wall of cylindrical expansion chamber of Furnace No. 4 (Sample No. RB-1) indicated TCLP concentrations of cadmium (0.20 mg/l), chromium (0.20 mg/l), and lead (65 mg/l).

The TCLP results indicate that Sample No. RB-1 is characteristically hazardous as defined by RCRA for lead.

No PCBs were detected in the samples of ash and refractory. The results of analysis also indicated that the ash and refractory were not reactive for cyanide and sulfide.

RECOMMENDATIONS AND ABATEMENT COST ESTIMATES

ASBESTOS-CONTAINING MATERIALS

Thermal System Insulation

The thermal system insulation identified by BHE (i.e., pipe insulation, cementitious insulation on pipe fittings and elbow of fiberglass insulated lines, preformed-block insulation on boilers, tanks, and breeching) was in fair condition. Some mudded pipe fittings in the basement were slightly damaged and the preformed-block insulation on the boiler and tank were in poor condition. All of the thermal system insulation identified should be removed by a licensed asbestos abatement prior to building demolition.

Asbestos-Containing Insulation Inside Furnace and Expansion Chamber Components

The asbestos-containing mineral/glass wool insulation and the troweled-on fibrous insulation identified inside the sidewalls of the expansion chambers should be removed by a licensed asbestos abatement contractor. Removal of the ACM will require that the asbestos abatement contractor demolish the expansion chambers inside a regulated asbestos abatement work area. During demolition, non-asbestos components (i.e., refractory brick, metal jacketing, etc.) would be separated from ACM and thoroughly decontaminated for disposal as construction demolition debris. Asbestos-containing insulation and structural components that cannot be effectively decontaminated would be disposed as ACM.

Asphalt-Based Roofing Material

A licensed asbestos abatement contractor may need to remove the existing asphalt-based roof from the top of the expansion chambers leading to the incinerator exhaust stacks in order to gain access to demolish the expansion chambers and remove friable ACM.

The asphalt-based roofing materials were all nonfriable and in fair or good condition. Currently, asbestos-containing asphalt-based roofing, in good condition, is not considered regulated asbestos-containing material (RACM) per revised EPA National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations of November 20, 1990. This is due to the fact that the asbestos fibers are tightly bound in an asphalt or vinyl matrix and are not readily released into the air. Nonfriable asbestos-containing roofing and floor tile are classified as "Category I nonfriable ACM."

The State of Ohio does not require that these materials be removed from buildings prior to demolition. However, any renovation activities that would subject the ACM to abrasive forces (such as sanding, cutting, or grinding) could render the ACM friable and, therefore, result in the floor tile and or roofing becoming RACM subject to the NESHAP regulations.

BHE's estimated removal costs presented in Table 2 are broken down into two parts. The first part includes estimated costs for removal of ACM from components that are accessible without extensive demolition of furnace or expansion chamber components. The estimated costs for removal of ACM in relatively accessible areas (including pipe insulation inside pipe chases) are based on measured quantities of ACM identified and an average of current unit-price quotations from local asbestos abatement contractors.

and local asbestos regulations. The actual costs for third party oversight will depend on the project schedule and scope, length of work shifts, and the duration of the abatement project.

LEAD-BASED PAINT

Suspect LBP was identified on metal doors and door frames and on structural steel I-beams.

Currently there is no regulatory requirement to remove or otherwise abate lead-containing paint, LBP, or lead-containing dust in nonresidential structures. However, any renovation or construction work disturbing lead-containing materials (where occupational exposure to lead can occur) must be conducted in accordance with applicable requirements of the OSHA Lead Construction Standard (29 CFR 1926.62).

The second part of BHE's estimated costs includes the preliminary cost estimate for demolition and abatement of furnace and expansion chamber components. The costs for demolition and removal of friable ACM from complex structures such as boilers, furnaces, and expansion chambers can vary significantly based on variations in the technical approach specified and because exact quantities of ACM cannot be known until work is undertaken. Demolition during abatement of the structure may reveal that quantities of ACM that were assumed to be present in inaccessible areas are in fact not present. Alternatively, demolition may reveal larger quantities of ACM than previously identified.

Additionally BHE could not safely access all areas of the expansion chamber and exhaust stacks. Therefore, BHE recommends that during demolition and abatement of the expansion chambers, an independent third party consultant verify and confirm the locations and quantities of ACM uncovered. BHE's abatement cost estimate includes a 25% contingency for costs associated with the removal and disposal of additional quantities of ACM that may be uncovered during asbestos abatement. Contractually, this could be arranged by unit pricing at the time of bidding and issuance of change orders, or by a cash allowance in the contractor's bids for additional materials subsequently identified after partial demolition.

Qualified independent industrial hygienists and project monitors are recommended by the EPA to oversee contractor performance, and to ensure that the asbestos is removed in a safe manner and disposed properly in accordance with the project specifications and applicable federal, state, and local asbestos regulations. The actual costs for third party oversight will depend on the project schedule and scope, length of work shifts, and the duration of the abatement project.

LEAD-BASED PAINT

Suspect LBP was identified on metal doors and door frames and on structural steel I-beams.

Currently there is no regulatory requirement to remove or otherwise abate lead-containing paint, LBP, or lead-containing dust in nonresidential structures. However, any renovation or construction work disturbing lead-containing materials (where occupational exposure to lead can occur) must be conducted in accordance with applicable requirements of the OSHA Lead Construction Standard (29 CFR 1926.62).

MERCURY-CONTAINING METAL HALIDE LAMPS

Mercury-containing lamps (metal halide bulbs) were identified throughout most areas in the facility. BHE recommends that metal halide lamps be properly removed prior to demolition.

MISCELLANEOUS CONTAINERS OF SUSPECT HAZARDOUS MATERIALS

BHE identified several containers of unused liquid and solid some of which may be hazardous or need to be removed prior to demolition (e.g. five-gallon containers of latex paint, five-gallon containers of commercial cleaning solution, and cases of spill clean-up sorbent) stored in areas of the basement. These materials appeared to current stock maintenance materials still used by the City. These materials should be removed from the building prior to demolition. BHE recommends that the City move the stored unused materials to an alternate site prior to building demolition.

INCINERATOR ASH AND REFRACTORY

Ash and ash residues inside the furnace and expansion chambers that contain hazardous levels of heavy metals should be removed by specially trained workers prior to or in conjunction with asbestos abatement. The abatement contractor could utilize vacuum equipment to remove ash and ash residues prior to demolition and asbestos abatement.

During demolition, non-asbestos components (i.g., refractory brick, metal jacketing, etc.) would be separated from ACM and thoroughly decontaminated for disposal. Nonhazardous components could be disposed of as construction demolition debris.

Based on the analytical data generated the ash and refractory brick should be disposed of as hazardous waste. However, more analytical data are needed to more accurately characterize the ash and refractory. BHE recommends that additional samples of ash and refractory be collected and analyzed to more accurately characterize the hazardous characteristics of the waste. Sampling should include ash from all four furnaces and refractory from inside the sidewalls that were not directly exposed to ash and combustion by products. Results of analysis additional ash sample may confirm that only the ash in the rectangular expansion chambers is hazardous. Results of analysis of additional samples of refractory may confirm that only the inner layer of refractory is hazardous.

The potential costs for removal and disposal of hazardous ash and refractory brick can vary significantly and depends on the quantity (volume and weight) of hazardous material to be disposed. BHE could develop a cost estimate for disposal of hazardous ash and refractory following the collection and analysis of additional samples.

Tables

**Table 1. Bulk Sample Data summary for Suspect ACM
Identified at the West Fork Incinerator**

Material Description	BHE Sample Number	Sample Location	Asbestos Content
Preformed-block insulation and wire mesh on furnace breeching at the Stoker Floor Level (first floor)	WF-A1	Furnace No. 4 sidewall	35% Chrysotile
Orange-colored insulating brick between outer metal jacket and inner layers of refractory brick on furnace chambers at the Stoker Floor Level (first floor)	WF-A4	Furnace No. 4 sidewall	ND
	WF-A5	Furnace No. 4 sidewall	ND
Concrete insulation inside furnace door/hatch at the Stoker Level	WF-A6	Furnace No. 4 sidewall	ND
Thin layer (1/8-inch thick) of material underneath metal jacket on exterior of rectangular expansion chamber/tunnel at the Ash Floor Level (basement)	WF-A7	Furnace No. 1 sidewall	<1% Chrysotile
Layer of gray mortar between inner and outer layers of refractory in walls of expansion chamber/tunnel at the Ash Floor Level (basement)	WF-A9	Furnace No. 1 sidewall	ND
	WF-A10	Furnace No. 1 sidewall	ND
Refractory brick mortar on circular expansion chamber at the Ash Floor Level (basement)	WF-A11	Furnace No. 1 sidewall	ND
	WF-A12	Furnace No. 1 sidewall	ND
Mortar and ash mixture between refractory bricks inside rectangular expansion chamber/tunnel sidewalls (Ash Floor Level)	WF-A21	Furnace No. 1 sidewall	ND
Lightweight concrete mixture in walls and ceiling of rectangular expansion chamber/tunnel at the Ash Level. This material appears to have been used to patch and maintain the sidewalls and ceiling.	WF-A24	Furnace No. 1 sidewall	ND
	WF-A36	Furnace No. 1 sidewall	ND
Mortar alongside vertical structural steel beam inside circular expansion chamber sidewall at the Ash Floor Level (basement)	WF-A16	Furnace No. 1 sidewall	ND
Mineral/glass wool panel insulation in rectangular expansion chamber/tunnel sidewalls. This material appears to be located at joints and corners of expansion chamber sidewalls.	WF-A30	Furnace No. 1 sidewall	2% Chrysotile
	WF-A31	Furnace No. 1 sidewall (lighter color insulation)	5% Chrysotile
	WF-A32(A)	Furnace No. 1 sidewall (light weight concrete mixture)	ND

**Table 1. Bulk Sample Data summary for Suspect ACM
Identified at the West Fork Incinerator**

Material Description	BHE Sample Number	Sample Location	Asbestos Content
(cont.) Mineral/glass wool panel insulation in rectangular expansion chamber/tunnel sidewalls. This material appears to be located at joints and corners of expansion chamber sidewalls.	WF-A32(B)	Furnace No. 1 (Ash Floor Level)	5% Chrysotile
Fibrous glass wool insulation underneath metal jacketing on vertical structural steel beam inside wall of circular expansion chamber at the Ash Floor Level (basement)	WF-A13	Furnace No. 1 sidewall	3% Chrysotile
Mineral wool insulation on exterior of expansion tunnel leading to stacks. This material is located on the exterior of the outer metal jacket on the tunnel leading to the stack.	WF-A38	Furnace No. 2 sidewall	2% Chrysotile
Mineral wool insulation on exterior of expansion tunnel leading to stacks. This material is located underneath the outer metal jacket on the tunnel leading to the stack.	WF-A40	Furnace No. 2 sidewall	4% Chrysotile
Fibrous troweled-on insulation at top of the rectangular expansion chamber/tunnel sidewalls at the Ash Level (basement). This material appears to be packed inside the wall at the corner between the ceiling and wall. This material is also identified on architectural drawings as J.M. Asbestos	WF-A17	Furnace No. 1 sidewall	40% Chrysotile
Fibrous troweled on insulation in vertical crack/opening the rectangular expansion chamber/tunnel sidewalls at the Ash Floor Level (basement)	WF-A19	Furnace No. 1 sidewall	40% Chrysotile
Ash debris and fibrous insulation on the chamber floor below location of Sample No. A19	WF-A20	Furnace No. 1 sidewall	3% Chrysotile
Fibrous mortar at corner of rectangular expansion chamber side wall.	WF-A33	Ash Floor Level	10% Chrysotile
Lightweight concrete at perimeter of upper roof	WF-43	Upper roof	ND
Cementitious insulation on pipe fittings and elbows of fiberglass insulated lines	WF-A40	Basement	30% Chrysotile
Preformed-block insulation on a hot water tank in the Ash Level furnace room	WF-A48	Boiler Room near Furnace No. 1 and Furnace No. 2	20% Chrysotile

**Table 1. Bulk Sample Data summary for Suspect ACM
Identified at the West Fork Incinerator**

Material Description	BHE Sample Number	Sample Location	Asbestos Content
Preformed-block insulation on a furnace/boiler in the Ash Level furnace room	WF-A50	Boiler Room near Furnace Nos. 1 and Furnace No. 2	5% Amosite 2% Chrysotile 5% Crocidolite
Aircell paper pipe insulation	WF-A53	First Floor	50% Chrysotile
New unused gasket material	WF-59	Storage/utility room (Ash Floor Level)	80% Chrysotile
Older gasket material on furnace door/hatch at the Stoker Level	WF-A58	Furnace No. 4 door/hatch	ND
Roof above basement storage utility room near expansion chamber/tunnels for Furnace Nos. 3 and 4	WF-A61(A)	Asphalt-based roofing felts and tar	15% Chrysotile
	WF-A61(B)	Yellow roof deck insulation	ND
Roof above expansion chamber/tunnels leading to the incinerator exhaust stacks	WF-A63(A)	Asphalt-based roofing felts and tar	5% Chrysotile
	WF-A63(B)	Yellow roof deck insulation	ND
	WF-A64	Roof flashing felts	25% Chrysotile
Transite panels on parapet wall of expansion chamber roof(1-foot by 1.5 foot panels)	WF-66	Expansion chamber roof	20% Chrysotile

Bold print = Asbestos-containing material (greater than 1 percent asbestos)
ND = None detected

**Table 2. Inventory of Asbestos-Containing Materials Identified at the West Fork Incinerator
Cincinnati, Ohio**

Location	Building Component	Estimated Quantity	Estimated Abatement Costs
<i>Accessible Asbestos-Containing Materials</i>			
Basement (Ash Floor Level)	Pipe insulation on hot water/steam distribution lines throughout the basement (including mudded fittings)	1,500 lf	\$15,000
	Cementitious insulation on pipe fittings and elbows of fiberglass insulated lines throughout the basement	80 fittings	\$1,600
	Asbestos-containing preformed-block insulation on a hot water storage tank in the Ash Level boiler room near Furnace Nos. 1 and 2	60 sf	\$900
	Asbestos-containing preformed-block insulation the small package boiler in the Ash Level boiler room near Furnace Nos. 1 and 2	100 sf	\$1,500
	Asbestos-containing stored gasket material located in the small storage room adjacent to Furnace Nos. 3 and 4	100 lf	\$100
First Floor (Stoker Floor Level)	Pipe insulation on hot water/steam distribution lines throughout the first floor (including mudded fittings)	460 lf	\$4,600
	Pipe insulation on hot water/steam distribution lines throughout the basement (including mudded fittings) inside pipe chases in bathrooms and utility rooms on the north side of the floor.	200 lf	\$2,500
	Preformed-block insulation and wire mesh on breeching on Furnace Nos. 1 and 4. This ACM is on breeching that extends through the concrete floor into the basement level.	100 sf	\$1,500
Second Floor (Charging Floor Level)	Pipe insulation on hot water/steam distribution lines in the southeast corner (including mudded fittings)	25 lf	\$400
Subtotal of Estimated Abatement Costs for ACM Identified on Accessible Components			\$28,100

**Table 2. Inventory of Asbestos-Containing Materials Identified at the West Fork Incinerator
Cincinnati, Ohio**

Location	Building Component	Estimated Quantity	Estimated Abatement Costs
<i>Asbestos-Containing Materials Associated with the Furnaces and Expansion Chambers</i>			
Roof	Asphalt-based roofing on top of expansion chambers	4,000 sf	\$6,000
	Transite panels on the roof parapet wall	300 sf	\$1,200
Furnace Nos. 1 through 4	Metal encased furnace chambers on the first floor including the hoppers that extend into the basement. ACM assumed to be present includes mineral/glass wool insulation along structural steel framing inside the sidewalls and gaskets on flanges.	*5,000 sf	\$100,000
	Metal encased breeching leading from the furnace chambers to the cylindrical expansion chambers. ACM assumed to be present includes mineral/glass wool insulation along structural steel framing inside the sidewalls.	*1,360 sf	\$27,200
	Cylindrical expansion chambers on the first floor and basement. ACM identified includes mineral/glass wool insulation along structural steel framing inside the sidewalls. All gaskets are assumed to be ACM.	*8,000 sf	\$160,000
	Rectangular expansion chambers leading from the cylindrical expansion chamber to the incinerator exhaust stacks. ACM identified includes the following: Asbestos-containing mineral/glass wool insulation identified inside the expansion chamber sidewalls. This ACM is packed inside the sidewall at corners, seams, and along structural steel members of the sidewalls and may be located along structural steel members inside the sidewalls. Asbestos-containing trowel applied fibrous insulation located inside the side walls of the expansion chamber leading to the incinerator exhaust stacks. This material is also located inside the sidewall corners and may be located along structural steel members inside the expansion chamber walls. All gaskets are assumed to be ACM.	*14,000 sf	\$280,000
Subtotal of Estimated Demolition/Abatement Costs for Furnace and Expansion Chamber Components			\$574,400
Subtotal of Estimated Abatement Costs for ACM Identified at the West Fork Incinerator			\$602,500

* Quantities are based on exterior dimensions of the chambers. Cost estimate is assumed demolition of the entire structure

**Table 3. Bulk Sample Data Summary for Incinerator Ash and Refractory
at the West Fork Incinerator**

Analyte	BHE Sample Number			EPA Criteria for Hazardous Waste
	Ash-1	Ash-2	RB-1	
TCLP Arsenic	ND	0.12 mg/l	ND	5.0 mg/l
TCLP Barium	ND	ND	ND	100 mg/l
TCLP Cadmium	2.1 mg/l	0.49 mg/l	0.20 mg/l	1.0 mg/l
TCLP Chromium	0.09 mg/l	0.39 mg/l	0.20 mg/l	5.0 mg/l
TCLP Lead	40 mg/l	3.2 mg/l	65 mg/l	5.0 mg/l
TCLP Selenium	ND	ND	ND	1.0 mg/l
TCLP Silver	ND	ND	ND	5 mg/l
TCLP Mercury	ND	ND	ND	0.2 mg/l
Reactive Cyanide	ND	ND	ND	200 mg/l
Reactive Sulfide	ND	ND	ND	400 mg/l
PCB	ND	ND	ND	50 mg/l

Bold Print = Analytical result above regulatory limit
ND = None detected

**Table 4. Inventory of Mercury-Containing Lamps Identified at the West Fork Incinerator
Cincinnati, Ohio**

Location	Building Component	Estimated Quantity	Estimated Abatement Costs
<i>Mercury-Containing Lamps</i>			
Entire Incinerator	Metal Halide Lamps	115	\$2,000

Appendix A

**Laboratory Reports for PLM Analysis
of Suspect ACM**

Analytica Solutions, Inc.
325 Interlocken Parkway
Suite 200
Broomfield, CO 80021
(303) 469-8868
(800) 873-8707
FAX: (303) 469-5254

September 8, 1998

Mr. Tom Wenk
BHE Environmental, Inc.
11733 Chesterdale Road
Cincinnati, OH 45246-3405

Re: LGN 330743 Project: West Fork

Dear Mr. Tom Wenk:

The bulk samples recently submitted to our laboratory have been analyzed by polarized light microscopy (PLM), the EPA-recommended method for identification of fibrous constituents in building materials. The results of these analyses are summarized in the enclosed table. Also enclosed is a copy of documentation submitted with your samples.

If you have any technical questions concerning these analyses, please feel free to call me. All other calls should be directed to our Customer Service Representatives.

Sincerely,

Tim Osbourn
Laboratory Manager

Enclosures

RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY
POLARIZED LIGHT MICROSCOPY (PLM)

Client: BHE Environmental, Inc.

LGN: 330743

Project ID: West Fork

Page: 1 of 9

Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
WFA1	09/01/98	PFB ins. on duct [grey]
WFA4	09/01/98	Powdery refractory [tan]
WFA5	09/01/98	Powdery refractory [tan]
WFA6	09/01/98	Concrete door [grey]
WFA7	09/01/98	Flaky material on furnace [brown]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number:	WFA1	WFA4	WFA5	WFA6	WFA7
Asbestiform Minerals:					
Amosite					
Anthophyllite					
Chrysotile	35.0				Trace <1%
Crocidolite					
Tremolite-Actinolite					
TOTAL ASBESTOS	35.0	0	0	0	Trace <1%
Other Fibrous Materials:					
Fibrous Glass					
Cellulose					
Synthetics					
Other:					
Percent Nonfibrous Material	65.0	100	100	100	99.5

Analyst: Douglas Kent

Date: 09/04/98

**RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY
POLARIZED LIGHT MICROSCOPY (PLM)**

Client: BHE Environmental, Inc.

LGN: 330743

Project ID: West Fork

Page: 2 of 9

Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
WFA9	09/01/98	Grey layer
WFA10	09/01/98	Grey layer
WFA11	09/01/98	Brick mortar [tan]
WFA12	09/01/98	Brick mortar [tan]
WFA13	09/01/98	Beam ins. EXT [tan]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number:	WFA9	WFA10	WFA11	WFA12	WFA13
Asbestiform Minerals:					
Amosite					
Anthophyllite					3.0
Chrysotile					
Crocidolite					
Tremolite-Actinolite					
TOTAL ASBESTOS	0	0	0	0	3.0
Other Fibrous Materials:					70.0
Fibrous Glass					
Cellulose					
Synthetics					
Other:					
Percent Nonfibrous Material	100	100	100	100	27.0

Analyst: Douglas Kent

Date: 09/04/98

Analytica Solutions, Inc.
325 Interlocken Parkway
Suite 200
Broomfield, CO 80021
(303) 469-8868
(800) 873-8707
FAX: (303) 469-5254

**RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY
POLARIZED LIGHT MICROSCOPY (PLM)**

Client: BEE Environmental, Inc.

LGN: 330743

Project ID: West Fork

Page: 3 of 9

Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
WFA16	09/01/98	Beam ins. INT [grey]
WFA17	09/01/98	Maq at top of wall [grey]
WFA19	09/01/98	Maq at vert crack [grey]
WFA20	09/01/98	Debris below crack [tan]
WFA21	09/01/98	Joint mortar/ash [tan]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number: WFA16 WFA17 WFA19 WFA20 WFA21

Asbestiform Minerals:

Amosite					
Anthophyllite					
Chrysotile		40.0	60.0	3.0	
Crocidolite					
Tremolite-Actinolite					
TOTAL ASBESTOS	0	40.0	60.0	3.0	0

Other Fibrous Materials:

Fibrous Glass					
Cellulose					
Synthetics					
Other:					

Percent Nonfibrous Material	100	60.0	40.0	97.0	100
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Analyst: Douglas Kent

Date: 09/04/98

Analytica Solutions, Inc.
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**RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY
POLARIZED LIGHT MICROSCOPY (PLM)**

Client: BHE Environmental, Inc.

LGN: 330743

Project ID: West Fork

Page: 4 of 9

Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
WFA24	09/01/98	Concrete mix [grey]
WFA25	09/01/98	MW corner crack [dark brown]
WFA27	09/01/98	Debris/ash in crack [grey]
WFA30	09/01/98	MW bat [dark grey]
WFA31	09/01/98	MW bat (lighter-color) [brown]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number:	WFA24	WFA25	WFA27	WFA30	WFA31
Asbestiform Minerals:					
Amosite					
Anthophyllite					
Chrysotile		2.0		2.0	5.0
Crocidolite					
Tremolite-Actinolite					
TOTAL ASBESTOS	0	2.0	0	2.0	5.0
Other Fibrous Materials:					
Fibrous Glass		80.0		80.0	60.0
Cellulose					
Synthetics					
Other:					
Percent Nonfibrous Material	100	18.0	100	18.0	35.0

Analyst: Douglas Kent

Date: 09/04/98

Analytica Solutions, Inc.
325 Interlocken Parkway
Suite 200
Broomfield, CO 80021
(303) 469-8868
(800) 873-8707
FAX: (303) 469-5254

**RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY
POLARIZED LIGHT MICROSCOPY (PLM)**

Client: BHE Environmental, Inc.

LGN: 330743

Project ID: West Fork

Page: 6 of 9

Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
WFA38	09/01/98	MW near hatch [dark grey]
WFA40	09/01/98	MW under metal [dark grey]
WFA43	09/01/98	Light concrete- roof [grey]
WFA46	09/01/98	Mudded fitting [grey]
WFA48	09/01/98	PFB on tank [white]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number:	WFA38	WFA40	WFA43	WFA46	WFA48
Asbestiform Minerals:					
Amosite					
Anthophyllite					
Chrysotile	2.0	4.0		30.0	20.0
Crocidolite					
Tremolite-Actinolite					
TOTAL ASBESTOS	2.0	4.0	0	30.0	20.0
Other Fibrous Materials:					
Fibrous Glass	80.0	80.0			
Cellulose				10.0	10.0
Synthetics					
Other:					
Percent Nonfibrous Material	18.0	16.0	100	60.0	70.0

* Composite analysis (multilayered sample, see individual layer analyses).

Analyst: Douglas Kent

Date: 09/04/98

Analytica Solutions, Inc.
325 Interlocken Parkway
Suite 200
Broomfield, CO 80021
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FAX: (303) 469-5254

**RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY
POLARIZED LIGHT MICROSCOPY (PLM)**

Client: BHE Environmental, Inc.

LGN: 330743

Project ID: West Fork

Page: 7 of 9

Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
WFA50	09/01/98	PFB on boiler [white]
WFA53	09/01/98	Aircell pipe ins [white]
WFA59	09/01/98	New gasket [beige]
WFA58	09/01/98	Old gasket [brown]
WFA61*	09/01/98	Utility roof [2 parts]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number:	WFA50	WFA53	WFA59	WFA58	WFA61*
Asbestiform Minerals:					
Amosite	5.0				
Anthophyllite					
Chrysotile	2.0	50.0	80.0		6.0
Crocidolite	5.0				
Tremolite-Actinolite					
TOTAL ASBESTOS	12.0	50.0	80.0	0	6.0
Other Fibrous Materials:					
Fibrous Glass					60.0
Cellulose		40.0			
Synthetics					
Other:					
Percent Nonfibrous					
Material	88.0	10.0	20.0	100	34.0

* Composite analysis (multilayered sample, see individual layer analyses).

Analyst: _____
Douglas Kent

Date: 09/04/98

Analytica Solutions, Inc.
325 Interlocken Parkway
Suite 200
Broomfield, CO 80021
(303) 469-8868
(800) 873-8707
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**RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY
POLARIZED LIGHT MICROSCOPY (PLM)**

Client: BBE Environmental, Inc.

LGN: 330743

Project ID: West Fork

Page: 8 of 9

Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
WFA61 [A]	09/01/98	[black roofing material]
WFA61 [B]	09/01/98	[yellow fiberglass insulation]
WFA63*	09/01/98	Furnace roof [2 parts]
WFA63 [A]	09/01/98	[black roofing material]
WFA63 [B]	09/01/98	[yellow fiberglass insulation]

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number: WFA61 [A] WFA61 [B] WFA63* WFA63 [A] WFA63 [B]

Asbestiform Minerals:

Amosite					
Anthophyllite					
Chrysotile	15.0		4.0	5.0	
Crocidolite					
Tremolite-Actinolite					
TOTAL ASBESTOS	15.0	0	4.0	5.0	0

Other Fibrous Materials:

Fibrous Glass		100	20.0		100
Cellulose			8.0	10.0	
Synthetics					
Other:					

Percent Nonfibrous

Material	85.0		68.0	85.0	
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* Composite analysis (multilayered sample, see individual layer analyses).

Analyst:

Douglas Kent

Date: 09/04/98

**RESULTS OF BULK ASBESTOS SAMPLE ANALYSIS BY
POLARISED LIGHT MICROSCOPY (PLM)**

Client: BHE Environmental, Inc.

LGN: 330743

Project ID: West Fork

Page: 9 of 9

Sample Description:

<u>Sample Number</u>	<u>Sample Date</u>	<u>Description</u>
WFA66	09/01/98	Transite (grey)
WFA64	09/01/98	Flashing (black)

Results of PLM Analysis: Visual Area Estimation: Percentages Detected

Sample Number: WFA66 WFA64

Asbestiform Minerals:

Amosite					
Anthophyllite					
Chrysotile	20.0	25.0			
Crocidolite					
Tremolite-Actinolite					
TOTAL ASBESTOS	20.0	25.0			

Other Fibrous Materials:

Fibrous Glass					
Cellulose					
Synthetics					
Other:					

Percent Nonfibrous Material	80.0	75.0			
--------------------------------	------	------	--	--	--

* Composite analysis (multilayered sample, see individual layer analyses).

Analyst: Douglas Kent

Date: 09/04/98

Send Analyses To:

Tom Weak

CHAIN-OF-CUSTODY RECORD

BHE ENVIRONMENTAL, INC.
11733 Chesterdale Road
Cincinnati, Ohio 45246
(513) 326-1500
FAX (513) 326-1550

Project Number: 11-294
Project Manager: TCW
Sampling Team: TCW

Site Name: West Fork
Lab Destination: _____
Carrier/Bill No.: _____

PCB/FD ppm	Sample Location & Description	Date Collected	Time Collected	Sample Type	Quantity & Size Container(s)	Preservative	Analysis Requested	BHE Sample Number	Sample to Lab
	PEB INS. ENCLUST	9/1					8. PCBs/ins	WF-A1	35
	Masonry Refractory							WF-A4	0
	Concrete Door							WF-A5	0
	Flaky Material on Furnace							WF-A6	0
	Coarse Layer							WF-A7	41%
	Brick Mortar							WF-A9	0
	Beam INS. EXT							WF-A10	0
	Beam INS. INT							WF-A11	0
	Mag at Top of Wall							WF-A12	3
	Mag in Vert Crack							WF-A16	0
	Debris Below Crack							WF-A17	40
	Joint Mortar/Ash							WF-A19	40
	Concrete Max							WF-A20	3
	Mix concrete crack							WF-A21	0
	Debris/Ash in crack							WF-A22	0
								WF-A23	0
								WF-A24	0
								WF-A25	2
								WF-A27	0

Special Instructions: 1 Day DAT

1. Relinquished By: _____
Date Relinquished: _____
Received By: _____
Date Received: _____
Condition on Receipt: _____

Tom Weak
9/1/97

2. Relinquished By: _____
Date Relinquished: _____
Received By: _____
Date Received: _____
Condition on Receipt: _____

3. Relinquished By: _____
Date Relinquished: _____
Received By: _____
Date Received: _____
Condition on Receipt: _____

Page _____ of _____

(rev. 9/20/96)

Appendix B

**Laboratory Reports for Hazardous Waste
Characterization Analysis of
Incinerator Ash and Refractory**


CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

 Tom Wenk
 BHE ENVIRONMENTAL INC

 Laboratory Number 298-09-0161-001 Respectfully
 Submitted:

 WF-ASH1
 WEST FDRK 11.395

 Date Sampled 09/01/98
 Date Received 09/03/98

J.N. Wright

Sampled by CLIENT

Client Reference 11.395

091098 1347

TOXICITY CHARACTERISTIC LEACHATE PROCEDURE:METALS

ANALYZED PARAMETER	CAS NO.	RESULT	LOQ (MG/L)	METHOD	REGULATORY LEVEL	DATE/TIME/ANALYST

Metals - TCLP Basis						
Arsenic [As]	7440-38-2	ND	0.10	SM6010	5.0	09/09/98 09:57 JJ
Barium [Ba]	7440-39-3	ND	3.0	SM6010	100	09/09/98 09:57 JJ
Cadmium [Cd]	7440-43-9	2.1	0.020	SM6010	1.0	09/09/98 09:57 JJ
Chromium [Cr]	7440-47-3	0.090	0.050	SM6010	5.0	09/09/98 09:57 JJ
Lead [Pb]	7439-92-1	40	0.10	SM6010	5.0	09/09/98 09:57 JJ
Selenium [Se]	7782-49-2	ND	0.20	SM6010	1.0	09/09/98 09:57 JJ
Silver [Ag]	7440-22-4	ND	0.020	SM6010	5.0	09/09/98 09:57 JJ

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods for Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

TCLP Extraction Procedure and Regulatory Levels: 40 CFR Part 261.24 and Appendix II.

 4865 Paris Street, Suite 200-B, Denver, CO 80239 - Tel: (303) 373-4847 Fax: (303) 373-4884
 1258 Greenbrier Street, Charleston, WV 25311-1002 - (304) 346-0725 Fax: (304) 346-0761
 5712 Erdman Ave., Baltimore, MD 21205-3598 - Tel: (410) 483-2200 Fax: (410) 483-2206
 4440 Glen Este-Withamsville Road, Suite 900, Cincinnati, OH 45245-1331 - Tel: (513) 752-9696 Fax: (513) 752-2614

**CT&E Environmental Services Inc.**

Laboratory Division

Laboratory Analysis ReportTom Wenk
DHE ENVIRONMENTAL INCLaboratory Number 298-09-0161-001 Respectfully
Submitted:VF-ASH1
WEST PORK 11.395Date Sampled 09/01/98
Date Received 09/03/98

Sampled by CLIENT

Client Reference 11.395

091098 1347

J.N. Wright

TOXICITY CHARACTERISTIC LEACHATE PROCEDURE: METALS

ANALYZED PARAMETER	CAS NO.	RESULT	LOQ (MG/L)	REGULATORY METHOD	LEVEL	DATE/TIME/ANALYST
Mercury (Hg)	7439-97-6	ND	0.020	SM7470	0.2	09/09/98 23:09 JN

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

TCLP Extraction Procedure and Regulatory Levels: 40 CFR Part 261.24 and Appendix II.

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

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4440 Glen Este-Withamsville Road, Suite 900, Cincinnati, OH 45245-1331 - Tel: (513) 752-9696 Fax: (513) 752-2614

**CT&E Environmental Services Inc.**

Laboratory Division

Laboratory Analysis ReportTom Wark
SNE ENVIRONMENTAL INCLaboratory Number 298-09-0161-001 Respectfully
Submitted:WF-ASH1
WEST FORK 11.395Date Sampled 09/01/98
Date Received 09/03/98*Y.N. Wright*

Sampled by CLIENT

Client Reference 11.395

091098 1347

**SPIKED SAMPLE ANALYSIS SUMMARY REPORT
FOR TCLP METALS**

PARAMETER	CAS NO.	RESULT	SPIKE LEVEL	PERCENT RECOVERY
QC SPIKE				
Mercury (Hg)	7439-97-6	0.020	0.020 mg/L	100%

All spike results are corrected for the sample background.

BACKGROUND CORRECTED SPIKE RESULT
Percent Recovery = ----- X 100
SPIKE LEVEL

4665 Paris Street, Suite 200-B, Denver, CO 80239 - Tel: (303) 373-4847 Fax: (303) 373-4884
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4440 Glen Este-Withamsville Road, Suite 900, Cincinnati, OH 45245-1331 - Tel: (513) 752-9696 Fax: (513) 752-2614



CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

Tom Wenk
SHE ENVIRONMENTAL INC

Laboratory Number 298-09-0161-002 Respectfully
Submitted:

WP-ASH2
WEST PORK 11.395

Date Sampled 09/01/98
Date Received 09/03/98

J.N. Wright

Sampled by CLIENT

091098 1347

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

ANALYZED PARAMETER	CAS NO.	RESULT	LOG	UNITS	METHOD	DATE/TIME/ANALYST
Reactivity Characteristic (Cyanide)		NEGATIVE	250	mg/kg	SW846	09/09/98 08:30 CBS
Reactivity Characteristic (Sulfide)		NEGATIVE	500	mg/kg	SW846-7	09/09/98 08:30 CBS

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

Method Reference SW846-7: Test Method for Evaluating Solid Waste; 3rd Ed; 7th Chapter; Nov 1986.

4665 Paris Street, Suite 200-B, Denver, CO 80239 - Tel: (303) 373-4847 Fax: (303) 373-4884
1258 Greenbrier Street, Charleston, WV 25311-1002 - (304) 346-0725 Fax: (304) 346-0761
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4440 Glen Este-Withamsville Road, Suite 900, Cincinnati, OH 45245-1331 - Tel: (513) 752-0696 Fax: (513) 752-2614


CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

 Tom Merk
BNE ENVIRONMENTAL INC

 Laboratory Number 298-09-0161-002 Respectfully
Submitted:

 WF-ASH2
WEST FORK 11.395

 Date Sampled 09/01/98
Date Received 09/03/98

H.N. Wright
091098 1347

Sampled by CLIENT

 ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON A DRY WEIGHT BASIS

ANALYZED PARAMETER	CAS NO.	RESULT	LOQ	UNITS	METHOD	DATE/TIME/ANALYST
PCB(as Aroclor 1016)	12674-11-2 ND		1.0	mg/kg	SW8081	09/04/98 17:57 KPP
PCB(as Aroclor 1221)	11104-28-2 ND		1.0	mg/kg	SW8081	09/04/98 17:57 KPP
PCB(as Aroclor 1232)	11141-16-5 ND		1.0	mg/kg	SW8081	09/04/98 17:57 KPP
PCB(as Aroclor 1242)	53469-21-9 ND		1.0	mg/kg	SW8081	09/04/98 17:57 KPP
PCB(as Aroclor 1248)	12672-29-6 ND		1.0	mg/kg	SW8081	09/04/98 17:57 KPP
PCB(as Aroclor 1254)	11097-69-1 ND		1.0	mg/kg	SW8081	09/04/98 17:57 KPP
PCB(as Aroclor 1260)	11096-82-5 ND		1.0	mg/kg	SW8081	09/04/98 17:57 KPP
SURROGATE RECOVERY						
Tetrachloro-meta-Xylene <SURROGATE>		58	---	% REC	SW8081	09/04/98 17:57 KPP

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

 4665 Paris Street, Suite 200-B, Denver, CO 80239 - Tel: (303) 373-4847 Fax: (303) 373-4884
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 4440 Glen Este-Withamsville Road, Suite 900, Cincinnati, OH 45245-1331 - Tel: (513) 752-9696 Fax: (513) 752-2614


CT&E Environmental Services Inc.
Laboratory Division
Laboratory Analysis Report

 Tom Wark
 SHE ENVIRONMENTAL INC

 Laboratory Number 298-09-0161-002 Respectfully
 Submitted:

 WF-ASH2
 WEST FORK 11.395

 Date Sampled 09/01/98
 Date Received 09/03/98

J.N. Wright

Sampled by CLIENT

091098 1347

TOXICITY CHARACTERISTIC LEACHATE PROCEDURE

SAMPLE EVALUATION AND TREATMENT	CHECK	DATE/TIME/ANALYST
Sample Phase		
Solid-----	YES	
Sludge-----		
Liquid-----		
Suspended Solids,%		
>0.5-----	YES	
<0.5-----		
Sample Treatment		
Extracted, Filtered, and Analyzed--	YES	
Filtered, and Analyzed-----		
Analyzed		
Bottle Extraction Date & Analyst	---	SU1311 09/04/98 18:30 JMB

TCLP Extraction Procedure and Regulatory Levels: 40 CFR Part 261.24 and Appendix II.

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 1258 Greenbrier Street, Charleston, WV 25311-1002 - (304) 346-0725 Fax: (304) 346-0761
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4440 Glen Este-Withamsville Road, Suite 900, Cincinnati, OH 45245-1331 - Tel: (513) 752-9696 Fax: (513) 752-2614



CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

Tom Venk
BHE ENVIRONMENTAL INCLaboratory Number 298-09-0161-002 Respectfully
Submitted:WF-ASH2
WEST FORK 11.395Date Sampled 09/01/98
Date Received 09/03/98

Y.N. Wright

Sampled by CLIENT

091098 1347

TOXICITY CHARACTERISTIC LEACHATE PROCEDURE: METALS

ANALYZED PARAMETER	CAS NO.	RESULT	LOQ (NG/L)	REGULATORY METHOD	LEVEL	DATE/TIME/ANALYST
Metals - TCLP Basis						
Arsenic [As]	7440-38-2	0.12	0.10	SM6010	5.0	09/09/98 10:02 JJ
Barium [Ba]	7440-39-3	ND	3.0	SM6010	100	09/09/98 10:02 JJ
Cadmium [Cd]	7440-43-9	0.49	0.020	SM6010	1.0	09/09/98 10:02 JJ
Chromium [Cr]	7440-47-3	0.39	0.050	SM6010	5.0	09/09/98 10:02 JJ
Lead [Pb]	7439-92-1	3.2	0.10	SM6010	5.0	09/09/98 10:02 JJ
Selenium [Se]	7782-49-2	ND	0.20	SM6010	1.0	09/09/98 10:02 JJ
Silver [Ag]	7440-22-4	ND	0.020	SM6010	5.0	09/09/98 10:02 JJ

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

TCLP Extraction Procedure and Regulatory Levels: 40 CFR Part 261.26 and Appendix II.

4665 Paris Street, Suite 200-B, Denver, CO 80239 - Tel: (303) 373-4847 Fax: (303) 373-4884

1258 Greenbrier Street, Charleston, WV 25311-1002 - (304) 346-0725 Fax: (304) 346-0761

5712 Erdman Ave., Baltimore, MD 21205-3598 - Tel: (410) 483-2200 Fax: (410) 483-2206

4440 Glen Este-Withamsville Road, Suite 900, Cincinnati, OH 45245-1331 - Tel: (513) 752-9696 Fax: (513) 752-2614


CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

 Tom Wenk
 SHE ENVIRONMENTAL INC

 Laboratory Number 298-09-0161-002 Respectfully
 Submitted:

 WF-ASH2
 WEST FORK 11-395

 Date Sampled 09/01/98
 Date Received 09/03/98

J.N. Wright

Sampled by CLIENT

091098 1347

 SPIKED SAMPLE ANALYSIS SUMMARY REPORT
 FOR TCLP METALS

PARAMETER	CAS NO.	RESULT	SPIKE LEVEL	UNITS	PERCENT RECOVERY

OCSPIKE					
Arsenic [As]	7440-38-2	1.9	2.0	mg/L	95 %
Barium [Ba]	7440-39-3	2.0	10	mg/L	100%
Cadmium [Cd]	7440-43-9	1.8	2.0	mg/L	90 %
Chromium [Cr]	7440-47-3	1.8	2.0	mg/L	90 %
Lead [Pb]	7439-92-1	1.7	2.0	mg/L	85 %
Selenium [Se]	7782-49-2	2.1	2.0	mg/L	105%
Silver [Ag]	7440-22-4	1.8	2.0	mg/L	90 %

All spike results are corrected for the sample background.

BACKGROUND CORRECTED SPIKE RESULT

 Percent Recovery = ----- X 100
 SPIKE LEVEL

 4665 Paris Street, Suite 200-B, Denver, CO 80239 - Tel: (303) 373-4847 Fax: (303) 373-4884
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4440 Glen Este-Withamsville Road, Suite 900, Cincinnati, OH 45245-1331 - Tel: (513) 752-9696 Fax: (513) 752-2614

**CT&E Environmental Services Inc.**

Laboratory Division

Laboratory Analysis ReportTom Wark
BWE ENVIRONMENTAL INCLaboratory Number 298-09-0161-002 Respectfully
Submitted:WF-ASHZ
WEST FORK 11,395Date Sampled 09/01/98
Date Received 09/03/98*T.M. Wright*

Sampled by CLIENT

091098 1347

TOXICITY CHARACTERISTIC LEACHATE PROCEDURE:METALS

ANALYZED PARAMETER	CAS NO.	RESULT	LOQ (MG/L)	METHOD	REGULATORY LEVEL	DATE/TIME/ANALYST
Mercury [Hg]	7439-97-6	ND	0.020	SM7470	0.2	09/07/98 15:36 FAP

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

TCLP Extraction Procedure and Regulatory Levels: 40 CFR Part 261.24 and Appendix II.

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

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5712 Erdman Ave., Baltimore, MD 21205-3598 - Tel: (410) 483-2200 Fax: (410) 483-2206
4440 Glen Este-Withamsville Road, Suite 900, Cincinnati, OH 45245-1331 - Tel: (513) 752-9696 Fax: (513) 752-2614



CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

Tom Wenk
BWE ENVIRONMENTAL INC

Laboratory Number 298-09-0161-003 Respectfully
Submitted:

WF-RS1 REFRACTORY
WEST FORK 11,395

Date Sampled 09/01/98
Date Received 09/03/98

Y.N. Wright

091098 1347

Sampled by CLIENT

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

ANALYZED PARAMETER	CAS NO.	RESULT	LOG	UNITS	METHOD	DATE/TIME/ANALYST
Reactivity Characteristic (Cyanide)		NEGATIVE	250	mg/kg	SW846	09/09/98 08:30 CBS
Reactivity Characteristic (Sulfide)		NEGATIVE	500	mg/kg	SW846-7	09/09/98 08:30 CBS

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

Method Reference SW846-7: Test Method for Evaluating Solid Waste; 3rd Ed; 7th Chapter; Nov 1986.

4665 Paris Street, Suite 200-B, Denver, CO 80239 - Tel: (303) 373-4847 Fax: (303) 373-4884
1258 Greenbrier Street, Charleston, WV 25311-1002 - (304) 346-0725 Fax: (304) 346-0781
5712 Erdman Ave., Baltimore, MD 21205-3598 - Tel: (410) 483-2200 Fax: (410) 483-2206
4440 Glen Este-Withamsville Road, Suite 900, Cincinnati, OH 45245-1331 - Tel: (513) 752-9696 Fax: (513) 752-2814



CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

Tom Vank
SHE ENVIRONMENTAL INCLaboratory Number 298-09-0161-003 Respectfully
Submitted:WP-RS1 REFRACTORY
WEST FORK 11.395Date Sampled 09/01/98
Date Received 09/03/98

091098 1347

Sampled by CLIENT

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON A DRY WEIGHT BASIS

ANALYZED PARAMETER	CAS NO.	RESULT	LOG	UNITS	METHOD	DATE/TIME/ANALYST
PCB(as Aroclor 1016)	12674-11-2	ND	1.0	mg/kg	SW8081	09/08/98 18:53 KPP
PCB(as Aroclor 1221)	11104-28-2	ND	1.0	mg/kg	SW8081	09/08/98 18:53 KPP
PCB(as Aroclor 1232)	11141-16-5	ND	1.0	mg/kg	SW8081	09/08/98 18:53 KPP
PCB(as Aroclor 1242)	53469-21-9	ND	1.0	mg/kg	SW8081	09/08/98 18:53 KPP
PCB(as Aroclor 1248)	12672-29-6	ND	1.0	mg/kg	SW8081	09/08/98 18:53 KPP
PCB(as Aroclor 1254)	11097-69-1	ND	1.0	mg/kg	SW8081	09/08/98 18:53 KPP
PCB(as Aroclor 1260)	11096-82-5	ND	1.0	mg/kg	SW8081	09/08/98 18:53 KPP
SURROGATE RECOVERY						
Tetrachloro-meta-Xylene <SURROGATE>	72	---	% REC	SW8081	09/08/98 18:53 KPP	

ND: Not detected at a concentration greater than the LOD - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

4665 Paris Street, Suite 200-B, Denver, CO 80239 - Tel: (303) 373-4847 Fax: (303) 373-4884

1258 Greenbrier Street, Charleston, WV 25311-1002 - (304) 346-0725 Fax: (304) 346-0761

5712 Erdman Ave., Baltimore, MD 21205-3598 - Tel: (410) 483-2200 Fax: (410) 483-2206

4440 Glen Este-Withamsville Road, Suite 900, Cincinnati, OH 45245-1331 - Tel: (513) 752-9696 Fax: (513) 752-2614


CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

 Tom Wenk
BRE ENVIRONMENTAL INC

 Laboratory Number 296-09-0161-003 Respectfully
Submitted:

 WP-RS1 REFRACTORY
WEST FORK 11.395

 Date Sampled 09/01/98
Date Received 09/03/98

Y.N. Wright

Sampled by CLIENT

091098 1347

TOXICITY CHARACTERISTIC LEACHATE PROCEDURE

SAMPLE EVALUATION AND TREATMENT	CHECK	DATE/TIME/ANALYST
Sample Phase		
Solid-----	YES	
Sludge-----		
Liquid-----		
Suspended Solids, %		
>0.5-----	YES	
<0.5-----		
Sample Treatment		
Extracted, Filtered, and Analyzed--	YES	
Filtered, and Analyzed-----		
Analyzed-----		
Bottle Extraction Date & Analyst	---	SM1311 09/04/98 18:30 JNB

TCLP Extraction Procedure and Regulatory Levels: 40 CFR Part 261.24 and Appendix II.

4665 Paris Street, Suite 200-B, Denver, CO 80239 - Tel: (303) 373-4847 Fax: (303) 373-4884
 1258 Greenbrier Street, Charleston, WV 25311-1002 - (304) 348-0725 Fax: (304) 346-0761
 5712 Erdman Ave., Baltimore, MD 21205-3588 - Tel: (410) 483-2200 Fax: (410) 483-2206
 4440 Glen Este-Withamsville Road, Suite 900, Cincinnati, OH 45245-1331 - Tel: (513) 752-9696 Fax: (513) 752-2614


CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

 Tom Venk
 BHE ENVIRONMENTAL INC

 Laboratory Number 298-09-0161-003 Respectfully
 Submitted:

 WF-RB1 REFRACTORY
 WEST FORK 11.395

 Date Sampled 09/01/98
 Date Received 09/03/98

J.M. Wright

Sampled by CLIENT

091098 1347

TOXICITY CHARACTERISTIC LEACHATE PROCEDURE: METALS

ANALYZED PARAMETER	CAS NO.	RESULT	LOG (MG/L)	METHOD	REGULATORY LEVEL	DATE/TIME/ANALYST
Metals - TCLP Basic						
Arsenic (As)	7440-38-2	0.13	0.10	SM6010	5.0	09/09/98 10:11 JJ
Barium (Ba)	7440-39-3	ND	3.0	SM6010	100	09/09/98 10:11 JJ
Cadmium (Cd)	7440-43-9	0.20	0.020	SM6010	1.0	09/09/98 10:11 JJ
Chromium (Cr)	7440-47-3	0.20	0.050	SM6010	5.0	09/09/98 10:11 JJ
Lead (Pb)	7439-92-1	65	0.10	SM6010	5.0	09/09/98 10:11 JJ
Selenium (Se)	7782-49-2	ND	0.20	SM6010	1.0	09/09/98 10:11 JJ
Silver (Ag)	7440-22-4	ND	0.020	SM6010	5.0	09/09/98 10:11 JJ

ND: Not detected at a concentration greater than the LOD - Limit of Quantification.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; 846-846, 3rd Edition; Nov 1986.

TCLP Extraction Procedure and Regulatory Levels: 40 CFR Part 261.24 and Appendix II.

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 1258 Greenbrier Street, Charleston, WV 25311-1002 - (304) 346-0725 Fax: (304) 346-0761
 5712 Erdman Ave., Baltimore, MD 21205-3598 - Tel: (410) 483-2200 Fax: (410) 483-2206
 4440 Glen Este-Withamsville Road, Suite 900, Cincinnati, OH 45245-1331 - Tel: (513) 752-9686 Fax: (513) 752-2614

**CT&E Environmental Services Inc.**

Laboratory Division

Laboratory Analysis ReportTom Wenk
ONE ENVIRONMENTAL INCLaboratory Number 298-09-0161-003 Respectfully
Submitted:WP-RB1 REFRACTORY
WEST FORK 11.395Date Sampled 09/01/98
Date Received 09/03/98*J.N. Wright*

Sampled by CLIENT

091098 1347

TOXICITY CHARACTERISTIC LEACHATE PROCEDURE:METALS

ANALYZED PARAMETER	CAS NO.	RESULT	LOQ (MG/L)	METHOD	REGULATORY LEVEL	DATE/TIME/ANALYST
Mercury (Hg)	7439-97-6	ND	0.020	SW7470	0.2	09/07/98 15:37 FAP

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

TCLP Extraction Procedure and Regulatory Levels: 40 CFR Part 261.24 and Appendix II.

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

4655 Paris Street, Suite 200-B, Denver, CO 80239 - Tel: (303) 373-4847 Fax: (303) 373-4884
1258 Greenbrier Street, Charleston, WV 25311-1002 - (304) 346-0725 Fax: (304) 346-0781
6712 Erdman Ave., Baltimore, MD 21205-3598 - Tel: (410) 483-2200 Fax: (410) 483-2206
4440 Glen Este-Withamsville Road, Suite 900, Cincinnati, OH 45245-1331 - Tel: (513) 752-9696 Fax: (513) 752-2614


CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

 Tom Wenk
 BHE ENVIRONMENTAL INC

 Laboratory Number 298-09-0161-001 Respectfully
 Submitted:

 WF-ASH1
 WEST FORK 11.395

 Date Sampled 09/01/98
 Date Received 09/03/98

J.M. Wright

Sampled by CLIENT

091098 1347

Client Reference 11.395

TOXICITY CHARACTERISTIC LEACHATE PROCEDURE

SAMPLE EVALUATION AND TREATMENT	CHECK	DATE/TIME/ANALYST
Sample Phase		
Solid-----	YES	
Sludge-----		
Liquid-----		
Suspended Solids,%		
>0.5-----	YES	
<0.5-----		
Sample Treatment		
Extracted, Filtered, and Analyzed--	YES	
Filtered, and Analyzed-----		
Analyzed-----		
Bottle Extraction Date & Analyst	---	SW1311 09/04/98 18:30 JMB

TCLP Extraction Procedure and Regulatory Levels: 40 CFR Part 261.24 and Appendix II.

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CT&E Environmental Services Inc.

Laboratory Division

Laboratory Analysis Report

Tom Wenk
BNE ENVIRONMENTAL INCLaboratory Number 298-09-0161-001 Respectfully
Submitted:UP-ASH1
WEST FORK 11.395Date Sampled 09/01/98
Date Received 09/03/98

Sampled by CLIENT

091098 1347

Client Reference 11.395

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON A DRY WEIGHT BASIS

ANALYZED PARAMETER	CAS NO.	RESULT	LOQ	UNITS	METHOD	DATE/TIME/ANALYST
PCB(as Aroclor 1016)	12674-11-2	ND	1.0	mg/kg	SW8081	09/04/98 17:41 KPP
PCB(as Aroclor 1221)	11104-28-2	ND	1.0	mg/kg	SW8081	09/04/98 17:41 KPP
PCB(as Aroclor 1232)	11141-16-5	ND	1.0	mg/kg	SW8081	09/04/98 17:41 KPP
PCB(as Aroclor 1242)	53469-21-9	ND	1.0	mg/kg	SW8081	09/04/98 17:41 KPP
PCB(as Aroclor 1248)	12672-29-6	ND	1.0	mg/kg	SW8081	09/04/98 17:41 KPP
PCB(as Aroclor 1254)	11097-69-1	ND	1.0	mg/kg	SW8081	09/04/98 17:41 KPP
PCB(as Aroclor 1260)	11096-82-5	ND	1.0	mg/kg	SW8081	09/04/98 17:41 KPP
SURROGATE RECOVERY						
Tetrachloro-meta-Xylene <SURROGATE>		63	---	% REC	SW8081	09/04/98 17:41 KPP

ND: Not detected at a concentration greater than the LOQ - Limit of Quantitation.

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

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**CT&E Environmental Services Inc.**

Laboratory Division

Laboratory Analysis ReportTom Work
SHE ENVIRONMENTAL INCLaboratory Number 296-09-0161-001 Respectfully
Submitted:WF-ASH1
WEST FORK 11.395Date Sampled 09/01/98
Date Received 09/03/98*Y. N. Wright*

Sampled by CLIENT

091098 1347

Client Reference 11.395

ANALYSIS FOR REQUESTED PARAMETERS
ALL RESULTS ARE ON AN AS RECEIVED BASIS

ANALYZED PARAMETER	CAS NO.	RESULT	LOQ	UNITS	METHOD	DATE/TIME/ANALYST
Reactivity Characteristic (Cyanide)		NEGATIVE	250	mg/kg	SW846	09/09/98 08:30 CBS
Reactivity Characteristic (Sulfide)		NEGATIVE	500	mg/kg	SW846-7	09/09/98 08:30 CBS

Method Reference: USEPA: Test Methods For Evaluating Solid Waste; SW-846, 3rd Edition; Nov 1986.

Method Reference SW846-7: Test Method for Evaluating Solid Waste; 3rd Ed; 7th Chapter; Nov 1986.

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Universal Waste Specification



West Fork Incinerator

Millcreek Road

Cincinnati, Ohio 45223

Terracon Project Number: N1227040



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Attachment #1: Universal Waste Inventory Report

SECTION 02 84 00
UNIVERSAL WASTES

PART 1 - GENERAL

1.1 DESCRIPTION

- A. This section specifies removal and disposal of other hazardous materials and controls needed to limit occupational and environmental exposure prior to building demolition. The Contractor shall furnish all labor, materials, permits, notifications, insurance, and equipment necessary for the proper cleanup, handling, removal, storage, transporting and treating of hazardous materials from the West Fork Incinerator structure prior to demolition. This may include, but may not be limited to, the following which must be properly removed from the structure for proper reuse/recycling/treatment/disposal in accordance with this specification and all applicable federal, state, and local regulations prior to demolition:

- Universal Waste Lamps (various – fluorescent, high-intensity discharge, high pressure of low-pressure sodium vapor, metal-halide): approximately 68 lamps throughout the building where lamps are present.
- Mercury-Containing Equipment (universal waste): approximately 10 devices such as switches/thermostats located throughout the building.
- Universal Waste Batteries: approximately 5, assumed to be located in emergency exiting lighting/signs as backup batteries.
- Fluorescent Light Ballasts (assumed to contain PCBs): approximately 24 ballasts located throughout the building where fluorescent light fixtures are present.
- Fire Extinguishers: approximately 6 fire extinguishers located throughout the building.

These quantities are for informational purposes only and are based on the best information available at the time of the specification preparation. The Contractor shall satisfy themselves as to the actual quantities to be removed. Nothing in this section may be interpreted as limiting the extent of work otherwise required by this contract and related documents.

If newly discovered potential hazardous material items are discovered during the course of project, the Contractor shall notify the Owner as soon as possible. If the additional materials are verified by the Owner or Owner's Representative, the Contractor will be requested by the Owner or Owner's Representative to provide a detailed cost break-down, including an expected duration in hours and per unit fees for proper recycling/treatment/disposal, packaging, and transportation as applicable to the items.

- B. Nothing in this Specification Section shall relieve the Contractor of any other environmental protection requirement specified in federal, state or local laws and regulations.
- C. The Contractor and his/her personnel shall be responsible for having all necessary and required federal, state, and local training, licenses, and certifications to complete the work. The Contractor shall obtain all necessary environmental permits and licenses. The Contractor shall be responsible for payment of all permit fees. The Contractor shall comply with all terms and conditions of permits.
- D. The Contractor shall be responsible for containment of all spills. The contractor is responsible for maintaining spill containment and cleanup equipment and materials on-

site that are appropriate for the materials being stored and in sufficient quantities to provide containment for the volume of material used and stored. The Contractor shall clean up all spills that result from the Contractor's actions or activities, including faulty equipment, and not seek reimbursement. The cleanup methods shall be as required by or acceptable to the Owners' technical representative. If assistance is provided by the Owner, the Contractor shall reimburse the Owner for all materials and assistance provided and used in containment or cleanup of those spills resulting from the Contractor's actions.

1.2 RELATED WORK

- A. Section 02 82 00, ASBESTOS ABATEMENT SPECIFICATION.

1.3 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.
- B. Code of Federal Regulations (CFR):
- CFR 29 Part 1910 Occupational Safety and Health Standards
 - CFR 29 Part 1926 Safety and Health Regulations for Construction
 - CFR 40 Part 148 Hazardous Waste Injection Restrictions
 - CFR 40 Part 260 Hazardous Waste Management System: General
 - CFR 40 Part 261 Identification and Listing of Hazardous Waste
 - CFR 40 Part 262 Standards Applicable to Generators of Hazardous Waste
 - CFR 40 Part 263 Standards Applicable to Transporters of Hazardous Waste
 - CFR 40 Part 264 Standards for Owners and Operations of Hazardous Waste Treatment, Storage, and Disposal Facilities
 - CFR 40 Part 265 Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities
 - CFR 40 Part 268 Land Disposal Restrictions
 - CFR 49 Part 172 Hazardous Material Table, Special Provisions, Hazardous Material Communications, Emergency Response Information, and Training Requirements
 - CFR 49 Part 178 Specifications for Packaging
- C. State Hazardous Waste Rules (including, but may not be limited to):
- Ohio Administrative Code (OAC) 3745-50 through 57; 3745-65 through 69; 3745-256, 266, 270, 273, 279, 352

1.4 DEFINITIONS

- **Hazardous Wastes (HW):** Wastes which are listed by chemical name in 40 CFR 261 Subpart D, and/or exhibit one or more of the characteristics described in 40 CFR 261 Subpart C.
- **Special Waste:** A waste as defined by 40 CFR Part 240.101 (Z) is: A non-hazardous solid waste requiring handling other than that normally used for municipal solid waste.
- **Universal Wastes (UW):** A HW as defined by 40 CFR Part 260.10. Batteries, Pesticides, Thermostats, Fluorescent Lamps, and Mercury Thermostats, which are managed in accordance with the universal waste requirements promulgated in 40 CFR 273. They are specific hazardous waste streams that a generator can choose to manage in an alternative manner in place of the more complex hazardous waste requirements. The Universal Waste Rules (UWR) are intended to promote recycling as well as proper disposal by easing certain regulatory requirements. Ohio's UWRs are located in Ohio Administrative Code (OAC) Chapter 3745-273. A waste must be

a hazardous waste before it can be a universal waste. If a hazardous waste stream is not managed as a universal waste, then the waste must be managed as a hazardous waste under the applicable hazardous waste regulations.

- **Universal Waste (Types):** The following are categories of UW that may be managed under the UWR in Ohio:
- **Discarded Batteries:** This category includes hazardous waste batteries such as nickel-cadmium batteries and spent lead-acid batteries. The handler has the option of managing discarded lead-acid batteries under OAC Chapter 3745-273 (the UWR), or OAC rule 3745-266-80. UW batteries are defined in OAC rule 3745-50-10(A) and OAC rule 3745-273-09 as devices consisting of one or more electrically connected electrochemical cells that are designed to receive, store and deliver electric energy. An electrochemical cell consists of an anode, cathode and electrolyte. A device is also considered a battery if it is intact, unbroken and the entire electrolyte has been removed.
- **Lamps:** This category includes hazardous waste lamps that meet the definition in OAC rule 3745-50-10(A). Lamps are defined as the bulb or tube portion of an electric lighting device. A lamp is designed to produce radiant energy, most often in the ultraviolet, visible and infra-red regions of the electromagnetic spectrum. Lamps can exhibit the toxicity characteristic for some heavy metals (i.e., mercury, lead, cadmium). Examples of universal waste lamps include incandescent, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium and metal halide lamps.
- **Mercury-Containing Equipment (MCE):** MCE means a device or part of a device (excluding batteries and lamps) that contains elemental mercury integral to its function. Some commonly recognized devices are thermostats, barometers, manometers, temperature and pressure gauges, and mercury switches, such as light switches in automobiles. This definition does not include mercury waste that is generated as a by-product through the process of manufacturing or treatment, or equipment that has been contaminated by mercury.
- **Electronic light ballast:** A non-PCB light ballast that uses electronics instead of an inductor/capacitor to control a fluorescent light fixture. Electronic light ballasts contain no dielectric and are not subject to the requirements of this specification. Electronic ballasts are generally smaller and lighter than magnetic ballasts and usually are marked "Electronic". When in doubt manage the ballast as a PCB fluorescent light ballast.
- **Fluorescent light ballast:** A device that electrically controls fluorescent light fixtures and that includes a capacitor containing 0.1 kg or less of dielectric.
- **Used oil:** Under the used oil rules used oil is defined as petroleum based or synthetic oils that are used as lubricants, hydraulic fluid, heat transfer fluid (coolant), cutting fluid, buoyant or for some other similar purpose and become contaminated with physical and chemical impurities. Examples of used oil include: engine oils; lubricating oils; brake fluids; transmission fluids; insulating oils; metal cutting fluids; industrial process oils, compressor or refrigerant oils. Used oil does not include petroleum derived solvents used for cleaning or vegetable or animal oils and fats. To determine whether a material meets the definition of used oil, determine if it meets the following three criteria: 1) **Origin** - The material must come from either refined crude oil or from synthetic materials including materials derived from coal, shale or polymer-based starting material (e.g., Mobil 1, Castrol Syntec, and water based cutting and hydraulic oils). 2) **Use** - The material must be used as a lubricant, hydraulic fluid, heat transfer fluid (coolant), cutting fluid, buoyant or for some other similar purpose. Materials that have not been used, such as bottoms from a virgin oil tank clean-out or a virgin oil spill, are not considered used oil. Other materials that are not considered

used oil include petroleum products used for cleaning (solvents) and other petroleum-derived products such as antifreeze and kerosene. 3) Contaminants - the material must be contaminated with either physical or chemical impurities from its use. Examples of contaminants could include dirt, metal shavings, solvents or halogens.

- Non-PCB ballast: A fluorescent light ballast that does not contain PCBs. No fluorescent light ballast manufactured in the U.S. after 1 July 1978 is allowed to contain PCBs. All ballasts manufactured between 1 July 1978 and 1 July 1998 that does not contain PCBs will be marked by the manufacturer as "No PCBs". Ballasts manufactured after 1 July 1998 are not required to be marked "No PCBs" although they do not contain PCBs. Note: Non-PCB fluorescent light ballasts must be collected and recycled.
- PCB: Any chemical substance that is limited to the biphenyl molecule that has been chlorinated to varying degrees or any combination of substances which contains such substance.
- PCB fluorescent light ballast: A light ballast that contains PCBs at a concentration at or above 50 PPM. Fluorescent light ballasts that are NOT marked "No PCBs" and all ballasts manufactured before 1 July 1978 are considered to be PCB containing ballasts. Ballasts manufactured after 1 July 1998 and all electronic ballasts are not considered to be PCB containing ballasts and are excluded from this requirement.
- PCB debris: Any debris, such as light fixtures and PPE, that are contaminated with PCBs.
- PCB spill: The intentional and/or unintentional spill, leak, or other uncontrolled discharges where the release results in any quantity of PCB, running off or about to run off the external surface of the equipment; and the contamination resulting from those releases.

1.5 QUALITY ASSURANCE

- A. The Contractor shall designate one individual from his organization to serve as an environmental coordinator and a second individual to serve as an alternate for the environmental coordinator. The phone numbers shall include both the usual business telephone number and a 24-hour emergency telephone number where the individual can be reached at any time for an environmental emergency.
- B. The Contractor's environmental coordinator shall serve as a single, integrated point of contact to the Contractor's organization for all environmental questions and requirements. This individual shall be responsible for providing the Contractor's response to all environmental requirements and shall be authorized to direct the Contractor's organization to respond to environment requirements.
- C. The Contractor shall provide hazard communication training, universal waste training and the appropriate personal protective equipment to all employees as required by 29 CFR 1910.120 and 1910.1200 and 40 CFR 273.36.
- D. Hazard Communication Program: Establish and implement a Hazard Communication Program as required by 29 CFR 1910.1200.
- E. Hazardous Waste Management: The Hazardous Waste Management Plan (including Universal Wastes) shall comply with applicable requirements of Federal, State, and local hazardous waste regulations and address:
 1. Identification of hazardous wastes associated with the work.
 2. Estimated quantities of wastes to be generated and disposed of.
 3. Names and qualifications of each contractor that will be transporting, storing, treating, and disposing of the wastes. Include the facility location and a 24-hour point of contact. Furnish two copies of EPA, state, and local hazardous waste permit applications, permits, and EPA Identification numbers.

4. Names and qualifications (experience and training) of personnel who will be working on-site with hazardous wastes.
 5. List of waste handling equipment to be used in performing the work, to include cleaning, volume reduction, and transport equipment.
 6. Spill prevention, containment, and cleanup contingency measures to be implemented.
 7. Work plan and schedule for waste containment, removal, and disposal. Wastes shall be cleaned up and containerized daily.
 8. Cost for hazardous waste disposal according to this plan.
- F. Safety and Health Compliance:
1. In addition to the detailed requirements of this specification, comply with laws, ordinances, rules, and regulations of federal, state, and local authorities regarding removing, handling, storing, transporting, and disposing of hazardous and universal waste materials. The Contractor is fully responsible for complying with all applicable local laws, ordinances, criteria, rules and regulations regarding removing, handling, storing, transporting, and disposing/recycling of Universal Waste, Used Oils, Hazardous Materials, PCBs, Refrigerants, etc. Submit matters regarding interpretation of standards to the Contracting Officer for resolution before starting work.
 2. Where specification requirements and the applicable regulations vary, the most stringent requirements shall apply.
- G. Pre-Construction Conference: Along with the Contractor's environmental coordinator, meet with the Owner Representative(s) to discuss in detail the Hazardous Waste Management Plan (including Universal Wastes), including work procedures and precautions for the work plan.

1.6 SUBMITTALS

- A. Submit the following:
1. The Hazardous Waste Management Plan including all the item listed in Section 1.5.
 2. A Health and Safety Plan satisfying the criteria of 29 CFR 1910.120.
 3. A Spill Prevention, Countermeasures and Control Plan (40 CFR 264.50, 49 CFR, and 29 CFR 1910.120).
 4. A detailed project schedule indicating the sequence of operations to be performed.
 5. A sketch or drawing showing the temporary waste storage area.
- B. Manufacturer's Catalog Data, instructions, and MSDS for all equipment, supplies, and personal protective equipment.
- C. Statements Certifications and Statements:
1. Provide the qualifications of the Environmental Coordinator.
 2. Provide all applicable qualifications (including training certifications) for staff, transporters, and facilities that will be handling, transporting, and treating materials.

PART 2 - EXECUTION

GENERAL

Shut down and lock out electric power to all work areas as necessary. The Contractor shall provide temporary power and lighting and ensure safe installation of temporary power services and equipment, as specified in applicable electrical code requirements. The Contractor shall use a licensed electrician to isolate all electrical sources from lighting fixtures, emergency lighting, switches, gauges, pumps, vacuums, mechanical equipment, etc. prior to removal of ballast's, light tubes, oils, fluids, etc. Isolation and disconnection of any other equipment/system to accomplish work shall be the responsibility of the contractor.

2.1 LAMPS & MERCURY-CONTAINING EQUIPMENT (UW)

This section of the specification outlines the proper removal and packaging of Universal Waste (UW) lamps (fluorescent straight, fluorescent U-shaped and circular, ultraviolet light, compact fluorescent {CFL}, mercury vapor, metal halide, high intensity discharge (HID) and high-pressure sodium light bulbs Universal Waste lamps are hazardous waste if broken and must be treated as such.

2.1.1 SPILL CONTAINMENT AND CLEANUP OF BROKEN LAMPS

- A. The Contractor shall install temporary seals over all floor drains, conduits, and other openings within the lamp removal area where breakage of lamps may occur.
- B. In the event lamps are broken, the contractor shall proceed as follows:
 - 1. If more than 8 lamps are broken at the same time, immediately call the Owner representative.
 - 2. For broken bulbs, immediate cordon off the area/room.
 - 3. Appropriate hand/eye/respiratory protection shall be worn when cleaning up and handling any quantity of broken lamps. Avoid inhalation of airborne dust
 - 4. Leave area, air out the room/area for 10 minutes by opening a window of door to the outdoor environment.
 - 5. Shut off the HVAC system, if active.
 - 6. Collect materials for cleanup: stiff paper or cardboard, sticky tape, damp paper towel or disposable wet wipes (for hard surfaces), and a glass jar with a metal lid or sealable plastic bag.
 - 7. Do not vacuum. Vacuuming could spread mercury-containing powder or mercury vapor.
 - 8. Be thorough in collecting broken glass and visible powder. Scoop up glass fragments and powder using stiff paper or cardboard. Use sticky tape, such as duct tape, to pick up any remaining small glass fragments and powder. Place the used tape in the glass jar or plastic bag. Continue to air out the room where the bulb was broken and leave the heating/air conditioning system shut off for several hours.
 - 9. It is optional to use commercially available powdered sulfur to absorb the beads that are too small to see. The sulfur does two things: (1) it makes the mercury easier to see since there may be a color change from yellow to brown and (2) it binds the mercury so that it can be easily removed and suppresses the vapor of any missing mercury. Mercury vapor absorbent such as powdered sulfur are often available in mercury spill kits. Note: When using powdered sulfur, do not breathe in the powder as it can be moderately toxic. Additionally, users should read and understand product information before use.
 - 10. Broken lamps must be containerized in airtight containers and managed as a hazardous waste.

2.1.2 REMOVAL/PACKAGING/STORAGE OF MERCURY-CONTAINING LAMPS

- A. The Contractor shall take care to remove mercury-containing lamps from fixtures without damaging or breaking the lamps. Lamps that have removable plastic sleeves shall be separated from the lamps. Cardboard containers designed to hold lamps shall be used for packaging (preferably obtained from the manufacturer or lamp recycling facility).
- B. The lamps shall be packaged in boxes provided by the Contractor in the following manner:

1. Lamps of the same type (i.e., HID, U-shape) and length shall be packaged snugly in the box.
 2. Write the type of lamps on either END of the box (i.e., 4'fluorescent)
 3. Write "Universal Waste Lamps" and the date the first bulb was placed in the box on the end of the box.
 4. Tape the box closed (after it is full). A full box will ensure the bulbs are packaged snugly and will prevent breakage when transporting.
- C. All boxes containing lamps shall be stored indoors.
- D. In the event a lamp(s) is broken or crushed, that broken lamp and any debris that can be gathered shall be placed in an air-tight container and marked and managed as a hazardous waste. The hazardous waste container with the broken pieces will be removed when the box is removed.

2.2 DISCARDED BATTERIES (UW)

- A. Discarded batteries shall be managed as Universal Waste:
Any batteries that show evidence of leakage, spillage or damage that could cause leakage must be containerized. The container must be closed, structurally sound, compatible with the contents of the battery and lack evidence of leakage or spillage.
- B. Any waste (e.g., electrolytes) removed from batteries must be evaluated to determine whether it is a hazardous waste. Hazardous waste removed from the batteries must be managed in accordance with Ohio Administrative Code (OAC) Chapter 3745-52.

2.3 REFRIGERANTS (NOT USED, UNLESS DISCOVERED)

- A. Recovery of refrigerant, Halon or other ozone depleting substances (ODSs): All refrigerant work must be performed by a Certified Refrigerant Technician using Certified Recovery of Recycling Equipment. For the purposes of this work, "Certified Refrigerant Technician" is defined in Section 608 of the Clean Air Act as a facility that uses laboratory protocol set forth in the Air Conditioning, Heating, and Refrigeration Institute (AHRI) Standard 740-1998 and has obtained certification from the Section 608 Recycling Program Manager. Qualifications of Technicians/Recovery Equipment:
1. Technicians must be certified by the Environmental Protection Agency (EPA) under Section 608 of the Clean Air Act.
 2. Recovery equipment must be tested by an approved EPA testing organization to ensure that it meets requirements under Section 608 of the Clean Air Act.
 3. Knowingly venting ODSs into the atmosphere is prohibited under the Clean Air Act. Technicians releasing "de minimis" quantities of ODSs in the course of making good faith attempts to recapture, recycle or dispose of ODSs are not subject to the prohibition
- B. For any refrigerant (i.e., hydrofluorocarbon {HFC}), not a Class I or Class II, the contractor shall recover and take Ownership of the material unless other plans are made with the original owning shop.
- C. Contractor shall verify that ozone depleting substances (ODSs) have been recovered from all ODS equipment before disposal of the equipment in accordance with 40 CFR 82.156(a)(3) and all associated regulations.
- D. The Contractor shall:
1. Identify the pressure conditions under which the refrigerator unit or equipment was designed to operate and ensure that technicians have received the appropriate certification (i.e., Type I, Type II, Type III, and/or Universal Technician) that corresponds with the equipment from which ODS is to be recovered.

2. Identify the appropriate type of recovery/recycle equipment and ensure that equipment rating is maintained in accordance with Section 608 of the Clean Air Act relative to:
 - a. Liquid Refrigerant Recovery
 - b. Vapor Refrigerant Recovery
 - c. Final Recovery Vacuum
 - d. Refrigerant Loss due to Non-Condensable Purging
 3. Ensure refrigerant recovery is performed in compliance with all applicable regulations.
 4. Prepare cylinders containing recovered refrigerant for shipping in accordance with all applicable regulations.
 5. Transfer cylinders for shipment in accordance with all applicable federal, state, and local regulations.
- E. The Contractor must provide proof to the Owner of all manifest and receipts generated by the Certified Refrigerant Technician.

2.4 USED OIL (NOT USED, UNLESS DISCOVERED)

All work associated with used oil must be completed in accordance with 40 CFR part 279 and Ohio EPA's used oil regulations - Ohio Administrative Code (OAC) rules 3745-279-20 through 3745-279-24.

- A. Manage used oil known or assumed to contain 50 ppm or more PCBs as a PCB waste. Used oils tested and contain less than 50 ppm can be disposed under Used Oil rules. Analytical records indicating PCB content must be provided to the Owner.
- B. Used oil must be recovered in a manner which prevents leaks/spills. The Contractor will be responsible costs associated with cleanup of leaks/spills which may occur during the act of recovering oils. If there is a leak of used oil: stop the leak, contain it, clean it up and properly manage the cleanup materials.
- C. Label containers or tanks of used oil with the words, "Used Oil."
- D. Store used oil in containers or tanks that are in good condition (not rusting, leaking, etc.).
- E. Use a transporter with an EPA identification number when shipping used oil off site.
- F. Do not mix used oil with other wastes such as mineral spirits, brake cleaner fluid or washer solvents,
- G. Used oil is to be sent to a used oil recycler. Ohio EPA maintains a list of companies that recycle used oil. The used oil recycling company must be on that list and approved by the Owner in writing prior to be sent to the facility.
- H. The Contractor must provide proof to the Owner of all waste manifest and receipts accepted by the used oil recycler.

2.4.1 OIL FILTERS (NOT USED, UNLESS DISCOVERED)

When present, all oil filter must be removed and properly drained. According to OAC rule 3745-51-04(B)(13), non-terne plated used oil filters that are hot-drained are not hazardous wastes. Non-terne plated filters do not contain lead in the metal portion of the filter. Hot-draining may be accomplished by either:

- puncturing the anti-drain back valve or the filter dome end and hot-draining;
- hot-draining and crushing;
- dismantling and hot-draining; or
- other equivalent method.

The Ohio EPA considers a filter to be hot-drained when it is brought up to normal engine operating temperature just before you remove it for draining. The oil filter should be

allowed to drain for 12 hours. After the oil has been drained, the filter may be disposed of in the municipal waste stream. However, its recommended to recycle the filters as scrap metal. The oil collected must be managed as used oil.

2.5 BALLASTS

2.5.1 SECURITY OF SITES

- A. Install physical barriers (i.e., self-supporting barricades, roping, caution tape, etc.) to secure work site where PCB ballasts are being removed and stored.

2.5.2 SPILL CONTAINMENT

- A. The Contractor shall install temporary covers (i.e., plastic drop cloths) over surfaces (floor, carpet, tables) that may come in contact with PCB ballasts and follow measures of the SPCC plan.

2.5.3 EQUIPMENT DECONTAMINATION

- A. Any non-disposable item contaminated with PCB shall be decontaminated in accordance with 40CFR 761.

2.5.4 REMOVAL AND PACKAGING

- A. Each ballast shall be visually inspected to determine whether or not it is marked "No PCB". If ballasts are not marked "No PCB", treat them as containing PCBs. If it is determined that a ballast is or is presumed to be a PCB fluorescent light ballast, remove the ballast(s) from the fixture. Do not puncture or damage the ballast in any way.
- B. Place PCB light ballasts into 30 or 55 gallon open head steel which conforms to UN Std. 1A1 or 1A2.
 - 1. Place no more than 150 F40 (ballasts from four foot light fixtures) or seventy-five F96 (ballasts from eight foot fixtures) light ballasts into one drum.
 - 2. The gross weight of loaded drums shall not exceed 600 pounds.
 - 3. The Contractor is responsible for providing drums that meet all DOT and UN specifications IAW 49 CFR 173.212 and are in good condition.
 - 4. Leaking PCB ballasts shall be wrapped in plastic and may be placed in drums with other non-leaking ballasts.
 - 5. Mark the drums as containing PCB light ballasts, greater than 500PPM (>500) unless documented to have a lower concentration.
 - 6. Mark the facility building number from which the ballasts were removed and the date that the first ballast was placed into the container.
- C. Any contaminated portions of the light fixture, resulting from leaking PCB ballasts, shall be cut away and placed into separate 30 or 55 gallon open head steel drums which conform to UN Std. 1A1 or 1A2. Do not mix ballasts and debris. Any contaminated plastic or PPE shall also be placed into these drums for disposal. Mark the drums as containing PCB debris, the facility building number and the date the debris was placed into the container IAW 40 CFR 761.45.
- D. At the time of use, the Contractor shall mark each container individually with the following:
 - 1. The PCB label, ML, as shown in Figure 1 of 40 CFR 761.45(a).
 - 2. The container accumulation start date (i.e., date removed from service).
 - 3. Contents of container (i.e., light ballasts, debris).
 - 4. The building number from which the ballasts were removed.

- E. Ensure that all drum lids are secured and fully tightened with bolt ring pointing downward.
- F. The contractor shall be responsible for repackaging any containers that are considered by the Owner to be unsuitable for shipment.

2.5.5 TEMPORARY STORAGE

- A. The temporary storage location for the drummed PCB ballasts shall be approved by the Owner. Drums of PCB items shall be stored indoors.
- B. The Contractor shall not have any PCB light ballasts in temporary storage for over 30 calendar days. Do not relocate items for the purpose of extending the storage time. The contractor shall contact the Owner if the thirty-day storage limit will be exceeded.

2.5.6 NO-PCBs BALLASTS

Ballasts marked as "No-PCBs" must also be properly removed and taken to a licensed recycling facility. Removed "No-PCBs" ballasts shall be handled, packaged, stored, and transported in the same manner as PCB ballast, with the exception of labeling requirements. Drums shall be marked "No-PCBs" ballast for recycling. The Contractor shall comply with all applicable, federal, state, and local regulations pertaining to handling, storage, transporting, and treatment of these types of ballasts.

2.6 REMOVAL OF PCB AND PCB-CONTAMINATED ITEMS AND LIQUIDS

- A. Immediately report new or newly discovered existing PCB spills of any size to the Owner.
- B. The Contractor shall provide and maintain on-site spill equipment sufficient in both quantity and type to contain and clean-up any spill within twenty-four (24) hours of discovery.
- C. All materials and/or surfaces contaminated with PCB spilled during the work shall be the contractor's responsibility. The contractor shall contain the spill, perform the cleanup, provide all analytical services required to verify clean-up, restore the area to as near original condition, and transport and dispose of the contaminated materials per regulations and specifications; all at no cost to the Owner.

2.6.1 PROTECTIVE EQUIPMENT

- A. The contractor shall provide and maintain all personal protective equipment required by 29 CFR 1910 to perform PCB removal operations. This equipment is to be disposable to the extent allowable by regulations.
 - 1. Protective equipment shall include, among other things; protective gloves, faceshields, coveralls, boots, and cartridge respirators.
 - 2. All protective equipment contaminated with PCB shall either be decontaminated in accordance with section on "EQUIPMENT DECONTAMINATION" or containerized and disposed of as PCB waste in accordance with the section on "DISPOSAL OF PCB WASTE".

2.6.2 SECURITY OF SITES

- A. Secure and/or cap all container/tanker fill and unloading valves prior to exiting the temporary storage and/or work site.
- B. Install self-supporting barricades and post PCB Handling warning signs advising persons to avoid entry at all sites during removal, storage or processing of PCB wastes. Establish a single entrance to the site.

2.6.3 SPILL CONTAINMENT

- A. Provide six mil plastic drop cloths or metallic drip pans where spillage may occur.
- B. Protect/seal all floor drains, conduits, storm drains, electric manholes and other subsurface openings within fifteen (15) feet of the work.
- C. Use absorbent material/containment booms to prevent contaminant migration should a spill occur.

2.6.4 EQUIPMENT DECONTAMINATION

- A. Decontaminate all non-disposable items contaminated with PCB during the cleanup prior to exiting each site. Decontaminate all solid surfaces through a double rinse wash. Cleanup of PCB will be done with a commercial/industrial liquid cleaner containing limonene as the organic solvent and an emulsifier. Apply with a portable sprayer, scrub the affected surfaces and rinse with clean water. Concurrently capture all free-flowing liquids using a wet vacuum.

2.6.5 PCB AND PCB-CONTAMINATED ITEMS AND LIQUIDS

- A. Drain all liquids by pump or siphon.
- B. Provide separate hoses and pumps for draining PCB and PCB-contaminated oil. Decontaminate between each use per "EQUIPMENT DECONTAMINATION" paragraph.
- C. Contain all PCB and PCB-contaminated wastes in containers/tanks approved for the storage and transportation of such wastes by DOT and USEPA.
- D. Do not place PCB wastes in containers with PCB-contaminated wastes.
- E. The intentional solidification of PCB wastes shall not be practiced.
- F. Label all PCB waste containers at the time of generation per "CONTAINER LABELLING" paragraph.

2.6.6 CLEANUP OF SPILLS THAT OCCUR DURING WORK

- A. Ensure notification is made per the "SPILLS" paragraph. Implement the immediate action requirements contained in 40 CFR 761 and commence cleanup within 24 hours of the spill.
- B. Clean all surfaces/soils to the defined standards for residential/commercial areas in accordance with 40 CFR 761.120. Include all verification sampling required and prepare a response report. This report must be submitted to the Owner within seven (7) working days after the completion of the clean-up.

2.6.7 TEMPORARY STORAGE

- A. Coordinate the temporary storage location (for PCB and PCB contaminated wastes) with the Owner.
- B. Individually date all items to show when PCB wastes were first placed into the container and when these wastes were placed in temporary storage.
- C. Install self-supporting barricades and post "Caution PCBs In Storage" signs to avoid unauthorized entry.
- D. Post a site-specific spill plan satisfying the criteria of 40 CFR 761.60.
- E. Perform weekly inspections of the temporary storage sites and document the results of these inspections during the storage activities.
- F. Do not place any PCB waste in temporary storage for more than thirty (30) days. Do not relocate containers for purposes of extending the storage time.

- G. Place drip pans or six mil plastic sheeting to prevent possible seepage into the ground. Protect containers from rainwater.

2.6.8 PREPARATION FOR TRANSPORT OF WASTES CONTAINING PCBs

- A. All wastes containing PCBs shall be packaged for transportation in strict accordance with all applicable regulations found in 49 and 40 CFR.
 - 1. Contain all liquids in 30 gallon or 55 gallon closed head steel shipping drums. The Department of Transportation approved drums shall meet DOT 17E specifications and be in good condition. Do not fill over 90% of drum capacity. Bulk transportation may be accomplished using tankers authorized for PCB liquid waste transit by DOT.
 - 2. Contain all solid PCB material (used absorbent material, disposable clothing, removed soil, disposable tools, etc.) in 30 gallon or 55 gallon open head steel shipping drums. The Department of Transportation approved drums shall meet DOT 17C specifications and must be in good condition.
- B. Do not place non-PCB oils or items in containers with PCB oils or items. Do not place PCB oils or items in containers with PCB-contaminated oils or items.
- C. Identify each item individually with the following.
 - 1. The appropriate PCB label per federal, state, and local regulations.
 - 2. Refer to "TEMPORARY STORAGE" paragraphs of this spec. section.

2.6.9 CONTAINER LABELING

- A. Label (as shown in Figure 1, 2, 3, or 4) all equipment, drums, etc. according to the PCB concentration of the oil, material contained, or the oil removed from the item. Affix the label prior to working on or utilizing the item. The following formats shall be used for labeling:
 - 1. PCB Items or containers containing PCBs equal to or greater than 500 ppm.
 - (a) Large PCB Mark--ML. Mark ML shall be as shown in Figure 1, letters and striping shall be on a yellow background and shall be sufficiently durable to equal or exceed the life (including storage for disposal) of the PCB Article, PCB Equipment, or PCB Container. The size of the mark shall be at least 15.25 cm (6 inches) on each side. If the PCB Article or PCB Equipment is too small to accommodate this size, the mark may be reduced in size proportionately down to a minimum of 5 cm (2 inches) on each side.
 - (b) Small PCB Mark--MS. Mark MS shall be as shown in Figure 2, letters and striping on a yellow background and shall be sufficiently durable to equal or exceed the life (including storage for disposal) of the PCB Article, PCB Equipment, or PCB Container. The mark shall be a rectangle 2.5 by 5 cm (1 inch by 2 inches). If the PCB Article or PCB Equipment is too small to accommodate this size, the mark may be reduced in size proportionately down to a minimum of 1 by 2 cm (0.4 by 0.8 inches).
 - 2. PCB Contaminated Items or Containers containing PCBs in concentrations between 50 and 499 ppm.
 - (a) PCB Contaminated Mark. Mark shall be as shown in Figure 3, letters and striping on a yellow background and shall be sufficiently durable to equal or exceed the life (including storage for disposal) of the PCB Contaminated Article, PCB Contaminated Equipment, or Container of PCB Contaminated oil. The mark shall be a rectangle 10 by 10 cm (4 inch by 4 inches). If the PCB Contaminated Article or PCB Contaminated Equipment is too small to

accommodate this size, the mark may be reduced in size proportionately down to a minimum of 5 by 5 cm (2 by 2 inches).

3. Non-PCB Items containing PCB in concentrations equal to or less than 49 ppm.

(a) Non-PCB Mark. This mark shall be as shown in Figure 4, letters and striping on a blue background and shall be sufficiently durable to exceed the time the Non-PCB Article, Equipment, or Container is stored on site.

////////////////////////////////////

CAUTION contains PCBs
(Polychlorinated Biphenyls)

A toxic environmental contaminant requiring
special handling and disposal in accordance with
U.S. Environmental Protection Agency Regulations
40 CFR 761 - For Disposal Information contact
the nearest U.S. E.P.A. Office.

In case of accident or spill, call toll free the U.S.
Coast Guard National Response Center
1-800-424-8802

Also Contact: Tel. No.:

////////////////////////////////////

Figure 1

////////////////////////////////////

CAUTION contains PCBs
(Polychlorinated Biphenyls)

FOR PROPER DISPOSAL INFORMATION
CONTACT U.S. ENVIRONMENTAL
PROTECTION AGENCY

////////////////////////////////////

Figure 2

////////////////////////////////////

PCB CONTAMINATED
THE LIQUID IN THIS
CONTAINER IS LESS
THAN 500 PPM PCB
BUT EQUAL TO
OR GREATER THAN
50 PPM PCB

////////////////////////////////////

Figure 3

////////// C E R T I F I E D //////////

THE DIELECTRIC FLUID IN THIS UNIT
HAS BEEN TESTED TO DETERMINE THE
AMOUNT OF POLYCHLORINATED BIPHENYL(S)
(PCB CONTENT). WE CERTIFY THAT BASED
ON THE TEST SAMPLE, THE FLUID CONTAINED
LESS THAN 50 PPM PCB AND IS THEREFORE
CLASSIFIED A NON-PCB AS DEFINED IN THE
AUG 25, 1982, VOL. 47 NO. 165 OF THE
FEDERAL REGISTER.

2.7 DISCARDED CHEMICAL CONTAINERS (INCLUDING FIRE EXTINGUISHERS)

Any chemical containers with product must be removed from the building prior to demolition (this includes, but may not be limited to, laboratory chemicals, paints, cleaning products, fire extinguishers, etc.). A product becomes a waste when it is no longer useful, it does not meet its original specifications and is not usable, or its shelf life has been exceeded for so long that it probably will not perform satisfactorily. If a product has not exceeded its usefulness and has not expired, the best approach is to find another use for it. Any remaining containers in the building with product must be brought to the Owner's attention so that the Owner has the opportunity to collect items for re-use. Any items remaining must be properly handled, stored, transported, and treated in accordance with all applicable federal, state, and local regulations. If products cannot be used or transferred, or if they no longer meet specifications or their shelf life has been seriously exceeded, they must be declared as hazardous wastes and move them to a hazardous waste accumulation area. Hazardous wastes are any product wastes that: have a flashpoint lower than 140 °F, have a pH lower than 2.5 or higher than 12.5, are reactive, fail the TCLP (Toxicity Characteristic Leaching Procedure) test making it a toxic waste, or contain a chemical listed by the EPA. Products must be checked for a proper manufacturer's label. Notify the Owner when moving wastes to a hazardous waste accumulation area. All containers of hazardous waste must be labeled as a hazardous waste:

- The date when the product was declared a hazardous waste must be marked on the label.
- The hazardous waste, along with all other hazardous wastes, must be inspected routinely and disposal arrangements must be made before the allowable storage time onsite has expired

PART 3 - DISPOSAL

3.0 STORAGE, TRANSPORTING, AND TREATMENT

3.1 UNIVERSAL WASTES

A. Generators of Universal Wastes (UW) who want to take advantage of the Universal Waste Rules (UWR) instead of the hazardous waste generator requirements must comply with all UW handler requirements. A UW handler cannot treat, dispose of or recycle UW and thus does not need a hazardous waste installation and operation permit. UW handlers are classified as small or large UW handlers based on the quantity of UW accumulated at any time. Generators and others receiving and storing UW fall under two categories:

- small quantity handlers (accumulate less than 5,000 kilograms [11,023 pounds] of UW [not by type] at any time), or
- large quantity handlers (accumulate more than 5,000 kilograms [11,023 pounds] of UW [not by type] at any time).
- If a small quantity UW handler accumulates more than 5,000 kilograms of UW on-site at any time, they must comply with the large quantity UW handler requirements for the remainder of the calendar year.
- All generators have the option of handling their UW under the UWR or under Ohio's generator requirements found in OAC Chapter 3745-52.

- B. Small quantity handlers of UW and UW transporters are not required to notify Ohio EPA of their UW activities and are not required to obtain an EPA hazardous waste ID number.
- C. Large quantity UW handlers must notify Ohio EPA in writing and obtain an EPA hazardous waste ID number prior to exceeding the 5,000 kg storage limit. A large quantity UW handler who previously notified Ohio EPA of their hazardous waste activities and received an EPA identification number is not required to re-notify.
- D. Small and large quantity UW handlers and transporters are not required to have a hazardous waste installation and operation permit provided they comply with all applicable universal waste rules. Destination facilities are required to have a hazardous waste installation and operation permit for storage of the material prior to recycling. The recycling process itself is not subject to Ohio's hazardous waste regulations. A facility that collects and stores UW and sends them to a recycler, such as a broker, would not require a permit to operate since the activity is regulated as a handler of UW. If the destination facility conducts recycling without storage, it must comply with OAC rule 3745-51-06(C)(2).
- E. The labeling requirements are identical for small and large quantity UW handlers. They must be able to demonstrate the accumulation time for all universal wastes. Accumulation time begins the date the material became a waste or is received. The handler may make this determination by:
- placing the UW in a container and marking or labeling the container with the earliest date that any UW in the container became a waste or was received;
 - marking or labeling the individual item of UW (i.e., each battery or thermostat) with the date it became a waste or was received;
 - maintaining an inventory system on-site that identifies the date the UW being accumulated became a waste or was received;
 - maintaining an inventory system on-site that identifies the earliest date that any UW in a group of UW items or a group of containers of UW became a waste or was received;
 - placing the UW in a specific accumulation area and identifying the earliest date that any UW in the area became a waste or was received; or
 - any other method which clearly demonstrates the length of time that the UW has been accumulated from the date it became a waste or was received.
- F. Each UW container must be marked, as appropriate, with the words "Universal Waste Lamps," "Universal Waste Battery(ies)," "Universal Waste Thermostat(s)" or "Universal Waste Pesticide(s)." The following phrases are also acceptable: "Waste Lamp(s)," "Used Lamp(s)," "Waste Battery(ies)," "Used Battery(ies)," "Waste Thermostat(s)," "Used Thermostat(s)." The container for each type of UW must meet the following criteria:
- the container remains closed;
 - the container is structurally sound;
 - the container is compatible with the UW;
 - the container lacks evidence of leaks, spillage or damage that could cause leakage.
- G. Storage Time Limits (UW): small and large quantity UW handlers may store their UW on-site for up to one year from the time it was generated. If accumulation for greater than one year is required, the handler must be able to prove that the accumulation is necessary in order to facilitate proper recovery, treatment or disposal. UW transporters may store UW during the normal course of transportation at a universal waste transfer facility (includes loading docks, parking areas, storage areas and other similar areas where shipments of UW are held) for 10 days or less. If a UW transporter

stores UW for more than 10 days, the transporter becomes a UW handler and must comply with all applicable requirements of the UWR.

- F. Transporters (UW): This person engages in the off-site transfer of UW by air, rail, highway or water and must comply with all applicable DOT regulations. UW transporters may transport UW from one UW handler to another, to UW destination facilities or to foreign destinations. A UW transporter is prohibited from disposing, diluting or treating UW except when responding to a release. A UW transporter must respond to releases of UW during transit. Shipments of UW for export must conform to U.S. EPA's "Acknowledgment of Consent." UW handlers may act as their own transporter as long as they comply with the UW transporter requirements in OAC rules 3745-273-50 through 3745-273-56.
- H. Destination facilities (UW): A destination facility is defined in OAC rule 3745-273-09(B) as a facility that treats, disposes of or recycles a particular category of UW. The Owner/operator of a destination facility receives UW from transporters and handlers. If storage of the UW is necessary prior to recycling, then the destination facility must have a hazardous waste installation and operation permit. If the destination facility conducts recycling without storage, they must comply with OAC rule 3745-51-06(C)(2). Ohio EPA maintains a list of recyclers on our website.
- I. Universal waste handlers are not required to manifest their off-site shipments. All universal waste handlers must ensure delivery of their universal waste to another universal waste handler or to a permitted destination facility as defined in OAC rule 3745-273-09(C). However, written evidence (disposal receipt documentation) from the destination facility shall be provided to the Owner.

3.2 USED OIL (NOT USED, UNLESS DISCOVERED)

- A. Label containers or tanks of used oil with the words, "Used Oil."
 - Store used oil in containers or tanks that are in good condition (not rusting, leaking, etc.).
 - If there is a leak of used oil: stop the leak, contain it, clean it up and properly manage the cleanup materials.
 - Use a transporter with an EPA identification number when shipping used oil off site.
 - Do not mix used oil with other wastes such as mineral spirits, brake cleaner fluid or washer solvents, unless you are sure that you are complying with the appropriate regulations.
- B. Used oil shall be transported off-site to an Ohio registered used oil recycler. The Ohio EPA's website maintains a list of registered used oil recyclers. The Contractor must use a used oil transporter who has a U.S. EPA identification number.
- C. Besides Ohio's used oil regulations, if 660 gallons or more of used oil is in a single above ground storage container or tank, a spill prevention plan must be in place.
- D. Transporters: As a used oil transporter, the following is applicable:
 - Notify Ohio EPA, DMWM, and obtain an EPA identification number by filling out a notification form (9029) or by submitting a letter to Ohio EPA with the appropriate information.
 - Determine if the used oil contains more than one thousand parts per million (ppm) total halogens, and retain records of all analyses or information used to make this determination for three years (OAC rule 3745-279-44). Acceptable analytical test protocols include SW-846 Test Methods 9075, 9076 and 9077. The latter of these methods is a field test method such as Chlor-D-Tect 1000® and Chlor-D-Tect 4000®.

- Deliver used oil only to another used oil transporter, used oil processor/re-refiner, off-specification used oil burner or on-specification used oil burner.
- Comply with all applicable Department of Transportation (PUCO in Ohio) requirements.
- Manage all residues from transporting or storing used oil in accordance with OAC rule 3745-279-10(E).
- Manage all residues from transporting and incidental treatment of used oil that are hazardous waste in accordance with the applicable hazardous waste rules of Chapters 3745-50 to 3745-69, 3745-205, 3745-256, 3745-266, and 3745-270 of the Administrative Code.
- Retain records of all shipments and deliveries of used oil for at least three years, copies must be provided to the Owner. The information recorded must include:
 - Name and address of used oil provider or receiver;
 - U.S. EPA identification number;
 - Date; and
 - Signature of receiver or provider of used oil

3.3 HAZARDOUS WASTE (Including PCBs)

- A. Store hazardous waste items into U.S. Department of Transportation (49 CFR 178) approved 55-gallon drums. Properly label each drum to identify the type of waste (49 CFR 172) and the date wastes were first put into the drum. Obtain and complete Uniform Hazardous Waste Manifest forms from the Owner. The Owner or an authorized representative will assign an area for interim storage of waste-containing drums. Do not store hazardous waste drums in interim storage longer than 90 calendar days from the date affixed to each drum.
Comply with land disposal restriction notification requirements as required by 40 CFR 268:
 - a. At least 14 days prior to delivery, notify the Owner who will arrange for job site inspection of the drums and manifests.
 - b. As necessary, make lot deliveries of hazardous wastes to the Owner's Hazardous Waste Storage Facility to ensure that drums do not remain on the jobsite longer than 90 calendar days from the date affixed to each drum.
 - c. Dispose of hazardous waste materials at an EPA/state approved hazardous waste treatment, storage, or disposal facility off Owner property.
 - d. Handle, store, transport, and dispose of hazardous waste in accordance with all applicable federal, state, and local regulations, including but not limited to, 40 CFR 260, 40 CFR 261, 40 CFR 262, 40 CFR 263, 40 CFR 264, and 40 CFR 265. Comply with land disposal restriction notification requirements as required by 40 CFR 268.
- B. Disposal Documentation Submit written evidence that the hazardous waste treatment, storage, or disposal facility (TSD) is approved for hazardous waste disposal by the EPA and state or local regulatory agencies. Submit one copy of the completed manifest, signed and dated by the initial transporter in accordance with 40 CFR 262.

- - - E N D - - -

ATTACHMENT #1: UNIVERSAL WASTE INVENTORY REPORT



November 14, 2022

City of Cincinnati
Office of Environment and Sustainability
801 Plum Street, Suite 130
Cincinnati, Ohio 45202

Attention: Mr. Howard Miller, CPG, CHMM
Senior Environmental Safety Specialist

Re: Observations for Hazardous Material Items Report
Former West Fork Incinerator
3200 Millcreek Road
Cincinnati, Hamilton County, Ohio 45223
Terracon Project No. N1227040

Dear Mr. Miller:

Terracon Consultants, Inc. (Terracon) appreciates the opportunity to submit this letter report to the City of Cincinnati (Client) regarding the summary of findings for potential hazardous material items pertaining to the former West Fork Incinerator building which is planned for demolition.

The subject building is a former incinerator building located at 3200 Millcreek Road in Cincinnati, Ohio and consists of a three-story, approximately 25,000 square foot building constructed in 1948 with an attached approximately 2,000 square foot office space. The western portion of the building is a covered garage space, the eastern and southern portion of the building includes the incinerator system and smokestacks, and the northern portion of the building is office space.

The purpose of this letter report is to discuss other potential hazardous material items observed but not sampled at the former West Fork incinerator building located at 3200 Millcreek Road in Cincinnati, Ohio prior to demolition. Typically, such items are assumed to contain hazardous constituents, and are collected for proper re-use (if feasible), recycling, or treatment/disposal according to applicable federal, state, and local asbestos regulations prior to demolition. Asbestos-containing materials (ACMs) and lead in paint, which were sampled, are addressed and discussed in a separate companion report prepared by Terracon.

On October 26, 2022, Terracon representative Mr. Lem Weyer and Michael Sulken conducted the field observations for other hazardous material items. Based on field observations, the following general items are discussed in association with the subject site:



- Universal wastes
- Potential polychlorinated biphenyl (PCB)-containing equipment, and
- Other hazardous materials

HAZARDOUS MATERIAL ITEMS OBSERVATION SUMMARY

A. Universal Wastes

Universal wastes (UW) are specific hazardous waste streams that a generator can choose to manage in an alternative manner in place of the more complex hazardous waste requirements. These wastes are generated by numerous businesses, typically in small quantities and they present low hazards. The Universal Waste Rules (UWR) are intended to promote recycling as well as proper disposal by easing certain regulatory requirements. Ohio's UWRs are located in Ohio Administrative Code (OAC) Chapter 3745-273. A waste must be a hazardous waste before it can be a universal waste. If a hazardous waste stream is not managed as a universal waste, then the waste must be managed as a hazardous waste under the applicable hazardous waste regulations.

Currently, Ohio has four categories of UWs recognized nation-wide, and three additional types that are Ohio-specific universal wastes that may be managed under these reduced requirements. Lamps, suspended or recalled pesticides, mercury-containing devices, and batteries are recognized nationwide. Antifreeze, aerosol containers, and paint and paint-related wastes are the new Ohio-specific universal wastes. The Ohio-specific universal wastes also do not require the use of a hazardous waste manifest while in Ohio. If these wastes leave the state of Ohio, the generator would need to comply with the manifesting requirements for all states these wastes would travel within.

It should be noted that any materials resulting from the release or clean-up of spills or breakage of any universal waste is not itself universal waste. It must be determined whether or not such materials are a hazardous waste as identified in 40 code of federal regulations (CFR) 261, and the material must then be managed and disposed in accordance with applicable hazardous or solid waste regulations.

A1. Lamps

This UW category includes hazardous waste lamps that meet the definition in OAC rule 3745-50-10(A). The universal waste lamp category is slightly broader in that it includes lamps that are hazardous for any characteristic, not just for mercury. However, fluorescent light bulbs remain the most common item in this category of universal waste. This category does not include associated light fixture components such as ballasts. Hazardous waste lamps become subject to this rule if they are hazardous waste under 40 CFR 261, and when they are permanently removed from a fixture or determined to be discarded. A note about crushing: crushing of hazardous waste bulbs is considered treatment, which is explicitly prohibited under the Universal Waste Rule (40 CFR 273.11(b) and 273.31(b)). The only circumstance where hazardous waste lamps may be allowed to be crushed is when they are managed as fully regulated hazardous waste (rather than as


Observation for Hazardous Material Items Report

Former West Fork Incinerator ■ 3200 Mill Creek Rd., Cincinnati, OH
November 14, 2022 ■ Terracon Project No. N1227040



universal waste) which is treated (i.e., crushed) in tanks or containers by the generator of the waste under the implied generator treatment allowance in 40 CFR 262.34, and in conformance with all applicable hazardous waste management standards.


The following table is a general summary of lamps observed in association with the subject building (additional quantities may be present which weren't readily observable).

Equipment Description	General Locations	Approximate Quantities	Photo Example(s)
Various Lamps – Assumed to Contain Hazardous Constituents (e.g., fluorescent, compact fluorescent, high-intensity discharge, high-pressure or low-pressure sodium vapor, metal-halide.)	Throughout the Building	~ 68 (+/-) Total	

A2. UW Mercury-Containing Equipment

This category, added to the Federal Rule at 40 CFR 273 on August 5, 2005. It includes devices, items, or articles which contain elemental mercury that is integral to their functions, and which would otherwise be regulated as a hazardous waste when discarded by virtue of exhibiting the toxicity characteristic (TC) for mercury (hazardous waste code D009). Some examples of such items include mercury-containing thermostats (formerly a separate universal waste category in the original rule), thermometers, barometers, mercury switches, and certain types of meters, regulators, and gauges, in which elemental mercury is contained in ampules or otherwise enclosed and can be managed intact. This category does not include cathode ray tubes or other types of electronic equipment in which elemental mercury is not integral to function, nor does it include mercury waste that is generated as a by-product through the process of manufacturing or treatment.


The following table is a general summary of apparent mercury-containing equipment associated with the subject building. Terracon did not disassemble equipment but rather assumed the equipment contained mercury; additional quantities and equipment may be present.

Equipment Description	General Locations	Approximate Quantities	Photo Example(s)
Mercury Containing- Devices, Switches/Thermostats	Throughout the Building	~ 10 (+/-) Total	

A3. Batteries

This UW category includes discarded primary (non-rechargeable) and secondary (rechargeable) batteries that contain elements such as cadmium, lead, or mercury, which would render them as RCRA hazardous wastes. Examples are nickel-cadmium (Ni-Cad), sealed lead-acid, or mercury-oxide batteries. Lead-acid batteries (such as automotive batteries) that are generated, transported, or collected to be reclaimed, or regenerated, but not reclaimed where stored, under provisions of 40 CFR 266, Subpart G, "Spent Lead-Acid Batteries Being Reclaimed," do not need to be managed as UW. However, waste lead-acid batteries not managed, or eligible for management, under 40 CFR 266, Subpart G, are subject to the UW Rule requirements. Lead-acid batteries that are stored at facilities that reclaim them are subject to RCRA regulation as specified in 40 CFR 266.80(b). Many commonly generated waste batteries, such as dry cell zinc-carbon and alkaline ("long life") batteries, typically do not contain appreciable amounts of the hazardous elements of concern, and hence would not be required to be managed as UW. However, they may be managed along with UW batteries, and this is encouraged in the interest of diverting them from less desirable disposal destinies such as incineration or disposal in solid waste landfills.

The following table is a general summary of apparent equipment which is assumed to contain batteries (unknown types) associated with the subject building. Terracon did not disassemble equipment but rather assumed that the equipment contains backup batteries; additional quantities and equipment may be present.


Equipment Description	General Locations	Approximate Quantities	Photo Example(s)
Exit Signs/ Emergency Lights – Assumed to Contain Backup Batteries	Exit Doors, Throughout the Building	~ 5 (+/-) Total	

B. Potential PCB-Containing Equipment

The potential exists for polychlorinated biphenyls (PCBs)-containing ballasts to be present in fluorescent light fixtures throughout the subject building. If ballasts are not marked "No PCB", they must be treated as containing PCBs. In 1978, the U.S. Environmental Protection Agency (EPA) issued a ban on manufacturing equipment using PCBs, which most ballasts manufactured before 1978 contained, due to it being hazardous to both human health and the environment.

PCBs are regulated under the Toxic Substance Control Act (TSCA) through U.S. EPA. The U.S. EPA Region 5 regulates the specifics on proper management of PCBs, as Ohio EPA does not regulate PCBs. If the generator determines that the ballasts do not contain hazardous constituents and do not contain PCBs then they can be disposed of as solid waste; however, they must first be evaluated in accordance with OAC rule [3745-52-11](#) to determine if they are hazardous. If they are hazardous and will be disposed, they must be managed as a hazardous waste and cannot be disposed of in a solid waste dumpster or landfill. The U.S. EPA and state recommendations for management of non-leaking ballasts is recycling (the Ohio EPA maintains a list of ballast recyclers). Ballasts that are leaking and are determined or assumed to contain PCBs must be disposed properly at an EPA-approved facility.

The following table is a general summary of apparent fluorescent light ballasts associated with the subject building. Terracon did not disassemble equipment but rather assumed that light fixtures contained ballasts with no "No PCBs" labels; additional quantities may be present.

Equipment Description	General Locations	Approximate Quantities	Photo Example(s)*
Fluorescent Light Ballasts	Throughout the Building	~ 24 (+/-) Total	

* Not an actual photo from the site, given that light fixtures were not disassembled.

C. Other Items

Hazardous waste is defined in the OAC rule 3745-51-01 and rule 3745-51-02 as:


- Abandoned by being disposed of burned or incinerated, or accumulated, stored, or treat (but not recycled) before or instead of being abandoned by being disposed of, burned, or incinerated.
- A listed hazardous waste.
- A hazardous waste that is listed because it may contain dioxins or dibenzofurans and other toxic constituents and has hazardous waste codes F020, F021, F022, F023, F026, or F028 when it is recycled in any manner.

Observation for Hazardous Material Items Report

Former West Fork Incinerator ■ 3200 Mill Creek Rd., Cincinnati, OH
November 14, 2022 ■ Terracon Project No. N1227040



Fire extinguishers were observed at that site and are assumed to contain hazardous constituents (as indicated above) that would make them hazardous for disposal. The following table presents a summary of fire extinguishers at the subject building (additional quantities and items may be present which weren't readily observable).

Equipment Description	General Locations	Approximate quantities readily observed	Photo Example(s)
Fire Extinguishers	Throughout the Building	~ 6 (+/-) Total	

CONCLUSIONS

Prior to the demolition project, UW items (i.e., lamps, mercury-containing equipment, and batteries), assumed PCB-containing fluorescent light ballasts, and fire extinguishers should be properly removed from the building and considered for re-use if feasible, or otherwise if items have reached their useful "life-span", properly handled and recycled/reclaimed or treated/disposed at a facility which can accept such waste and not placed in a sanitary or construction and demolition debris landfill. The City of Cincinnati may have additional requirements which would need to be followed by the demolition contractor for proper handling and items may need to be turned over directly to the City of Cincinnati.

This letter report has been prepared on behalf of and exclusively for use and reliance by the Client and is not a bidding document. Contractors or consultants reviewing this report must draw their own conclusions regarding whether further investigation or remediation is deemed necessary. Terracon does not warrant the work of regulatory agencies, laboratories, or other third parties supplying information, which may have been used in the preparation of this report. No warranty, express or implied, is made.

Terracon appreciates the opportunity to provide these services to the City of Cincinnati. Please call us at (513) 321-5816 if you have any questions regarding this report.

Sincerely,

Terracon Consultants, Inc.

A handwritten signature in black ink, appearing to read "Joshua Vogel".

Joshua Vogel
Group Manager

A handwritten signature in black ink, appearing to read "Joseph Tussey".

Joseph Tussey, CHMM
Senior Associate