CITY OF SAULT STE. MARIE
REQUEST FOR PROPOSAL
Pumphouse Demolition
B-3-22

The City of Sault Ste. Marie will receive sealed bids in the office of the City Clerk, City Hall - 225 East Portage Ave., Sault Ste. Marie, Michigan 49783, for Pumphouse Demolition.

Sealed bids will be publicly opened at **3pm, on Wednesday, February 9, 2022** in the City Clerk's office.

To order bid documents or for questions regarding the bidding process please contact the City Clerk's Office at (906) 632-5715 or visit www.saultcity.com.

The City reserves the right to reject any and all bids and to waive irregularities in bids and to accept any bids which in the opinion of the City Commission may be most advantageous to the City of Sault Ste. Marie and in accordance with the City's "Award Process" and other bidding documents.

ROBIN R. TROYER MMC, DEPUTY CITY MANAGER

CITY OF SAULT STE. MARIE
REQUEST FOR PROPOSALS
B-3-22
PUMPHOUSE DEMOLITION

SECTION 1 – GENERAL INFORMATION

A. OBJECTIVE

The City of Sault Ste. Marie is requesting proposals for demolition and disposal of the "old pumphouse" building located inside Sherman Park in the City of Sault Ste. Marie.

See Section II, Scope of Services, for a detailed overview.

B. QUESTIONS ABOUT AND CLARIFICATIONS OF THE REQUEST FOR PROPOSAL

All questions regarding this Request for Proposal (RFP) shall be submitted via e-mail. Questions will be accepted and answered in accordance with the terms and conditions of this RFP.

All questions shall be submitted on or before February 2, 2022, and should be addressed to the following:

Sault Ste. Marie Pumphouse Demolition and shall be emailed to ktews@saultcity.com.

Should any prospective respondent be in doubt as to the true meaning of any portion of this RFP, or should the respondent find any ambiguity, inconsistency, or omission therein, the respondent shall make a written request for an official interpretation or correction by the due date for questions above.

All interpretations, corrections, or additions to this RFP will be made only as an official addendum that will be posted to saultcity.com and it shall be the respondent's responsibility to ensure they have received all addenda before submitting a proposal. Any addendum issued by the City shall become part of the RFP and must be incorporated in the proposal where applicable.

C. PRE-PROPOSAL INSPECTION

Pre-proposal inspections may be conducted up to February 2, 2022, at 3 p.m. These pre-proposal inspections are not mandatory but will provide prospective proposers the opportunity to inspect the building, discuss the project with the Water Director, and answer any questions related to the RFP. Any questions and answers furnished in the pre-proposal inspection period will not be official until verified in writing through an addendum.

Pre-proposal inspections may be conducted between 8 a.m. and 4 p.m. with a days' notice before arrival. Please call Kirk Tews at (906) 632-8981 to schedule an appointment.

D. PROPOSAL FORMAT

To be considered, each firm must submit a response to this RFP using the format provided in Section III. No other distribution of proposals is to be made by the respondent. An official authorized to bind the respondent to its provisions must sign the proposal in ink. Each proposal must remain valid for at least one hundred eighty days from the due date of this RFP.

Proposals should be prepared simply and economically providing a straightforward, concise description of the respondent's ability to meet the requirements of the RFP. No erasures are permitted. Mistakes may be crossed out and corrected and must be initialed in ink by the person signing the proposal.

E. SELECTION CRITERIA

The City will open the responses on Wednesday, February 9, 2022 at 3 p.m. and review the proposals. The proposer that meets the qualifications of the RFP and meets goals of the City will be selected.

All proposals submitted may be subject to clarifications and further negotiation. All agreements resulting from negotiations that differ from what is represented within the RFP or in the contractor's response shall be documented and included as part of the final contract.

F. SEALED PROPOSAL SUBMISSION

All proposals are due and must be delivered to the City on or before, February 9, 2022 at 3:00 p.m. (local time). Proposals submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile will not be considered or accepted.

Each respondent must submit in a sealed envelope:

- Two (2) original proposals
- Two (2) copies of the fee proposal

The fee proposal and all cost breakdowns must be separate from the rest of the proposal.

Proposals submitted must be clearly marked: "RFP B-3-22 PUMPHOUSE DEMOLITION" and list the respondent's name and address.

Proposals must be addressed and delivered to:

City of Sault Ste. Marie
c/o Clerks Office
225 E Portage Ave
Sault Ste. Marie, MI 49783

All proposals received on or before the due date will be publicly opened and recorded on the due date. No immediate decisions will be rendered.
Hand delivered proposals must be date/time stamped by the Clerk at the address above in order to be considered. Delivery hours are 9:00 a.m. to 4:00 p.m. Monday through Friday, excluding Holidays.

The City will not be liable to any respondent for any unforeseen circumstances, delivery, or postal delays. Postmarking on the due date will not substitute for receipt of the proposal. Respondents are responsible for submission of their proposal. Additional time will not be granted to a single respondent. However, additional time may be granted to all respondents at the discretion of the City.

G. DISCLOSURES

Under the Freedom of Information Act (Public Act 442), the City is obligated to permit review of its files, if requested by others. All information in a respondent's proposal is subject to disclosure under this provision. This act also provides for a complete disclosure of contracts and attachments thereto.

SECTION II - SCOPE OF SERVICES

A. OBJECTIVE

The City of Sault Ste. Marie is seeking proposals from qualified contractors for demolition and disposal of the Old Pumphouse located inside Sherman Park in the City of Sault Ste. Marie.

The Old Pumphouse served as the main source of drinking water for the City of Sault Ste. Marie from 1905 until 1993. Since, the pumps were shut down the building has remained vacant and vandalized. The City is wishing to demolish the building to eliminate liability issues.

Demolition should include, but is not limited to the following:

- Tear down of the structure
- Transportation of debris to the landfill
- Disposal costs
- Scrapping of all metals
- Removal of Asbestos materials as noted in the hazardous materials survey.
- *City will dispose of chemicals and containers listed in the hazardous materials survey.
- *City will remove and dispose of items stored not related to the pump house.

All vertical surfaces are to be removed. The structure may be torn down to the lowest point leaving the footings and floor of the building in place. All other materials must be removed. The site shall not be filled with demolition materials.

Please list fill and site restoration as a separate item on the proposal.

NOTE: This project is scheduled to begin after Labor Day 2022 and is contingent upon budgetary approval. The proposal price should reflect this time period to the best ability of the contractor. If unable to provide a proposal to meet these requirements please call the Water Director at (906) 632-8981.

B. QUALIFICATIONS

I. GENERAL

A. Contractor Qualifications

1. Contractor must have a demonstrated ability of demolition and disposal of large structures with environmental challenges. This includes a proven track record showing the ability to meet deadlines and provide service and support to fulfill contract terms.
2. Contractor must follow MIOSHA-STD-1316.
3. Contractor must follow demolition guidelines attached to this proposal.

It is the intent of the City to issue a single contract to the selected firm to provide all necessary services and materials according to the specifications contain herein. The contractor will be responsible for adhering to all requirements of the specifications and the performance of all sub-contractor(s) were applicable.

SECTION III - MINIMUM INFORMATION REQUIRED

PROPOSAL FORMAT

Respondents should organize Proposals into the following Sections:

A. Professional Qualifications
B. Past Involvement with Similar Projects
C. Proposed Work Plan
D. Fee Proposal

A. Professional Qualifications

1. State the full name and address of your organization and, if applicable, the branch office or other subsidiary element that will perform, or assist in performing, the work hereunder. Include whether it is licensed to operate in the State of Michigan.

2. Include the name of executive and professional personnel by skill and qualification that will be employed in the work. Qualifications and capabilities of any subcontractors must also be included.

3. State history of the firm, in terms of length of existence, types of services provided, etc. Identify the technical details that make the firm uniquely qualified for this work.

B. Past involvement with Similar Projects

The written proposal must include a list of specific experience with demolition projects and indicate proven ability in implementing similar project for the firm and the individuals to be involved in the project. A complete list of client references may be provided for similar projects recently completed. It shall include the firm/agency name, address, telephone number, project title, and contact person.

C. Proposed Work Plan

Provide a detailed and comprehensive description of how the Respondent intends to provide the services requested in this RFP. This discussion shall include, but not be limited to how the project(s) will be managed and scheduled, inspection details, communication and coordination with the City and the company's general philosophy in regards to providing the requested services.

D. Fee Proposal

Fee proposals shall be clearly identified within attachments by the respondent. If multiple options are included in a single proposal, submit multiple fee proposals and clearly identify the differences.

PROPOSAL EVALUATION

1. The Water Director will review the proposals and select firm for the demolition.

2. The City reserves the right to reject any proposal that it determines to be unresponsive and deficient in any of the information requested for evaluation. A proposal with all the requested information does not guarantee the proposing firm to be the winning candidate. The Water Director may contact references to verify material submitted by the respondents.

3. The Water Director then will schedule interviews with the selected firm if necessary. The selected firm will be given the opportunity to discuss in more detail their proposed work plan and fee proposal.

4. The interview may consist of a presentation by the respondent, including the person who will be the project manager on this contract, followed by questions and answers. Audiovisual aids may be used during the interview.

5. After evaluation of the proposals, further negotiation with the selected firm may be pursued leading to the award of a contract by City Commission, if suitable proposals are received.

The City reserves the right to waive the interview process and evaluate the respondents based on their proposals and fee schedules.

The City will determine whether the final scope of the project to be negotiated will be entirely as described in this RFP, a portion of the scope, or a revised scope.

Work to be done under this contract is generally described through the detailed specifications and must be completed fully in accordance with the contract documents.

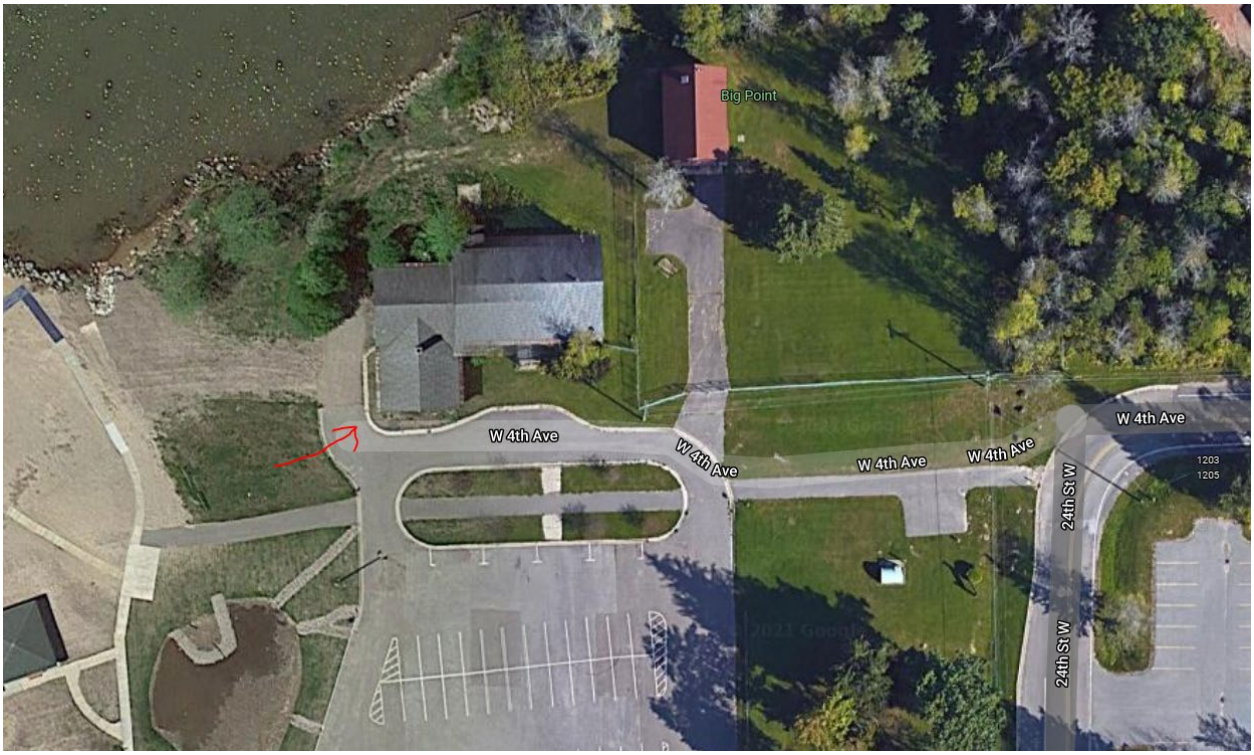
Any proposal that does not conform fully to these instructions may be rejected.

VI. INSURANCE/INDEMNIFICATION

The _____ shall provide general liability and event insurance (during the entire period of the event) per each occurrence in the amount of $1,000,000.00 (one million dollars) and name the City of Sault Sainte Marie as an additional insured on each insurance policy. Auto Liability shall also be included in the amount of $1,000,000 including Hired & Non-Owned. The _____ will provide evidence of Workers Compensation Insurance with statutory coverage afforded for compensation and limits of $500,000 for Employer's Liability. A copy of each insurance certificate on an Accord 25 (2014 or newer edition) shall be provided to the city a minimum of two weeks prior to the event and delivered to the city clerk's office at city hall. Insuring carriers are to hold a "A" or better rating by AM Best and request insuring carrier to be an Admitted Carrier within the state of MI. Waivers of Subrogation and 30 Day Cancelation notices are to be included under all policies in favor of the City. Furthermore, all additional insured endorsements issued in favor of the City are defined as primary and non-contributory for the event regardless of any insurance secured directly by the City or any self-insurance funded or operated by the City. It is the responsibility of the _____ as a party to this agreement, to assure that any separate, third-party concessionaires, exhibitors, or vendors, secure and provide evidence of insurance. The insurance secured by any and all third-party entities must be identical to those coverages demanded of the _____ by the City, including Additional Insured, Waiver, and Primary and Non-contributory provisions. It is understood by all parties that any third-party entities are not party to this agreement, but will still be required to comply with these insurance requirements.

VII. BONDING

Under the Michigan Little Miller Act, any public works project whose total contract amount is $50,000 or more is required to have a payment bond and performance bond posted by the principal contractor. The amount of the payment bond must be at least 25% of the project cost.


Big Point
W 4th Ave
W 4th Ave
W 4th Ave
W 4th Ave
W 4th Ave
24th St W
24th St W
1203
1205

DEMOLITION GUIDELINES

Demolition Site Address _____

Upon applying for a demolition permit within the City of Sault Ste. Marie, please be advised of the following procedures:

1) **The City Engineering Department**, second floor, City Hall, 225 East Portage Avenue, must be notified to assure that permits to work in, or on, the City right-of-way, load limit restrictions, etc. are conformed to. **Telephone (906) 632-5730**

2) **The City Water/Sewer Department**, 1200 E. Easterday Avenue, must be contacted regarding turning off water, removal of metering equipment and inspection of sewer capping in accordance with Department requirements. **Telephone (906) 632-8981**

3) **Cloverland Electric Cooperative**, must be notified prior to starting any demolition work. **Telephone (906) 635-6800**

4) **DTE Energy** must be notified prior to starting demolition work to coordinate the physical disconnection of underground gas lines. (1125 East Easterday Avenue - 632-3330) **Telephone 1-800-533-6220**

5) **AT&T** must be notified at prior to starting demolition work. **Telephone 1-800-288-2020**

6) Prior to undertaking any underground excavating or digging with power equipment, notice of MISS DIG must occur. **MISS DIG Telephone 1-800-482-7171 or 811**

7) The owner or contractor must comply with NESHAP regulations, including written notice of the pending demolition prior to undertaking the work. **EGLE - Environment, Great Lakes & Energy - State of Michigan Telephone 1-800-662-9278**

8) The demolition materials must be removed to a landfill site which is licensed for disposal of such materials.

9) If any asbestos materials are involved, the permit holder must remove and dispose of said asbestos materials in compliance with all applicable State and Federal regulations, including those enforced by the State Department of Environmental Quality, the Michigan Department of Public Health, Michigan Department of Consumer and Industry Services, and the Federal Environmental Protection Agency.
MIOSHA Asbestos Program Telephone (517) 284-7680
EGLE - Environment, Great Lakes & Energy - State of Michigan
1-800-662-9278

10) Care must be taken to ensure that the activities are conducted in such a manner as so to provide for the safety of the public and protection of the adjacent properties.

11) The demolition site is to be restored to a safe and reasonable condition, usually similar to adjoining properties.

This is **not** to be construed as a complete list of the rules regarding demolition, but just an informational listing of the basic minimal requirements when receiving a demolition permit.

I, the undersigned, owner/contractor, am aware of the information in this document.

Signature: _____
Owner/Contractor Date

HAZARDOUS MATERIAL SURVEY

FORMER PUMP HOUSE

SAULT STE. MARIE, MICHIGAN

December 21, 2021

(Date of Survey – December 02, 2021)

Prepared by:
Mackinac Environmental Technology, Inc.
St. Ignace, Michigan

MET Project No: M21-3569

TABLE OF CONTENTS

LIST OF ATTACHMENTS

1.0 INTRODUCTION

Mackinac Environmental Technology, Inc. (MET) conducted a limited asbestos and paint survey of the Former Pump House – Sault Ste Marie (the building). The building is located north of Sherman Park, near the corner of 4th Ave and 24th St W. The surveys, which were conducted on December 02, 2021, included the following:

1. An Asbestos Survey (asbestos survey) conducted in general accordance with Section 12 of the Clean Air Act - National Emission Standards for Hazardous air Pollutants (NESHAP), Part 602 – MIOSHA Asbestos Standard for Construction and Part 305 - MIOSHA Asbestos Standard for General Industry.

2. A Paint Survey conducted in general accordance with MIOSHA Part 603 - Lead Exposure in Construction and Part 309 - Cadmium Exposure in Construction.

A. List of Common Acronyms

- NESHAP: National Emissions Standards for Hazardous Air Pollutants
- MIOSHA: Michigan Occupational Safety and Health Administration
- ACM: Asbestos Containing Material
- SACM: Suspect Asbestos Containing Material
- PACM: Presumed Asbestos Containing Material
- TSI: Thermal System Insulation
- USEPA: United States Environmental Protection Agency
- LBP: Lead-Based Paint
- CBP: Cadmium-Base Paint
- PEL: Permissible Exposure Limit

B. *Limitations and Assumptions*

1. MET made every reasonable attempt to access all areas inside the lab. However, there exists the potential for discovering additional ACM and SACM not addressed by this report during demolition/renovation activities. If additional ACM or SACM is encountered, the subject material must be sampled and/or abated before being further disturbed.

2. Observed roofing materials on the main structure (Area A, B and C) include vinyl shingles, tar paper, and patch. Given the age and size of the structure, additional SACM, not identified in this report, may be present.

3. Roof patch, TSI Air-O-Cell pipe insulation and Transite Board are classified as PACM. Samples were not collected.
   - Additional TSI Air-O-Cell pipe insulation may be located inside walls.

4. Additional paint types, suspect for lead and cadmium may be located on the building. This may include additional paint layers that were not encountered in the samples, discrete areas that would not yield samples and/or additional discrete areas that were not identified/sampled.

C. Description

The single-story, 5,800 square foot (approximately) building was constructed in 1902 (Area A) with two east end additions shortly after (Areas B and C). The masonry structure is constructed over a slab on grade/basement (approximately 3,200 square-feet) and finished with a gable roof.

Exterior Materials:

- Walls: Masonry and brick, caulking around window frames (Area A).
- Windows: 21 exterior windows finished with glazing.
- Roofing: Vinyl shingles and patch. Patch was observed on the roof (roof patch is a PACM).

Interior Materials:

- Walls: Masonry, brick, plaster, drywall.
- Windows: Three interior windows finished with glazing.
- Ceilings: Ceiling board, wood, drywall, tar paper.
- Flooring: Concrete, linoleum remnants in Area A – Kitchen.
- Observed Insulation: Cellulose (attic over Area A). TSI Air-O-Cell on a pipe run in the basement.
- Heating: Ceiling-mounted space heaters. Original system is gone.

2.0 ASBESTOS SURVEY

The asbestos survey was conducted by Edward Radecki, a certified asbestos inspector (#A30041). A copy of his accreditation through the State of Michigan LARA is provided in ***Attachment #1***. The objective of the asbestos survey was to visually assess all functional spaces in the lab to determine the presence of PACM and SACMs. Representative samples of each SACM were collected and analyzed at a contract laboratory to determine whether the sample contains asbestos. An ACM is defined by the USEPA as any material or product which contains more than one-percent (1%) asbestos.

A. Description of Asbestos Survey

MET collected twenty-four bulk samples of SACM. Each sample was placed into an air-tight zip-loc bag and triple bagged prior to shipment to the analytical laboratory for analysis. The samples were submitted to SanAir Technologies Laboratory for polarized light microscopy (PLM) analysis via USEPA Method 600. This effort resulted in the analysis of 54 samples. In addition, three samples received additional analysis using PLM 400 – Point Count to verify 2% results from the standard PLM 600 analysis.

B. Asbestos Survey Findings

HM #	Sample#	SACM	Location	Estimated Quantity	ACM	% ASBESTOS
1	1-ABCDEFG	Ceiling Board	Area A - Ceiling	3,200 ft^2	NO	--
2	2-ABCDEFG	Plaster	Area A - Walls	3,000 ft^2	NO	--
3	3-ABC, 21-ABC	Window Glaze	Area A, B & C – 21 Exterior Windows	10 ft^2 +/-	YES	ND to 2% Chrysotile
			PLM 400 Point Count Verification			0.75% to 1.5% Chrysotile
4	4	Mortar - Chimney	Area C	500 ft^2	NO	--
5	5	Brick - Chimney	Area C		NO	--
6	6-ABC	Window Glaze	Area C – 3 Interior windows	<2 ft^2	NO	--
7	7-ABC	Caulking – Exterior	Area A – around window units	10 ft^2 +/-	YES	3% Chrysotile
8	8	Linoleum	Area A – Kitchen - remnants	48 ft^2	YES	20% Chrysotile
9	9	Brick - A	Area A – Exterior Walls	3,000 ft^2	NO	--
10	10	Mortar – A	Area A – Exterior Walls		NO	--
11	11	Brick – B	Area B – Exterior Walls	1,400 ft^2	NO	--
12	12	Mortar – B	Area B – Exterior Walls		NO	--
13	13	Brick – C	Area C – Exterior Walls	1,800 ft^2	NO	--
14	14	Mortar – C	Area C – Exterior Walls		NO	--
15	15-AB	Shingle – Main Roof	Area A, B & C	8,000 ft^2	NO	--
16	16	Rolled Roofing	Basement bump-out – Area A	48 ft^2	NO	--
17	17-ABC	Drywall & joint compound	Office/RR – Area A	300 ft^2	NO	--
18	18	Tar Paper	Basement bump-out – Area A	48 ft^2	NO	--
19	19	Rolled Roofing – Lean to	Area A – North side	60 ft^2	YES	3% Chrysotile
20	20-AB	Calking/roof patch	Area A – North side (former roof attachment)	1 ft^2	YES	5% Chrysotile
21	22-ABC	Tar Paper	Basement over posts & beams	200 ft^2	NO	--
22	23	Tar Paper - Roof	Area A, B & C	8,000 ft^2	NO	--
23	24-ABCDE	Thin Coat Over Masonry	Lower walls – Interior – All areas	1,800 ft^2	NO	--
24	PACM	Roof Patch	Roof - ABC	30 ft^2 +/-	YES	PACM
25	PACM	TSI Air-O-Cell	Basement	152 LF	YES	PACM
26	PACM	Transite Board	Area B – Interior Window "repair"	8 ft^2	YES	PACM
27	PACM	Fire Door	Entrance between Area A & B	28 ft^2	YES	PACM

HM = Homogeneous Material

- Sample Locations are depicted on Figure 1 – Sample Location Diagram in ***Attachment #2.***
- Photographs depicting conditions are included in ***Attachment #3***.
- A complete copy of the laboratory analytical report is included in ***Attachment #4***.
- A MIOSHA Guidance Sheet that discusses asbestos is included in ***Attachment #6***.

C. Discussion

MET's December 02, 2021 asbestos survey identified asbestos in nine homogeneous materials.

ACM That Requires Attention in Its Current Damaged/Friable Condition

The material is damaged/friable and should not be encountered or disturbed. Retain a licensed asbestos abatement contractor to remove the material, regardless of future renovation or demolition actions.

- HM#25 - TSI Air-O-Cell: This ACM was observed in the basement, running along the perimeter of the basement along the ceiling. In addition, several pieces are located on the floor and a stub was observed running vertically into the concrete ceiling.

ACM That may Become Friable/Damaged if not Properly Handled

These materials may become damaged/friable if they are not properly handled during a renovation or demolition. Removal must be conducted prior to demolition by a licensed asbestos abatement contractor; Repair must be conducted by a licensed asbestos abatement contractor.

- HM#3 - Window Glazing on 21 exterior windows.
- HM#7 – Exterior Caulking around Window Units in Area A.
- HM#8 – Linoleum in Area A Kitchen.
- HM#26 – Transite Board on one interior window in Area B/C.
- HM#27 – Insulation inside a fire-rated door.

ACM Roofing Materials That are Not Friable

None-friable roofing materials can remain on the building during demolition as long as they are handled properly (compliant with MIOSHA's asbestos standards) under the direct supervision of a qualified person (normally a licensed asbestos abatement contractor). Roof maintenance must be conducted by a qualified contractor in compliance MIOSHA's asbestos standards.

- HM#19: Rolled Asphalt/tar roofing on a Lean-To attached to the north side of Area A.
- HM#20: Caulking/Patch from a former structure that was attached to the north side of Area A.
- HM#24: Roof Patch – Main Roof

3.0 PAINT SURVEY

The paint survey was conducted by Seth Monroe, a certified Lead Inspector (P-08924). A copy of his certification card is provided in ***Attachment #1***. The paint survey was conducted to determine if painted surfaces contain lead or cadmium. Lead Based Paint or Cadmium Based Paint is defined as any paint capable of generating an airborne concentration above OSHA's Permissible exposure limit (PEL). Subsequently, any positive detection of lead or cadmium is subject to MIOSHA Regulations.

A. Description of Paint Survey

Representative paint chip samples were collected from 13 discrete surfaces. Sampling was conducted to

ensure that a complete cross-section of the layered paint was collected. The samples were submitted to a contract laboratory for analysis of lead and cadmium by Flame AAS (SW 846 3050B*/7000B).

B. ***Paint Survey Results***

Paint ID #	SAMPLE DESCRIPTION	CADMIUM (PPM)	LEAD (PPM)
P1	Red Brick	1.7	230
P2	Green Door (front)	1.6	23
P3	Green Wood Trim (outside windows)	410	140,000
P4	Green Metal Trim (Eaves)	500	160,000
P5	Blue Door	2.4	1,400
P6	White/Blue Upper Wall	69	17,000
P7	Blue Lower Wall	2.5	850
P8	Red Wall	330	56,000
P9	Yellow Equipment	8.2	79,000
P10	Red Pipe	2.4	22,000
P11	Orange Equipment	1.2	89,000
P12	Dark Green Door Trim (inside)	2.8	2,000
P13	Gray Wood Flooring	300	61,000

PPM = parts per million

- Sample Locations are depicted on Figure 1 – Sample Location Diagram in ***Attachment #2.***
- A complete copy of the laboratory analytical report is included in ***Attachment #5***.
- A MIOSHA Guidance Sheet that discusses lead-based paint are included in ***Attachment #7***.

C. ***Discussion***

MET's December 02, 2021 paint survey identified elevated lead and cadmium levels in all of the paint samples.

1. Provide demolition (or renovation) contractor(s) with a copy of this report and explain that disturbance of paint is subject to compliance with all applicable MIOSHA regulations (i.e. engineering controls, respirator use, air monitoring, etc.).

2. Manage the painted materials in a manner that reduces the potential for dust emissions and dust discharge (i.e. wetted, landfill disposal) to the surrounding surfaces and air.

4.0 OTHER HAZARDOUS & REGULATED MATERIALS

1. Fluorescent Light Fixtures: Several fluorescent light fixtures were observed. Ballasts inside the fixtures are suspect for PCBs; Bulbs are suspect for mercury. The fixtures should be removed and recycled prior to demolition.

2. Regulated Liquids: Numerous containers, ranging in size from 55-gallons to one quart were observed in the building. The liquids must be characterized for proper handling and disposal as a Hazardous Material or a Liquid Industrial By-Product. This includes, but may not be limited to, the following:

- Area B: 55-gallon drum. The drum appears full with obvious staining on the concrete floor around the drum. The drum is not labeled – contents are unknown.
- Area B: Two-gallon gas can. The can is full. Contents are unknown.
- Basement: 55-gallon drum with residual liquids The drum is not labeled – contents are unknown.
- Basement: 55-gallon drum with residual liquids The drum is not labeled – contents are unknown.
- Basement: 30-gallon drum with residual liquids The drum is not labeled – contents are unknown.
- Basement: 30-gallon drum with residual liquids The drum is not labeled – contents are unknown.
- Basement: Numerous containers of Lauryl Tryptose (LST) Broth. According to information provided on the Safety Data Sheet, this chemical is a non-hazardous reagent (See ***Attachment #8*** for the Safety Data Sheet) that requires disposal in a licensed waste disposal facility.
- Basement: Numerous HACH test kits.

5.0 CLOSING

Mackinac Environmental Technology, Inc. appreciates the opportunity to provide these consulting services. If you have any questions regarding this report, please do not hesitate to contact this office.

Sincerely,
Mackinac Environmental Technology, Inc.

Edward Radecki
Project Manager
Asbestos Inspector (#A30041)

Seth Monroe
Certified Lead Inspector – (P-08924)

ATTACHMENT #1

Individual Profile for RADECKI, EDWARD A.

Name and Address

Name

RADECKI, EDWARD A.

Address

P.O. BOX 485 W1357 POINTE LABARBE ROAD
SAINT IGNACE, MI 49781

License Information

Accreditation Type: Inspector

ID#: A30041

Status: Apprvd - Full

Expiration Date: 12/7/2022

Training Expiration Date: 9/10/2022

New Search (/Individual/IndividualSearch)

Back to Top MI.gov (http://www.michigan.gov) Asbestos Program - Verify and Search (/)

Asbestos Program (https://www.michigan.gov/leo/0,5863,7-336-78421_11407_15333_15369---,00.html)

Contact US (https://www.michigan.gov/leo/0,5863,7-336-78421_11407_15333_15369-41708--,00.html)

Policies (http://www.michigan.gov/policies)

Michigan Department of Health and Human Services

Healthy Homes Section

Seth Monroe

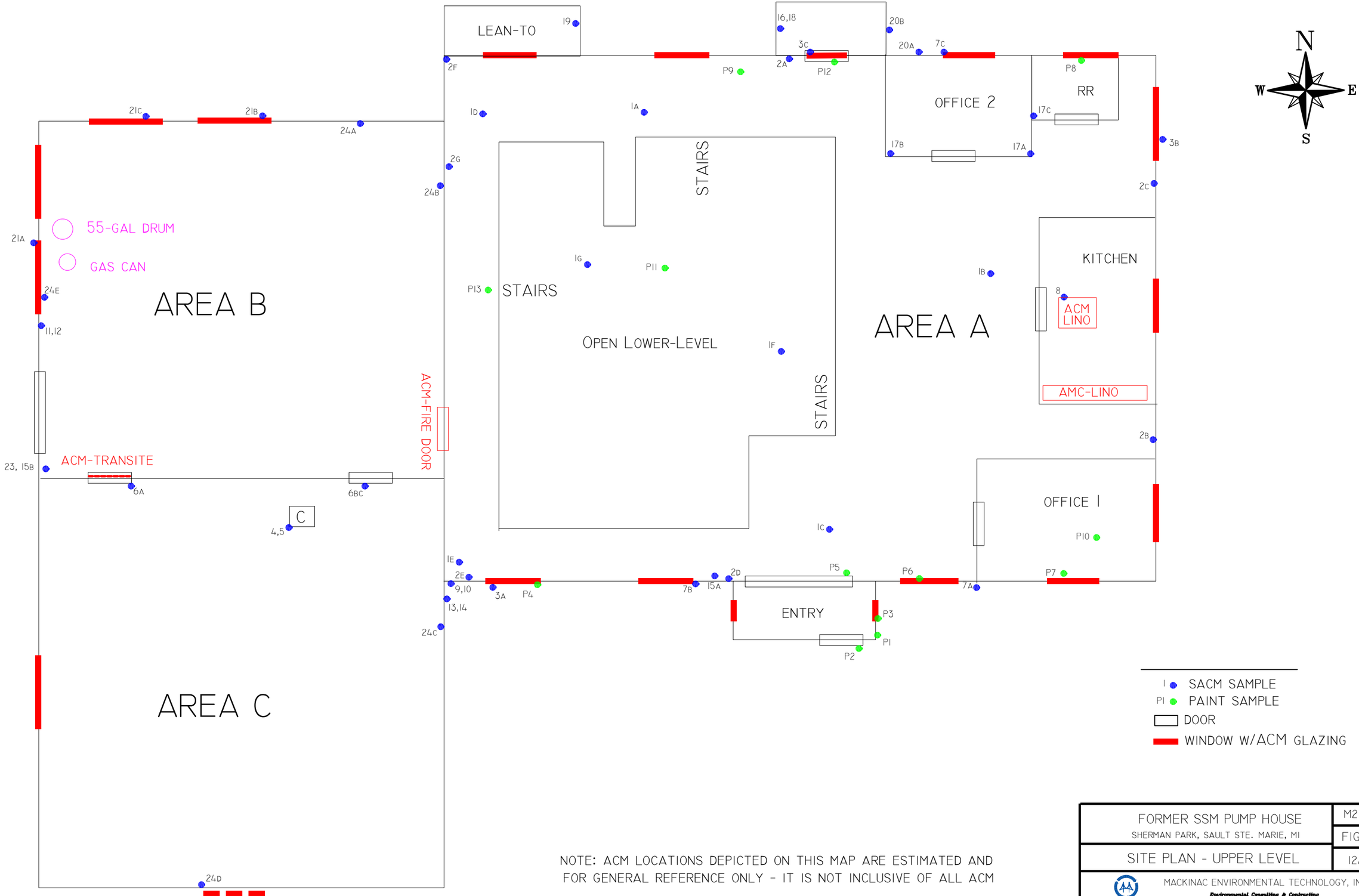
Lead Inspector

Cert. number P-08924

Annual fee due by March 31, 2022

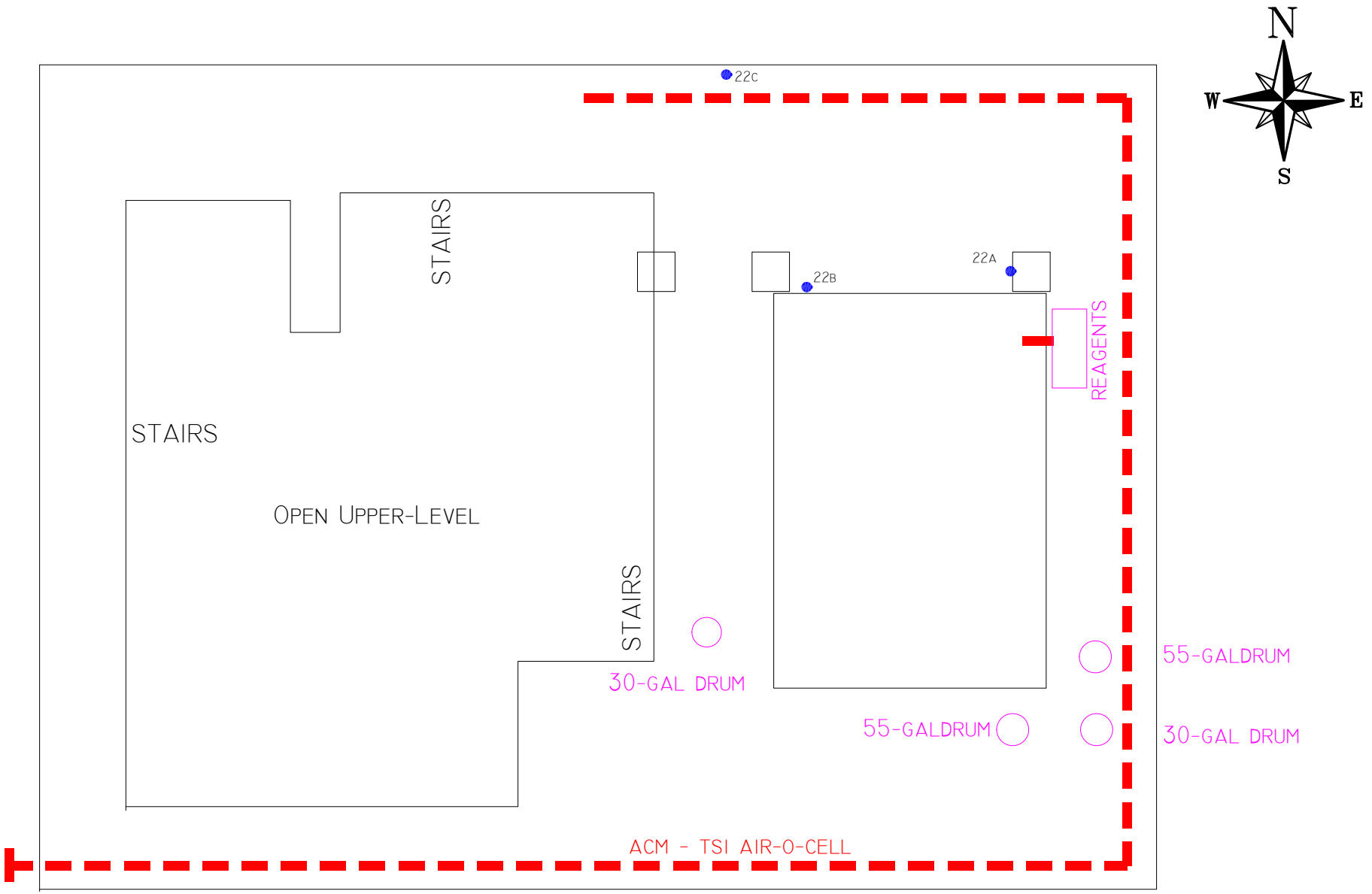
Appropriate refresher training and exam must be taken to renew this certification before March 31, 2024

ATTACHMENT #2



NOTE: ACM LOCATIONS DEPICTED ON THIS MAP ARE ESTIMATED AND FOR GENERAL REFERENCE ONLY - IT IS NOT INCLUSIVE OF ALL ACM

FORMER SSM PUMP HOUSE SHERMAN PARK, SAULT STE. MARIE, MI	M21-3569
SITE PLAN - UPPER LEVEL	FIGURE 1
MACKINAC ENVIRONMENTAL TECHNOLOGY, INC. *Environmental Consulting & Contracting*	12/02/21



NOTE: ACM LOCATIONS DEPICTED ON THIS MAP ARE ESTIMATED AND FOR GENERAL REFERENCE ONLY - IT IS NOT INCLUSIVE OF ALL ACM

FORMER SSM PUMP HOUSE SHERMAN PARK, SAULT STE. MARIE, MI	M21-3569
	FIGURE 1A
SITE PLAN - BASEMENT	12/02/21
MACKINAC ENVIRONMENTAL TECHNOLOGY, INC. *Environmental Consulting & Contracting*	

ATTACHMENT #3

FORMER PUMP HOUSE, SAULT STE. MARIE, MICHIGAN
Photographs by E. Radecki & S. Monroe (December 02, 2021)

1. Former Pump House (Lake-side)

2. Front side (parking lot)

ASBESTOS CONTAINING MATERIALS

3. **HM#3**– Window glazing on 21 exterior windows.

4. **HM#3**– Window glazing on 21 exterior windows.

5. **HM#3**– Window glazing on 21 exterior windows.

6. **HM#7** – Caulking around window frames in area A.

FORMER PUMP HOUSE, SAULT STE. MARIE, MICHIGAN
Photographs by E. Radecki & S. Monroe (December 02, 2021)

ASBESTOS CONTAINING MATERIALS - Continued

7. **HM#7** – Caulking around window frames in area A.

8. **HM#8** – Linoleum – Area A – Kitchen. Remnant on floor.

9. **HM#8** – Linoleum – Area A – Kitchen. Inside cabinet.

10. **HM#19** – Rolled roofing over the "Lean-To".

11. **HM#20:** Caulking/Roof patch – North side of Area A.

12. **HM#24:** Roof Patch

ASBESTOS CONTAINING MATERIALS - Continued

13. **HM#25:** TSI Air-O-Cell. The pipe run is located at the ceiling and runs around the perimeter of the basement

14. **HM#25:** TSI Air-O-Cell. A damaged piece of the insulation on the floor.

15. **HM#25:** TSI Air-O-Cell. The subject pipe run terminates inside the wall (Area C).

16. **HM#25:** TSI Air-O-Cell. The insulation was observed on the basement ceiling (pipe removed). This photograph is from the east side of the basement, under the Kitchen.

17. **HM#26**: Transite Board on the interior window (Area B/C). Note: The window glazing on the three interior windows (HM#6 tested negative for asbestos).

PHOTOGRAPH NOT AVAILABLE

18. **HM#27**: Possible Fire-Rated Door – Area A to Area B. Insulation inside the door is a PACM.

FORMER PUMP HOUSE, SAULT STE. MARIE, MICHIGAN
Photographs by E. Radecki & S. Monroe (December 02, 2021)

MISCELLANEOUS HAZARDOUS/REGULATED MATERIALS

19. Fluorescent Light Fixtures.

20. 55-Gallon Drum and two-gallon Gas Can. The containers are located in Area B. Obvious staining was observed under the 55-gallon drum.

21. Basement: On of the 30-Gallon drums located in the center of the basement.

22. Basement: Two 55-Gallon Drums and the second 30-Gallon Drum - east side of the basement.

23. Hach Kits and Lauryl Tryptose Broth – East side of the basement.

24. Lauryl Tryptose Broth – East side of the basement.

FORMER PUMP HOUSE, SAULT STE. MARIE, MICHIGAN
Photographs by E. Radecki & S. Monroe (December 02, 2021)

PAINT

25. P1: Red Brick
P2: Green Door

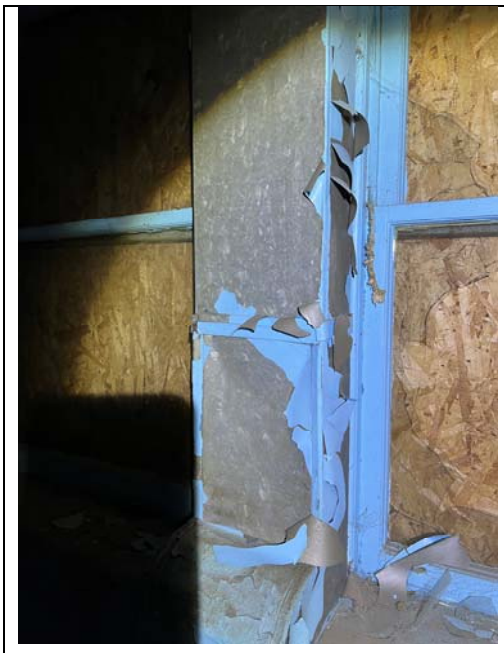
26. P3: Green Window Trim

27. P4: Green Metal Trim (Roof under hang section. This piece was detached from the outside and was accessed inside building.)

P5: Blue Door into plant

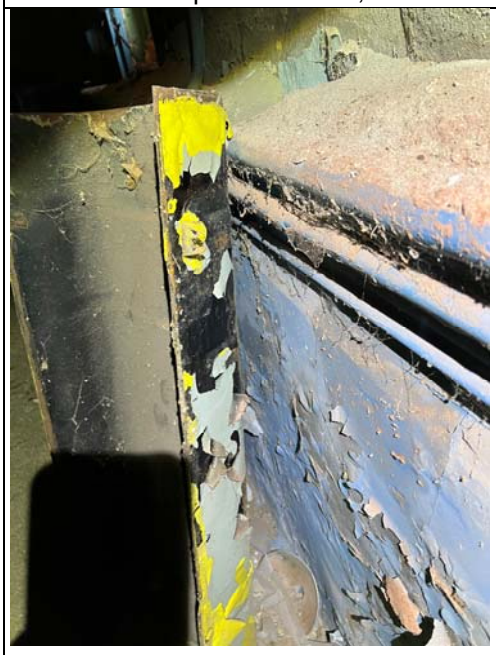
FORMER PUMP HOUSE, SAULT STE. MARIE, MICHIGAN
Photographs by E. Radecki & S. Monroe (December 02, 2021)

28. P6: Upper portion of wall, whitish-blue.



29. P7: Lower portion of wall, Blue.

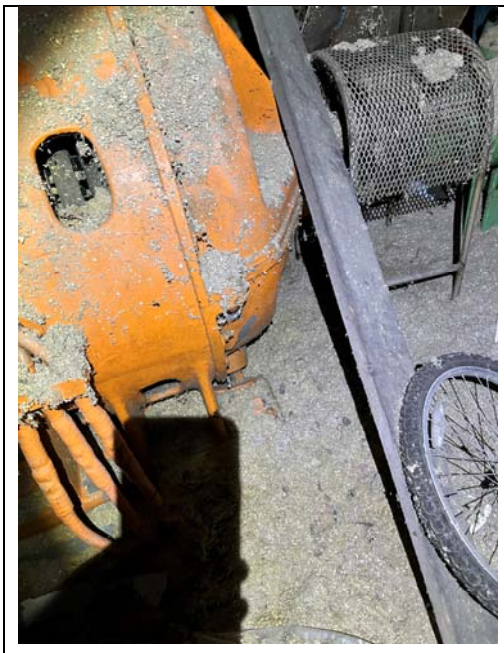
30. P8: Red Wall



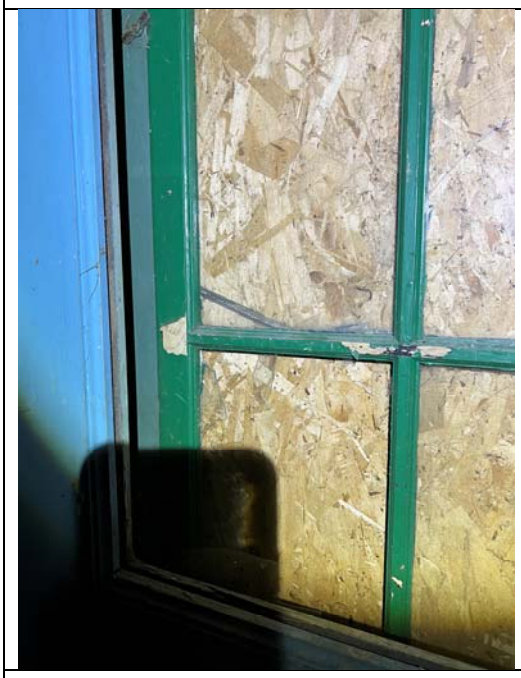
31. P9: Yellow equipment (black under)

FORMER PUMP HOUSE, SAULT STE. MARIE, MICHIGAN
Photographs by E. Radecki & S. Monroe (December 02, 2021)

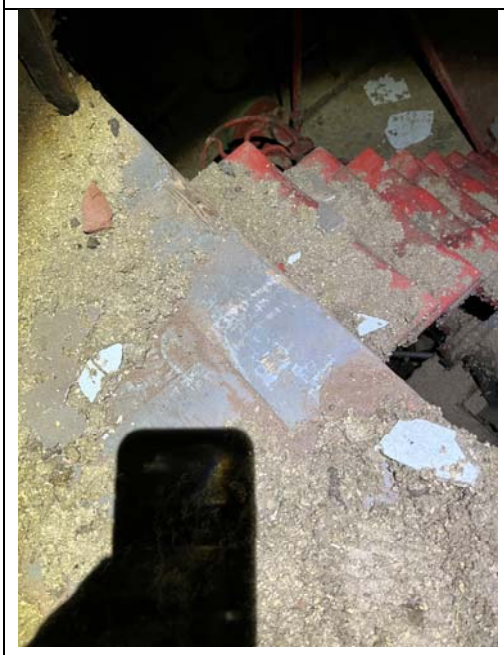
32. P10: Red Pipe



33. P11: Orange equipment



34. P12: Dark Green trim



35. P13: Grey wood floor

ATTACHMENT #4

SanAir Technologies Laboratory

The Identification Specialists

Analysis Report
prepared for
Mackinac Environmental Technology, Inc

Report Date: 12/10/2021

Project Name: Pump House City Of SSM-Amended Report JT

Project #: M21-3569

SanAir ID#: 21075080

NVLAP TESTING

NVLAP LAB CODE 200870-0

10501 Trade Court | North Chesterfield, Virginia 23236
888.895.1177 | 804.897.1177 | fax: 804.897.0070 | IAQ@SanAir.com | SanAir.com

SanAir ID Number
21075080
FINAL REPORT
12/10/2021 10:12:44 AM

Name: Mackinac Environmental Technology, Inc
Address: P.O. Box 485
St. Ignace, MI 49781
Phone: 906-643-9948

Project Number: M21-3569
P.O. Number: M21-3569
Project Name: Pump House City Of SSM-Amended Report JT
Collected Date: 12/2/2021
Received Date: 12/6/2021 9:45:00 AM

Dear Edward Radecki,

We at SanAir would like to thank you for the work you recently submitted. The 54 sample(s) were received on Monday, December 06, 2021 via UPS. The final report(s) is enclosed for the following sample(s): 1A, 1B, 1C, 1D, 1E, 1F, 1G, 2A, 2B, 2C, 2D, 2E, 2F, 2G, 3A, 3B, 3C, 4, 5, 6A, 6B, 6C, 7A, 7B, 7C, 8, 9, 10, 11, 12, 13, 14, 15A, 15B, 16, 17A, 17B, 17C, 18, 19, 20A, 20B, 21A, 21B, 21C, 22A, 22B, 22C, 23, 24A, 24B, 24C, 24D, 24E, 3A, 3B, 3C, 21A, 21B, 21C.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

Sandra Sobrino
Asbestos & Materials Laboratory Manager
SanAir Technologies Laboratory

Final Report Includes:
- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

Sample conditions:
- 60 samples in Good condition.

SanAir Technologies Laboratory

SanAir ID Number
21075080
FINAL REPORT
12/10/2021 10:12:44 AM

Name: Mackinac Environmental Technology, Inc
Address: P.O. Box 485
St. Ignace, MI 49781
Phone: 906-643-9948

Project Number: M21-3569
P.O. Number: M21-3569
Project Name: Pump House City Of SSM-Amended Report JT
Collected Date: 12/2/2021
Received Date: 12/6/2021 9:45:00 AM

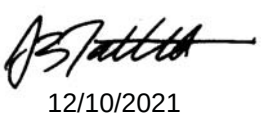
Analyst: Pisula, Nicholas

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
1A / 21075080-001 Ceiling Board - Area A	Grey Non-Fibrous Homogeneous		100% Other	None Detected
1B / 21075080-002 Ceiling Board - Area A	Grey Non-Fibrous Homogeneous		100% Other	None Detected
1C / 21075080-003 Ceiling Board - Area A	Grey Non-Fibrous Homogeneous		100% Other	None Detected
1D / 21075080-004 Ceiling Board - Area A	Grey Non-Fibrous Homogeneous		100% Other	None Detected
1E / 21075080-005 Ceiling Board - Area A	Grey Non-Fibrous Homogeneous		100% Other	None Detected
1F / 21075080-006 Ceiling Board - Area A	Grey Non-Fibrous Homogeneous		100% Other	None Detected
1G / 21075080-007 Ceiling Board - Area A	Grey Non-Fibrous Homogeneous		100% Other	None Detected
2A / 21075080-008 Plaster - Area A	Grey Non-Fibrous Homogeneous		100% Other	None Detected
2B / 21075080-009 Plaster - Area A	Grey Non-Fibrous Homogeneous		100% Other	None Detected
2C / 21075080-010 Plaster - Area A	Grey Non-Fibrous Homogeneous		100% Other	None Detected

Amended Report: Additional Analysis

Analyst: 
Analysis Date: 12/9/2021

Approved Signatory: 
Date: 12/10/2021

SanAir Technologies Laboratory

SanAir ID Number
21075080
FINAL REPORT
12/10/2021 10:12:44 AM

Name: Mackinac Environmental Technology, Inc
Address: P.O. Box 485
St. Ignace, MI 49781
Phone: 906-643-9948

Project Number: M21-3569
P.O. Number: M21-3569
Project Name: Pump House City Of SSM-Amended Report JT
Collected Date: 12/2/2021
Received Date: 12/6/2021 9:45:00 AM

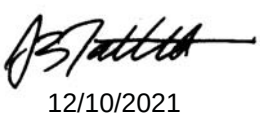
Analyst: Pisula, Nicholas

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
2D / 21075080-011 Plaster - Area A	Grey Non-Fibrous Homogeneous		100% Other	None Detected
2E / 21075080-012 Plaster - Area A	Grey Non-Fibrous Homogeneous		100% Other	None Detected
2F / 21075080-013 Plaster - Area A	Grey Non-Fibrous Homogeneous		100% Other	None Detected
2G / 21075080-014 Plaster - Area A	Grey Non-Fibrous Homogeneous		100% Other	None Detected
3A / 21075080-015 Window Glaze - Area A	Green Non-Fibrous Heterogeneous		100% Other	< 1% Chrysotile
3B / 21075080-016 Window Glaze - Area A	Green Non-Fibrous Homogeneous		100% Other	None Detected
3C / 21075080-017 Window Glaze - Area A	Green Non-Fibrous Homogeneous		98% Other	2% Chrysotile
4 / 21075080-018 Mortar - Chimney	Grey Non-Fibrous Homogeneous		100% Other	None Detected
5 / 21075080-019 Brick - Chimney	Red Non-Fibrous Homogeneous		100% Other	None Detected
6A / 21075080-020 Window Glaze - Area B	Black Non-Fibrous Homogeneous		100% Other	None Detected

Amended Report: Additional Analysis

Analyst: 
Analysis Date: 12/9/2021

Approved Signatory: 
Date: 12/10/2021

SanAir Technologies Laboratory

SanAir ID Number
21075080
FINAL REPORT
12/10/2021 10:12:44 AM

Name: Mackinac Environmental Technology, Inc
Address: P.O. Box 485
St. Ignace, MI 49781
Phone: 906-643-9948

Project Number: M21-3569
P.O. Number: M21-3569
Project Name: Pump House City Of SSM-Amended Report JT
Collected Date: 12/2/2021
Received Date: 12/6/2021 9:45:00 AM

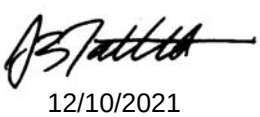
Analyst: Pisula, Nicholas

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
6B / 21075080-021 Window Glaze - Area B	Black Non-Fibrous Homogeneous		100% Other	None Detected
6C / 21075080-022 Window Glaze - Area B	Black Non-Fibrous Homogeneous		100% Other	None Detected
7A / 21075080-023 Caulking - Ext - Area A	Grey Non-Fibrous Homogeneous		97% Other	3% Chrysotile
7B / 21075080-024 Caulking - Ext - Area A				Not Analyzed
7C / 21075080-025 Caulking - Ext - Area A				Not Analyzed
8 / 21075080-026 Linoluem - Kitchen	Green Non-Fibrous Homogeneous		80% Other	20% Chrysotile
9 / 21075080-027 Brick - A	Red Non-Fibrous Homogeneous		100% Other	None Detected
10 / 21075080-028 Mortar - A	Red Non-Fibrous Homogeneous		100% Other	None Detected
11 / 21075080-029 Brick - B	Red Non-Fibrous Homogeneous		100% Other	None Detected
12 / 21075080-030 Mortar - B	Red Non-Fibrous Homogeneous		100% Other	None Detected

Amended Report: Additional Analysis

Analyst: 
Analysis Date: 12/9/2021

Approved Signatory: 
Date: 12/10/2021

SanAir Technologies Laboratory

SanAir ID Number
21075080
FINAL REPORT
12/10/2021 10:12:44 AM

Name: Mackinac Environmental Technology, Inc
Address: P.O. Box 485
St. Ignace, MI 49781
Phone: 906-643-9948

Project Number: M21-3569
P.O. Number: M21-3569
Project Name: Pump House City Of SSM-Amended Report JT
Collected Date: 12/2/2021
Received Date: 12/6/2021 9:45:00 AM

Analyst: Pisula, Nicholas

Asbestos Bulk PLM EPA 600/R-93/116

SanAir ID / Description	Stereoscopic Appearance	Components % Fibrous	% Non-fibrous	Asbestos Fibers
13 / 21075080-031 Brick - C	Red Non-Fibrous Homogeneous		100% Other	None Detected
14 / 21075080-032 Mortar - C	Grey Non-Fibrous Homogeneous		100% Other	None Detected
15A / 21075080-033 Shingle - Main Roof	Black Non-Fibrous Heterogeneous		100% Other	None Detected
15B / 21075080-034 Shingle - Main Roof	Black Non-Fibrous Heterogeneous		100% Other	None Detected
16 / 21075080-035 Rolled Roofing	Black Non-Fibrous Heterogeneous		100% Other	None Detected
17A / 21075080-036 Drywall, Drywall	Grey Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
17A / 21075080-036 Drywall, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
17B / 21075080-037 Drywall, Drywall	Grey Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected
17B / 21075080-037 Drywall, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
17C / 21075080-038 Drywall, Drywall	Grey Non-Fibrous Homogeneous	5% Cellulose	95% Other	None Detected

Amended Report: Additional Analysis

Analyst: [signature]
Analysis Date: 12/9/2021

Approved Signatory: [signature]
Date: 12/10/2021

SanAir Technologies Laboratory

SanAir ID Number
21075080
FINAL REPORT
12/10/2021 10:12:44 AM

Name: Mackinac Environmental Technology, Inc
Address: P.O. Box 485
St. Ignace, MI 49781
Phone: 906-643-9948

Project Number: M21-3569
P.O. Number: M21-3569
Project Name: Pump House City Of SSM-Amended Report JT
Collected Date: 12/2/2021
Received Date: 12/6/2021 9:45:00 AM

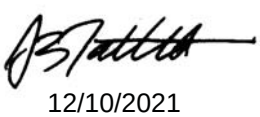
Analyst: Pisula, Nicholas

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
17C / 21075080-038 Drywall, Joint Compound	White Non-Fibrous Homogeneous		100% Other	None Detected
18 / 21075080-039 Tar Paper Under S-16	Black Fibrous Homogeneous	60% Cellulose	40% Other	None Detected
19 / 21075080-040 Rolled Roofing - Lean To	Black Non-Fibrous Homogeneous		97% Other	3% Chrysotile
20A / 21075080-041 Caulking - Former Structure	Black Non-Fibrous Homogeneous		95% Other	5% Chrysotile
20B / 21075080-042 Caulking - Former Structure				Not Analyzed
21A / 21075080-043 Window Glaze - Area B	Grey Non-Fibrous Homogeneous		98% Other	2% Chrysotile
21B / 21075080-044 Window Glaze - Area B	Green Non-Fibrous Homogeneous		100% Other	None Detected
21C / 21075080-045 Window Glaze - Area B	Green Non-Fibrous Homogeneous		100% Other	None Detected
22A / 21075080-046 Tar Paper - Lower Level	Black Fibrous Homogeneous	60% Cellulose	40% Other	None Detected
22B / 21075080-047 Tar Paper - Lower Level	Black Fibrous Homogeneous	60% Cellulose	40% Other	None Detected

Amended Report: Additional Analysis

Analyst: 
Analysis Date: 12/9/2021

Approved Signatory: 
Date: 12/10/2021

SanAir Technologies Laboratory

SanAir ID Number
21075080
FINAL REPORT
12/10/2021 10:12:44 AM

Name: Mackinac Environmental Technology, Inc
Address: P.O. Box 485
St. Ignace, MI 49781
Phone: 906-643-9948

Project Number: M21-3569
P.O. Number: M21-3569
Project Name: Pump House City Of SSM-Amended Report JT
Collected Date: 12/2/2021
Received Date: 12/6/2021 9:45:00 AM

Analyst: Pisula, Nicholas

Asbestos Bulk PLM EPA 600/R-93/116

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
22C / 21075080-048 Tar Paper - Lower Level	Black Fibrous Homogeneous	60% Cellulose	40% Other	None Detected
23 / 21075080-049 Tar Paper - Main Roof	Black Fibrous Homogeneous	60% Cellulose	40% Other	None Detected
24A / 21075080-050 Thin Coat Over Masonry	Grey Non-Fibrous Homogeneous		100% Other	None Detected
24B / 21075080-051 Thin Coat Over Masonry	Grey Non-Fibrous Homogeneous		100% Other	None Detected
24C / 21075080-052 Thin Coat Over Masonry	Grey Non-Fibrous Homogeneous		100% Other	None Detected
24D / 21075080-053 Thin Coat Over Masonry	Grey Non-Fibrous Homogeneous		100% Other	None Detected
24E / 21075080-054 Thin Coat Over Masonry	Grey Non-Fibrous Homogeneous		100% Other	None Detected

Amended Report: Additional Analysis

Analyst: 
Analysis Date: 12/9/2021

Approved Signatory: 
Date: 12/10/2021

SanAir Technologies Laboratory

SanAir ID Number
21075080
FINAL REPORT
12/10/2021 10:12:44 AM

Name: Mackinac Environmental Technology, Inc
Address: P.O. Box 485
St. Ignace, MI 49781
Phone: 906-643-9948

Project Number: M21-3569
P.O. Number: M21-3569
Project Name: Pump House City Of SSM-Amended Report JT
Collected Date: 12/2/2021
Received Date: 12/6/2021 9:45:00 AM

Analyst: Pisula, Nicholas

Asbestos Bulk EPA PLM 400 Point Count

	Stereoscopic	Components		
SanAir ID / Description	Appearance	% Fibrous	% Non-fibrous	Asbestos Fibers
3A / 21075080-055 Window Glaze - Area A	Green Non-Fibrous Heterogeneous		99.5% Other	0.5% Chrysotile
3C / 21075080-057 Window Glaze - Area A	Green Non-Fibrous Homogeneous		98.5% Other	1.5% Chrysotile
21A / 21075080-058 Window Glaze - Area B	Green Non-Fibrous Homogeneous		99.25% Other	0.75% Chrysotile

Amended Report: Additional Analysis

Analyst:

Analysis Date: 12/9/2021

Approved Signatory:

Date: 12/10/2021

Disclaimer

This report is the sole property of the client named on the SanAir Technologies Laboratory chain-of-custody (COC). Results in the report are confidential information intended only for the use by the customer listed on the COC. Neither results nor reports will be discussed with or released to any third party without our client's written permission. The final report shall not be reproduced except in full without written approval of the laboratory to assure that parts of the report are not taken out of context. The information provided in this report applies only to the samples submitted and is relevant only for the date, time, and location of sampling. The accuracy of the results is dependent upon the client's sampling procedure and information provided to the laboratory by the client. SanAir assumes no responsibility for the sampling procedure and will provide evaluation reports based solely on the sample(s) in the condition in which they arrived at the laboratory and information provided by the client on the COC, such as: project number, project name, collection dates, po number, special instructions, samples collected by, sample numbers, sample identifications, sample type, selected analysis type, flow rate, total volume or area, and start stop times that may affect the validity of the results in this report. Samples were received in good condition unless otherwise noted on the report. SanAir assumes no responsibility or liability for the manner in which the results are used or interpreted. This report does not constitute and shall not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any other U.S. governmental agencies and may not be certified by every local, state, and federal regulatory agencies.

Samples are held for a period of 60 days. Fibers smaller than 5 microns cannot be seen with this method due to scope limitations.

For NY state samples, method EPA 600/M4-82-020 is performed.

NYELAP Disclaimer:
Polarized- light microscopy is not consistently reliable in detecting asbestos in floor covering and similar non-friable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos containing.

Asbestos Certifications
NVLAP lab code 200870-0
City of Philadelphia: ALL-460
PA Department of Environmental Protection Number: 68-05397
California License Number: 2915
Colorado License Number: AL-23143
Connecticut License Number: PH-0105
Massachusetts License Number: AA000222
Maine License Number: LB-0075, LA-0084
New York ELAP lab ID: 11983
Rhode Island License Number: PCM00126, PLM00126, TEM00126
Texas Department of State Health Services License Number: 300440
Commonwealth of Virginia 3333000323
Washington State License Number: C989
West Virginia License Number: LT000616
Vermont License: AL166318
Louisiana Department of Environmental Quality: 212253, Cert 05088

Revision Date: 8/14/2020

Disclaimer

The final report cannot be reproduced, except in full, without written authorization from SanAir. Fibers smaller than 5 microns cannot be seen with this method due to scope limitations. The accuracy of the results is dependent upon the client's sampling procedure and information provided to the laboratory by the client. SanAir assumes no responsibility for the sampling procedure and will provide evaluation reports based solely on the sample and information provided by the client. This report may not be used by the client to claim product endorsement by NVLAP, AIHA or any other agency of the U.S. government*; and may not be certified by every local, state and federal regulatory agencies.*

SanAir Technologies Laboratory
1551 Oakbridge Dr. STE B
Powhatan, VA 23139
804.897.1177 / 888.895.1177
Fax 804.897.0070
sanair.com

Asbestos Chain of Custody

Form 140, Rev 1, 1/20/2017

SanAir ID Number: 21075080

Company: Mackinac Environmental Technology, Inc	Project #: M21-3569	Collect by:	
Address: P.O. Box 485	Project Name: Pump House City of Ssm	Phone #: 906-643-9948	
City, St., Zip: St. Ignace, MI 49781	Date Collected: 12-02-21	Fax #: 906-643-9977	
State of Collection: MI Account#: 2649	P.O. Number: M21-3569	Email: met@sault.com	

Bulk

ABB	PLM EPA 600/R-93/116	■
	Positive Stop	☒
ABEPA	PLM EPA 400 Point Count	☐
ABB1K	PLM EPA 1000 Point Count	☐
ABBEN	PLM EPA NOB**	☐
ABBCH	TEM Chatfield**	☐
ABBTM	TEM EPA NOB**	☐
ABQ	PLM Qualitative	☐

** Available on 24-hr. to 5-day TAT

Water

ABHE	EPA 100.2	☐

Air

ABA	PCM NIOSH 7400	☐
ABA-2	OSHA w/ TWA*	☐
ABTEM	TEM AHERA	☐
ABATN	TEM NIOSH 7402	☐
ABT2	TEM Level II	☐
Other:		☐

New York ELAP

PLM NY	PLM EPA 600/M4-82-020	☐
ABEPA2	NY ELAP 198.1	☐
ABENY	NY ELAP 198.6 PLM NOB	☐
ABBNY	NY ELAP 198.4 TEM NOB	☐

Soil

ABSE	PLM EPA 600/R-93/116 (Qual.)	☐

Vermiculite & Soil

ABSP	PLM CARB 435 (LOD <1%)	☐
ABSP1	PLM CARB 435 (LOD 0.25%)	☐
ABSP2	PLM CARB 435 (LOD 0.1%)	☐

Dust

ABWA	TEM Wipe ASTM D-6480	☐
ABDMV	TEM Microvac ASTM D-5755	☐

Matrix	Other	
		☐

Turn Around Times	3 HR (4 HR TEM) ☐	6 HR (8HR TEM) ☐	12 HR ☐	24 HR ☐
	■ 2 Days	☐ 3 Days	☐ 4 Days	☐ 5 Days

Special Instructions

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start – Stop Time*	
1 A	Ceiling Board - Area A					
B	↓					
C						
D						
E						
F						
G	↓					
2 A	Plaster - Area A					
B	↓					
C						
D						
E	↓					

Relinquished by	Date	Time	Received by	Date	Time
[signature]	12-03-21		[signature]	12/6/21	9:45am

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST Friday will begin at 8 am Monday morning. Weekend or holiday work must be scheduled ahead of time and is charged for rush turnaround time. SanAir covers Standard Overnight FedEx shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

2107508O Form 140, Revision 1, 1/20/2017

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start – Stop Time*	
2 F	Plaster					
G	↓					
3 A	Window Glaze - Area A					
B	↓					
C	↓					
4	Mortar - Chimney					
5	Brick - Chimney					
6 A	Window Glaze - Area B					
B	↓					
C	↓					
7 A	Caulking - Ext - Area A					
B	↓					
C	↓					
8	Linoleum - Kitchen					
9	Brick - A					
10	Mortar - A					
11	Brick - B					
12	Mortar - B					
13	Brick - C					
14	Mortar - C					
15 A	Shingle - Main Roof					
B	↓					
16	Rolled Roofing -					
17 A	Drywall					
B	↓					
C	↓					
18	Tar Paper under S-16					
19	Rolled Roofing - Lean to					
20 A	Caulking - Former structure					
B	↓					

Special Instructions	

Relinquished by	Date	Time	Received by	Date	Time
[signature]	12-03-21		SAH	12/6/21	9:45am

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST will be logged in the next business day. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the 3hr TAT or a minimum charge of $150. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Standard Overnight FedEx shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

21075080 Form 140, Revision 1, 1/20/2017

Sample #	Sample Identification/Location	Volume or Area	Sample Date	Flow Rate*	Start – Stop Time*	
21 A	Window Glaze - Area B					
B	↓					
C	↓					
22 A	Tar Paper - lower level					
B	↓					
C	↓					
23	Tar Paper - Main Roof					
24 A	Thin Coat over Masonry					
B	↓					
C	↓					
D	↓					
E	↓					

Special Instructions	

Relinquished by	Date	Time	Received by	Date	Time
[signature]	12-03-21		[signature]	12/6/21	9:43am

If no technician is provided, then the primary contact for your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm EST will be logged in the next business day. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the 3hr TAT or a minimum charge of $150. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Standard Overnight FedEx shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

Page 3 of 3

ATTACHMENT #5

SanAir Technologies Laboratory

Analysis Report

prepared for

Mackinac Environmental Technology, Inc

Report Date: 12/14/2021
Project Name: Pump House - 55M
Project #: M21-3569
SanAir ID#: 21074956

NVLAP LAB CODE 200870-0

Lab ID # 162952

Virginia SBE
Certification # 652931

Texas Licensed Mold Analysis Laboratory
License # LAB0166

SanAir Technologies Laboratory

804.897.1177 www.sanair.com

SanAir Technologies Laboratory, Inc.
10501 Trade Ct., N. Chesterfield, VA 23236
804.897.1177 Toll Free: 888.895.1177 Fax: 804.897.0070
Web: http://www.sanair.com E-mail: iaq@sanair.com

Mackinac Environmental Technology, Inc
P.O. Box 485
St. Ignace, MI 49781

December 14, 2021

SanAir ID # 21074956
Project Name: Pump House - 55M
Project Number: M21-3569

Dear S. Monroe,

We at SanAir would like to thank you for the work you recently submitted. The 13 sample(s) were received on Monday, December 06, 2021 via UPS. The final report(s) is enclosed for the following sample(s): P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13.

These results only pertain to this job and should not be used in the interpretation of any other job. This report is only complete in its entirety. Refer to the listing below of the pages included in a complete final report.

Sincerely,

Abisola Kasali
Metals Laboratory Director
SanAir Technologies Laboratory

Final Report Includes:
- Cover Letter
- Analysis Pages
- Disclaimers and Additional Information

Sample Conditions:
13 sample(s) in Good condition

SanAir Technologies Laboratory
1551 Oakbridge Dr STE B
Powhatan, VA 23139
804.897.1177 / 888.895.1177
Fax 804.897.0070
sanair.com

Metals & Lead Chain of Custody

Form 70, Revision 9, 01/19/2017

SanAir ID Number: 21074956

Company: Mackinac Environmental Technology, Inc	Project #: M21-3569	Phone #: 906-643-9948
Address: P.O. Box 485	Project Name: Pump House - SSM	Phone #:
City, St., Zip: St. Ignace, MI 49781	Date Collected: 12-2-21	Fax #: 906-643-9977
Samples Collected By: S. Monroe	P.O. Number: M21-3569	Email:
Account #: 2649	U.S. State Collected in: MI	Email: met@sault.com

Matrix Types

- ☐ Air (ug/m³)
- ☐ Wipe (ug/ft²)
- ■ Paint ☐ Soil ☐ Bulk (ug/g or ppm)
- ☐ Other:

Metals Analysis Types

- ■ Total Concentration of Lead
- ☐ Total Concentration of RCRA 8 Metals
- ☐ TCLP for Lead
- ☐ TCLP for RCRA 8 Metals
- ■ ICP-total concentration of metals (please list metals): cadmium

Turn Around Time	Same Day ☐	1 Day ☐	2 days ☐	3 Days ☐
	■ Standard (5 day)	☐ Full TCLP (10d)		

Sample #	Collection Date & Time	Sample Identification/Location	Flow Rate	Start Time	Stop Time	Volume (L) Area (Sq ft)
P1	12-2-21	Red Brick				
P2	↓	Green Door				
P3		Green wood trim				
P4		Green Metal trim				
P5		Blue Door				
P6		White/Blue Upper wall				
P7		Blue Lower Wall				
P8		Red Wall				
P9		Yellow Equipment				
P10		Red Pipe 24"				
P11		Orange Equipment				
P12		Dark Green Door trim				
P13	↓	Gray Wood Floor				

Special Instructions

Relinquished by	Date	Time	Received by	Date	Time
[signature]	12-3-21	1200	EA	12/6/21	9:45am

If no technician is provided, then the primary contact of your account will be selected. Unless scheduled, the turnaround time for all samples received after 3 pm will begin at 8 am the next business morning. Weekend or holiday work must be scheduled ahead of time and is charged at 150% of the Rush TAT rate. There is a minimum charge of $100 for weekend work. A courier charge will be applied for same day and one-day turnaround times for offsite work. SanAir covers Standard Overnight FedEx shipping. Shipments billed to SanAir with a faster shipping rate will result in additional charges.

Page ___ of ___

Environmental Hazards Services, L.L.C.
7469 Whitepine Rd
Richmond, VA 23237
Telephone: 800.347.4010

Paint Metals Analysis Report

Client: San Air Technologies
10501 Trade Court
Richmond, VA 23236

Report Number: 21-12-00862

Received Date: 12/07/2021
Reported Date: 12/13/2021

Project/Test Address: 21074956

Client Number:
201219

Laboratory Results

Fax Number:

Lab Sample Number	Client Sample Number	Analyzed Date:	Analyte:	Concentration ppm (mg/kg)	Narrative ID
21-12-00862-001	P1	12/09/2021	Cadmium (Cd)	1.7	
			Lead (Pb)	230	
21-12-00862-002	P2	12/09/2021	Cadmium (Cd)	1.6	
			Lead (Pb)	23	
21-12-00862-003	P3	12/09/2021	Cadmium (Cd)	410	
			Lead (Pb)	140000	
21-12-00862-004	P4	12/10/2021	Cadmium (Cd)	500	
			Lead (Pb)	160000	
21-12-00862-005	P5	12/10/2021	Cadmium (Cd)	2.4	
			Lead (Pb)	1400	
21-12-00862-006	P6	12/10/2021	Cadmium (Cd)	69	
			Lead (Pb)	17000	
21-12-00862-007	P7	12/10/2021	Cadmium (Cd)	2.5	
			Lead (Pb)	850	
21-12-00862-008	P8	12/10/2021	Cadmium (Cd)	330	

Client Number: 201219 **Report Number:** 21-12-00862
Project/Test Address: 21074956

Lab Sample Number	Client Sample Number	Analyzed Date:	Analyte:	Concentration ppm (mg/kg)	Narrative ID
			Lead (Pb)	56000	
21-12-00862-009	P9	12/10/2021	Cadmium (Cd)	8.2	
			Lead (Pb)	79000	
21-12-00862-010	P10	12/10/2021	Cadmium (Cd)	2.4	
			Lead (Pb)	22000	
21-12-00862-011	P11	12/10/2021	Cadmium (Cd)	1.2	
			Lead (Pb)	89000	
21-12-00862-012	P12	12/10/2021	Cadmium (Cd)	2.8	
			Lead (Pb)	2000	
21-12-00862-013	P13	12/10/2021	Cadmium (Cd)	300	
			Lead (Pb)	61000	

Environmental Hazards Services, L.L.C

Client Number: 201219 **Report Number:** 21-12-00862
Project/Test Address: 21074956

Lab Sample Number	Client Sample Number	Analyzed Date:	Analyte:	Concentration ppm (mg/kg)	Narrative ID

Analyst: Kailee Guthrie

Method: Mercury (Hg): EPA SW846 7471B
All other metals: EPA SW846 3050B/6010D

Reviewed By Authorized Signatory:

Tasha Eaddy
QA/QC Clerk

Sample Results denoted with a “less than” (<) sign contains less than the reporting limit for each particular metal, based on a 50mL volume. The reporting limit is 0.10 ug for Mercury, 0.5ug for Cadmium and Beryllium, 1ug for Arsenic and Thallium and 2.5ug for all other metals. To convert metals concentration (ppm) to % by weight, divide the above concentration by 10,000.

The condition of the samples analyzed was acceptable upon receipt per laboratory protocol unless otherwise noted on this report. Results represent the analysis of samples submitted by the client. Unless otherwise noted, samples are reported without a dry weight correction. Sample location, description, area, volume, etc., was provided by the client. If the report does not contain the result for a field blank, it is due to the fact that the client did not include a field blank with their samples. These sample results do not reflect blank correction. This report shall not be reproduced except in full, without the written consent of Environmental Hazards Services, L.L.C. NY ELAP #11714.

LEGEND	ug = microgram	ppm = parts per million
	mL = milliliter	mg/kg = milligrams per kilogram

ATTACHMENT #6

MIOSHA Fact Sheet

Construction Safety & Health Division

Asbestos Exposure in Construction

Asbestos refers to a group of naturally occurring minerals that can separate into microscopic needlelike fibers. The most common forms are Chrysotile, Amosite, and Crocidolite. When released into the atmosphere, the size and shape of the fibers permits them to remain airborne for long periods of time and thus contaminate the environment.

If inhaled, the fibers can cause three specific asbestos-related diseases: Asbestosis (a fibrous scarring of the lungs), Lung Cancer, and Mesothelioma (a cancer of the lining of the chest or abdominal cavity). These diseases do not develop immediately after inhalation of asbestos fibers and typically have a latency period ranging from 15 to 40 years.

Asbestos has been used in more than 3,000 different products over the last 100 years primarily because of its chemical and fire resistant properties. Common products in buildings that contain asbestos include pipe insulation, asphalt, vinyl flooring materials, ceiling tile, spray-on fire proofing, boiler wrap insulation, wall/ceiling decorative plasters, fire doors, and old electrical wire insulation.

Building Owner and Employer/Contractor Responsibilities

The MIOSHA Asbestos for General Industry Standard, Part 305, and the Asbestos Standards for Construction, Part 602, both require pre-1981 building owners to conduct a thorough asbestos building survey. This survey must identify the presence, location and quantity of asbestos-containing material (ACM) and/or presumed asbestos-containing material (PACM) within the building. Pre-1981 materials presumed to contain asbestos include thermal system insulation (e.g., applied to pipes, fittings, boilers, breeching, tanks, ducts, or other structural components to prevent heat loss or gain) and surfacing material (e.g., sprayed, troweled-on, or otherwise applied to surfaces for acoustical, fireproofing, or other purposes). It also includes asphalt and vinyl flooring materials. The only way a contractor can rebut the designation of PACM is by having material sampling and laboratory analysis performed in accordance with Part 602, 1926.1101 (k)(5). Once the building has been determined to have ACM/PACM, a contractor working in the facility must assess whether their work may require them to disturb or remove these materials during renovation/demolition activities. If so, they must comply with applicable work practices and procedures in Part 602. Contractors removing or encapsulating friable ACM/PACM may require licensing under the Michigan Asbestos Abatement Contractor Licensing Act (Act 135, P.A. 1986, as amended).

How to Avoid Hazards

Pre-job planning is vital to a safe and healthy workplace. The following concerns must be addressed before work begins:

- Provide asbestos awareness training annually for all employees who may contact ACM/PACM. A key element of this training is to teach employees to recognize materials that may contain asbestos.
- Obtain a copy of the asbestos building survey prior to initiating work in the facility.
- Verify that all suspect ACM that employees will disturb has been tested and confirmed to be non-ACM (i.e., cross check with the asbestos building survey).
- Be aware of other contractors on-site and their work activities that may disturb ACM/PACM.

- Ensure that a Michigan licensed abatement contractor performs asbestos removal work with properly accredited employees.

Asbestos Regulations Summary

MIOSHA Regulations Part 305 and Part 602:

- Requires an asbestos building/facility inspection in pre-1981 buildings.
- Obligates the building/facility owner to notify immediate employees and contractors working in facility of asbestos building/facility survey results.
- If the building survey is not available, obligates contractors/employers to presume suspect materials contain asbestos until a proper rebuttal through material sampling/analysis is performed.
- Specifies required work practices, protective equipment and procedures for employees removing and/or disturbing ACM and/or PACM.
- Requires asbestos awareness training for employees who may contact but not disturb ACM and/or PACM. Training focuses on building materials that may contain asbestos to help assure that the building survey identified these materials and to prevent unintended disturbances.

Michigan Public Act 135 of 1986 (as amended), Asbestos Abatement Contractor Licensing Act:

- Requires contractors removing or encapsulating friable ACM on another person's property to be a licensed Asbestos Abatement Contractor. Contractors that are Michigan licensed as plumbers, electricians, residential builders, residential maintenance and alteration contractors, or mechanical contractors are exempt from the asbestos abatement contractor licensing requirements if the asbestos abatement work they are performing is incidental to their primary licensed trade and does not exceed 260 linear feet or 160 square feet of friable material.
- Requires the contractor to provide a 10-day project notification to the Department of Licensing and Regulatory Affairs' (LARA) Asbestos Program for projects exceeding 10 linear feet or 15 square feet, or both, of friable asbestos materials.
- Requires contractors to perform clearance air monitoring at the completion of asbestos abatement projects involving a negative pressure enclosure.
- Authorizes penalties and fines for violations of the Act.
- Authorizes suspension, revocation, and denial of an asbestos abatement contractor's license.

Michigan Public Act 440 of 1988 (as amended), Asbestos Workers Accreditation Act:

- Requires persons who perform asbestos-related work in schools, school buildings, and public and commercial buildings to be properly trained and accredited through the MIOSHA Asbestos Program, before performing the work (i.e., asbestos abatement workers, contractor/supervisors, building inspectors, management planners, and project designers).
- Requires trainers who train asbestos abatement workers, contractor/supervisors, building inspectors, management planners, and project designers in Michigan to be approved by the MIOSHA Asbestos Program before providing the training.
- Authorizes penalties and fines for violations of the Act.
- Authorizes the suspension, revocation, or denial of accreditation and trainer approval.

For further information concerning asbestos related issues, contractor licensing, or worker accreditation in the State of Michigan, please visit the Asbestos Program website.

ATTACHMENT #7

MIOSHA Fact Sheet

Construction Safety & Health Division

Lead Exposure in Construction

Lead is a soft bluish-gray metal in its elemental state that is commonly found as an additive in many construction materials. Such materials include but are not limited to: paint, welding wire, solders used for soldering tinplate and copper pipe joints, tank linings and electrical conduit. The Consumer Product Safety Commission has banned the use of lead-based paint in residences. However, because lead-based paint inhibits the rusting and corrosion of iron and steel, lead continues to be used on bridges, railways, ships, lighthouses and other steel structures. Employee exposures to lead can occur during the demolition, or salvage of structures, during the removal or encapsulation of lead-containing materials, and during new construction, alteration, repair, or renovation of structures that contain lead or lead-containing materials.

Overexposures to lead are commonly found in the construction industry and are a significant cause of illness in the workplace. Exposure to lead can occur through inhalation (breathing), ingestion (eating), and in the case of certain organic lead compounds not covered by the construction standard, absorption through the skin. Employee exposure to lead can result in both acute (short term) and chronic (long term) health effects. Such health effects include insomnia, constipation, nausea, encephalopathy or damage to the central nervous system, anemia, and kidney disease. Exposure can also result in damage to both the male and female reproductive systems (e.g., decreased fertility, sterility, impotence, miscarriage, and still birth). If an employee does not receive proper medical treatment for these conditions, and the exposures to lead continue unchecked, these health effects can become permanent, and may even result in death.

Employer Responsibilities

The MIOSHA Part 603 Lead Exposure in Construction Standard applies to all construction work operations where an employee may be occupationally exposed to lead. Any employer who has a workplace or operation that is covered by the standard is required to initially determine if employees are exposed to lead at or in excess of the eight-hour Action Level of 30 ug/m^3 (micrograms per cubic meter of air). If the work operations include tasks such as spray painting with lead paint, or manual demolition of structures, manual sanding, heat gun applications, power tool cleaning, lead burning, rivet busting, abrasive blasting, welding, cutting, torch burning, cleanup activities where dry expendable abrasives are used or abrasive blasting enclosure movement and removal, where lead coatings or paint are present, the employer is required to provide the affected employees with appropriate interim protection (i.e., respiratory protection, personal protective clothing, change areas, hand washing facilities, biological monitoring, and training) until such time that employee exposures have been determined.

Many of the standard's provisions are triggered by the level of employee exposure to lead. Employee exposures that are at or in excess of the action level, but less than the eight-hour Permissible Exposure Limit (PEL) of 50 ug/m^3, require that the employer implement routine air monitoring, medical surveillance, housekeeping, and training. Employee exposures in excess of the PEL require additional actions by the employer including, routine air monitoring, methods of complying with the PEL, the use of respiratory protection, the use of protective work clothing and equipment, housekeeping practices, hygiene facilities (i.e. change areas, shower and hand washing facilities, and eating facilities), medical surveillance and medical removal protection, employee information and training, warning signs, and record keeping.

Medical surveillance and medical removal protection is based on the blood lead level (BLL) measured in micrograms of lead per deciliter of blood (µg/dL). New MIOSHA rules (effective December 11, 2018) require that employees be removed from lead exposure when their BLL reaches 30 µg/dL and may not return to work involving lead exposure until their BLL is below 15 µg/dL. Former MIOSHA rules allowed workers to have BLLs of 50 µg/dL before they had to be removed from lead exposure. Under the former rules, workers could return to work when their BLL was below 40 µg/dL. The average BLL in the general population is 1.12 µg/dL.

How to Avoid Hazards

When employees are exposed above the PEL, the employer must develop a compliance program that includes engineering and work practice controls. The best way to prevent over-exposure to lead is to install and maintain engineering controls to eliminate or reduce the hazard. Examples of engineering and other controls include:

- Conduct bulk material analysis to determine if lead is present.
- Provide interim protection until air monitoring determines exposure levels.
- Use exhaust ventilation and dust collection systems. For example, power tools used for grinding surfaces coated with lead containing paint can be equipped with dust collection systems. Use local exhaust ventilation where feasible.
- Do not dry sweep or use compressed air to clean work areas contaminated with lead materials; use wet methods or a vacuum equipped with a high efficiency particulate (HEPA) filter.
- Comply with all requirements of Part 603 with regard to air monitoring, compliance program, use of protective work clothing and equipment, housekeeping, hygiene facilities, medical surveillance and medical removal protection, employee information and training, warning signs, and record keeping.
- If engineering and work practice controls cannot be used or do not reduce exposure to an acceptable level, then the employer must provide respiratory protection. The type of respiratory protection required is based on the level of exposure determined by air monitoring. The minimum recommended respirator required is a half mask, air-purifying respirator with HEPA filters. Remember, the employer must then implement a respiratory protection program as required by MIOSHA Part 451, Respiratory Protection.
- If respirators are used to protect employees, then a regulated area should be established to prevent unprotected employees from entering the exposure area.

For additional information regarding the hazards of lead and the measures that can be implemented to protect employees from exposure, you can visit the following web sites at:

OSHA, Safety and Health Topics, Construction - Lead
NIOSH, Preventing Lead Poisoning in Construction Workers
NIOSH, Protecting Workers Exposed to Lead-Based Paint Hazards

MIOSHA Fact Sheet

Construction Safety & Health Division

Cadmium Exposure in Construction, General Industry, & Agriculture

MIOSHA, Part 309, Cadmium applies to construction, and general industry/ agricultural operations. Some of the rules and sub rules apply only to one area or the other. ***Therefore, a careful review of the standard is necessary.*** The following requirements apply to both areas unless otherwise designated.

Cadmium is a toxic metal commonly found in both manufacturing and construction workplaces. In its elemental form, cadmium is either a blue-white metal or a grayish-white powder found in lead, copper, and zinc sulfide ores. Due to its low permissible exposure limit (PEL), overexposures may occur even in situations where only trace quantities of cadmium are found.

Cadmium is found in some industrial paints and may represent a hazard when sprayed. Operations involving removal of cadmium paints by scraping or abrasive blasting may also pose a significant hazard. Cadmium emits a characteristic brown fume (CdO) upon heating, which is relatively non-irritating, and thus does not alarm the exposed individual.

A primary use of cadmium is as an anti-corrosive. It may be found in anti-fouling or anti-rust paints and is sometimes electroplated onto steel, nuts, bolts and rivets. Cadmium may also serve as an electrode component in alkaline batteries and may be used in alloys, silver solders and welding. Welding on cadmium-containing alloys or working with silver solders containing cadmium can unsuspectingly cause acute illness.

When paint chip samples are submitted to the MIOSHA laboratory for lead analysis, a multiple metal-scan that includes analysis for cadmium is performed. If cadmium is detectable, the applicable rules of Part 309, Cadmium must be addressed.

Health Effects:

Acute (short term)— Metal fume fever may result from acute exposure with flu-like symptoms of weakness, fever, headache, chills, sweating and muscular pain. Acute pulmonary edema usually develops within 24 hours and reaches a maximum by three days. If death from asphyxia does not occur, symptoms may resolve within a week.

Chronic (long term) — the most serious consequence of chronic cadmium poisoning is cancer (lung and prostate). The first observed chronic effect is generally kidney damage, manifested by excretion of excessive (low molecular weight) protein in the urine. Cadmium also is believed to cause pulmonary emphysema and bone disease (osteomalacia and osteoporosis). Cadmium exposure may also cause anemia, teeth discoloration and loss of smell (anosmia).

Employer Responsibilities:

Manufacturing operations that use or produce materials or products containing cadmium must assess exposure to cadmium. Construction or maintenance activities that may result in exposure to cadmium include, but are not

limited to, demolition, renovation and salvaging structures where cadmium or cadmium-containing materials are present; cutting, brazing, grinding, or welding on surfaces that are painted or coated with cadmium-containing compounds; and transporting, storing, and disposing of cadmium or cadmium-containing materials on site or location at which construction activities are performed.

Following are requirements of Part 309; many are triggered by the level of employee exposure to cadmium:

- An employer whose workplace or work operation involves cadmium in any way must determine if any employee may be exposed to cadmium at or above the Action Level (AL) of 2.5 micrograms per cubic meter of air (µg/m3). An employer must identify which employees potentially are exposed to cadmium at or above the AL and must conduct exposure monitoring to determine what the exposure levels are.
- *In construction*, before performing work where employees may be exposed to cadmium, an employer must establish the applicability of the rules by determining whether cadmium is present in the workplace. The employer must designate a competent person to make this determination. A "competent person" means a person who is designated by an employer to act on the employer's behalf, who is capable of identifying existing and potential cadmium hazards in the workplace and the proper methods to control the hazards to protect workers, and who has the authority necessary to take prompt corrective measures to eliminate or control such hazards.
- All employees who may be exposed to cadmium must be provided training in accordance with the standard.
- When employee exposures are determined to be at or in excess of the AL, the employer must implement periodic air monitoring [see Part 309, Rule 5 (5) & (6)].
- Employee exposures in excess of the PEL of 5 µg/m3 require additional actions including, the establishment of regulated areas with warning signs, the application of engineering and work practice controls, the implementation of a written compliance program, the use of respiratory protection, the use of protective work clothing and equipment, and the use of hygiene facilities (i.e., change areas, shower and hand washing facilities, and eating facilities).
- Medical surveillance is required for employees exposed above the AL for 30 or more days per year.
- *In construction*, Part 309, Rule 18 delineates additional requirements for medical monitoring for employees who perform any of the tasks specified in Rule 18(2)(b)(i-ix) for 30 or more days during a 12 consecutive month period.

How to Avoid Hazards

When employees are exposed above the PEL, the employer must develop a compliance program that includes engineering and work practice controls. The best way to prevent over-exposure to cadmium is to install and maintain engineering controls to eliminate or reduce the hazard. Examples of engineering and other controls include:

- Conduct bulk material analysis to determine if cadmium is present.
- Provide interim protection (i.e., respirator and protective equipment, gloves, coveralls, etc.) until air monitoring determines exposure levels.
- Use exhaust ventilation and dust collection systems. For example, power tools used for grinding surfaces coated with cadmium containing paint can be equipped with localized exhaust ventilation dust collection systems.
- Do not dry sweep or use compressed air to clean work areas contaminated with cadmium materials; use wet methods or a vacuum equipped with a high efficiency particulate (HEPA) filter.

- Comply with all requirements of Part 309 with regard to air monitoring, regulated areas, compliance program, use of protective work clothing and equipment, housekeeping, hygiene facilities, medical surveillance and medical removal protection, employee information and training, warning signs, and record keeping.
- If engineering and work practice controls are not effective in reducing exposure to an acceptable level, then the employer must provide respiratory protection. The type of respiratory protection required is based on the level of exposure determined by air monitoring. The minimum respirator required is a half mask, air-purifying respirator with HEPA filters. When respirators are used, the employer must then implement a respiratory protection program as required by **MIOSHA Part 451, Respiratory Protection.**

For additional information regarding the hazards of Cadmium, please contact the Construction Safety and Health Division at 517-322-1856, the General Industry Safety & Health Division at 517-322-1831, or the Consultation Education and Training Division at 517-322-1809. MIOSHA Standards can be viewed on the MIOSHA website at www.michigan.gov/mioshastandards.

Additional information regarding the hazards of cadmium and measures that can be implemented to protect employees is available on the following web sites:

http://www.osha.gov/doc/outreachtraining/htmlfiles/cadmium.html
http://www.cdc.gov/niosh/topics/cadmium

ATTACHMENT #8

SAFETY DATA SHEET

according to 29 CFR 1910.1200 and GHS

Lauryl Tryptose (LST) Broth

Revision 1
Revision date 2019-05-08

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name	Lauryl Tryptose (LST) Broth
Product code	NCM0032, LAB196, 7323, 7324

1.2. Relevant identified uses of the substance or mixture and uses advised against

Product Use	[SU3] Industrial uses: Uses of substances as such or in preparations at industrial sites; [PROC15] Use as laboratory reagent;

1.3. Details of the supplier of the safety data sheet

Company	Neogen Corporation
Address	620 Lesher Place Lansing MI 48912 USA
Web	www.neogen.com
Telephone	517-372-9200/800-234-5333
Email	SDS@neogen.com

1.4. Emergency telephone number

Emergency telephone number	1-800-234-5333

Further information

Manufactured By:	Neogen Corporation 740 East Shiawassee Lansing, MI 48912 U.S.A. Neogen Corporation 1 Quest Park-Moss Hall Road Heywood Lancashire BL97JJ UK.
Hotline(s):	Medical: United States (1-800-498-5743), International (1-651-523-0318). Spill/CHEMTREC: United States (1-800-424-9300), International (1-703-527-3887).

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

2.1.2. Classification - GHS	The product is classified as non hazardous.

2.2. Label elements

Hazard Statements	P101 - If medical advice is needed, have product container or label at hand. P102 - Keep out of reach of children. P501 - Dispose of contents/container to an appropriate waste site or reclaim (in accordance with local/regional/national/international regulation). No Significant Hazard

Lauryl Tryptose (LST) Broth

2.3. Other hazards

Other hazards	This product is not identified as a PBT substance.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

EC 1272/2008

Chemical Name	Index No.	CAS No.	EC No.	REACH Registration Number	Conc. (%w/w)	Classification
Sodium Dodecyl Sulphate		151-21-3	205-788-1		0 - 0.5%	Flam. Sol. 2: H228; Acute Tox. 4: H302+H332; Skin Irrit. 2: H315; Eye Dam. 1: H318; STOT SE 3: H335; Aquatic Acute 2: H401; Aquatic Chronic 3: H412;

Full text for all Risk Phrases mentioned in this section are displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	In case of accident by inhalation: remove casualty to fresh air and keep at rest.
Eye contact	Contact lenses should be removed. Rinse immediately with plenty of water for 15 minutes holding the eyelids open.
Skin contact	After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water.
Ingestion	Keep the affected person warm and at rest. DO NOT INDUCE VOMITING unless advised to do so by a doctor. Rinse mouth thoroughly.

4.2. Most important symptoms and effects, both acute and delayed

Inhalation	May cause irritation to respiratory system.
Eye contact	May cause irritation to eyes.
Skin contact	May cause irritation to skin.
Ingestion	Ingestion may cause nausea and vomiting.

4.3. Indication of any immediate medical attention and special treatment needed

Inhalation	Seek medical attention if irritation or symptoms persist.
Eye contact	Seek medical attention if irritation or symptoms persist.
Skin contact	Seek medical attention if irritation or symptoms persist.
Ingestion	If you feel unwell, seek medical advice (show the label where possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Use as appropriate: Carbon dioxide (CO_2), Alcohol resistant foam, Powder.

5.2. Special hazards arising from the substance or mixture

Burning produces irritating, toxic and obnoxious fumes.

5.3. Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Wear suitable respiratory equipment when necessary. Wear suitable protective clothing, gloves and eye/face protection.

SECTION 6: Accidental release measures

Lauryl Tryptose (LST) Broth

6.1. Personal precautions, protective equipment and emergency procedures

	No precautions required to be mentioned.

6.2. Environmental precautions

	Do not empty into drains; dispose of this material and its container in a safe way.

6.3. Methods and material for containment and cleaning up

	Avoid raising dust. Sweep up. Dispose of in compliance with all local and national regulations.

6.4. Reference to other sections

	See section 8 & 13 for further information.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

	Do not eat, drink or smoke in areas where this product is used or stored. Wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

	Store at temperatures between 2 °C and 30 °C. Keep only in the original container. Keep container tightly closed and dry. Protect from moisture.

7.3. Specific end use(s)

	See section 1.2 for further information.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

	Exposure above the recommended occupational exposure limit (OEL) may cause adverse health effects.

8.2. Exposure controls

Appropriate engineering controls	Ensure adequate ventilation of the working area.
Individual protection measures	Not normally required. Use as appropriate:.
Eye / face protection	safety glasses with side-shields.
Skin protection - Hand protection	Chemical resistant gloves.
Skin protection - Other	Wear suitable protective clothing.
Respiratory protection	Do not breathe dust. In case of insufficient ventilation, wear suitable respiratory equipment.
Thermal hazards	No data is available on this product.
8.2.3. Environmental exposure controls	Avoid release to the environment. Refer to special instructions/Safety data sheets. See section 7 for further information.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Lauryl Tryptose (LST) Broth

9.1. Information on basic physical and chemical properties

State	Powder
Color	Beige
Odor	Characteristic
Flash point	Not applicable.
Evaporation rate	No data available
Flammability limits	Not applicable.
Vapor pressure	Not applicable.
Vapor density	Not applicable.
Relative density	No data available
Fat Solubility	No data available
Partition coefficient	No data available
Autoignition temperature	Not applicable.
Viscosity	No data available
Explosive properties	Not applicable.
Oxidising properties	Not applicable.
Odour threshold	Not applicable.
pH	6.6 - 7
Melting point	No data available
Freezing Point	No data available
Boiling point	No data available
Solubility	Soluble in water

9.2. Other information

Conductivity	No data available
Surface tension	No data available
Gas group	Not applicable.
Benzene Content	No data available
Lead content	No data available
VOC (Volatile organic compounds)	No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Stable under normal conditions. See section 7 for further information.

10.2. Chemical stability

Will not decompose if stored and used as recommended.

10.3. Possibility of hazardous reactions

No precautions required to be mentioned. Stable under normal conditions.

10.4. Conditions to avoid

No precautions required to be mentioned.

10.5. Incompatible materials

No precautions required to be mentioned.

10.6. Hazardous decomposition products

Carbon oxides, Organic materials may be formed in fire conditions. Fire will produce dense black smoke.

Lauryl Tryptose (LST) Broth

Revision 1
Revision date 2019-05-08

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	No data is available on this product. See section 3 for further information.
Skin corrosion/irritation	May cause irritation to skin. See section 3 for further information.
Serious eye damage/irritation	May cause irritation to eyes. See section 3 for further information.
Respiratory or skin sensitisation	May cause sensitization by inhalation and skin contact. See section 3 for further information.
Germ cell mutagenicity	No data is available on this product.
Carcinogenicity	No data is available on this product.
Reproductive toxicity	No data is available on this product.
STOT-single exposure	No data is available on this product.
STOT-repeated exposure	No data is available on this product.
Aspiration hazard	No data is available on this product. See section 3 for further information.
Repeated or prolonged exposure	No data is available on this product. See section 3 for further information.

11.1.2. Mixtures

See section 3 for further information.

11.1.3. Hazard Information

See section 3 for further information.

11.1.4. Toxicological information

No data available

No data is available on this product.

11.1.5. Hazard Class

No Significant Hazard.

11.1.6. Classification Criteria

Not applicable.

11.1.7. Information on likely routes of exposure

Skin contact. Inhalation.

11.1.8. Symptoms related to the physical, chemical and toxicological characteristics

No data is available on this product.

11.1.9. Delayed and immediate effects as well as chronic effects from short and long-term exposure

No data is available on this product.

11.1.10. Interactive effects

No data is available on this product.

11.1.11. Absence of specific data

No data available.

11.1.12. Mixture versus substance information

Not applicable.

11.1.13. Other information

Not applicable.

Lauryl Tryptose (LST) Broth

Revision 1
Revision date 2019-05-08

SECTION 12: Ecological information

12.1. Toxicity

No data available

12.2. Persistence and degradability

No data is available on this product.

12.3. Bioaccumulative potential

No data is available on this product.

Partition coefficient

Lauryl Tryptose (LST) Broth	No data available

12.4. Mobility in soil

No data is available on this product.

12.5. Results of PBT and vPvB assessment

No data is available on this product.

12.6. Other adverse effects

No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Dispose of in compliance with all local and national regulations.

Disposal methods

Contact a licensed waste disposal company. Do not flush into surface water. This material and its container must be disposed of in a safe way.

Disposal of packaging

Empty containers can be sent for disposal or recycling. Containers can be recycled if in compliance with local and national regulations. Do NOT reuse empty containers.

SECTION 14: Transport information

14.1. UN number

The product is not classified as dangerous for carriage.

14.2. UN proper shipping name

The product is not classified as dangerous for carriage.

14.3. Transport hazard class(es)

The product is not classified as dangerous for carriage.

14.4. Packing group

The product is not classified as dangerous for carriage.

14.5. Environmental hazards

The product is not classified as dangerous for carriage.

14.6. Special precautions for user

The product is not classified as dangerous for carriage.

Lauryl Tryptose (LST) Broth

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

	The product is not classified as dangerous for carriage.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Regulations	Hazard Communication Standard: 29 Code of Federal Regulations 1910.1200: Occupational Safety and Health Standards: Z: Toxic and Hazardous Substances: Hazard Communication.

15.2. Chemical safety assessment

	No data is available on this product.

SECTION 16: Other information

Other information

	DISCLAIMER: The information and recommendations set forth herein ("Information") are presented in good faith and believed to be correct as of the date issued. No representation is made regarding the completeness or accuracy of the Information. Further, because of the many factors that affect the use of this product, the Information is supplied upon the condition that the person(s) receiving it will make their own determination regarding its suitability for their own unique purpose(s), prior to use. Except as expressly stated herein, NO WARRANTIES, GUARANTEES, OR REPRESENTATIONS OF ANY KIND, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, COURSE OF PERFORMANCE, USAGE OF TRADE, OR RESULTS TO BE OBTAINED BY USE OF THIS PRODUCT are made with respect to this product or use of this product. The product covered is furnished "as is" and only subject to the warranties herein provided, no liability is assumed resulting from the use of this product.
Revision	This document differs from the previous version in the following areas:. 1 - Manufactured By:. 3 - 3.1. Substances. 3 - 3.2. Mixtures. 12 - 12.1. Toxicity.
Text of Hazard Statements in Section 3	Flam. Sol. 2: H228 - Flammable solid. Acute Tox. 4: H302+H332 - Harmful if swallowed or if inhaled Skin Irrit. 2: H315 - Causes skin irritation. Eye Dam. 1: H318 - Causes serious eye damage. STOT SE 3: H335 - May cause respiratory irritation. Aquatic Acute 2: H401 - Toxic to aquatic life. Aquatic Chronic 3: H412 - Harmful to aquatic life with long lasting effects.