

**GIDDINGS INDEPENDENT SCHOOL DISTRICT
SALE OF REAL PROPERTY
THE OLD GIDDINGS ELEMENTARY SCHOOL PROPERTY
1010 EAST INDUSTRY STREET
BID PACKAGE**

I. INVITATION FOR BID

The Board of Trustees of the Giddings Independent School District (“District” or “GISD”) hereby serves notice that the District will accept sealed bids for the following piece of real property:

The surface only and any improvements thereto described as being: 27.1 acres being out of the J. Barker Survey, Abstract No. 32, Lee County, Texas, located at 1010 East Industry Street.

The Property may be toured with the school district representative on March 28, 2024 at 9:00 a.m. Interested parties may meet at the front of the property to be escorted on a tour of the Property.

The District will be closed the week of March 11th for Spring Break, and also March 29th and April 1st.

The Property will be conveyed subject to the exceptions and reservations contained herein, including the reservation and exception that any conveyance will be for the surface only and that the Buyer shall abate and demolish the improvements on the Property within a year of the date of the conveyance, and failure to do so will result in the automatic reversion of the Property to GISD.

The Limited Hazardous Material Assessment of May 14, 2021 is included as **Exhibit “D”** to this Bid Package.

GISD reserves the right to reject any and all bids and to waive any informality in bids received. Bids received after the deadline, faxed bids, and electronic bids will not be considered.

The Property does not include the mineral estate. Further, GISD reserves all of the underground water, percolating water, artesian water, and any other water from any and all depths and reservoirs, formations, depths and horizons beneath the surface of the property, excluding underflow or flow in a defined subterranean channel. These are the Reserved Groundwater Rights.

Property is being sold “as is and where is, with any and all latent and patent defects and faults.” There is no warranty of any kind by the District, including that the property is fit for a particular purpose. In addition, the Property is being sold subject to the restrictions, reversionary interest, conditions, exceptions and reservations contained in the invitation to bid, instruction to bidders, and exhibits thereto, and subject to all recorded interests.

Sealed bids will be received until:

2:00 P.M. WEDNESDAY, APRIL 10, 2024

Mailing/Physical Address for Submission of Sealed Bids:

Giddings ISD
P.O. Box 389
Giddings, Texas 78942

Giddings ISD
2337 North Main
Giddings, Texas 78942

Bid envelopes must be plainly marked on the outside as follows:

**SEALED BID - DO NOT OPEN
PURCHASE OF REAL PROPERTY BID
DUE 2:00 P.M., WEDNESDAY, APRIL 10, 2024**

Bidder agrees that the bid shall remain open and subject to acceptance by the District for a period of sixty (60) calendar days from the bid date. All bids received at or prior to 2:00 PM WEDNESDAY, APRIL 10, 2024 will be opened and read aloud at that time. After the bid opening, the Board of Trustees will consider such bids at the next scheduled meeting. The District reserves the right to reject any and all bids and to waive any informality in bids received. **Bids received after the deadline, faxed bids, and electronic bids shall not be considered.**

BID RESPONSES MUST BE SUBMITTED ON BID FORMS INCLUDED IN THE BID PACKAGE. THE BID PACKAGE CONTAINS REQUIRED BID TERMS AND DESCRIPTIVE INFORMATION ABOUT THE PROPERTY. BID RESPONSES NOT MADE AS SET FORTH BY THE BID PACKAGE MAY BE DEEMED NON-RESPONSIVE AND MAY NOT BE CONSIDERED.

Bidder agrees, if Bidder's bid is accepted by the District, to execute and deliver the Real Estate Sales Contract in a form substantially similar to the one included in this Bid Package as **Exhibit "C"** within five (5) calendar days of written notice of acceptance of the bid by the District. Bidder's failure to execute and deliver the Real Estate Sales Contract within such five (5) day period is deemed a default by bidder, bidder will forfeit the earnest money, and the District will have no obligation to such bidder.

After execution and delivery of the Real Estate Sales Contract by the bidder, if the bidder terminates the contract pursuant to any right to terminate contained in the Real Estate Sales Contract, except Seller's default, bidder will not recover the earnest money.

The property will be conveyed separately by Special Warranty Deed.

II. INSTRUCTIONS TO BIDDERS

1. SPECIAL WARRANTY DEED: A draft copy of the form of the Special Warranty Deed is included in this Bid Package as **Exhibit "B"**. The District will consider proposed changes to the

form of deed; however, the District reserves the right to reject any proposed changes that materially change the terms of the sale.

2. REAL ESTATE SALES CONTRACT: A draft form of Real Estate Sales Contract and related documents for the sale of the Property is included in this Bid Package as **Exhibit “C”**. The District will consider proposed changes to the form of the Real Estate Sales Contract; however, the District reserves the right to reject any proposed changes that materially change the terms of the sale.

3. EARNEST MONEY: The Bid must be accompanied by a money order or cashier’s check in the amount Five Thousand Dollars (\$5,000.00) for the Property, payable to Giddings Independent School District. (Cash is **NOT** acceptable.)

4. TIME FRAME FOR CLOSING: Bids are expected to be presented to the Board of Trustees for acceptance on Thursday, April 18, 2024, but may be presented at the first Regular Board meeting after bids are opened. Closing should occur as provided in the Real Estate Sales Contract.

5. BID DOCUMENTS: A complete bid response should include:

- The Bid Form, properly completed for the Property,
- Earnest Money in the form of a money order or cashier’s check in the amount set out in Paragraph 3 above. (Cash is **NOT** acceptable); and
- Bidder’s completed Form 1295, bearing the computer-generated certification number in the “Office Use Only” box.

6. WITHDRAWAL OF BIDS: Bidder may request permission to withdraw its bid prior to the actual time for bid opening. Such request must be made in person or in writing at the same location designated to receive the bids. The District will return the bid documents unopened at that time.

7. OTHER CONDITIONS OF SALE: The Property is sold subject to the reservations, reversionary interest, exclusions, exceptions, conditions and stipulations of record and contained in the Title Search prepared by the Title Company.

8. PERMITTED EXCEPTIONS: The exclusions, exceptions, conditions and stipulations set out above, to the extent they are still in effect, shall be Permitted Exceptions in the Real Estate Sales Contract and the Deed.

9. ENVIRONMENTAL CONDITIONS: The Property may contain environmental conditions.

10. MINERALS: The conveyance is of the surface only, all oil, gas, and other mineral interests are reserved by the District.

11. GROUNDWATER RIGHTS RESERVATION: GISD reserves all of the underground water, percolating water, artesian water, and any other water from any and

all depths and reservoirs, formations, depths and horizons beneath the surface of the Property, excluding underflow or flow in a defined subterranean channel.

12. DISCLOSURE OF INTERESTED PARTIES: Texas Government Code, Section 2252.908 requires that a “business entity” entering into a Real Estate Sales Contract with the District to submit, concurrent with its submission of the signed Contract to the District, a Disclosure of Interested Parties, using the form and procedure established by the Texas Ethics Commission. The form requires disclosure of any “interested party” to the Contract of which the contracting entity is aware, and execution by an authorized agent of the contracting entity, acknowledging that disclosure is made under oath and under penalty of perjury. **THE FORM MAY ONLY BE FILED ELECTRONICALLY.** You are encouraged to contact your own legal counsel with any questions you may have about the process.

Form 1295 must be submitted on the form promulgated by the Texas Ethics Commission and in compliance with the Commission’s rules, at the time the business entity submits the signed contract to the District. The form must be completed electronically and the process for doing so can be found at the Texas Ethics Commission website at: https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm.

The filing process will require:

- **Completing Form 1295 electronically** with the Texas Ethics Commission using the online filing application. The portal for completion of Form 1295, instructions for completion and answers to Frequently Asked Questions can be found at the Texas Ethics Commission website:

https://www.ethics.state.tx.us/whatsnew/elf_info_form1295.htm.

Note: The information to be placed in Box No. 2, is the name of the “District: Giddings Independent School District” and the information to be placed in Box No. 3, of the form is “Real Estate.”

- **Printing a copy of the completed form** (make sure that it has a computer-generated certification number in the “Office Use Only” box).
- Having an authorized agent of the business entity **sign the form before a notary public.**
- **Submitting** the completed, signed and notarized Form 1295, showing the certification of filing with your signed contract to the District Representative, Andy Masek.

The following **definitions** apply:

- **“Business Entity”** means an entity recognized by law through which business is conducted, including a sole proprietorship, partnership, or corporation. TEX. GOV’T CODE §2252.908(1).
- **“Interested Party”** means a person:
 - a) who has a *controlling interest* in a Business Entity with whom the District contracts; or
 - b) who actively participates in facilitating the contract or negotiating the terms of the contract, including a broker, intermediary, adviser, or attorney for the Business Entity.

- ***“Controlling interest”*** means:
 - a) an ownership interest or participating interest in a business entity by virtue of units, percentage, shares, stock, or otherwise that exceeds ten (10) percent;
 - b) membership on the board of directors or other governing body of a business entity of which the board or other governing body is composed of not more than ten (10) members; or
 - c) service as an officer of a business entity that has four or fewer officers, or service as one of the four officers most highly compensated by a business entity that has more than four officers.
- ***“Intermediary”*** means a person who actively participates in the facilitation of the contract or negotiating the contract, including a broker, adviser, attorney, or representative of or agent for the business entity who:
 - a) receives compensation from the business entity for the person’s participation;
 - b) communicates directly with the governmental entity or state agency on behalf of the business entity regarding the contract; and
 - c) is not an employee of the business entity.

13. OTHER INFORMATION: The District believes the information included in this Bid Package is materially accurate; however, the District does not warrant this information to be free from errors or omissions. Offerors are encouraged to inspect the premises prior to placing a bid.

III. BID FORMS

IMPORTANT: A bid, to be valid, must be manually signed in ink by an authorized person in the space provided. By such signature, bidder agrees to strictly abide by the terms, conditions, and specifications embodied in this bid.

Entity, Company or Firm Name: _____

Contact Person: _____

Name of Broker, if any: _____

Address: _____

Telephone: _____

Fax: _____

Date: _____

Signature: _____

Printed Name: _____

Title: _____

BID AMOUNT

Purchase price offered by Bidder:

_____ DOLLARS

(\$ _____).

EXHIBIT B

NOTICE OF CONFIDENTIALITY RIGHTS: IF YOU ARE A NATURAL PERSON, YOU MAY REMOVE OR STRIKE ANY OR ALL OF THE FOLLOWING INFORMATION FROM ANY INSTRUMENT THAT TRANSFERS AN INTEREST IN REAL PROPERTY BEFORE IT IS FILED FOR RECORD IN THE PUBLIC RECORDS: YOUR SOCIAL SECURITY NUMBER OR YOUR DRIVER'S LICENSE NUMBER.

FORM OF SPECIAL WARRANTY DEED

Date: DRAFT FOR BID PACKAGE

Grantor: BOARD OF TRUSTEES OF THE GIDDINGS INDEPENDENT SCHOOL DISTRICT

Grantor's Mailing Address: DRAFT FOR BID PACKAGE

Grantee: DRAFT FOR BID PACKAGE

Grantee's Mailing Address (including County):

Consideration: TEN AND NO/100 DOLLARS (\$10.00) and other valuable consideration.

Property (including improvements): [insert legal description of property]

All as described on Exhibit A attached hereto.

Reservations from and Exceptions to Conveyance:

Validly existing easements, rights-of-way, and prescriptive rights, whether of record or not; all presently recorded and validly existing restrictions, reservations, covenants, conditions, oil and gas leases, mineral interests outstanding in persons other than Grantor, and other instruments, other than conveyances of the surface fee estate, that affect the Property; validly existing rights of adjoining owners in any walls and fences situated on a common boundary; any discrepancies, conflicts, or shortages in area or boundary lines; any encroachments or overlapping of improvements; all rights, obligations, and other matters arising from and existing by reason of any Giddings County water or utility district; and taxes for 2024, which Grantee assumes and agrees to pay, and subsequent assessments for that and prior years due to change in land usage, ownership, or both, the payment of which Grantee assumes.

Grantor does hereby except and reserve unto Grantor, Grantor's successors and assigns all of the oil, gas, and other minerals owned by Grantor, together with the following rights appurtenant thereto: (i) the right to lease Grantor's interest in the minerals; (ii) the right to receive bonus payments; (iii) the right to receive delay rentals; and (iv) the right to receive royalty. If the mineral estate is subject to existing production or an existing lease, then this reservation shall include the production, the lease, and all benefits therefrom. This reservation also includes any and all future

and reversionary interests in the oil, gas, and other minerals that Grantor is currently entitled to, and/or those that may be otherwise associated with Grantor's interest(s) in the mineral estate in, on, and under the Property. Notwithstanding the above, Grantor and Grantor's successors and assigns hereby waive and convey unto Grantee, Grantee's heirs, successors, and assigns the surface rights associated with mineral interest(s) reserved herein, including the rights of ingress and egress over the surface of the Property for mining, drilling, exploring, operating, and developing the surface of the Property for oil, gas, and other minerals and for removing them from the Property. Grantor and Grantor's successors and assigns agree that all future oil, gas, and mineral leases executed by them shall specifically prohibit any use of the surface of the Property. However, Grantor's waiver of surface rights herein shall not be construed as a waiver of the right of Grantor, Grantor's successors, assigns, and lessees to explore, develop, or produce the mineral estate herein reserved with wells with surface locations on lands other than the subject Property, including, but not limited to, directional and/or horizontal wells that travel beneath the subject Property, or by pooling its oil, gas, and mineral interests with lands adjoining the Property in accordance with the laws and regulations of the State of Texas.

Seller reserves all of the underground water, percolating water, artesian water, and any other water from any and all depths and reservoirs, formations, depths and horizons beneath the surface of the Property, excluding underflow or flow in a defined subterranean channel.

THE PROPERTY IS SOLD AND CONVEYED TO AND ACCEPTED BY GRANTEE IN ITS PRESENT CONDITION, AS IS, WHERE IS, WITH ALL FAULTS AND WITHOUT ANY REPRESENTATIONS OR WARRANTIES WHATSOEVER, EXPRESS OR IMPLIED, AND GRANTEE EXPRESSLY ACKNOWLEDGES THAT THE SALES PRICE REFLECTS SUCH CONDITION. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, THE SALE OF THE PROPERTY IS WITHOUT ANY EXPRESS OR IMPLIED WARRANTY, REPRESENTATION, CONTRACT, STATEMENT OR EXPRESSION OF OPINION (OR LACK THEREOF) OF OR WITH RESPECT TO: (I) THE CONDITION OF THE PROPERTY OR ANY ASPECT THEREOF, INCLUDING, WITHOUT LIMITATION, ANY AND ALL EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES RELATED TO SUITABILITY FOR HABITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE; (II) THE SOIL CONDITIONS, DRAINAGE, TOPOGRAPHICAL FEATURES OR OTHER CONDITIONS OF THE PROPERTY OR WHICH AFFECT THE PROPERTY; (III) ANY CONDITIONS RELATING TO OR ARISING FROM ANY ARCHEOLOGICAL OR HISTORIC SITE, CEMETERY, BURIAL GROUND, ENDANGERED SPECIES HABITAT, OR OTHER SUCH CONDITION WHICH MAY AFFECT THE PROPERTY; (IV) AREA, SIZE, SHAPE, CONFIGURATION, LOCATION, CAPACITY, QUANTITY, QUALITY, VALUE, CONDITION OR COMPOSITION OF THE PROPERTY; (V) ANY ENVIRONMENTAL, GEOLOGICAL, METEOROLOGICAL, STRUCTURAL OR OTHER CONDITION OR HAZARD OR THE ABSENCE THEREOF HERETOFORE, NOW OR HEREAFTER AFFECTING IN ANY MANNER ANY OF THE PROPERTY; AND (IV) ALL OTHER EXPRESS OR IMPLIED REPRESENTATIONS AND WARRANTIES BY GRANTOR WHATSOEVER. GRANTEE HAS MADE ITS OWN PHYSICAL INSPECTION OF THE PROPERTY AND HAS SATISFIED ITSELF AS TO THE CONDITION OF THE PROPERTY FOR GRANTEE'S INTENDED USE. GRANTOR MAKES NO EXPRESS OR IMPLIED REPRESENTATIONS OR WARRANTIES AS TO THE NATURE OR QUANTITY OF THE INTERESTS THEY OWN IN ANY OIL, GAS AND OTHER

MINERALS OR THE GROUNDWATER RIGHTS. AFTER CLOSING, AS BETWEEN GRANTEE AND GRANTOR, THE RISK OF LIABILITY OR EXPENSE FOR ENVIRONMENTAL PROBLEMS, EVEN IF ARISING FROM EVENTS BEFORE CLOSING, WILL BE THE SOLE RESPONSIBILITY OF GRANTEE, REGARDLESS OF WHETHER THE ENVIRONMENTAL PROBLEMS WERE KNOWN OR UNKNOWN AT CLOSING. ONCE CLOSING HAS OCCURRED, GRANTEE INDEMNIFIES, HOLDS HARMLESS, AND RELEASES GRANTOR FROM LIABILITY FOR ANY LATENT DEFECTS AND FROM ANY LIABILITY FOR ENVIRONMENTAL PROBLEMS AFFECTING THE PROPERTY, INCLUDING LIABILITY UNDER THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT ("CERCLA"), THE RESOURCE CONSERVATION AND RECOVERY ACT ("RCRA"), THE TEXAS SOLID WASTE DISPOSAL ACT, OR THE TEXAS WATER CODE. **GRANTEE INDEMNIFIES, HOLDS HARMLESS, AND RELEASES GRANTOR FROM ANY LIABILITY FOR ENVIRONMENTAL PROBLEMS AFFECTING THE PROPERTY ARISING AS THE RESULT OF GRANTOR'S OWN NEGLIGENCE OR THE NEGLIGENCE OF GRANTOR'S REPRESENTATIVES.** GRANTEE INDEMNIFIES, HOLDS HARMLESS, AND RELEASES GRANTOR FROM ANY LIABILITY FOR ENVIRONMENTAL PROBLEMS AFFECTING THE PROPERTY ARISING AS THE RESULT OF THEORIES OF PRODUCTS LIABILITY AND STRICT LIABILITY, OR UNDER NEW LAWS OR CHANGES TO EXISTING LAWS ENACTED AFTER THE EFFECTIVE DATE THAT WOULD OTHERWISE IMPOSE ON GRANTORS IN THIS TYPE OF TRANSACTION NEW LIABILITIES FOR ENVIRONMENTAL PROBLEMS AFFECTING THE PROPERTY. GRANTEE FURTHER AGREES TO DEFEND, AT ITS OWN EXPENSE, AND ON BEHALF OF GRANTOR AND IN THE NAME OF GRANTOR, ANY CLAIM OR LITIGATION BROUGHT IN CONNECTION WITH ANY SUCH ENVIRONMENTAL PROBLEMS AFFECTING THE PROPERTY.

Grantee shall abate and demolish the improvements on the property within a year of the date of the Special Warranty Deed. If Grantee has not completed abatement and demolished the improvements by the one year anniversary of the date of the Special Warranty Deed, the Property shall automatically revert to the ownership of the Grantor.

Grantor, for the consideration and subject to the reservations from conveyance, reversionary interest, and exceptions to conveyance and warranty, grants, and conveys to Grantee the Property, together with all and singular the rights and appurtenances thereto in anywise belonging unto the said Grantee, their heirs, beneficiaries, successors and assigns forever; and it does hereby bind itself and its successors to WARRANT AND FOREVER DEFEND all and singular the said premises unto the said Grantee, their heirs, beneficiaries, successors and assigns, against every person whomsoever lawfully claiming or to claim the same or any part thereof, except as to the reservations from and exceptions to conveyance and warranty, when the claim is by, through or under Grantor but not otherwise.

When the context requires, singular nouns and pronouns include the plural.

BOARD OF TRUSTEES OF THE
GIDDINGS INDEPENDENT SCHOOL
DISTRICT

By: EXHIBIT ONLY - NOT FOR SIGNATURE
Jason Locke, President, Board of Trustees

THE STATE OF TEXAS §
 § ACKNOWLEDGMENT
COUNTY OF LEE §

BEFORE ME, a Notary Public, on this day personally appeared Jason Locke, known to me to be the person whose name is subscribed to the foregoing instrument, and having been sworn, upon his oath stated that he is the President of the Board of Trustees of the Giddings Independent School District; that he was authorized to execute such instrument pursuant to resolution of the Board of Trustees adopted on February 15, 2024; and that said instrument is executed as the free and voluntary act and deed of such governmental unit for the purposes and consideration expressed therein.

GIVEN UNDER MY HAND AND SEAL OF OFFICE on this the _____ day of _____, 2024.

DRAFT ONLY FOR BID PACKAGE
Notary Public, State of Texas

ACCEPTED AND AGREED:

GRANTEE:

By: EXHIBIT ONLY - NOT FOR SIGNATURE
Jason Locke, President, Board of Trustees

THE STATE OF TEXAS §
 § ACKNOWLEDGMENT
COUNTY OF LEE §

BEFORE ME, a Notary Public, on this day personally appeared DRAFT ONLY FOR BID PACKAGE, known to me to be the person whose name is subscribed to the foregoing instrument, and having been sworn, upon DRAFT ONLY FOR BID PACKAGE oath stated that DRAFT is the DRAFT; that DRAFT was authorized to execute such instrument pursuant DRAFT; and that said instrument is executed as the free and voluntary act and deed of such governmental unit for the purposes and consideration expressed therein.

GIVEN UNDER MY HAND AND SEAL OF OFFICE on this the _____ day of _____, 2024.

DRAFT ONLY FOR BID PACKAGE
Notary Public, State of Texas

Return to Grantee's Address:

DRAFT ONLY FOR BID PACKAGE

EXHIBIT C

FORM OF REAL ESTATE SALES CONTRACT

This Contract to buy and sell real property is between Seller and Buyer as identified below, and is effective on the date ("Effective Date") of the last of the signatures by Seller and Buyer as parties to this Contract.

Seller: BOARD OF TRUSTEES OF THE GIDDINGS INDEPENDENT SCHOOL DISTRICT ("District")
2337 North Main
Giddings, Texas 78942
Phone: 979.542.2854

Type of entity: Independent School District and political subdivision of the State of Texas

Seller's Attorney: Ann Greenberg
WALSH GALLEGOS KYLE ROBINSON & ROALSON, P.C.
505 E. Huntland Dr., Suite 600
Austin, Texas 78752
Phone: 512.454.6864
Fax: 512.467.9318

Buyer: DRAFT ONLY FOR BID PACKAGE
Address:

Phone:
Fax:

Buyer's Attorney: DRAFT ONLY FOR BID PACKAGE
Address:

Phone:
Fax:

Property: All of the District's interest in the surface only and any improvements thereto described as being: [insert legal description of property].

The metes and bounds legal description shall be substituted as Exhibit A upon completion of the Survey, as further set forth below.

The parties acknowledge that the legal description contained in this Contract technically may be, or is, legally insufficient for the purposes of supporting an action for specific performance or other enforcement hereof. As such, the parties confirm to each other that notwithstanding the insufficiency, if any, they desire to proceed with the conveyance of the Property as contemplated by this Contract. Because the parties are desirous of executing this Contract, they agree that (a)

they are experienced in transactions of the nature provided for in this Contract, (b) in fact, they are specifically familiar with the location of the Property, (c) each party waives any and all claims of an insufficient legal description in a cause of action for performance hereunder, and (d) upon the delivery of the Survey (defined below) to Buyer, the metes and bounds description of the Property prepared by the Surveyor in connection with the Survey will be the description of the Property for the purposes of this Contract. The parties agree that, upon Contract of the Parties as to the exact location of the Property and approval of the Survey by Buyer, this Contract will be deemed to be automatically amended to incorporate the metes and bounds description of the Property as prepared by the Surveyor in connection with the preparation of the Survey as an addition to Exhibit A.

Title Company: BOTTTS TITLE COMPANY
 200 S. Grimes St.
 Giddings, Texas 78942
 Phone: 979.542.3636

Purchase Price: \$DRAFT ONLY FOR BID PACKAGE

Earnest Money: FIVE THOUSAND AND NO/100 DOLLARS (\$5,000.00).

County for Performance: This Contract shall be performed in Lee County, Texas.

A. Deadlines and Other Dates

All deadlines in this Contract expire at 4:00 P.M., local time where the Property is located, on the day indicated. If a deadline falls on a Saturday, Sunday, or national holiday, the deadline will be extended to the next day that is not a Saturday, Sunday, or national holiday. A national holiday is a holiday designated by the federal government. Time is of the essence of this Contract.

- 1. Earnest Money Deadline:** Earnest Money must be tendered with the Buyer's Bid for the property, and must be in the amount and form set forth above and in the Bid Package. The Earnest Money deposit of the bidder approved by the Board of Trustees shall be tendered to the Title Company within two (2) business days after the Effective Date.
- 2. Delivery of Title Commitment:** twenty-one (21) days after the Effective Date.
- 3. Delivery of Survey:** thirty (30) days after the Effective Date.
- 4. Delivery of UCC Search:** not applicable.
- 5. Delivery of legible copies of instruments referenced in the Title Commitment and Survey:** thirty (30) days after the Effective Date.
- 6. Delivery of Title Objections:** ten (10) days after delivery of the Title Commitment, Survey, and legible copies of the instruments referenced in them.
- 7. Delivery of Seller's Records specified in Exhibit C:** ten (10) days after the Effective Date.
- 8. End of Inspection Period:** forty (40) days after the Effective Date.
- 9. Closing Date:** forty-five (45) days after the Effective Date.
- 10. Closing Time:** 2:00 p.m. unless otherwise agreed by Seller and Buyer.

B. Closing Documents

1. At closing, Seller will deliver the following items:
 - Special Warranty Deed in the form set forth in the Bid Package
 - Evidence of Seller's authority to close this transaction
 - Lien release, if any, as required herein
2. At closing, Buyer will deliver the following items:
 - Purchase price in cash or cash equivalent
 - Evidence of Buyer's authority to consummate this transaction
 - Lien release, if any, as required herein

The documents listed in this section B are collectively known as the "Closing Documents."

C. Exhibits

The following exhibits are attached, and are incorporated by reference to form a part of this Contract:

- Exhibit A** – Description of the Land
- Exhibit B** – Representations; Environmental Matters
- Exhibit C** – Seller's Records
- Exhibit D** – Buyer's Bid
- Exhibit E** – Form of Special Warranty Deed

D. Purchase and Sale of Property

Seller agrees to sell and convey the Property to Buyer, and Buyer agrees to buy and pay Seller for the Property. The promises by Buyer and Seller stated in this Contract are the consideration for the formation of this Contract. The Form of Special Warranty Deed in Exhibit E will be used to convey the property.

E. Interest on Earnest Money

Seller may direct Title Company to invest the Earnest Money in an interest-bearing account in a federally insured financial institution by giving notice to Title Company and satisfying Title Company's requirements for investing the Earnest Money in an interest-bearing account. Any interest earned on the Earnest Money will be paid to the party that becomes entitled to the Earnest Money.

F. Title and Survey

1. Review of Title. The following statutory notice is provided to Buyer on behalf of the real estate licensees, if any, involved in this transaction: Buyer is advised that it should either have the abstract covering the Property examined by an attorney of Buyer's own selection or be furnished with or obtain a policy of title insurance.

2. Title Commitment; Title Policy. "Title Commitment" means a Commitment for Issuance of an Owner Policy of Title Insurance by Title Company, as agent for Underwriter, stating the condition of title to the Land. "Title Policy" means an Owner Policy of Title Insurance issued by Title Company, as agent for Underwriter, in conformity with the last Title Commitment delivered to and approved by Buyer.

3. Survey. "Survey," if required, means an on-the-ground, staked plat of survey and metes-and-bounds description of the Land, prepared by Surveyor or another surveyor satisfactory to Title Company, dated after the Effective Date, and certified to comply with the current standards and specifications as published by the Texas Society of Professional Surveyors for the Survey Category 1A, at the direction and cost of Buyer.

4. Delivery of Title Commitment. Seller must deliver the Title Commitment to Buyer by the deadline stated in section A.2. Buyer must cause the Survey to be completed by the deadline stated in section A.3. Seller must deliver legible copies of the instruments referenced in the Title Commitment and Survey by the deadline stated in section A.5.

5. Title Objections. Buyer has until the deadline stated in section A.6. ("Title Objection Deadline") to review the Survey, Title Commitment, and legible copies of the title instruments referenced in them and notify Seller of Buyer's objections to any of them ("Title Objections"). Buyer will be deemed to have approved all matters reflected by the Survey and Title Commitment to which Buyer has made no Title Objection by the Title Objection Deadline. The matters that Buyer either approves or is deemed to have approved are "Permitted Exceptions." If Buyer notifies Seller of any Title Objections, Seller has five (5) days from receipt of Buyer's notice to notify Buyer whether Seller agrees to cure the Title Objections before closing ("Cure Notice"). If Seller does not timely give its Cure Notice or timely gives its Cure Notice but does not agree to cure all the Title Objections before closing, Buyer may, within five (5) days after the deadline for the giving of Seller's Cure Notice, notify Seller that either this Contract is terminated or Buyer will proceed to close, subject to Seller's obligations to resolve the items listed in Schedule C of the Title Commitment, remove the liquidated liens, remove all exceptions that arise by, through, or under Seller after the Effective Date, and cure only the Title Objections that Seller has agreed to cure in the Cure Notice. At or before closing, Seller must resolve the items that are listed on

Schedule C of the Title Commitment, remove all liquidated liens, remove all exceptions that arise by, through, or under Seller after the Effective Date of this Contract, and cure the Title Objections that Seller has agreed to cure.

G. Inspection Period

1. Review of Seller's Records. Seller will deliver to Buyer copies of Seller's records specified in Exhibit C, or otherwise make those records available for Buyer's review, by the deadline stated in section A.7.

2. Entry onto the Property. Buyer may enter onto the Property prior to closing for purposes of conducting a boundary or environmental survey, or otherwise to inspect the property, subject to the following:

a. Buyer must deliver evidence to Seller that Buyer has insurance for its proposed survey or inspection activities, in amounts and with coverages that are substantially the same as those maintained by Seller or in such lesser amounts or with such lesser coverages as are reasonably satisfactory to Seller;

b. Buyer may not unreasonably interfere with existing operations or occupants of the Property, if any;

c. Buyer must notify Seller in advance of Buyer's plans to conduct tests so that Seller may be present during the tests;

d. if the Property is altered because of Buyer's inspections, Buyer must return the Property to its preinspection condition promptly after the alteration occurs;

e. Buyer must deliver to Seller copies of all inspection reports that Buyer prepares or receives from third-party consultants or contractors within three (3) days of their preparation or receipt by Buyer; and

f. Buyer must abide by any other reasonable entry rules imposed by Seller.

3. Buyer's Right to Terminate. Buyer may terminate this Contract for any reason by notifying Seller before the end of the Inspection Period. Unless Buyer terminates because of Seller's default, the Earnest Money shall be paid to Seller.

4. Buyer Indemnity and Release of Seller

a. Indemnity. Buyer will indemnify, defend, and hold Seller harmless from any loss, attorneys' fees, expenses, or claims arising out of Buyer's investigation of the Property, including, but not limited to, claims alleged to have arisen in whole or in part as a result of Seller's negligence.

b. Release. Buyer releases Seller and those persons acting on Seller's behalf from all claims and causes of action (including claims for attorneys' fees and court and other costs) resulting from Buyers' investigation of the Property, including, but not limited to, claims alleged to have arisen in whole or in part as a result of Seller's negligence.

H. Representations

The parties' representations stated in **Exhibit B** are true and correct as of the Effective Date and must be true and correct on the Closing Date.

I. Condition of the Property until Closing; Cooperation; No Recording of Contract

1. Maintenance and Operation. Until closing, Seller will (a) maintain the Property as it existed on the Effective Date, except for reasonable wear and tear and casualty damage; (b) operate the Property in the same manner as it was operated on the Effective Date; and (c) comply with all contracts and governmental regulations affecting the Property. Until the end of the Inspection Period, Seller will not enter into, amend, or terminate any contract that affects the Property other than in the ordinary course of operating the Property and will promptly give notice to Buyer of each new, amended, or terminated contract, including a copy of the contract, in sufficient time so that Buyer may consider the information before the end of the Inspection Period. If Seller's notice is given within three (3) days before the end of the Inspection Period, the Inspection Period will be extended for three (3) days. After the end of the Inspection Period, Buyer may terminate this Contract if Seller enters into, amends, or terminates any contract that affects the Property without first obtaining Buyer's written consent.

2. Casualty Damage. Seller will notify Buyer promptly after discovery of any casualty damage to the Property. Seller will have no obligation to repair or replace the Property if it is damaged by casualty before closing. Buyer may terminate this Contract if the casualty damage that occurs before closing would materially affect Buyer's intended use of the Property, by giving notice to Seller within fifteen (15) days after receipt of Seller's notice of the casualty (or before closing if Seller's notice of the casualty is received less than fifteen (15) days before closing). If Buyer does not terminate this Contract, Seller will (a) convey the Property to Buyer in its damaged condition, (b) assign to Buyer all of Seller's rights under any property insurance policies covering the Property, and (c) pay to Buyer the amount of the deductibles and coinsurance provisions under any insurance policies covering the Property, but not in excess of the cost to repair the casualty damage and less any amounts previously paid by Seller to repair the Property.

3. Condemnation. Seller will notify Buyer promptly after Seller receives notice that any part of the Property has been or is threatened to be condemned or otherwise taken by a governmental or quasi-governmental authority. Buyer may terminate this Contract if the condemnation would materially affect Buyer's intended use of the Property by giving notice to Seller within fifteen (15) days after receipt of Seller's notice to Buyer (or before closing if Seller's notice is received less than fifteen (15) days before closing). If Buyer does not terminate this Contract, (a) Buyer and Seller will each have the right to appear and defend their respective interests in the Property in the condemnation proceedings, (b) any award in condemnation will be assigned to Buyer, and (c) if the taking occurs before closing, the description of the Property will be revised to delete the portion taken.

4. Claims; Hearings. Seller will notify Buyer promptly of any claim or administrative hearing that is threatened, filed, or initiated before closing that affects the Property.

5. **Cooperation.** Seller will cooperate with Buyer (a) before and after closing, to transfer the applications, permits, and licenses held by Seller and used in the operation of the Property and to obtain any consents necessary for Buyer to operate the Property after closing and (b) before closing, with any reasonable evaluation, inspection, audit, or study of the Property prepared by, for, or at the request of Buyer.

6. **No Recording.** Buyer may not file this Contract or any memorandum or notice of this Contract in the real property records of any county. If, however, Buyer records this Contract or a memorandum or notice, Seller may terminate this Contract and record a notice of termination.

J. Termination

1. **Disposition of Earnest Money after Termination.** Buyer and Seller agree that if this Contract is terminated by either party prior to closing, Buyer shall not be entitled to the Earnest Money. Buyer hereby authorizes the Title Company to deliver the Earnest Money to Seller upon receipt by Title Company of written notice from Seller that the contract is terminated.

2. **Duties after Termination.** If this Contract is terminated, Buyer will promptly return to Seller all documents relating to the Property that Seller has delivered to Buyer and all copies that Buyer has made of the documents. After return of the documents and copies, neither party will have further duties or obligations to the other under this Contract, except for those obligations that cannot be or were not performed before termination of this Contract.

K. Closing

1. **Closing.** This transaction will close at Title Company's offices at the Closing Date and Closing Time. At closing, the following will occur:

a. **Closing Documents.** The parties will execute and deliver the Closing Documents.

b. **Payment of Consideration.** Buyer will deliver the Consideration and other amounts that Buyer is obligated to pay under this Contract to Title Company in funds acceptable to Title Company. The Earnest Money will be paid to Buyer.

c. **Disbursement of Funds; Recording; Copies.** Title Company will be instructed to disburse funds in accordance with this Contract, record the deed and the other Closing Documents directed to be recorded, and distribute documents and copies in accordance with the parties' written instructions.

d. **Delivery of Originals.** Seller will deliver to Buyer the originals of Seller's Records.

e. **Possession.** Seller will deliver possession of the Property to Buyer, subject to the Permitted Exceptions existing at closing.

2. Transaction Costs

a. **Seller's Costs.** Seller will pay the costs to prepare the deed; the costs to obtain, deliver, and record releases of all liens to be released at closing; the costs to record all documents

to cure Title Objections agreed to be cured by Seller; the costs to deliver copies of the instruments described in section A.5.; and Seller's expenses and attorneys' fees.

b. Buyer's Costs. Buyer will pay the basic charge for the Title Policy; the escrow fee charged by Title Company; Title Company's inspection fee to delete from the Title Policy the customary exception for parties in possession; the costs to obtain, deliver, and record all documents other than those to be recorded at Seller's expense; the costs to obtain the Survey and certificates or reports of ad valorem taxes; the additional premium for the "survey/area and boundary deletion" in the Title Policy, if the deletion is requested by Buyer; the costs of work required by Buyer to have the survey reflect matters other than those required under this Contract; the costs to obtain financing of the Purchase Price, including the incremental premium costs of mortgagee's title policies and endorsements and deletions required by Buyer's lender, and Buyer's expenses and attorneys' fees. BUYER SHALL PAY FOR SURVEY, PLAT AND/OR REPLAT OF THE PROPERTY AND REMAINDER.

c. Ad Valorem Taxes. Seller represents that it is entitled to an exemption from ad valorem taxes during the time it owned the Property. If this sale or Buyer's use of the Property results in the assessment of any ad valorem taxes for the Property for the calendar year of closing, all such taxes and any associated costs will be paid by the Buyer. Buyer shall be responsible for notifying all taxing units having jurisdiction over the property of the change of ownership, and Buyer shall be responsible for any and all taxes, late fees or penalties assessed against the Property by reason of Buyer's failure to so note the change of ownership. Seller will, upon request, provide to Buyer proof of Seller's ownership of the property prior to the date of closing, and will assist Buyer in demonstrating Seller's exemption from ad valorem taxes.

d. Brokers' Commissions. To the extent permitted by law, Buyer and Seller each indemnify and agree to defend and hold the other party harmless from any loss, attorneys' fees, and court and other costs arising out of a claim by any person or entity claiming by, through, or under the indemnitor for a broker's or finder's fee or commission because of this transaction or this Contract, whether the claimant is disclosed to the indemnitee or not. At closing, each party will provide the other party with a release of broker's or appraiser's liens from all brokers or appraisers for which each party was responsible.

3. Issuance of Title Policy. Seller will cause Title Company to issue the Title Policy to Buyer as soon as practicable after closing.

L. Default and Remedies

1. Seller's Default. If Seller fails to perform any of its obligations under this Contract or if any of Seller's representations are not true and correct as of the Effective Date or on the Closing Date ("Seller's Default"), Buyer may as its sole and exclusive remedy terminate this Contract by giving notice to Seller on or before the Closing Date and Closing Time and have the Earnest Money, less One Hundred and No Dollars (\$100.00) as independent consideration for the right granted by Seller to Buyer to terminate this Contract returned to Buyer.

2. **Buyer's Default.** If Buyer fails to perform any of its obligations under this Contract ("Buyer's Default"), Seller may elect either of the following as its sole and exclusive remedy:

a. **Termination; Liquidated Damages.** Seller may terminate this Contract by giving notice to Buyer on or before the Closing Date and Closing Time and have the Earnest Money paid to Seller as liquidated damages.

b. **Specific Performance.** Seller may enforce specific performance of Buyer's obligations under this Contract. If title to the Property is awarded to Buyer, the conveyance will be subject to the matters stated in the Title Commitment.

3. **Liquidated Damages.** The parties agree that just compensation for the harm that would be caused by a default by either party cannot be accurately estimated or would be very difficult to accurately estimate and that the Earnest Money is a reasonable forecast of just compensation to the non-defaulting party for the harm that would be caused by a default.

M. Miscellaneous Provisions

1. **Notices.** Any notice required by or permitted under this Contract must be in writing. Any notice required by this Contract will be deemed to be delivered (whether actually received or not) when deposited with the United States Postal Service, postage prepaid, certified mail, return receipt requested, and addressed to the intended recipient at the address shown in this Contract. Notice may also be given by regular mail, personal delivery, courier delivery, facsimile transmission, or other commercially reasonable means and will be effective when actually received. Any address for notice may be changed by written notice delivered as provided herein. Copies of each notice must be given by one of these methods to the attorney of the party to whom notice is given, if the attorneys have been identified by the parties.

2. **Entire Contract.** This Contract, together with its exhibits, and any Closing Documents delivered at closing constitute the entire Contract of the parties concerning the sale of the Property by Seller to Buyer. There are no oral representations, warranties, Contracts, or promises pertaining to the sale of the Property by Seller to Buyer not incorporated in writing in this Contract.

3. **Amendment.** This Contract may be amended only by an instrument in writing signed by the parties.

4. **Prohibition of Assignment.** Buyer may not assign this Contract or any of Buyer's rights under it without Seller's prior written consent, and any attempted assignment is void. This Contract binds, benefits, and may be enforced by the parties and their respective heirs, successors, and permitted assigns.

5. **Survival.** The obligations of this Contract that cannot be performed before termination of this Contract or before closing will survive termination of this Contract or closing, and the legal doctrine of merger will not apply to these matters. If there is any conflict between the Closing Documents and this Contract, the Closing Documents will control.

6. ***Choice of Law; Venue.*** This Contract will be construed under the laws of the State of Texas, without regard to choice-of-law rules of any jurisdiction. Venue is in Giddings County, Texas.

7. ***Waiver of Default.*** It is not a waiver of default if the non-defaulting party fails to declare immediately a default or delays taking any action with respect to the default.

8. ***No Third-Party Beneficiaries.*** There are no third-party beneficiaries to this Contract.

9. ***Severability.*** The provisions of this Contract are severable. If a court of competent jurisdiction finds that any provision of this Contract is unenforceable, the remaining provisions will remain in effect without the unenforceable parts.

10. ***Ambiguities Not to Be Construed against Party Who Drafted Contract.*** The rule of construction that ambiguities in a document will be construed against the party who drafted it will not be applied in interpreting this Contract.

11. ***No Special Relationship.*** The parties' relationship is an ordinary commercial relationship, and they do not intend to create the relationship of principal and agent, partnership, joint venture, or any other special relationship.

12. ***Counterparts.*** If this Contract is executed in multiple counterparts, all counterparts taken together will constitute this Contract.

13. ***Waiver of Consumer Rights.*** **BUYER WAIVES ITS RIGHTS UNDER THE TEXAS DECEPTIVE TRADE PRACTICES-CONSUMER PROTECTION ACT, SECTION 17.41, et seq., OF THE TEXAS BUSINESS AND COMMERCE CODE, A LAW THAT GIVES CONSUMERS SPECIAL RIGHTS AND PROTECTIONS. AFTER CONSULTATION WITH AN ATTORNEY OF ITS OWN SELECTION, BUYER VOLUNTARILY CONSENTS TO THIS WAIVER.**

14. **Texas Government Code Chapter 2273.** With regard to the prohibition of certain transactions between a governmental entity and an abortion provider or affiliate of the provider, Buyer represents and warrants to the Seller that it is not an abortion provider or affiliate of the provider.

N. Execution

This Contract is entered into by and between the undersigned parties, and shall be effective on the date of the last of the signatures by Seller and Buyer. ("Effective Date").

SELLER:

BOARD OF TRUSTEES OF THE GIDDINGS
INDEPENDENT SCHOOL DISTRICT, a political
subdivision of the State of Texas

By: EXHIBIT ONLY - NOT FOR SIGNATURE
President, Board of Trustees

Date: _____

BUYER:

By: EXHIBIT ONLY - NOT FOR SIGNATURE

Date: _____

Title Company acknowledges receipt of Earnest Money in the amount of FIVE THOUSAND AND
NO/100 DOLLARS (\$5,000.00) and a copy of this Contract executed by both Buyer and Seller.

Title Company
Botts Title Company

By: EXHIBIT ONLY - NOT FOR SIGNATURE_____

Name: _____

Title: _____

Date: _____

Exhibit A to Real Estate Sales Contract
Description of the Land

The real property, surface and all improvements thereto, being [insert legal description of property].

The metes and bounds legal description shall be substituted as Exhibit A upon completion of the Survey.

**Exhibit B to Real Estate Sales Contract
Representations; Environmental Matters**

A. Seller's Representations to Buyer. Seller represents to Buyer that the following are true and correct as of the Effective Date and will be true and correct on the Closing Date.

1. Authority. Seller is an independent school district duly organized, validly existing, and in good standing under the laws of the State of Texas with authority to convey the Property to Buyer. This Contract is, and all documents required by this Contract to be executed and delivered to Buyer at closing will be, duly authorized, executed, and delivered by an authorized representative of Seller.

2. Litigation. There is no litigation pending or threatened against Seller that might affect the Property or Seller's ability to perform its obligations under this Contract.

3. Violation of Laws. Seller has not received notice of violation of any law, ordinance, regulation, or requirements affecting the Property or Seller's use of the Property.

4. Licenses, Permits, and Approvals. Seller has not received notice that any license, permit, or approval necessary to operate the Property in the manner in which it is currently operated will not be renewed on expiration or that any material condition will be imposed in order to obtain their renewal. Provided, however, that Seller's governmental exemption for *ad valorem* taxes is not transferable to Buyer, and Buyer will be responsible for all taxes and related charges arising from its purchase of the Property.

5. Condemnation; Zoning; Land Use. Seller has not received notice of any condemnation, zoning, or land-use proceedings affecting the property.

6. No Other Obligation to Sell the Property or Restriction against Selling the Property. Seller has not obligated itself to sell the Property to any party other than Buyer. Seller's performance of this Contract will not cause a breach of any other Contract or obligation to which Seller is a party or to which it is bound.

7. No Liens. On the Closing Date, the Property will be free and clear of any valid mechanic's and material man's liens and other liens and encumbrances of any nature except the Permitted Exceptions, and no work or materials will have been furnished to the Property that might give rise to mechanic's, material man's, or other liens against the Property other than work or materials to which Buyer has given its consent.

8. No Other Representation. Except as stated in this Exhibit B, Seller makes no representation with respect to the Property.

9. No Warranty. Seller has made no warranty in connection with this Contract.

B. Buyer's Representations to Seller

Buyer represents to Seller that the following are true and correct as of the Effective Date and will be true and correct on the Closing Date.

1. *Receipt of Bid Package.* Buyer represents to Seller that Buyer has received and reviewed the Bid Package for the property, consisting of the following items:

- a. Invitation for Bid
- b. Instructions to Bidders
- c. Bid Form
- d. Special Warranty Deed
- e. This Contract

2. *Consultation with Attorney.* BUYER REPRESENTS TO SELLER THAT BUYER IS AWARE THAT THIS CONTRACT HAS IMPORTANT LEGAL CONSEQUENCES, AND THAT BUYER IS ENTITLED TO CONSULT AN ATTORNEY OF ITS CHOOSING PRIOR TO EXECUTING THIS CONTRACT. BUYER FURTHER REPRESENTS THAT TO THE EXTENT IT HAS ELECTED NOT TO CONSULT AN ATTORNEY, BUYER HAS DONE SO OF ITS OWN FREE WILL AND ACT.

C. PROPERTY SOLD "AS IS, WHERE IS"; NO WARRANTIES

NOTICE: THE PROPERTY WILL BE CONVEYED TO BUYER IN AN "AS IS, WHERE IS" CONDITION, WITH ALL FAULTS. ALL WARRANTIES ARE EXPRESSLY DISCLAIMED.

Buyer represents and agrees that Seller has not made, does not make and specifically negates and disclaims any representations, warranties, promises, covenants, Contracts or guarantees of any kind or character whatsoever, whether expressed or implied, or written, past, present or future, of, as to, concerning or with respect to (A) the value, nature, quality or condition of the property, including without limitation, the water, soil and geology, (B) the income to be derived from the property, (C) the suitability of the property for any and all activities and uses which Buyer may conduct thereon, (D) the compliance with ordinances or regulations of any applicable governmental authority or body, (E) the habitability, merchantability, marketability, profitability or fitness for a particular purpose of the property, (F) the manner or quality of the construction or materials, if any, incorporated into the property, (G) the manner, quality, state of repair or lack of repair of the property, or (H) any other matter with respect to the property, and specifically, that Seller has not made, does not make and specifically disclaims any representations regarding compliance with any environmental protection, pollution or land use laws, rules, regulations, orders or requirements, including solid waste, as defined by the U.S. Environmental Protection Agency Regulations at 40 C.F.R., Part 261, or the disposal or existence, in or on the property of any hazardous substance, as defined by the Comprehensive Environmental Response Compensation and Liability Act ("CERLA") of 1980, as amended, and regulations promulgated thereunder.

Buyer further represents and agrees that, having been given the opportunity to inspect the property, and Buyer is relying solely on its own investigation of the property and not on any information provided by Seller. Buyer further acknowledges and agrees that any information provided or to be provided with respect to the property was obtained from a variety of sources and that Seller has not made any independent investigation or verification of such information and makes no representations as to the accuracy or completeness of such information. Seller will not be liable or bound in any manner by any verbal or written statements, representations or information pertaining to the property, or the operation thereof, furnished by any real estate broker, agent, employee, servant or other person. Buyer further represents and agrees that to the maximum extent permitted by law, the sale of the property as provided for herein is made on an "as is" condition and basis with all faults. It is understood and agreed that the Consideration has been adjusted by prior negotiation to reflect that all of the property is sold by Seller and purchased by Buyer subject to the foregoing.

The provisions of this section C regarding the Property will be included in the deed with appropriate modification of terms as the context requires.

D. ENVIRONMENTAL MATTERS

ASBESTOS AND/OR ASBESTOS-CONTAINING MATERIALS AND OTHER HAZARDOUS MATERIALS MAY BE PRESENT ON THE PROPERTY, AND BUYER ACKNOWLEDGES THAT IT MAY PERFORM AN ENVIRONMENTAL SURVEY OF THE PROPERTY PRIOR TO BIDDING.

AFTER CLOSING, AS BETWEEN BUYER AND SELLER, THE RISK OF LIABILITY OR EXPENSE FOR ENVIRONMENTAL PROBLEMS, EVEN IF ARISING FROM EVENTS OCCURRING BEFORE CLOSING, WILL BE THE SOLE RESPONSIBILITY OF BUYER, REGARDLESS OF WHETHER THE ENVIRONMENTAL PROBLEMS WERE KNOWN OR UNKNOWN AT CLOSING. ONCE CLOSING HAS OCCURRED, BUYER INDEMNIFIES, HOLDS HARMLESS, AND RELEASES SELLER FROM LIABILITY FOR ANY LATENT DEFECTS AND FROM ANY LIABILITY FOR ENVIRONMENTAL PROBLEMS AFFECTING THE PROPERTY, INCLUDING LIABILITY UNDER THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT ("CERCLA"), THE RESOURCE CONSERVATION AND RECOVERY ACT ("RCRA"), THE TEXAS SOLID WASTE DISPOSAL ACT, OR THE TEXAS WATER CODE. BUYER INDEMNIFIES, HOLDS HARMLESS, AND RELEASES SELLER FROM ANY LIABILITY FOR ENVIRONMENTAL PROBLEMS AFFECTING THE PROPERTY ARISING AS THE RESULT OF SELLER'S OWN NEGLIGENCE OR THE NEGLIGENCE OF SELLER'S REPRESENTATIVES. BUYER INDEMNIFIES, HOLDS HARMLESS, AND RELEASES SELLER FROM ANY LIABILITY FOR ENVIRONMENTAL PROBLEMS AFFECTING THE PROPERTY ARISING AS THE RESULT OF THEORIES OF PRODUCTS LIABILITY AND STRICT LIABILITY, OR UNDER NEW LAWS OR CHANGES TO EXISTING LAWS ENACTED AFTER THE EFFECTIVE DATE THAT WOULD OTHERWISE IMPOSE ON SELLERS IN THIS TYPE OF TRANSACTION NEW LIABILITIES FOR ENVIRONMENTAL PROBLEMS

AFFECTING THE PROPERTY, INCLUDING BUT NOT LIMITED TO CLAIMS ALLEGED TO HAVE ARISEN AS A RESULT OF SELLER'S OWN NEGLIGENCE. BUYER FURTHER AGREES TO DEFEND, AT ITS OWN EXPENSE, AND ON BEHALF OF SELLER AND IN THE NAME OF SELLER, ANY CLAIM OR LITIGATION BROUGHT IN CONNECTION WITH ANY SUCH ENVIRONMENTAL PROBLEMS AFFECTING THE PROPERTY.

The provisions of this section D regarding the Property will be included in the deed with appropriate modification of terms as the context requires.

Exhibit C to Real Estate Sales Contract

Seller's Records

To the extent that Seller has possession of the following items pertaining to the Property, Seller will deliver or make the items or copies of them available to Buyer by the deadline stated in section A.7.:

Land

soil reports

environmental reports (asbestos report and diagrams)

engineering reports

prior surveys

site plans

Exhibit D to Real Estate Sales Contract

Buyer's Bid

**Exhibit E to Real Estate Sales Contract
FORM OF SPECIAL WARRANTY DEED**

[See Bid Package Exhibit B]

Exhibit D

May 14, 2021 Limited Hazardous Materials Assessment



TGERESOURCES, INC.
*Environmental Consulting
and Management Services*



Limited Hazardous Materials Assessment
Former Giddings Elementary School
1010 East Industry Street
Giddings, Texas 78942
TGE Project No.: R14234.01

Prepared for:

Mr. Roger Dees & Mr. Andy Masek
Giddings Independent School District
2337 North Main
Giddings, Texas 78942

May 14, 2021

Corporate Headquarters
8048 Northcourt Road
Houston, Texas 77040
Phone: 713-744-5800 Fax: 713-744-5888
www.tgeresources.com



TGERESOURCES, INC.

Environmental Consulting & Engineering, Building Sciences, Industrial Hygiene & Remediation Services

May 14, 2021

Mr. Roger Dees & Mr. Andy Masek
Giddings Independent School District
2337 North Main
Giddings, Texas 78942

RE: **Limited Hazardous Materials Assessment**
Former Giddings Elementary School
1010 East Industry Street, Giddings, Texas
TGE Project No.: R14234.01

Dear Gentlemen,

As authorized by Mr. Dees with Giddings Independent School District (GISD), hereinafter "Client", TGE Resources, Inc., ("TGE") has completed a Limited Hazardous Materials Assessment (the "Assessment") to investigate for the presence of regulated asbestos-containing materials (ACMs) and select hazardous materials within the now vacated/former educational facility located in Giddings, Texas, hereinafter referred to as the "Site", "Work Area" or (more specifically) the "subject buildings." Specifically, TGE was to identify the following materials: polychlorinated biphenyls (PCBs); mercury; metals; hydrocarbons; Freon; chemicals, and lead-based paint. TGE was authorized to proceed with the contracted scope of services by Client representative, Mr. Roger Dees, Superintendent of Schools, on April 15, 2021. The Assessment was performed from April 28, 2021 through April 30, 2021.

The subject buildings consisted of three contiguous educational facilities, hereinafter referenced to as the "Northwest Section," the "Northeast Section," and the "South Wing" (two-stories)¹. The school structures as a whole encompass approximately 84,150 square feet and were built between the 1960s and the 1980s. The Northwest Section and South Wing were vacant at the time of the Assessment; however, the Northeast Section was partially in use by a third-party entity (pre-school for Head Start). A summary of field methods, findings and recommendations associated with future management of the subject buildings are presented below.

1.0 ASBESTOS SURVEY

The Asbestos Assessment was conducted by TGE on April 28 through 30, 2021 by Texas Department of State Health Services (TDSHS) licensed Asbestos Inspectors, Mr. Raymond Lopez (TDSHS License No.: 60-3803) and Mr. Logan Watkins (TDSHS License No.: 60-3913), both with TGE. Mr. Lopez and Mr. Watkins are both U.S. Environmental Protection Agency (USEPA) accredited inspectors (see attached certificates). TGE is a TDSHS-licensed Asbestos Consulting Agency (TDSHS License No.: 10-0171).

¹ Site nomenclature was chosen based on the naming system used within the Client-provided management plan for the subject buildings to maintain consistency and to easily follow Site asbestos history.

DUNS: 929574051
Texas HUB
City of Houston SBE, WBE, DBE
SBA Certified WOSB
TX DOT Pre-certified
WBEA/WBENC Certified WBE

TGE Corporate Office
8048 Northcourt
Houston, Texas 77040
713-744-5800
Fax: 713-744-5888
www.tgeresources.com

This report contains project characteristics, sampling procedures, and results of laboratory analysis of bulk samples by polarized light microscopy (PLM). According to information provided by Client, the purpose of this effort is to provide information relative to the location, quantity, and condition of asbestos-containing materials (ACMs) and other building-related hazards prior to possible demolition of the combined Work Area. All data generated in connection with this report will remain confidential and will not be released to or viewed by any unauthorized person for any reason without prior written Client consent.

This assessment was performed with adherence to applicable U.S. Environmental Protection Agency ("USEPA") rules, TDSHS Statutes, and Occupational Safety and Health Administration ("OSHA") requirements governing asbestos management in schools and public access buildings. In accordance with 25 Texas Administrative Code (TAC) 295.34 (l), planned renovation/demolition will require the issuance of a building permit by the local municipality necessitating the performance of an asbestos survey in compliance with provisions of the Texas Asbestos Health Protection Act (TAHPA).

Although TGE made every effort to ensure accuracy with regard to measurements of interior areas of study for purposes of preparing quantities of asbestos-containing materials, TGE is not a licensed architectural firm and does not warrant accuracy to a degree that may be required by others in preparing cost estimates for abatement and/or demolition efforts. TGE's field drawings are for informational and reference purposes only. If a greater degree of accuracy is required than that implied herein, TGE encourages preparation of a drawing independent of this effort.

1.1 SCOPE OF WORK

Asbestos sampling duties conducted by TGE were as follows²:

- collection of samples of suspect ACMs (not to exceed 270) by State licensed/EPA-accredited inspectors according to an appropriate frequency as defined by USEPA rules and OSHA, as well as State Standards;
- PLM analysis of bulk samples via a State-licensed, National Institute of Standards and Technology's National Voluntary Laboratory Accreditation Program (NVLAP) laboratory to detect and quantify the relative percentage of asbestos present, if any, in the sample;
- each material found to contain asbestos, if any, was to be located and quantified (to the extent that materials were readily observable/apparent), and a condition assessment made per visual and physical assessment procedures; and
- preparation and submittal of this written report for inclusion into the Site-specific management plan; and/or for consideration by Client in preparing the Site for possible demolition.

1.2 UNDERSTANDINGS

Prior to execution of the specified work scope, TGE was directed by Client to consider the following key criteria as "Understandings," which would guide the conduct of this survey:

- A previous asbestos assessment was conducted in July 1988 within the collective Work Area and findings incorporated into an Asbestos Management Plan. The 1989 Management Plan is discussed further in Section 1.7 of this report.
- Interior areas assigned for this assessment are depicted upon the Client-provided floor plans (obtained from the above-referenced Management Plan), which are included in Appendix C.

² In addition to survey efforts, TGE was engaged to review a Client-provided Management Plan to prepare a sampling plan for the Site.

- No exterior or roofing building materials were to be included in this assessment; however, these materials will require assessment and similar consideration as that of interior building materials made subject of the current report prior to any disturbance.
- Localized destructive testing was to be minimal and performed within non-occupied areas of the subject buildings.

1.3 APPLICABLE REGULATORY STANDARDS

This assessment was performed with adherence to applicable USEPA rules and OSHA requirements governing asbestos management in schools and public access buildings, as well as applicable State and local statutes. Specifically, the following regulatory standards and specific asbestos-related statutes/protocols were applied by TGE and its contract laboratory during the performance of field efforts related to this study, analytical review of resulting bulk samples, and reduction of observations and data into this report.

Federal Standards	
Regulation	Description
29 CFR 1910.1001 - General Industry	Addresses potential asbestos exposure involving general industry applications, other than construction and renovation workers. This standard establishes minimum standards for the protection of workers involved in asbestos-related work or employees exposed to asbestos-contaminated places. These standards include required work practices, engineering controls, permissible exposure limits, written programs for respiratory protection and medical surveillance, methods for compliance, hazard communication, housekeeping, competent person training, responsibilities, and required record keeping.
29 CFR 1926.1101 - Construction Industry	Addresses asbestos exposure during construction and renovation activity; and sets forth standards, which employers must follow in documenting the protection of workers. The current survey was based on the Final Rules for Asbestos Exposure in General Industry and Construction, issued August 10, 1994 and effective October 1, 1995. An employer or owner may demonstrate that presumed asbestos-containing materials (PACM), which includes thermal system insulation (TSI), sprayed-on or troweled-on surfacing material, and debris in work areas where such material is present, does or does not contain asbestos by having conducted an inspection pursuant to requirements of the Asbestos Hazard Emergency Response Act (AHERA), 40 CFR 763, Subpart E, to be discussed below. Material testing is to include analysis of a minimum of at least three bulk samples of each homogeneous area of PACM collected in a randomly distributed manner. The tests, evaluation, and sample collection are to be performed by an accredited/licensed inspector or by a Certified Industrial Hygienist (CIH). The employer/building owner may demonstrate that non-PACM materials such as flooring material, including associated mastic and backing, does not contain asbestos based upon recognized analytical techniques. The material sampled may be designated as "asbestos free" if such material does not contain greater than 1% asbestos.
29 CFR 1910.134 - Respirator Program	Outlines rules for respiratory protection in a specific work environment. A respirator program must be put into place when asbestos is disturbed (i.e., during the performance of response actions), and as necessitated by OSHA in the designation of a "regulated area" during the performance of Class I, II, or III work. A respirator program must be put into place with the implementation of an Operations and Maintenance (O&M) Program for the safe management of ACM in place.

40 CFR 763, Subpart E – Asbestos in Schools/ Commercial Buildings	In October 1986, AHERA was signed into law. Included in this law were specific provisions directing the USEPA to establish regulations and address standards for identifying, evaluating, and controlling asbestos materials in schools (40 CFR, Part 763 Subpart E). This rule requires that all nonprofit elementary and secondary schools, both public and private, inspect their school buildings for asbestos-containing building materials (ACBM), develop a plan to manage the asbestos for each school building, notify parents and staff regarding management plan availability, provide asbestos awareness training to school maintenance and custodial workers among other requirements of the law. AHERA required schools to perform building inspections and prepare management plans for ACBM. Later, in 1995, OSHA adopted AHERA inspection protocols and procedures for use in public buildings (per 29 CFR 1910.1101). These protocols are used as the framework for OSHA inspections and inspection procedures utilized for this assessment.
40 CFR 61, Subpart M – National Emissions Standards for Hazardous Air Pollutants (NESHAP)	NESHAP provides for the control of environmental releases of asbestos caused by renovation/demolition activities. These regulations specify control requirements for most asbestos emissions and include work practices being followed to minimize the release of asbestos fibers during handling, removal, and disposal of asbestos waste materials. NESHAP regulations are frequently enforced by a State or local agency. The NESHAP Standard requires no discharge of visible emissions to the outside air during the collection processing, packaging, or transporting of any asbestos-containing waste material; adequate wetting of ACM; and processing of asbestos-containing waste material into non-friable forms.
State/Local Standards	
Regulation	Description
25 Texas Administrative Code (TAC) §295 - Texas Asbestos Health Protection Rules	The State of Texas adopted rules (statutes) governing asbestos maintenance, removal, and/or any related asbestos response action involving PACM or ACM. These rules, the Texas Asbestos Health Protection Rules (TAHPR), also include licensing requirements for individuals, consultants, abatement firms, and building owners when asbestos is present, and/or when testing is performed to locate such material (25 TAC §295.71). Every aspect of asbestos management from inspection to removal, and maintenance in place, is to be performed by a licensed individual trained in accordance with TAHPR requirements. Beginning January 1, 2002, Texas Senate Bill 509, formally codified under 25 TAC §295.34 (I), required municipalities to verify that an asbestos survey has been conducted prior to issuing renovation/demolition permits for the interiors of public or commercial buildings. Such surveys must comply with State and Federal laws governing asbestos surveys, must incorporate the areas of the building where renovation or demolition will occur, and must accurately describe the building materials where the renovation/demolition will take place. In accordance with 25 TAC §295.34(i), contractor installation of asbestos-containing products (unless there is no alternative building material) was prohibited. Additionally, contractors are required to have safety data sheets (SDSs) for all newly installed building materials (25 TAC §295.34 [j]). Maintaining and archiving the SDSs along with an architect or engineer signed statement stating the absence of ACM in new construction products will serve the purpose of a survey. This effort is intended to alleviate the need for an asbestos survey for the same areas, if they are to be renovated in the future.

1.4 SURVEY METHODS

With reference to the foregoing regulatory framework, this section addresses criteria necessary for identifying, evaluating, and assessing suspect ACMs.

Homogeneous Areas

Prior to collecting bulk samples, distinct homogeneous sampling areas of suspect ACM were determined and specific sampling locations defined. A homogeneous sample area (per USEPA and OSHA) is defined as a material that is similar in appearance, color and generally having the same episode of installation as surrounding "like" material. Attempts were made to obtain representative samples of like materials, as this is the most efficient and cost-effective method for determination of ACM. It should be assumed that the composition of like materials in a single homogeneous area are the same.

Homogeneous areas sampled as part of this survey included materials identified by TGE as suspect ACM and classified as friable (material containing more than one percent asbestos that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure); or, non-friable (material containing more than one-percent asbestos that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure). If disturbed outside of controlled practices, small (microscopic) particles of friable materials are more likely to become airborne than non-friable materials, thereby increasing the potential for health hazards if asbestos is present.

Suspect (or Presumed) ACMs

Asbestos is present in a wide variety of building materials. The three categories of ACMs per AHERA/OSHA are Thermal System Insulation (TSI), surfacing materials (a material that is troweled, sprayed or otherwise applied to a surface) and miscellaneous materials (any material not included in TSI or surfacing). The following general list of building materials are typically suspect of containing asbestos, unless information to the contrary is obtained from a reliable source (e.g., architect certification). This list is by no means exhaustive.

Surfacing Materials	TSI	Miscellaneous ACM
Ceiling/Wall Texture and Joint Compound	HVAC/Boiler Insulation	Flooring Materials ⁽¹⁾
Plaster/Stucco	Pipe Wrap/Insulation	Wallboard
Spray-Applied Materials	Taping Compounds	Ceiling Tiles
Troweled-On Materials	Thermal Paper Products	Adhesives/Mastics
		Caulking/Putties
		Exterior Construction
		Flexible Fabric Duct Connections
1) Includes vinyl floor tile (VFT), vinyl sheet flooring, ceramic floor tile.		
2) Includes roofing materials and roof penetration sealants.		

Hazard Assessment

According to AHERA (October 30, 1986), and as generally applied to other (non-school) commercial structures where asbestos is found, ACM is to be assessed in view of past, present or future likelihood of disturbance. Such considerations are referenced during the preparation of the Hazard Assessment. The magnitude of hazard presented by asbestos in buildings depends upon a number of factors relative to the condition, location and accessibility of the material to Site occupants and maintenance personnel, as well as transient occupants. The hazard assessment would apply to any occupant or maintenance personnel with the possibility of being exposed.

With regard to the hazard assessment (and also the selection of homogeneous sampling areas), consistency must be assumed with regard to the location of suspect/confirmed ACM, the condition of the material and the quantity of ACM present. From the standpoint of current Site usage, the following factors were to be considered during the hazard assessment process, prior to the hazard ranking:

- 1) the specific location and the amount of ACM present (total quantity);

- 2) the condition of the material (friable/non-friable);
- 3) if damaged, the type, severity and extent or spread of damage;
- 4) the accessibility of the material to occupants;
- 5) the potential for disturbance of the material;
- 6) the known or suspected causes of damage (i.e., air erosion, vandalism, service or repair, vibration, water and general deterioration with age);
- 7) those preventive measures, if applicable, which might eliminate the likelihood of future damage; and
- 8) specific actions recommended to protect human health.

Under the Hazard Assessment, ACM is typically examined and prioritized according to its condition, location, potential for damage and potential for fiber release. The priorities are usually divided into the following categories.

Hazard Ranking	Description
Low	Those non-friable materials in undamaged physical condition with a low potential for disturbance.
Moderate	Those currently non-friable materials, or friable materials in undamaged physical condition, that have a moderate potential for physical disturbance or damage (by various factors in connection with the building) rendering them friable and possibly causing local release of asbestos and discharge of asbestos fibers to the air.
High	Those friable materials or non-friable materials that have become friable and are in damaged physical condition; and/or likely to be disturbed by air erosion, water damage, construction activity, or other activities that may disturb/cause further damage to the ACM/PACM and cause release of asbestos locally and likely to the air.
Immediate	Those friable materials (or non-friable materials that have become friable) that are significantly damaged, have released particulate (asbestos) locally and likely to the air and are very likely to expose unprotected persons.

1.5 AREA(S) SUBJECT TO CURRENT ASSESSMENT

Work Area details/improvements and Select Areas subject to this Assessment are detailed below (refer to Section 1.10 for areas excluded from this Assessment). Interior and/or exterior finishes observed and sampled at the time of the Assessment are detailed within Section 1.8.

Site Description				
Survey Type	Area Subject To This Survey	Approx. Square Footage	Construction (Renovation) Date	Current Use/Occupant
Limited, Non-destructive in occupied areas	Interior areas of the Northwest Section, Northeast Section, and South Wing (roof/exterior excluded)	Northwest Section – 16,800	Northwest Section – During the 1960s/1970s (per Client-provided information)	The Northwest Section and South Wing are currently unoccupied, educational facilities. The Northeast Section is partially in use by a third-party pre-school (Head Start).
		Northeast Section – 10,750	Northeast Section – Mid to late 1980s (based on aerial photograph review)	
		South Wing – 33,600 First Floor 23,000 Second Floor	South Wing – Mid to late 1980s (based on aerial photograph review)	

1.6 FIELD METHODS

Prior to bulk sample collection, each individual bulk sample was identified and assigned/labeled by a unique number specific to Survey nomenclature. Reference numbers directly correspond to chain-of-custody documentation included in Appendix A of this report. Sample locations were recorded and are depicted upon Figure 1 (Asbestos Containing Materials/Sample Location Map – Northwest Section); Figure 2 (Asbestos Containing Materials/Sample Location Map – Northeast Section), and Figure 3 (Asbestos Containing Materials/Sample Location Map – South Wing). Photographic Documentation of areas sampled is provided in Appendix B. Client-provided floor plans of the Subject Area (which have been used to prepare referenced sample location maps) are attached within Appendix C of this report (if any). Certifications/licenses issued to inspectors/consultants involved in sampling and/or report preparation have been included in Appendix D.

Materials typically not sampled (because they are not typically asbestos-containing) include wooden and non-insulated metal doors, metal, glass and non-manufactured stones and natural finishes. Materials that are typically not sampled so as to avoid "destructive assessment" include fire doors, "fire stop" insulation linings within electrical and mechanical building components and fixtures (including vibration fabrics), non-insulated electrical wiring, transition/expansion joint sealant, ceramic tile and associated grout, cinderblock/brick materials, terrazzo flooring, mirror mastic, and other building "shell" applications or other hidden and/or inaccessible building components. However, given that Client is considering possible demolition of the Site in advance of possible real-estate divestiture, select materials that would warrant destructive assessment were tested in non-occupied areas: cinderblock and associated grout; ceramic tile; and brick grout. Should additional suspect materials be encountered and be subject to disturbance (such that asbestos could be disturbed), these previously non-tested materials must be appropriately tested and ruled out by laboratory analyses prior to any such disturbance.

1.7 PREVIOUS ASBESTOS ASSESSMENTS

TGE reviewed a Client-provided Management Plan prepared for the GISD prior to the Site visit, as proposed. The Management Plan was reviewed to potentially rule out repeated sampling of materials adequately sampled and analyzed by others, as well as to prepare a sampling plan. The Management Plan (with an approval date of November 1, 1989) discusses the sampling performed, condition assessments made and analytical results for suspect materials within several GISD educational structures, inclusive of the subject buildings.

Per the Management Plan, the Site structures were inspected on July 20, 1988 and July 21, 1988 by others. Samples were collected of the following materials: ceiling tile; HVAC duct insulation; pipe insulation; a tectum roof system; carpet fibers (excluded associated mastic); roll insulation; floor tile (excluded associated mastic); and gyp-board walls. Asbestos was not found within materials collected and submitted for analysis at the time of the 1988 survey.

Despite prior testing performed, TGE collected supplementary samples due to the following:

- to confirm laboratory findings previously reported;
- given a lack of photographs and material descriptions within the provided management plan, and limited information available regarding renovation history of the subject buildings, samples were collected to characterize homogeneous areas and compare findings to materials previously described per the management plan in the possible event of intervening material replacement;
- to collect and analyze flooring mastics, which were not previously collected/analyzed;
- to ensure appropriate sampling frequency was performed for each accessible homogenous area (as included within the Work Area and proposed scope of work);
- to ensure adequate analysis of separate layers of materials, specifically regarding wallboard system components and vinyl floor tile/mastic materials.

Refer to Section 1.8 below regarding materials sampled during the April 2021 Assessment.

1.8 SURVEY RESULTS

Interior suspect finishes observed at the time of TGE's survey are specified below. Relevant building material descriptions (i.e., color, texture, quantity) are summarized within Chain-of-Custody records included in Appendix A. Refer to Figure 1, Figure 2, and Figure 3 of this report for approximate sample locations. As per the table footnote, suspect ACM "Type" is defined as "M" (Miscellaneous Material), "S" (Surfacing Material), and "T" (Thermal System Insulation).

South Wing			
Material	Type	Friability	Damage
Concrete Masonry Unit (CMU) Grout	M	Non-friable	No damage
Brown Cove Base with Tan Mastic	M	Non-friable	No damage
Dot Ceiling Tile	M	Friable	No damage
Large Dot Ceiling Tile	M	Friable	No damage
Tan Speck VFT with Black Mastic	M	Non-friable	No damage
Stone VFT with Black Mastic	M	Non-friable	No damage
Brown Ceramic Tile and Grout	M	Non-friable	No damage
Wall System Components ³	M/S	Friable	Damaged
White 1" x 1" Ceramic Tile and Grout	M	Non-friable	No damage
Brown 1" x 1" Ceramic Tile and Grout	M	Non-friable	No damage
Tan 1" x 1" Ceramic Tile and Grout	M	Non-friable	No damage
White Sink Caulk	M	Non-friable	No damage
Purple VFT with Tan Mastic	M	Non-friable	No damage
White Wallboard/Texture/Tape/Joint Compound Wall	M/S	Non-friable	No damage
Brick Grout	M	Non-friable	No damage
Pink Ceramic Tile with Grout and Black Mastic	M	Non-friable	No damage
Black HVAC Mastic	M	Non-friable	No damage
White HVAC Mastic	M	Non-friable	No damage

³ Wall system³ includes wallboard, joint compound, tape and/or texture.

South Wing			
Material	Type	Friability	Damage
Thin Pipe Wrap and White Mastic	T/M	Non-friable	No damage
Thick Pipe Wrap and White Mastic	T/M	Non-friable	No damage
Brown VFT with Tan Mastic	M	Non-friable	Damaged
Tan Carpet Mastic	M	Non-friable	No damage
Northwest Section			
Material	Type	Friability	Damage
CMU Grout	M	Non-friable	No damage
White with Red Streak VFT with Tan/Black Mastic	M	Non-friable	No damage
Brown Cove Base with Tan Mastic	M	Non-friable	No damage
White VFT with Black Mastic	M	Non-friable	No damage
Tan Carpet Mastic	M	Non-friable	No damage
Dot Ceiling Tile	M	Friable	No damage
Grey VFT with Tan Mastic	M	Non-friable	No damage
Tan VFT with Tan/Black Mastic	M	Non-friable	No damage
White Sink Caulk	M	Non-friable	No damage
Cloth Pipe Wrap	T	Non-friable	Damaged
Large Dot Ceiling Tile	M	Friable	No damage
Grey Cove Base with White Mastic	M	Non-friable	No damage
Blue Cove Base with Tan Mastic	M	Non-friable	No damage
White 1" x 1" Ceramic Tile and Grout	M	Non-friable	No damage
Black HVAC Mastic	M	Non-friable	No damage
White HVAC Mastic	M	Non-friable	No damage
White VFT with Black Mastic (Under Carpet)	M	Non-friable	No damage
Black Cove Base with Tan Mastic	M	Non-friable	No damage
Grey Wall Mastic	M	Non-friable	No damage
Northeast Section			
Material	Type	Friability	Damage
CMU Grout	M	Non-friable	No damage
Black Cove Base with White Mastic	M	Non-friable	No damage
Tan Carpet Mastic	M	Non-friable	No damage
White Speck VFT with Tan/Black Mastic	M	Non-friable	No damage
Grey Window Caulk	M	Non-friable	No damage
Grey Floor Caulk	M	Non-friable	No damage
White Cove Base with Tan Mastic	M	Non-friable	No damage
Beige Cove Base with Tan Mastic	M	Non-friable	No damage
White HVAC Mastic	M	Non-friable	No damage
White Sink Caulk	M	Non-friable	No damage
Pipe Wrap and White Mastic	T/M	Non-friable	No damage
Dot Ceiling Tile	M	Friable	No damage
White Wallboard	M	Non-friable	No damage
White VFT with Pink Mastic	M	Non-friable	No damage
Cream Carpet Mastic	M	Non-friable	No damage
Wallboard Ceiling Tile	M	Non-friable	No damage
White/Red Speck VFT with Black Mastic	M	Non-friable	No damage
Brown VFT with Tan/Black Mastic	M	Non-friable	No damage
S = Surfacing Material M = Miscellaneous Material T = Thermal System Insulation			

Relevant building material descriptions (e.g., color, texture, quantity, etc.) are summarized within chain-of-custody records and included in Appendix A of this report. Refer to Figure 1, Figure 2, and Figure 3, as well as chain-of-custody records, for sample collection locations/descriptions.

If TGE was not granted "sampling access" to any portion of the Work Area, where suspect materials were recorded (suspect to exist), such materials (if any) are listed at the end of this section and designated on attached figures. Additional homogeneous areas so listed or located in these areas are presumed/assumed to contain asbestos until sampling proves otherwise.

1.9 ANALYTICAL RESULTS

From the aforementioned materials listed in Section 1.8, a total of 181 suspect asbestos bulk samples were collected for purposes of this survey. Analysis was performed by Eurofins EMLab P&K, a NVLAP laboratory, located at 10900 Brittmoore Park Drive, Suite G, in Houston, Texas. **Once all PLM analyses were completed (on May 4, 2021, May 6, 2021 and May 7, 2021), asbestos was identified in materials sampled for this survey.** For purposes of the table below, demolition of the structure was anticipated and the potential for ACM disturbance (under this scenario) is anticipated. Under existing conditions as observed during the survey, the potential for disturbance for each ACM is "low".

Table 1.9 - Asbestos Inventory and Management Options				
Description	Black Mastic		Black/Yellow Mastic	
Type	Misc.		Misc.	
Asbestos Content	7% Chrysotile	Sample(s): 13,15,19	2% Chrysotile	Sample(s): 37, 38, 39
Physical Location	South Wing (1 st and 2 nd floors) - beneath Non-ACM tan speck VFT		South Wing: 1 st Floor - Northern hall beneath non-ACM purple VFT	
Approximate Quantity (Visual) ⁽¹⁾	28,000 SF		1 SF	
Friability	Non-Friable		Non-Friable	
Condition	No damage		No damage	
Potential for Disturbance ^{(2) (3)}	High (due to possible demolition being planned)		High (due to possible demolition being planned)	
Assessment Category	ACBM with potential for damage		ACBM with potential for damage	
Response Action	Abate by removal prior to disturbance		Abate by removal prior to disturbance	
Description	Black Mastic		Black HVAC Mastic	
Type	Misc.		Misc.	
Asbestos Content	5% Chrysotile	Sample(s): 48, 49, 50	10% Chrysotile	Sample(s): 51, 52, 53
Physical Location	South Wing: 2 nd Floor - Boy's and Girl's Restroom under pink ceramic floor tile/grout		South Wing: Along ductwork within the ceiling plenum (specifically identified in the 1 st Floor Music room and the 2nd Floor southern classrooms, however, all ceiling plenum areas were not opened or accessed and additional areas of black HVAC mastic may exist)	
Approximate Quantity (Visual) ⁽¹⁾	200 SF		3 SF	
Friability	Non-Friable		Non-Friable	
Condition	No damage		No damage	
Potential for Disturbance ^{(2) (3)}	High (due to possible demolition being planned)		High (due to possible demolition being planned)	
Assessment Category	ACBM with potential for damage		ACBM with potential for damage	

Response Action	Abate by removal prior to disturbance		Abate by removal prior to disturbance	
Description	Black/Yellow Mastic		Black Mastic	
Type	Misc.		Misc.	
Asbestos Content	3% Chrysotile	Sample(s): 63, 64, 65	10% Chrysotile	Sample(s): 77, 78, 79
Physical Location	South Wing: 1 st Floor - Northern hall under non-ACM brown VFT		Northwest Section - Southern half of hallways under non-ACM white/red streak VFT	
Approximate Quantity (Visual)⁽¹⁾	15 SF		1,000 SF	
Friability	Non-Friable		Non-Friable	
Condition	No damage		No damage	
Potential for Disturbance^{(2) (3)}	High (due to possible demolition being planned)		High (due to possible demolition being planned)	
Assessment Category	ACBM with potential for damage		ACBM with potential for damage	
Response Action	Abate by removal prior to disturbance		Abate by removal prior to disturbance	
Description	Black Mastic		Black/Yellow Mastic	
Type	Misc.		Misc.	
Asbestos Content	5% Chrysotile	Sample(s): 83, 84, 85	3% Chrysotile	Sample(s): 98, 99, 100
Physical Location	Northwest Section - Northern half of hallways under non-ACM white VFT		Northwest Section - Staff Restroom under non-ACM tan VFT	
Approximate Quantity (Visual)⁽¹⁾	1,000 SF		120 SF	
Friability	Non-Friable		Non-Friable	
Condition	No damage		No damage	
Potential for Disturbance^{(2) (3)}	High (due to possible demolition being planned)		High (due to possible demolition being planned)	
Assessment Category	ACBM with potential for damage		ACBM with potential for damage	
Response Action	Abate by removal prior to disturbance		Abate by removal prior to disturbance	
Description	Black Mastic		Black Mastic	
Type	Misc.		Misc.	
Asbestos Content	2% Chrysotile	Sample(s): 120, 121, 122	8% Chrysotile	Sample(s): 132, 133, 134
Physical Location	Northwest Section: Children's Restrooms under non-ACM white 1" x 1" ceramic floor tile/grout		Northwest Section: Eastern half of the Library under Non-ACM white VFT and carpet	
Approximate Quantity (Visual)⁽¹⁾	250 SF		200 SF	
Friability	Non-Friable		Non-Friable	
Condition	No damage		No damage	
Potential for Disturbance^{(2) (3)}	High (due to possible demolition being planned)		High (due to possible demolition being planned)	
Assessment Category	ACBM with potential for damage		ACBM with potential for damage	
Response Action	Abate by removal prior to disturbance		Abate by removal prior to disturbance	
Description	Black/Yellow Mastic		Multicolored Mastic	
Type	Misc.		Misc.	
Asbestos Content	2% Chrysotile	Sample(s): H-10, H-11, H-12	<1% Chrysotile ⁽⁴⁾	Sample(s): H-43, H-44, H-45

Physical Location	Northeast Section: under non-ACM white speck VFT		Northeast Section: Room A under carpet
Approximate Quantity (Visual) ⁽¹⁾	15,000 SF		400 SF
Friability	Non-Friable		Non-Friable
Condition	No damage		No damage
Potential for Disturbance ^{(2) (3)}	High (due to possible demolition being planned)		High (due to possible demolition being planned)
Assessment Category	ACBM with potential for damage		ACBM with potential for damage
Response Action	Abate by removal prior to disturbance		Abate by removal prior to disturbance
Description	Black Mastic		
Type	Misc.		
Asbestos Content	10% Chrysotile	Sample(s): H-49, H-50, H-51	
Physical Location	Northeast Section: northern hall under non-ACM white/red speck VFT		
Approximate Quantity (Visual) ⁽¹⁾	500 SF		
Friability	Non-Friable		
Condition	No damage		
Potential for Disturbance ^{(2) (3)}	High (due to possible demolition being planned)		
Assessment Category	ACBM with potential for damage		
Response Action	Abate by removal prior to disturbance		

(1) Square Feet (SF)/Linear Feet (LF).
(2) Refer to Section 1.4 for descriptions.
(3) Demolition of the structure was anticipated and the potential for ACM disturbance (under this scenario) is anticipated. Under existing conditions as observed during the survey, the potential for disturbance for each ACM is "low".
(4) Although multi-colored carpet mastic located within Room A of the Northeast Section was found to contain less than 1% chrysotile, this material contains asbestos mineral. As such, the need for engineering controls and work practices are indicated per 29 CFR 1926.1101(g) (OSHA Asbestos Construction Standard) during disturbance (building demolition).

Refer to attached figures regarding specific ACM locations. In addition, Client shall assume/presume all other suspect materials that have not undergone testing to be asbestos-containing until refuted/confirmed by laboratory analysis.

1.10 LIMITATIONS

The following limitations were realized during the testing event:

- No exterior or roofing building materials were to be included in this assessment; however, these materials shall be assessed prior to any future disturbance.
- Localized destructive testing was to be minimal and performed within non-occupied areas of the subject buildings.
- TGE was unable to inspect and/or assess all wall and flooring materials for additional/underlying suspect ACM; likewise wall cavities and all ceiling plenum areas were not opened or accessed.

- TGE was unable to inspect and/or assess the elevator and associated elevator pit of the 1st floor of the South Wing.
- Given that select areas of the Northeast Section were occupied by a third party pre-school (Head Start) and that select areas were utilized to store large quantities of furniture/materials, TGE's visual assessment was limited by accessibility.

2.0 POLYCHLORINATED BIPHENYLS (PCBS)

PCBs are toxic coolant or lubricating oils used in some electrical transformers, light ballasts, electrical panels, or other similar equipment manufactured prior to 1979. In addition, PCBs can be found within dried paints, sealants, adhesives, caulking, insulation, gaskets and plastics (not an exhaustive list). Some of these materials were observed during Site assessment efforts (or likely exist within the subject buildings). Numerous fluorescent light fixtures equipped with ballasts were observed throughout the Site ranging in size from 4-feet to 8-feet. Due to access limitations, ballast types associated with all light fixtures could not be confirmed. However, where inspected, "Non-PCB" ballast labels were present. In addition to referenced fluorescent light fixtures, numerous fixtures with metal halide bulbs were present (discussed below in Section 3.0).

3.0 REGULATED MATERIALS (MERCURY/METALS)

TGE performed a visual assessment for other regulated materials that will require management prior to possible building demolition. RCRA metals identified and/or suspected within materials and equipment observed within the subject building were limited to mercury-containing fluorescent light bulbs, metal halide lamps and/or lead-acid rechargeable batteries associated with emergency lighting, and light fixture ("electronic") ballasts. Such materials are regulated under the Universal Waste rule (30 TAC §335.261) and should be properly managed via disposal/destruction at a permitted waste management or recycling facility.

4.0 HYDROCARBONS

As a component of TGE's hazardous materials Assessment, Site inspectors searched for hydrocarbon/solvent staining and/or local (active) hydrocarbon leaks. No observed areas were associated with hydrocarbon/solvent staining at the time of the Site Assessment; however, localized stains (if any) may have been precluded by rainy/wet surfaces, the presence of miscellaneous debris and/or heavy layers of visible (gross) dust observed throughout the Site. Small volume hydrocarbon storage was observed in the form of two partially full 5-gallon containers of elevator (hydraulic) oil within the elevator equipment room on the 1st floor of the South Wing and a partially full (500-milliliter) container of motor oil within the South Wing stairwell closet.

5.0 FREON™

Freon™ is a trade name for a refrigerant used in air conditioning units and is a class of chemicals known as chlorofluorocarbons (CFCs). Freon™ is a gas at room temperature and a liquid when cooled or compressed. While Freon™ does not have any serious long-term human health effects and is not a known carcinogen, it is listed by the USEPA as "hazardous" if vented to the atmosphere. Equipment containing Freon™ was readily apparent within South Wing and Northeast Wing kitchens (refrigerators) and within HVAC units located throughout the survey areas. In advance of planned demolition, Freon™ removal must be performed via a refrigerant recovery or recycling process utilized by a certified technician.

6.0 CHEMICAL INVENTORY

TGE assessed the Site for chemicals that would require regulated disposal prior to possible planned demolition/renovation (see attached Hazardous Materials Inventory). Chemicals observed were in the form of acrylic paint, aerosol paint, oil-based paint, latex paint, primer, sealer/finish, graffiti remover degreaser, enzyme cleaner, fire extinguishers, household bleach, household ammonia, distilled vinegar, no-rinse floor cleaner, toilet bowl cleaner, Odorsorb™, spackle, mineral spirits, alcohol, carpet extraction cleaner, miscellaneous aerosols, hand sanitizer, iron filings, and a helium tank. Additionally, two 5-gallon containers of unknown material were observed within the South Wing Janitor's Closet. Containers observed at the Site were in good condition and not associated with leaks/spills or apparent releases.

7.0 PRELIMINARY LBP INSPECTION

A visual Preliminary Lead Based Paint (LBP) Inspection with focus on deteriorated/damaged paint areas was conducted concurrently with the Asbestos Survey. Due to the date of the Northwest Section, all painted/coated surfaces are assumed to contain lead; while paints/coatings within the Northeast Section and South Wing are lead paint suspect. Numerous painted/coated surfaces were observed throughout the subject buildings. However, areas with observed damaged/flaking paint that may result in lead dust exposure when disturbed were observed within the South Wing stairwell on metal stair rails. Testing for lead-based paint was not a component of the current scope of work.

8.0 RECOMMENDATIONS

Based upon results of this limited hazardous materials assessment and in compliance with all applicable EPA, OSHA and State of Texas rules and regulations governing those materials identified herein, TGE provides the following recommendations for consideration by Client.

8.1 ACM

- Response actions provided in Table 1.9 must be implemented by the local education agency or accredited designers as applicable, should the Site be used for a Kindergarten through 12th Grade occupancy as a school. Each assumed/confirmed non-friable or friable ACBM shall be visually inspected every three years for a condition assessment and findings incorporated into the Site-specific Management Plan.
- Presumed, assumed and confirmed ACMs, which may be disturbed during possible future demolition, if performed, must be tested/abated by a contractor licensed in the State of Texas to perform such work. Prior to any abatement, it is suggested that a comprehensive pre-abatement asbestos survey be performed and more exact locations and quantities of ACM be prepared by direct measurement.
- A copy of this report shall be provided to the local education agency designated for this school facility within 30 days of the Site inspection and incorporated into a Site specific management plan. In addition, the local education agency shall select and implement in a timely manner the appropriate response actions provided within this report.
- Should planned renovation/demolition activities involve or discover any new or otherwise previously non-tested (and non-presumed) material that has not been previously identified as asbestos-containing or appropriately ruled out by laboratory analyses (i.e., materials found in inaccessible areas at the time of renovation), asbestos assessment and characterization analyses must be performed prior to any activity that would move the newly found material from its position. If subsequent asbestos analyses prove conclusive for asbestos mineral content of greater than 1% in any material, abatement of the ACM must precede any activity that could disturb the material.
- A copy of this survey must be available at the Site at all times during renovation/demolition, and provided upon request to regulatory representatives. Likewise, this report must be available for reference during all renovation or demolition activities and used to the maximum extent practicable so that unknowing release of asbestos fibers may be avoided.
- As stated, TAHPR requires an asbestos survey each time a permit for renovation is obtained from the local municipality. Per TAHPR, the permittee must ensure that ACM is not re-installed within the building during reconstruction and refinishing. As such, TGE recommends that Client maintain and archive Safety Data Sheet (SDSs) for all newly installed materials; or obtain licensed architect certification specific to "no ACM being re-installed." This effort is intended to alleviate the need for future asbestos surveys of newly-constructed/finished areas.

8.2 POLYCHLORINATED BIPHENYLS

- As observed, light ballasts would not likely require removal and disposal in compliance with applicable Federal and State requirements for PCBs. However, given that the Northwest Section was likely constructed concurrent with PCB phase-out and assessment of Site ballasts was limited, if materials/equipment not previously inspected are found, the PCB content should be ruled out prior to disposal.

8.3 REGULATED MATERIALS (MERCURY/METALS)

- Fluorescent light bulbs, rechargeable (NiCd or lead-acid) batteries in emergency lighting fixtures, and metal halide lamps are regulated as "Universal Wastes." Therefore, such materials should be removed prior to renovation/demolition (if performed) and properly managed/recycled at a permitted waste management facility.

8.4 HYDROCARBONS

- No observed areas were found with obvious hydrocarbon/solvent staining at the time of the Site Assessment; however, *de minimis* staining may be present yet precluded by rainy/wet surfaces, miscellaneous debris, and/or heavy layers of visible (gross) dust observed at the Site. Hydrocarbon materials and containers should be removed prior to renovation/demolition and properly managed/recycled at a permitted waste management facility.

8.5 FREON™

- Possible Freon™ containing equipment was identified during the Site assessment. A licensed HVAC Technician should be retained to conduct Freon™ recovery from equipment prior to demolition, disposal or decommissioning activities.

8.6 CHEMICAL INVENTORY

- For all chemical containers in storage, paint, unknowns, and miscellaneous inventory as observed throughout the Work Area, TGE suggests Client re-use of containerized inventory (elsewhere) if possible. Otherwise, this inventory should be appropriately transported and disposed of by a qualified third party as a "lab pack" shipment under manifest to a licensed facility for destruction.

8.7 LBP

- Areas of paint/coating surface observed in a damaged/flaking condition may lead to dust exposure by occupants, if disturbed (South Wing stairwell on metal stair rails). Sampling of this material should be performed to confirm the presence of regulated lead; and repaired in compliance with OSHA regulations (29 CFR 1910.1025 and 29 CFR 1926.62, attached). However, if renovation/demolition of the Site is to occur lead paint/coating removal (if confirmed) is not required and, special handling of the material is not necessary.

9.0 QUALIFICATIONS/LIMITATIONS

This work product, prepared in conjunction with the foregoing assessment, is intended as a description of available information at the dates and locations given. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated. Opinions and recommendations presented herein apply to Site conditions existing at the time of TGE's investigation and those reasonably foreseeable. Such findings cannot necessarily apply to Site changes of which this company is not aware and has not had the opportunity to evaluate.

Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. This company is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploration and laboratory test data presented in this report; or presented by others in connection with any building-related sample area not addressed herein. This report is intended for the sole use of GISD and its representatives. The scope of services performed may not be appropriate to satisfy additional users. Any unauthorized use or reuse of report findings, conclusions, or recommendations is at the risk of said user.

10.0 SIGNATURES OF ENVIRONMENTAL PROFESSIONALS

This letter report has been prepared by licensed and certified personnel in accordance with standard professional practice and requirements per applicable Federal/State regulations. The conclusions provided by TGE Resources, Inc., are based solely on observations described in this submittal at the time these services were conducted. No other warranties are intended or implied. If you have any questions regarding this report, please contact us at (713) 744-5800. For your convenience, our fax number is (713) 744-5888.

Sincerely,

TGE Resources, Inc.
TDSHS Licensed Asbestos Agency #10-0171



Robin Franks
President
Texas Licensed Individual Asbestos Consultant
#10-5379
Texas Certified Lead Abatement Project Designer
#2080002



Kristi Destouet
Project Manager
Texas Licensed Asbestos Inspector (#60-3803)
Texas Certified Lead Risk Assessor #2071244



Raymond Lopez
Project Environmental Scientist
Texas Licensed Asbestos Inspector (#60-3803)
Texas Certified Lead Risk Assessor #2071244



Logan Watkins
Project Environmental Scientist
Texas Licensed Asbestos Inspector (#60-3913)

RDF/KD/RL/LW

TGE Project No.: R14234.01
May 14, 2021
Page 2

Attachments:

Figures

- Figure 1 - Northwest Section: Asbestos Containing Materials/Sample Location Map
- Figure 2 - Northeast Section: Asbestos Containing Materials/Sample Location Map
- Figure 3 - South Wing: Asbestos Containing Materials/Sample Location Map

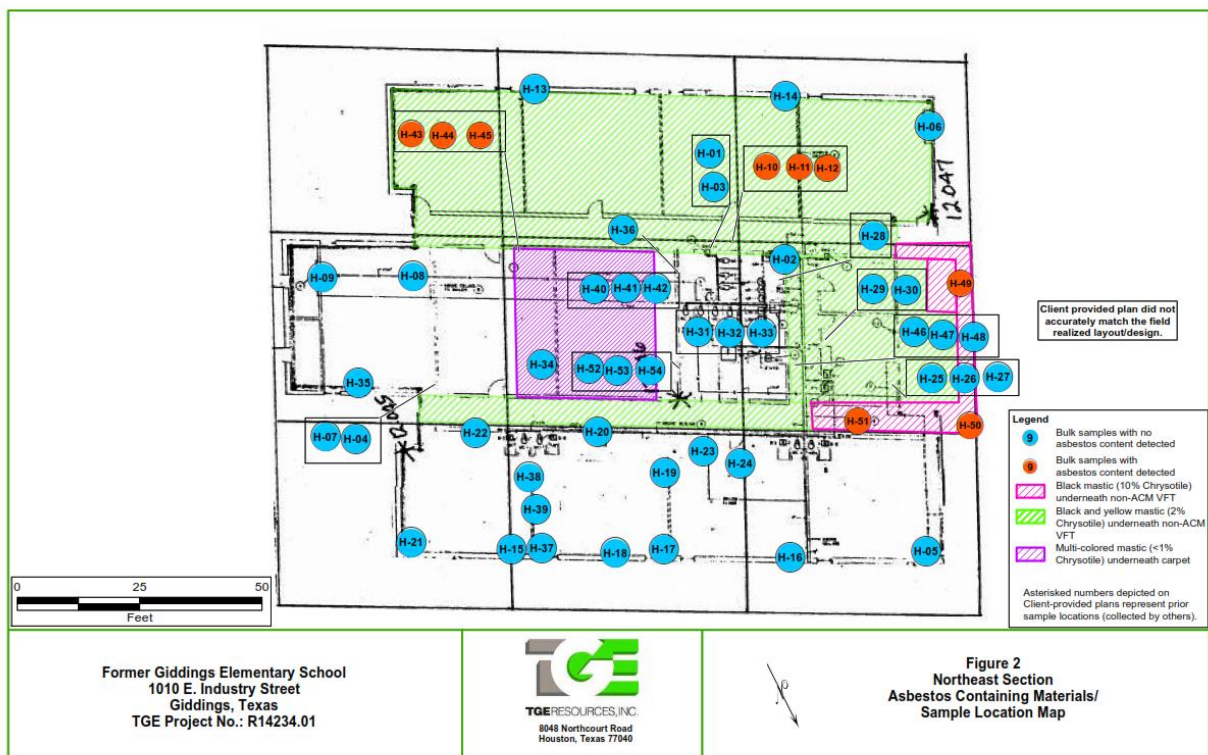
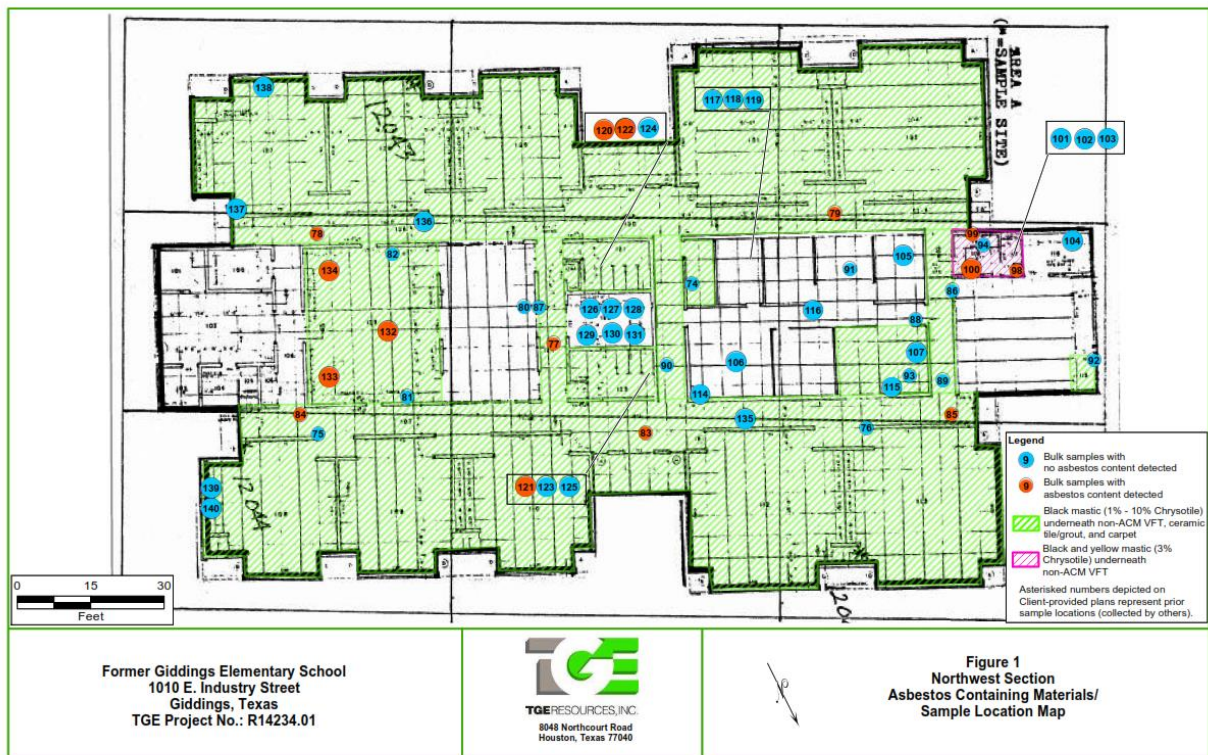
Tables

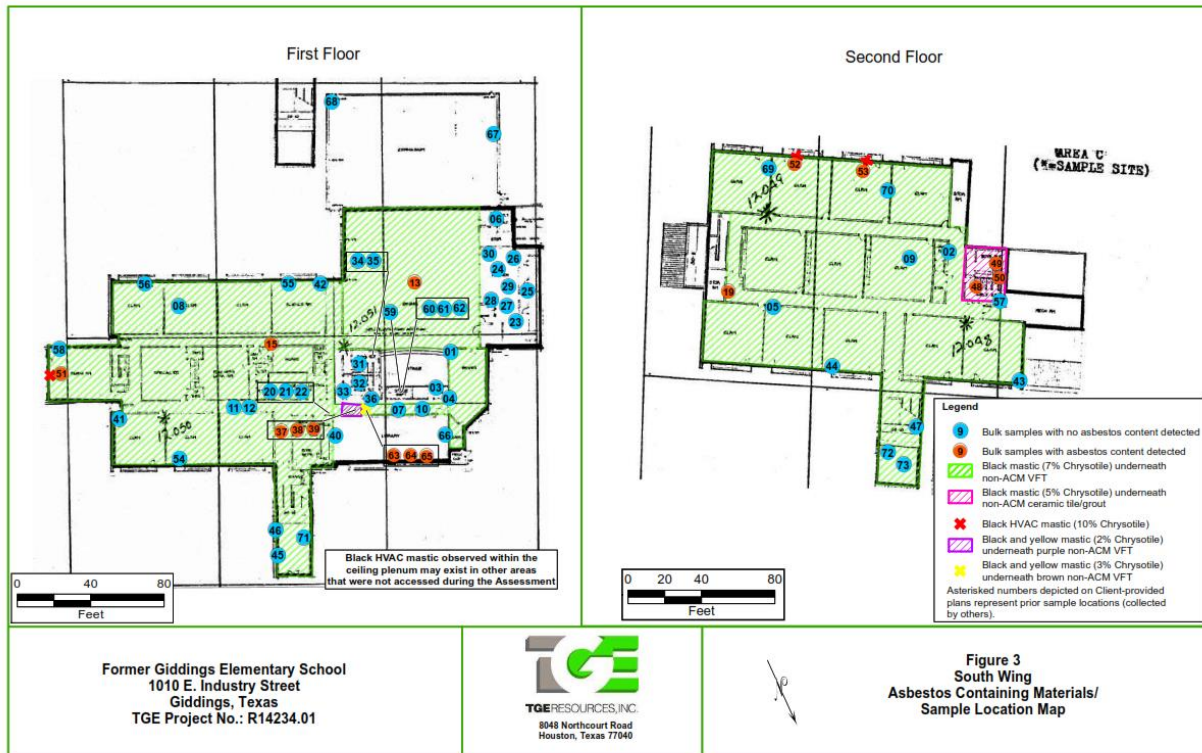
- Table 1 - Hazardous Materials Inventory

Appendices

- Appendix A - Laboratory Analytical Results and Chain-of-Custody
- Appendix B - Photographic Documentation
- Appendix C - Client-Provided Floor Plans
- Appendix D - Licenses/Accreditation Certificates
- Appendix E - OSHA 29 CFR 1910.1025 and OSHA 29 CFR1926.62

FIGURES





Tables

R14234.01 Hazardous Materials Inventory

Types of Waste	Description	Location	Quantity	Size
Class 2.1 (HAZ)	Aerosol Paint	South Wing: Janitors Closet	10	1 Liter
Class 2.1 (HAZ)	Aerosol Paint	Northwest Wing: Closet	1	1 Liter
Class 2.1 (HAZ)	Aerosol Paint	Northwest Wing: Janitor Closet	2	1 Liter
Class 2.1 (HAZ)	Aerosol Paint	Northwest Wing: Classroom	1	1 Liter
Class 3 (HAZ)	Mineral Spirits	South Wing: Stairwell Closet	1	1 Gallon
Class 3 (HAZ)	Alcohol	Northwest Wing: Janitor Closet	1	500 mL
Class 3 (HAZ)	Hand Sanitizer	Northeast Wing Office	4	1 Gallon
Class 8 (HAZ)	Household Bleach	South Wing: 2nd Floor janitors closet and mechanical room	2	1 Gallon
Class 8 (HAZ)	Toilet bowl Cleaner	South Wing: 2nd Floor Mechanical Room	1	1 Liter
Class 8 (HAZ)	Eraser Graffiti Remover	South Wing: 2nd Floor Mechanical Room	1	500 mL
Class 8 (HAZ)	Bleach	Northwest Wing: Mop Closet	2	1 Gallon
Class 8 (HAZ)	Toilet bowl Cleaner	Northwest Janitor Closet	1	1 Liter
Class 8 (HAZ)	Bleach	Northeast Wing: Kitchen	1	1 Gallon
Class 8 (HAZ)	Quittet Chlorine Sanitizer	Northeast Wing: Kitchen	2	1 Gallon
Class 2.2 (Non-Haz)	Non Haz Aerosols	Northwest Wing: Supply closet	2	1 Liter
Class 2.2 (Non-Haz)	Lysol Aerosols	Northeast Wing Office	2	1 Liter
Class 2.2 (Non-Haz)	Fire-Extinguisher	Throughout	16	Various
Class 2.2 (Non-Haz)	R134a	All Wings: Kitchens	12	Units
Class 2.2 (Non-Haz)	Helium tank	South Wing: 2nd Floor janitors closet	1	1 Gallon
E-waste	Computers, TVs, Monitors	Throughout	N/A	N/A
Non-Reg	Non-PCB Ballast	Throughout	N/A	340

Non-Reg	Acrylic Paint	South Wing: Janitors closet and Kitchen	3	5 Gallon
Non-Reg	Acrylic Paint	South Wing: Janitors closet and Kitchen	1	1 Gallon
Non-Reg	Primer	South Wing: Kitchen	1	5 Gallon
Non-Reg	Members Mark Heavy Duty Degrease	South Wing: Kitchen	1	1 Gallon
Non-Reg	Magic Blue Enzyme Cleaner	South Wing: Kitchen	16	1 Liter
Non-Reg	Household Ammonia	South Wing: Janitors Closet	1	1 Gallon
Non-Reg	Latex Paint	South Wing: Janitors Closet	1	5 Gallon
Non-Reg	Latex Paint	South Wing: Janitors Closet	6	1 Gallon
Non-Reg	No-Rinse Floor Cleaner	South Wing: 2nd floor janitors closet	1	1 Gallon
Non-Reg	Window Caulk	South Wing: Music Room	5	1 Liter
Non-Reg	Odorsorb	South Wing: 2nd Floor Mechanical Room	1	500 grams
Non-Reg	Iron Fillings	South Wing: 2nd Floor Mechanical Room	1	100 grams
Non-Reg	Latex Paint	South Wing: 2nd Floor SE Room	2	1 Gallon
Non-Reg	Spackle	South Wing: 2nd Floor SE Room	1	1 Gallon
Non-Reg	Latex Paint	South Wing: Stairwell Closet	5	1 Gallon
Non-Reg	Motor oil	South Wing: Stairwell Closet	1	500 mL
Non-Reg	Latex Paint	South Wing: Stairwell Closet	3	500 mL
Non-Reg	Steamette Cleaner	South Wing: Stairwell Closet	1	1 Gallon
Non-Reg	Household Ammonia	Northwest Wing: Closet	2	1 Gallon
Non-Reg	Latex Paint	Northwest Wing: Closet	3	1 Gallon
Non-Reg	Citation Sealer/Finish	Northwest Wing: Janitor Closet	1	55 Gallon

Non-Reg	Latex Paint	Northwest Wing: Classroom	6	1 Gallon
Non-Reg	Water Based Kids Paints	Northeast Wing: Supply Room	30	1 Gallon
Non-Reg	Distilled Vinegar	Northeast Wing: Supply Room	1	1 Gallon
Non-Reg	Household Ammonia	Northeast Wing: Janitors Closet	1	1 Gallon
Non-Reg	Crew Easy Paks Toilet Bowl Cleaner	Northeast Wing: Supply closet	1	1 Gallon
Non-Reg	Hydraulic Motor Oil	South Wing: Elevator Room	2	5 Gallon
Non-Reg	RX Dry	Northeast Wing: Kitchen	1	1 Gallon
Non-Reg	Speed Clean	Northeast Wing: Kitchen	1	1 Gallon
To be determined	Contents not reported/determined	South Wing: Janitors Closet	2	5 Gallon
Universal	Fluorescent Bulbs	Throughout	Varies	1422 Bulbs
Universal	Metal Halide Bulbs	Near Exits	Varies	40 Bulbs
Universal	Incandescent Light Bulbs	South Wing: Music Room	Varies	15 Bulbs
Universal	Lead Acid Battery	Near Exits	Varies	16 Batteries
Universal	Oil-based Paint	South Wing: Janitors Closet	2	1 Gallon
Universal	Oil-based Paint	South Wing: Stairwell Closet	1	1 Gallon
Universal	Oil-based Paint	Northwest Wing: Classroom	2	1 Gallon

APPENDIX A



EMLab P&K

Report for:

Tim Crump, Kristi Destouet
TGE Resources, Inc
8048 Northcourt Road
Houston, TX 77040

Regarding: Project: R14234.01; Asbestos Consulting-Former Edu. Facility
EML ID: 2629582

Approved by:

Dates of Analysis:
Asbestos PLM: 05-04-2021



Approved Signatory
Gregorio Delgado

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 600122-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2629582, Page 1 of 10

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting-Former Edu.
 Facility

Eurofins EMLab P&K
 10900 Brittmoore Park Drive, Suite G, Houston, TX 77041
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com

Date of Sampling: 04-28-2021

Date of Receipt: 04-29-2021

Date of Report: 05-05-2021

ASBESTOS PLM REPORT

Total Samples Submitted:	32
Total Samples Analyzed:	32
Total Samples with Layer Asbestos Content > 1%:	3

Location: 1, CMU Grout

Lab ID-Version: 12560447-1

Sample Layers	Asbestos Content
White Grout	ND
Sample Composite Homogeneity:	Good

Location: 2, CMU Grout

Lab ID-Version: 12560448-1

Sample Layers	Asbestos Content
White Grout	ND
Sample Composite Homogeneity:	Good

Location: 3, CMU Grout

Lab ID-Version: 12560449-1

Sample Layers	Asbestos Content
White Grout	ND
Sample Composite Homogeneity:	Good

Location: 4, Brown Cove Base/Tan Mastic

Lab ID-Version: 12560450-1

Sample Layers	Asbestos Content
Brown Baseboard	ND
Tan Mastic	ND
Sample Composite Homogeneity:	Poor

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2629582, Page 2 of 10

Client: TGE Resources, Inc
C/O: Tim Crump, Kristi Destouet
Re: R14234.01; Asbestos Consulting-Former Edu. Facility

Eurofins EMLab P&K
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(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Date of Sampling: 04-28-2021
Date of Receipt: 04-29-2021
Date of Report: 05-05-2021

ASBESTOS PLM REPORT

Location: 5, Brown Cove Base/Tan Mastic

Lab ID-Version‡: 12560451-1

Sample Layers	Asbestos Content
Brown Baseboard	ND
Tan Mastic	ND
Sample Composite Homogeneity: Poor	

Location: 6, Brown Cove Base/Tan Mastic

Lab ID-Version‡: 12560452-1

Sample Layers	Asbestos Content
Brown Baseboard	ND
Tan Mastic	ND
Sample Composite Homogeneity: Poor	

Location: 7, Dot Ceiling Tile

Lab ID-Version‡: 12560453-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content: 60% Cellulose 25% Glass Fibers	
Sample Composite Homogeneity: Good	

Location: 8, Dot Ceiling Tile

Lab ID-Version‡: 12560454-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content: 60% Cellulose 25% Glass Fibers	
Sample Composite Homogeneity: Good	

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2629582, Page 3 of 10

Client: TGE Resources, Inc
C/O: Tim Crump, Kristi Destouet
Re: R14234.01; Asbestos Consulting-Former Edu.
Facility

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(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Date of Sampling: 04-28-2021

Date of Receipt: 04-29-2021

Date of Report: 05-05-2021

ASBESTOS PLM REPORT

Location: 9, Dot Ceiling Tile

Lab ID-Version†: 12560455-1

Sample Layers	Asbestos Content
Gray Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	60% Cellulose 25% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 10, Large Dot Ceiling Tile

Lab ID-Version†: 12560456-1

Sample Layers	Asbestos Content
White Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	65% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 11, Large Dot Ceiling Tile

Lab ID-Version†: 12560457-1

Sample Layers	Asbestos Content
White Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	65% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 12, Large Dot Ceiling Tile

Lab ID-Version†: 12560458-1

Sample Layers	Asbestos Content
White Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	65% Cellulose 10% Glass Fibers
Sample Composite Homogeneity:	Good

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2629582, Page 4 of 10

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting-Former Edu.
 Facility

Eurofins EMLab P&K
 10900 Brittmoore Park Drive, Suite G, Houston, TX 77041
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com

Date of Sampling: 04-28-2021

Date of Receipt: 04-29-2021

Date of Report: 05-05-2021

ASBESTOS PLM REPORT

Location: 13, Tan Speck VFT/Back Mastic

Lab ID-Version‡: 12560459-1

Sample Layers	Asbestos Content
Tan Floor Tile	ND
Black Mastic	7% Chrysotile
Composite Non-Asbestos Content:	5% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 15, Tan Speck VFT/Back Mastic

Lab ID-Version‡: 12560460-1

Sample Layers	Asbestos Content
Tan Floor Tile	ND
Black Mastic	7% Chrysotile
Composite Non-Asbestos Content:	5% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 19, Tan Speck VFT/Back Mastic

Lab ID-Version‡: 12560461-1

Sample Layers	Asbestos Content
Tan Floor Tile	ND
Black Mastic	7% Chrysotile
Composite Non-Asbestos Content:	5% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 20, Stone VFT/Clear Mastic

Lab ID-Version‡: 12560462-1

Sample Layers	Asbestos Content
Gray/Black Sheet Flooring	ND
Transparent Adhesive	ND
Sample Composite Homogeneity:	Moderate

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2629582, Page 5 of 10

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting-Former Edu.
 Facility

Eurofins EMLab P&K
 10900 Brittmoore Park Drive, Suite G, Houston, TX 77041
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com

Date of Sampling: 04-28-2021

Date of Receipt: 04-29-2021

Date of Report: 05-05-2021

ASBESTOS PLM REPORT

Location: 21, Stone VFT/Clear Mastic

Lab ID-Version#: 12560463-1

Sample Layers	Asbestos Content
Gray/Black Sheet Flooring	ND
Transparent Adhesive	ND
Sample Composite Homogeneity: Moderate	

Location: 22, Stone VFT/Clear Mastic

Lab ID-Version#: 12560464-1

Sample Layers	Asbestos Content
Gray/Black Sheet Flooring	ND
Transparent Adhesive	ND
Sample Composite Homogeneity: Moderate	

Location: 23, Brown Ceramic Tile/Grout

Lab ID-Version#: 12560465-1

Sample Layers	Asbestos Content
Brown Ceramic Tile	ND
Gray Grout	ND
Sample Composite Homogeneity: Moderate	

Location: 24, Brown Ceramic Tile/Grout

Lab ID-Version#: 12560466-1

Sample Layers	Asbestos Content
Brown Ceramic Tile	ND
Gray Grout	ND
Sample Composite Homogeneity: Moderate	

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2629582, Page 6 of 10

Client: TGE Resources, Inc
C/O: Tim Crump, Kristi Destouet
Re: R14234.01; Asbestos Consulting-Former Edu. Facility

Eurofins EMLab P&K
10900 Brittmoore Park Drive, Suite G, Houston, TX 77041
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Date of Sampling: 04-28-2021
Date of Receipt: 04-29-2021
Date of Report: 05-05-2021

ASBESTOS PLM REPORT

Location: 25, Brown Ceramic Tile/Grout

Lab ID-Version: 12560467-1

Sample Layers	Asbestos Content
Brown Ceramic Tile	ND
Gray Grout	ND
Sample Composite Homogeneity:	Moderate

Location: 26, White WB Texture/Tape/JC

Lab ID-Version: 12560468-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
Cream Tape	ND
White Texture	ND
Composite Non-Asbestos Content:	10% Cellulose 2% Glass Fibers
Sample Composite Homogeneity:	Poor

Location: 27, White WB Texture/Tape/JC

Lab ID-Version: 12560469-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
Cream Tape	ND
White Texture	ND
Composite Non-Asbestos Content:	10% Cellulose 2% Glass Fibers
Sample Composite Homogeneity:	Poor

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2629582, Page 7 of 10

Eurofins EMLab P&K10900 Brittmoore Park Drive, Suite G, Houston, TX 77041
(800) 651-4802 Fax (623) 780-7695 www.emlab.comClient: TGE Resources, Inc
C/O: Tim Crump, Kristi Destouet
Re: R14234.01; Asbestos Consulting-Former Edu.
Facility

Date of Sampling: 04-28-2021

Date of Receipt: 04-29-2021

Date of Report: 05-05-2021

ASBESTOS PLM REPORT**Location: 28, White WB Texture/Tape/JC**

Lab ID-Version‡: 12560470-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
Cream Tape	ND
White Texture	ND
Composite Non-Asbestos Content:	10% Cellulose 2% Glass Fibers
Sample Composite Homogeneity:	Poor

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2629582, Page 8 of 10

Client: TGE Resources, Inc
C/O: Tim Crump, Kristi Destouet
Re: R14234.01; Asbestos Consulting-Former Edu. Facility

Eurofins EMLab P&K
10900 Brittmoore Park Drive, Suite G, Houston, TX 77041
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Date of Sampling: 04-28-2021
Date of Receipt: 04-29-2021
Date of Report: 05-05-2021

ASBESTOS PLM REPORT

Location: 29, White WB/Texture/Tape/JC

Lab ID-Version: 12560471-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
Cream Tape	ND
White Texture	ND
Composite Non-Asbestos Content:	10% Cellulose 2% Glass Fibers
Sample Composite Homogeneity:	Poor

Location: 30, White WB/Texture/Tape/JC

Lab ID-Version: 12560472-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
Cream Tape	ND
White Texture	ND
Composite Non-Asbestos Content:	10% Cellulose 2% Glass Fibers
Sample Composite Homogeneity:	Poor

Location: 31, White Ceramic 1"x1" Fl Tile/Grout

Lab ID-Version: 12560473-1

Sample Layers	Asbestos Content
Off-White Ceramic Tile	ND
Gray Grout	ND
Sample Composite Homogeneity:	Moderate

Location: 32, Brown Ceramic 1"x1" Fl Tile/Grout

Lab ID-Version: 12560474-1

Sample Layers	Asbestos Content
Off-White Ceramic Tile	ND
Gray Grout	ND
Sample Composite Homogeneity:	Moderate

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2629582, Page 9 of 10

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting-Former Edu.
 Facility

Eurofins EMLab P&K
 10900 Brittmoore Park Drive, Suite G, Houston, TX 77041
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com

Date of Sampling: 04-28-2021

Date of Receipt: 04-29-2021

Date of Report: 05-05-2021

ASBESTOS PLM REPORT

Location: 33, Tan Ceramic 1"x1" FI Tile/Grout

Lab ID-Version: 12560475-1

Sample Layers	Asbestos Content
Off-White Ceramic Tile	ND
Gray Grout	ND
Sample Composite Homogeneity: Moderate	

Location: 34, White Sink Caulk

Lab ID-Version: 12560476-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity: Good	

Location: 35, White Sink Caulk

Lab ID-Version: 12560477-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity: Good	

Location: 36, White Sink Caulk

Lab ID-Version: 12560478-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity: Good	

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2629582, Page 10 of 10

Email all results to: kristi.desjardis@lgresources.com and ted.rump@lgresources.com

Invoice to: ktham@lgresources.com



8048 Northcourt Road
Houston, Texas 77040
713-744-5800

SOUTH WING



002629582

Pls Relinquished By: [Signature] Date: 4/28/21
Pls Received By: [Signature] Date: 4/28/21
Pls Relinquished By: [Signature] Date: 4/28/21
Pls Received By: [Signature] Date: 4/28/21

Project No.: R14234.01 PO: 9562
Client: GISO
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Watkins
License No.: 603802/603913

JUSTODY
Date Collected: 4/28/21
Laboratory Turnaround
Time (circle/bold): 24 48 72 STD (5 day)
Must have results by:

Analysis Requested; (circle one)
PLM TEM Point QL PCM TEM-Air

First Positive Stop ☒
(check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T	W, C, F, E, R**	MATERIAL SAMPLED***	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (pg)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
01	FOYER	M	W	CMU GROUT	NA	Y	Y
02	2ND FL JANITOR	M	W	CMU GROUT	NA	Y	Y
03	1ST FL JANITOR	M	W	CMU GROUT	NA	Y	Y
04	FOYER	M	W	BROWN COARSE/TAN MASTIC	NA	Y	Y
05	NE CLASSROOM 2ND FL	M	W	BROWN COARSE/TAN MASTIC	NA	Y	Y
06	GYM BATHROOMS	M	W	BROWN COARSE/TAN MASTIC	NA	Y	Y
07	NW HALLWAY 1ST FL	M	C	DOT CEILING TILE	28,000 sq. ft.	Y	Y
08	SE CLASSROOM 1ST FL	M	C	DOT CEILING TILE	28,000 sq. ft.	Y	Y
09	WEST-MID CLASSROOM FL	M	C	DOT CEILING TILE	28,000 sq. ft.	Y	Y
10	NW HALLWAY 1ST FL	M	C	LARGE DOT CEILING TILE	15 sq. ft.	Y	Y
11	NORTH HALLWAY	M	C	LARGE DOT CEILING TILE	15 sq. ft.	Y	Y
12	NORTH HALLWAY	M	C	LARGE DOT CEILING TILE	15 sq. ft.	Y	Y
13	OUTLINE	M	F	TAN SPECK UPT/BLACK MASTIC	28,000 sq. ft.	Y	Y
14	SE HALL 1ST FL	M	F	TAN SPECK UPT/BLACK MASTIC	28,000 sq. ft.	Y	Y

* M - Misc., S - Surfacing, T - TSI
** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)
*** (continued from page 1)

1 of 2 11

SOUTA WING

Email all results to: kristi.deslouis@igeresources.com and tecrump@igeresources.com

Invoice to: k1pham@igeresources.com



6048 Northcourt Road
Houston, Texas 77040
713-744-5800

002629592

Res Relinquished By: ML Date: 4/12/12
Res Received By: ML Date: 4/12/12
Res Relinquished By: ML Date: 4/12/12
Res Received By: ML Date: 4/12/12

Project No.: R14234.01 PO: 4562
Client: GISD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Walkins
License No.: 603803/603913

CHAIN-OF-CUSTODY

Date Collected: 4/12/12
Laboratory Turnaround
Time (circle/bold): 24 48 72 60D (5 days)
Must have results by:

Analysis Requested; (circle one)
PLM TEM Point Cl. PCM TEM-Air

First Positive Stop ☒ (check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	MATERIAL SAMPLED**	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
15	SE HALL 1ST FL	M	F	TAN GYCK VPT / BLACK MASTIC	28,000	Y (N)	Y (N)
16	SOUTH 1ST FL	M	F	TAN GYCK VPT / BLACK MASTIC	28,000	Y (N)	Y (N)
17	SOUTH HALL 2ND FL	M	F	TAN GYCK VPT / BLACK MASTIC	28,000	Y (N)	Y (N)
18	NORTH ROOM 2ND FL	M	F	TAN GYCK VPT / BLACK MASTIC	28,000	Y (N)	Y (N)
19	SOUTH HALL 2ND FL	M	F	TAN GYCK VPT / BLACK MASTIC	28,000	Y (N)	Y (N)
20	NORTH HALL 1ST FL	M	F	STONE VPT / CLEAR MASTIC	100 sq. ft.	Y (N)	Y (N)
21	NORTH HALL 1ST FL	M	F	STONE VPT / CLEAR MASTIC	100 sq. ft.	Y (N)	Y (N)
22	NORTH HALL 1ST FL	M	F	STONE VPT / CLEAR MASTIC	100 sq. ft.	Y (N)	Y (N)
23	1ST FL KITCHEN	M	F	BROWN LEANED TILE / GROUT	1,200 sq. ft.	Y (N)	Y (N)
24	1ST FL KITCHEN	M	F	BROWN LEANED TILE / GROUT	1,200 sq. ft.	Y (N)	Y (N)
25	1ST FL KITCHEN	M	F	BROWN LEANED TILE / GROUT	1,200 sq. ft.	Y (N)	Y (N)
26	1ST FL KITCHEN	M/S	C	WHITE WB TEXTURE / PAINT / TC	1,200 sq. ft.	Y (N)	Y (N)
27	1ST FL KITCHEN	M/S	C	WHITE WB TEXTURE / PAINT / TC	1,200 sq. ft.	Y (N)	Y (N)
28	1ST FL KITCHEN	M/S	C	WHITE WB TEXTURE / PAINT / TC	1,200 sq. ft.	Y (N)	Y (N)

* M - Muc., S - Surface, T - TSI

** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)

*** (Stateboard 4421) - Only Permitted (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)

2 of 11

SOUTHWING

Email all results to: kfsti.destouet@igaresources.com and tecump@igaresources.com

Invoice to ktpam@igaresources.com



8046 Northcourt Road
Houston, Texas 77040
713-744-5800



002629582

opies Relinquished By:	<i>[Signature]</i>	Date:	4/27/21
opies Received By:	<i>[Signature]</i>	Date:	
opies Relinquished By:	<i>[Signature]</i>	Date:	
opies Received By:	<i>[Signature]</i>	Date:	4/23/21

Project No.: R14234.01 PO: 9562
Client: GISD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Waskins
License No.: 603803/604913

CHAIN-OF-CUSTODY

Date Collected: 4/12/21
Laboratory Turnaround
Time (circle/bold): 24 48 72 **STD (5 day)**
Must have results by:

Analysis Requested; (circle one)
PLM TEM Point CL PCM TEM-Air

First Positive Stop ☒
(check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	MATERIAL SAMPLED***	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (no)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
29	1ST FL KITCHEN	M/S	C	WHITE WB/TERMINAL/DE/TC	1,200 sq. ft.	Y (8)	(8) N
30	1ST FL KITCHEN	M/S	C	WHITE WB/TERMINAL/DE/TC	1,200 sq. ft.	Y (8)	(8) N
31		M/S	C	WHITE WB/TERMINAL/DE/TC	1,200	Y (8)	(8) N
32	BOYS RL 1ST FL	M	F	WHITE WB/TERMINAL/DE/TC	100 sq. ft.	Y (8)	Y (8)
33	BOYS RL 1ST FL	M	F	WHITE WB/TERMINAL/DE/TC	100 sq. ft.	Y (8)	Y (8)
34	BOYS RL 1ST FL	M	F	WHITE WB/TERMINAL/DE/TC	100 sq. ft.	Y (8)	Y (8)
35	BOYS RL 1ST FL	M	F	WHITE WB/TERMINAL/DE/TC	100 sq. ft.	Y (8)	Y (8)
36	BOYS RL 1ST FL	M	F	WHITE WB/TERMINAL/DE/TC	100 sq. ft.	Y (8)	Y (8)
						Y N	Y N
						Y N	Y N
						Y N	Y N
						Y N	Y N
						Y N	Y N

* M - Misc., S - Surfacing, T - TSI
** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)
*** Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Core Board (CB), Panel Board (PB), Veneer (V), etc.

2. 30 of 11

Email all results to: kristi.destouet@tigerresources.com and WALKER@TIGERRESOURCES.COM



8048 Northout Road
Houston, Texas 77040
713-744-5800

SOUTH WING
ATTACH

Samples Relinquished By:	<i>[Signature]</i>	Date:	4/30/21
Samples Received By:	<i>[Signature]</i>	Date:	4/29/21
Samples Relinquished By:		Date:	
Samples Received By:		Date:	

Project No.: R14234.01 PO: 9564
Client: GISD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Watkins
License No.: 603803/603913

CHAIN-OF-CUSTODY

Date Collected: 4/29/21
Laboratory Turnaround: 24 48 72 STD (5 day)
Must have results by:

Analysis Requested; (circle one)
PLM TEM Point Ct PCM TEM-Air

First Positive Stop ☒ (check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	M	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
37	1ST FL NORTH HALL	M	F	GREEN/BLACK VFT PLASTER/PAINT	20 ^{sq. ft.}	Y (N)	Y (N)
38	1ST FL NORTH HALL	M	F	GREEN/BLACK VFT PLASTER/PAINT	20 ^{sq. ft.}	Y (N)	Y (N)
39	1ST FL NORTH HALL	M	F	GREEN/BLACK VFT PLASTER/PAINT	20 ^{sq. ft.}	Y (N)	Y (N)
40	1ST FL LEBRARY	M/S	W	WB/TEXTURE/TILE/PL	9,000 ^{sq. ft.}	Y (N)	Y (N)
41	1ST NW CLASSROOM	M/S	W	WB/TEXTURE/TILE/PL	9,000 ^{sq. ft.}	Y (N)	Y (N)
42	1ST SW CLASSROOM	M/S	W	WB/TEXTURE/TILE/PL	9,000 ^{sq. ft.}	Y (N)	Y (N)
43	2ND NW CLASSROOM	M/S	W	WB/TEXTURE/TILE/PL	9,000 ^{sq. ft.}	Y (N)	Y (N)
44	2ND N CLASSROOM	M/S	W	WB/TEXTURE/TILE/PL	9,000 ^{sq. ft.}	Y (N)	Y (N)
45	STAIRWAY HALL	M	W	PAINT CARPET GROUT	NQ	Y (N)	Y (N)
46	STAIRWAY HALL	M	W	PAINT CARPET GROUT	NQ	Y (N)	Y (N)
47	STAIRWAY HALL	M	W	PAINT CARPET GROUT	NQ	Y (N)	Y (N)
48	2ND FL GIRLS	M	F	PINK CERAMIC FT/GROUT	200 ^{sq. ft.}	Y (N)	Y (N)
49	2ND FL BOYS	M	F	PINK CERAMIC FT/GROUT	200 ^{sq. ft.}	Y (N)	Y (N)
50	2ND FL GIRLS	M	F	PINK CERAMIC FT/GROUT	200 ^{sq. ft.}	Y (N)	Y (N)

* M - Misc., S - Surfacing, T - TSI
** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)
*** Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Cove Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VFT)

4 of 11

Email all results to: kristi.destouet@geeresources.com and terry.patt@geeresources.com



8048 Northcourt Road
Houston, Texas 77040
713-744-5800

900TH WPNB

Samples Relinquished By:	<i>[Signature]</i>	Date:	4/30/21
Samples Received By:	<i>[Signature]</i>	Date:	4/30/21
Samples Relinquished By:		Date:	
Samples Received By:		Date:	

Project No.: R14234.01

PO: 9564

Client: GISD

Project Name and Location: Asbestos Consulting - Former Edu. Facility

Samples Collected By: R. Lopez/L. Watkins

License No.: 603803 / 603913

CHAIN-OF-CUSTODY

Date Collected: 4/29/21

Laboratory Turnaround

Time (circle/bold): 24 48 72 **STD (5 day)**

Must have results by:

Analysis Requested; (circle one)

PLM TEM Point Ct. PCM TEM-Air

First Positive Stop ☒
(check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	MATERIAL SAMPL	QTY	FRIABLE (Yes/No)	DAMAGED (Yes/No)
51	MUSIC ROOM	5 th M C		BLACK AC MASTIC SPOT	3 sq. ft.	Y [Ⓟ]	Y [Ⓟ]
52	MUSIC ROOM	5 th M C		BLACK AC MASTIC SPOT	3 sq. ft.	Y [Ⓟ]	Y [Ⓟ]
53	SE CLASS ROOM	5 th M C		BLACK AC MASTIC SPOT	3 sq. ft.	Y [Ⓟ]	Y [Ⓟ]
54	DRIVE ROOM	5 th M C		WHITE AC MASTIC	N/A	Y [Ⓟ]	Y [Ⓟ]
55	SCIENCE ROOM	5 th M C		WHITE AC MASTIC	N/A	Y [Ⓟ]	Y [Ⓟ]
56	SE CLASS ROOM	5 th M C		WHITE AC MASTIC	N/A	Y [Ⓟ]	Y [Ⓟ]
57	2ND FL WHOLESTOCK	5 th T/M C		THIN ASPHALT/MASTIC	200 LF	Y [Ⓟ]	Y [Ⓟ]
58	MUSIC ROOM	5 th T/M C		THIN ASPHALT/MASTIC	200 LF	Y [Ⓟ]	Y [Ⓟ]
59	STAGE EQUIP	5 th T/M C		THIN ASPHALT/MASTIC	200 LF	Y [Ⓟ]	Y [Ⓟ]
60	STAGE EQUIP	5 th T/M C		THIN ASPHALT/MASTIC	50 LF	Y [Ⓟ]	Y [Ⓟ]
61	STAGE EQUIP	5 th T/M C		THIN ASPHALT/MASTIC	50 LF	Y [Ⓟ]	Y [Ⓟ]
62	STAGE EQUIP	5 th T/M C		THIN ASPHALT/MASTIC	50 LF	Y [Ⓟ]	Y [Ⓟ]
63	NORTH HALL	M	F	BROWN VET/TAN MASTIC	15 sq. ft.	Y [Ⓟ]	Y [Ⓟ]
64	NORTH HALL	M	F	BROWN VET/TAN MASTIC	15 sq. ft.	Y [Ⓟ]	Y [Ⓟ]

* M - Misc., S - Surfacing, T - TSI

** W - Wall, C - Ceiling, F - Floor, R - Roof, E - Exterior

*** W - Wallboard, J - Joint Compound, C - Ceiling Tile, CB - Cove Base, CM - Carpet Mastic, VFT - Vinyl Floor Tile

5 of 11

Email all results to: krisit.destouet@igresources.com and regump@igresources.com



6048 Northcourt Road
Houston, Texas 77040
713-744-8900

SOUTH WING
NORTHWEST WING

Samples Relinquished By:	<i>[Signature]</i>	Date:	4/30/21
Samples Received By:	<i>[Signature]</i>	Date:	4/30/21
Samples Relinquished By:		Date:	
Samples Received By:		Date:	

Project No.: R14234.01

PC: 9564

CHAIN-OF-CUSTODY

Date Collected: 4/30/21
Laboratory Turnaround
Time (circle/bold): 24 48 **STO (5 day)**
Must have result:

Analysis Requested: (circle one)
PLM TEM Point CL PCM TEM-Air

Client: GISD

Project Name and Location: Asbestos Consulting - Former Edu. Facility

Samples Collected By: R. Lopez/L. Watkins

License No.: 603803 / 603913

First Positive Stop ☒ (check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T	W, C, F, E, R**	MATE	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
65	Basal VPT ¹ NORTH HALL	M	F	BROWN VPT/TAN MASTIC	15 sq. ft.	Y ¹	Y ¹ N
66	CEILING ¹	M	F	TAN CARPET MASTIC	3200 sq. ft.	Y ¹	Y ¹
67	Gym	M	F	TAN CARPET MASTIC	3200 sq. ft.	Y ¹	Y ¹
68	Gym	M	F	TAN CARPET MASTIC	3200 sq. ft.	Y ¹	Y ¹
69	2ND SE CLASSROOM	M, S	W	WB/TEXTURE/TANETC WALL	1200 sq. ft.	Y ¹	Y ¹
70	2ND SOUTH CLASS ROOM	M, S	W	WB/TEXTURE/TANETC WALL	9200 sq. ft.	Y ¹	Y ¹
71	STAIR WB WOODING	M, S	C	WB/TEXTURE/TANETC	1100 sq. ft.	Y ¹	Y ¹
72	STAIR WB CEILING	M, S	C	WB/TEXTURE/TANETC	1100 sq. ft.	Y ¹	Y ¹
73	STAIR WB CEILING	M, S	C	WB/TEXTURE/TANETC	1000 sq. ft.	Y ¹	Y ¹
74	CEILING ¹ TAN CARPET	M	W	CMU GROUT	NA	Y ¹	Y ¹
75	CEILING ¹ TAN CARPET	M	W	CMU GROUT	NA	Y ¹	Y ¹
76	CEILING ¹ TAN CARPET	M	W	CMU GROUT	NA	Y ¹	Y ¹
77	WB LIBRARY HALL	M	F	WHITE/STAIN VPT/TAN MASTIC	1000 sq. ft.	Y ¹	Y ¹
78	SOUTH HALL EAST	M	F	WHITE/STAIN VPT/TAN MASTIC	1000 sq. ft.	Y ¹	Y ¹

* M - Mso, S - Surfacing, T - TSI

** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)

*** Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Cove Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VPT)

10 of 11

Email all results to: kris.alexander@gregson.com and joung@gregson.com



8048 Northcourt Road
Houston, Texas 77040
713-744-5800

NORTHWEST
WFO

ASBESTOS

Samples Relinquished By:	<i>[Signature]</i>	Date:	4/30/21
Samples Received By:	<i>[Signature]</i>	Date:	4/30/21
Samples Relinquished By:		Date:	
Samples Received By:		Date:	

Project No.: R14234.01 PO: 9564
Client: GSD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Watkins
License No.: 603803 / 603913

CHAIN-OF-CUSTODY

Date Collected: 4/30/21
Laboratory Turnaround: 24-48 hrs (5 day)
Time (circle/bold): 24 48 72 **STD (5 day)**
Must have result:

Analysis Requested: (circle one)
PLM TEM Point Cl. PCM TEM-Air

First Positive Stop ☒ (check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	MAT	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
79	SOUTH HALL WEST	M	F	WHITE/RED STREAK VFT/TAN MASTIC	1,000 sq. ft.	Y (A)	Y (A)
80	LIBRARY	M	W	BROWN CONCRETE BASE/TAN MASTIC	100 LF	Y (B)	Y (B)
81	LIBRARY	M	W	BROWN CONCRETE BASE/TAN MASTIC	100 LF	Y (B)	Y (B)
82	LIBRARY	M	W	BROWN CONCRETE BASE/TAN MASTIC	100 LF	Y (B)	Y (B)
83	ENTRANCE	M	F	WHITE/RED STREAK VFT/TAN MASTIC	1,000 sq. ft.	Y (B)	Y (B)
84	NORTH HALL EAST	M	F	WHITE/RED STREAK VFT/TAN MASTIC	1,000 sq. ft.	Y (B)	Y (B)
85	NORTH HALL WEST	M	F	WHITE/RED STREAK VFT/TAN MASTIC	1,000 sq. ft.	Y (B)	Y (B)
86	CONFERENCE RM	M	F	CARPET MASTIC-TAN	1,600 sq. ft.	Y (B)	Y (B)
87	CONFERENCE RM LIBRARY	M	F	CARPET MASTIC-TAN	1,600 sq. ft.	Y (B)	Y (B)
88	CONFERENCE RM OFFICE	M	F	CARPET MASTIC-TAN	1,600 sq. ft.	Y (B)	Y (B)
89	WEST HALL	M	C	POT CERAMIC TILE	60 sq. ft.	Y (B)	Y (B)
90	WEST HALL	M	C	POT CERAMIC TILE	50 sq. ft.	Y (B)	Y (B)
91	WEST HALL OFFICE	M	C	POT CERAMIC TILE	70 sq. ft.	Y (B)	Y (B)
92	CONFERENCE	M	F	GREY VFT/TAN MASTIC	150 sq. ft.	Y (B)	Y (B)

* M - Misc., S - Surfacing, T - TSI
** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)
*** Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Concrete Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VFT)

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Email all results to: kristi.destouet@tigerresources.com and reynolds@tigerresources.com



8048 Northcourt Road
Houston, Texas 77040
713-744-5800

NORTH WEST
WING
AREA A

Samples Relinquished By:	<i>[Signature]</i>	Date:	4/30/21
Samples Received By:	<i>[Signature]</i>	Date:	4/30/21
Samples Relinquished By:		Date:	
Samples Received By:		Date:	

Project No.: R14234.01 PO: 9564
Client: GISD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Watkins
License No.: 603803/603913

CHAIN-OF-CUSTODY

Date Collected: 4/30/21 Analysis Requested: (circle one)
Laboratory Turnaround: PLM TEM Point Ct PCM TEM-Air
Time (circle bold): 24 48 72 **96 (5 day)**
Must have results by:

First Positive Stop ☒ (check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	M	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
93	CONFERENCE OFFICE	M	F	GREY VFT / TAN MASTIC	150 sq. ft.	Y	Y
94	CONFERENCE / STAFF BATH	M	F	GREY VFT / TAN MASTIC	150 sq. ft.	Y	Y
95	CONFERENCE	S		WHITE VFT / MASTIC		Y	Y
96		S		WHITE VFT / MASTIC		Y	Y
97		S		WHITE VFT / MASTIC		Y	Y
98	STAFF BATH	M	F	TAN VFT / TAN MASTIC	120 sq. ft.	Y	Y
99	STAFF BATH	M	F	TAN VFT / TAN MASTIC	120 sq. ft.	Y	Y
100	STAFF BATH	M	F	TAN VFT / TAN MASTIC	120 sq. ft.	Y	Y
101	STAFF BATH	M	W	WHITE SPUR CAULK	NR	Y	Y
102	STAFF BATH	M	W	WHITE SPUR CAULK	NR	Y	Y
103	STAFF BATH	M	W	WHITE SPUR CAULK	NR	Y	Y
104	SW WTR HEATER	T	W	CLOTH PIPE WRAP	NR	Y	Y
105	OFFICE	M	C	LARGE RT CEILING-TIE	60 sq. ft.	Y	Y
106	OFFICE	M	C	LARGE RT CEILING-TIE	60 sq. ft.	Y	Y

* M - Misc., S - Surfacing, T - TSI
** W - Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)
--- W - Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Cove Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VFT)

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Email all results to: knsd.dest@tigerresources.com and yourcompany@tigerresources.com



8048 Northcourt Road
Houston, Texas 77040
713-744-5800

NORTH WEST
WING
AREA #

Samples Relinquished By:	<i>[Signature]</i>	Date:	4/30/21
Samples Received By:	<i>[Signature]</i>	Date:	4/30/21
Samples Relinquished By:		Date:	
Samples Received By:		Date:	

Project No.: R14234.01 PO: 9564
Client: GISD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Watkins
License No.: 603803/603913

CHAIN-OF-CUSTODY

Date Collected: 4/30/21 Analysis Requested: (circle one)
Laboratory Turnaround: PLM TEM Point CL PCM TEM-Air
Time (circle bold): 24 48 72 STD (5 day)
Must have results by: First Positive Stop ☒ (check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	MATE	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
107	OFFICE	M	C	LARGE DOT CERAMIC TILE	50 sq. ft.	Y	Y
108	OFFICE	M	F	TAN VFT		Y	Y
109	OFFICE	M	F	TAN VFT		Y	Y
110	OFFICE	M	F	TAN VFT		Y	Y
111	OFFICE	M	F	GRAY CARPET MASTIC		Y	Y
112	OFFICE	M	F	GRAY CARPET MASTIC		Y	Y
113	OFFICE	M	F	GRAY CARPET MASTIC		Y	Y
114	OFFICE	M	W	GRAY COVE BASE/WHITE MASTIC 800 LF		Y	Y
115	OFFICE	M	W	GRAY COVE BASE/WHITE MASTIC 800 LF		Y	Y
116	OFFICE	M	W	GRAY COVE BASE/WHITE MASTIC 800 LF		Y	Y
117	OFFICE	M	W	BLUE COVE BASE/TAN MASTIC 120 LF		Y	Y
118	OFFICE	M	W	BLUE COVE BASE/TAN MASTIC 120 LF		Y	Y
119	OFFICE	M	W	BLUE COVE BASE/TAN MASTIC 120 LF		Y	Y
120	WOMAN'S RR	M	F	WHITE 1"X1" CERAMIC TILE/LINOLEUM 250 sq. ft.		Y	Y

* M - Misc., S - Surfacing, T - TSI
- Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)
- Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Cove Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VFT)

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Email all results to: kristi.destouet@geresources.com and techsupport@geresources.com



9048 Northcourt Road
Houston, Texas 77040
713-744-5800

NORTHWEST
WING

ASBESTOS

Samples Relinquished By:	<i>[Signature]</i>	Date:	4/30/21
Samples Received By:	<i>[Signature]</i>	Date:	4/30/21 (y-1)
Samples Relinquished By:		Date:	
Samples Received By:		Date:	

Project No.: R14234.01 PO: 4564
Client: GISD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Watkins
License No.: 603803/603913

CHAIN-OF-CUSTODY
Date Collected: 4/30/21
Laboratory Turnaround: 24 48 72 STD (5 day)
Must have results by: 5/10/21
Analysis Requested; (circle one)
PLM TEM Point Ct. PCM TEM-Air
First Positive Stop ☒ (check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	M	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
121	BOYS RR	M	F	WHITE 1" x 1" CERAMIC TILE/GROUT	250g	Y	Y
122	WOMENS RR	M	F	WHITE 1" x 1" CERAMIC TILE/GROUT	250g	Y	Y
123	BOYS RR	M	W	WHITE SINK CAULK	NA	Y	Y
124	WOMENS RR	M	W	WHITE SINK CAULK	NA	Y	Y
125	BOYS RR	M	W	WHITE SINK CAULK	NA	Y	Y
126	JANITOR CLOSET	S	C	BLACK AC MASTIC	NA	Y	Y
127	JANITOR CLOSET	S	C	BLACK AC MASTIC	NA	Y	Y
128	JANITOR CLOSET	S	C	BLACK AC MASTIC	NA	Y	Y
129	JANITOR CLOSET	S	C	WHITE AC MASTIC	NA	Y	Y
130	JANITOR CLOSET	S	C	WHITE AC MASTIC	NA	Y	Y
131	JANITOR CLOSET	S	C	WHITE AC MASTIC	NA	Y	Y
132	LIBRARY EAST	M	F	WHITE VPT WOOD CARPET/PLA MASTIC	200g	Y	Y
133	LIBRARY EAST	M	F	WHITE VPT WOOD CARPET/PLA MASTIC	200g	Y	Y
134	LIBRARY EAST	M	F	WHITE VPT WOOD CARPET/PLA MASTIC	200g	Y	Y

* M - Misc., S - Surfacing, T-TSI
** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)
*** Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Cove Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VFT)

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8048 Northcourt Road
Houston, Texas 77040
713-744-5800

NORTHWEST
WING
DATA FL
A

Samples Relinquished By:	<i>[Signature]</i>	Date:	4/30/21
Samples Received By:	<i>[Signature]</i>	Date:	4/30/21 (64)
Samples Relinquished By:		Date:	
Samples Received By:		Date:	

Project No.: R14234.01 PO: 9364
Client: GISD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Watkins
License No.: 603903/603913

CHAIN-OF-CUSTODY

Date Collected: 4/30/21
Laboratory Turnaround
Time (circle bold): 24 48 72 STD (5 day)
Must have results by:
Analysis Requested: (circle one)
PLM TEM Point Cl. PCM TEM-Air
First Positive Stop ☒ (check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	M	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
135	NORTH HALL	M	W	BLACK CONCRETE / TAPE MASTIC	500 LF	Y (B)	Y (B)
136	SOUTH HALL	M	W	BLACK CONCRETE / TAPE MASTIC	500 LF	Y (B)	Y (B)
137	SE ROOM	M	W	BLACK CONCRETE / TAPE MASTIC	500 LF	Y (B)	Y (B)
138	SE ROOM	M	W	GRAY WALL MASTIC	20 sq. ft.	Y (B)	Y (B)
139	NE ROOM	M	W	GRAY WALL MASTIC	20 sq. ft.	Y (B)	Y (B)
140	NE ROOM	M	W	GRAY WALL MASTIC	20 sq. ft.	Y (B)	Y (B)
						Y N	Y N
						Y N	Y N
						Y N	Y N
						Y N	Y N
						Y N	Y N
						Y N	Y N
						Y N	Y N
						Y N	Y N

* M - Misc., S - Surfacing, T - TSI
** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)
*** Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Cove Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VFT)

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EMLab P&K

Report for:

Tim Crump, Kristi Destouet
TGE Resources, Inc
8048 Northcourt Road
Houston, TX 77040

Regarding: Project: R14234.01; Asbestos Consulting - Former Edu. Facility
EML ID: 2631395

Approved by:

Dates of Analysis:
Asbestos PLM: 05-06-2021 and 05-07-2021

Approved Signatory
Amber Rutter

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500053-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: TGE Resources, Inc
C/O: Tim Crump, Kristi Destouet
Re: R14234.01; Asbestos Consulting - Former Edu.
Facility

Eurofins EMLab P&K
4955 Yarrow Street , Arvada, CO 80002
(800) 651-4802 Fax (623) 780-7695 www.emlab.com
Date of Sampling: 04-29-2021 and 04-30-2021
Date of Receipt: 04-30-2021
Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Total Samples Submitted:	95
Total Samples Analyzed:	79
Total Samples with Layer Asbestos Content > 1%:	9

Location: 37, Purple VFT / Tan Mastic

Lab ID-Version: 12565217-1

Sample Layers	Asbestos Content
Purple Floor Tile	ND
Black/Yellow Mastic	2% Chrysotile
Sample Composite Homogeneity: Poor	

Comments: Samples 38 and 39 were not analyzed due to prior positive series.

Location: 40, WB / Texture / Tape / JC

Lab ID-Version: 12565220-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
Cream Tape	ND
White Texture with Paint	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity: Poor	

Location: 41, WB / Texture / Tape / JC

Lab ID-Version: 12565221-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
Cream Tape	ND
White Texture with Paint	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity: Poor	

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by any agency of the federal government. Eurofins EMLab P&K reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2631395, Page 2 of 22

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting - Former Edu.
 Facility

Eurofins EMLab P&K
 4955 Yarrow Street , Arvada, CO 80002
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com
 Date of Sampling: 04-29-2021 and 04-30-2021
 Date of Receipt: 04-30-2021
 Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: 42, WB / Texture / Tape / JC

Lab ID-Version‡: 12565222-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
Cream Tape	ND
White Texture with Paint	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2631395, Page 3 of 22

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting - Former Edu.
 Facility

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 4955 Yarrow Street , Arvada, CO 80002
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com
 Date of Sampling: 04-29-2021 and 04-30-2021
 Date of Receipt: 04-30-2021
 Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: 43, WB / Texture / Tape / JC

Lab ID-Version‡: 12565223-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
Cream Tape	ND
White Texture with Paint	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

Location: 44, WB / Texture / Tape / JC

Lab ID-Version‡: 12565224-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound with Paint	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 45, Brick Grout

Lab ID-Version‡: 12565225-1

Sample Layers	Asbestos Content
Gray Grout	ND
Sample Composite Homogeneity:	Good

Location: 46, Brick Grout

Lab ID-Version‡: 12565226-1

Sample Layers	Asbestos Content
Gray Grout	ND
Sample Composite Homogeneity:	Good

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2631395, Page 4 of 22

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting - Former Edu.
 Facility

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 4955 Yarrow Street , Arvada, CO 80002
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com
 Date of Sampling: 04-29-2021 and 04-30-2021
 Date of Receipt: 04-30-2021
 Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: 47, Brick Grout

Lab ID-Version: 12565227-1

Sample Layers	Asbestos Content
Gray Grout	ND
Sample Composite Homogeneity: Good	

Location: 48, Pink Ceramic FT

Lab ID-Version: 12565228-1

Sample Layers	Asbestos Content
Pink Ceramic Tile	ND
Gray Mortar	ND
Sample Composite Homogeneity: Moderate	

Location: 49, Pink Ceramic FT

Lab ID-Version: 12565229-1

Sample Layers	Asbestos Content
Pink Ceramic Tile	ND
Gray Mortar	ND
Sample Composite Homogeneity: Moderate	

Location: 50, Pink Ceramic FT

Lab ID-Version: 12565230-1

Sample Layers	Asbestos Content
Pink Ceramic Tile	ND
Gray Mortar	ND
Black Mastic	5% Chrysotile
Sample Composite Homogeneity: Poor	

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2631395, Page 5 of 22

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting - Former Edu.
 Facility

Eurofins EMLab P&K
 4955 Yarrow Street , Arvada, CO 80002
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com
 Date of Sampling: 04-29-2021 and 04-30-2021
 Date of Receipt: 04-30-2021
 Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: 51, Black AC Mastic Spot

Lab ID-Version‡: 12565231-1

Sample Layers	Asbestos Content
Black Mastic	10% Chrysotile
Sample Composite Homogeneity: Good	

Comments: Samples 52 and 53 were not analyzed due to prior positive series.

Location: 54, White AC Mastic

Lab ID-Version‡: 12565234-1

Sample Layers	Asbestos Content
Multicolored Wrap	ND
White Mastic	ND
Composite Non-Asbestos Content: 30% Glass Fibers 10% Cellulose	
Sample Composite Homogeneity: Moderate	

Location: 55, White AC Mastic

Lab ID-Version‡: 12565235-1

Sample Layers	Asbestos Content
Multicolored Wrap	ND
White Mastic	ND
Composite Non-Asbestos Content: 30% Glass Fibers 10% Cellulose	
Sample Composite Homogeneity: Moderate	

Location: 56, White AC Mastic

Lab ID-Version‡: 12565236-1

Sample Layers	Asbestos Content
Multicolored Wrap	ND
White Mastic	ND
Composite Non-Asbestos Content: 30% Glass Fibers 10% Cellulose	
Sample Composite Homogeneity: Moderate	

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2631395, Page 6 of 22

Client: TGE Resources, Inc
C/O: Tim Crump, Kristi Destouet
Re: R14234.01; Asbestos Consulting - Former Edu.
Facility

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(800) 651-4802 Fax (623) 780-7695 www.emlab.com
Date of Sampling: 04-29-2021 and 04-30-2021
Date of Receipt: 04-30-2021
Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: 57, Thin Pipe Wrap / Mastic

Lab ID-Version: 12565237-1

Sample Layers	Asbestos Content
Multicolored Wrap	ND
White Mastic	ND
Composite Non-Asbestos Content:	30% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 58, Thin Pipe Wrap / Mastic

Lab ID-Version: 12565238-1

Sample Layers	Asbestos Content
Multicolored Wrap	ND
White Mastic	ND
Composite Non-Asbestos Content:	30% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 59, Thin Pipe Wrap / Mastic

Lab ID-Version: 12565239-1

Sample Layers	Asbestos Content
Multicolored Wrap	ND
White Mastic	ND
Composite Non-Asbestos Content:	30% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 60, Thin Pipe Wrap / Mastic Flange

Lab ID-Version: 12565240-1

Sample Layers	Asbestos Content
Multicolored Wrap	ND
White Mastic	ND
Composite Non-Asbestos Content:	30% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Moderate

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Client: TGE Resources, Inc
C/O: Tim Crump, Kristi Destouet
Re: R14234.01; Asbestos Consulting - Former Edu.
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ASBESTOS PLM REPORT

Location: 61, Thin Pipe Wrap / Mastic Flange

Lab ID-Version‡: 12565241-1

Sample Layers	Asbestos Content
Multicolored Wrap	ND
White Mastic	ND
Composite Non-Asbestos Content:	30% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 62, Thin Pipe Wrap / Mastic Flange

Lab ID-Version‡: 12565242-1

Sample Layers	Asbestos Content
Multicolored Wrap	ND
White Mastic	ND
Composite Non-Asbestos Content:	30% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 63, Brown VFT / Tan Mastic

Lab ID-Version‡: 12565243-1

Sample Layers	Asbestos Content
Brown Floor Tile	ND
Black/Yellow Mastic	3% Chrysotile
Sample Composite Homogeneity:	Poor

Comments: Samples 64 and 65 were not analyzed due to prior positive series.

Location: 66, Tan Carpet Mastic

Lab ID-Version‡: 12565246-1

Sample Layers	Asbestos Content
Tan Mastic	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 67, Tan Carpet Mastic

Lab ID-Version‡: 12565247-1

Sample Layers	Asbestos Content
Tan Mastic	ND
Sample Composite Homogeneity: Good	

Location: 68, Tan Carpet Mastic

Lab ID-Version‡: 12565248-1

Sample Layers	Asbestos Content
Tan Mastic	ND
Sample Composite Homogeneity: Good	

Location: 69, WB / Texture / Tape / JC

Lab ID-Version‡: 12565249-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
Cream Tape	ND
White Texture with Paint	ND
Composite Non-Asbestos Content: 15% Cellulose	
Sample Composite Homogeneity: Poor	

Location: 70, WB / Texture / Tape / JC

Lab ID-Version‡: 12565250-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
Cream Tape	ND
White Texture with Paint	ND
Composite Non-Asbestos Content: 15% Cellulose	
Sample Composite Homogeneity: Poor	

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ASBESTOS PLM REPORT

Location: 71, WB / Texture / Tape / JC

Lab ID-Version: 12565251-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
Cream Tape	ND
White Texture with Paint	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

Location: 72, WB / Texture / Tape / JC

Lab ID-Version: 12565252-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
Cream Tape	ND
White Texture with Paint	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

Location: 73, WB / Texture / Tape / JC

Lab ID-Version: 12565253-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Joint Compound	ND
Cream Tape	ND
White Texture with Paint	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Poor

Location: 74, CMU Grout

Lab ID-Version: 12565254-1

Sample Layers	Asbestos Content
Gray Grout	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 75, CMU Grout

Lab ID-Version‡: 12565255-1

Sample Layers	Asbestos Content
Gray Grout	ND
Sample Composite Homogeneity:	Good

Location: 76, CMU Grout

Lab ID-Version‡: 12565256-1

Sample Layers	Asbestos Content
Gray Grout	ND
Sample Composite Homogeneity:	Good

Location: 77, White / Red Streak VFT

Lab ID-Version‡: 12565257-1

Sample Layers	Asbestos Content
White Floor Tile	ND
Black Mastic	10% Chrysotile
Sample Composite Homogeneity:	Moderate

Comments: Samples 78 and 79 were not analyzed due to prior positive series.

Location: 80, Brown Cove Base

Lab ID-Version‡: 12565260-1

Sample Layers	Asbestos Content
Brown Baseboard	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 81, Brown Cove Base

Lab ID-Version‡: 12565261-1

Sample Layers	Asbestos Content
Brown Baseboard	ND
Sample Composite Homogeneity: Good	

Location: 82, Brown Cove Base

Lab ID-Version‡: 12565262-1

Sample Layers	Asbestos Content
Brown Baseboard	ND
Sample Composite Homogeneity: Good	

Location: 83, White / Black mastic

Lab ID-Version‡: 12565263-1

Sample Layers	Asbestos Content
White Floor Tile	ND
Black Mastic	5% Chrysotile
Sample Composite Homogeneity: Moderate	

Comments: Samples 84 and 85 were not analyzed due to prior positive series.

Location: 86, Carpet Mastic - Tan

Lab ID-Version‡: 12565266-1

Sample Layers	Asbestos Content
Tan Mastic	ND
Sample Composite Homogeneity: Good	

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ASBESTOS PLM REPORT

Location: 87, Carpet Mastic - Tan

Lab ID-Version‡: 12565267-1

Sample Layers	Asbestos Content
Tan Mastic	ND
Sample Composite Homogeneity:	Good

Location: 88, Carpet Mastic - Tan

Lab ID-Version‡: 12565268-1

Sample Layers	Asbestos Content
Tan Mastic	ND
Sample Composite Homogeneity:	Good

Location: 89, Dot Ceiling Tile

Lab ID-Version‡: 12565269-1

Sample Layers	Asbestos Content
Beige Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 40% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 90, Dot Ceiling Tile

Lab ID-Version‡: 12565270-1

Sample Layers	Asbestos Content
Beige Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 40% Glass Fibers
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 91, Dot Ceiling Tile

Lab ID-Version‡: 12565271-1

Sample Layers	Asbestos Content
Beige Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 40% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 92, Grey VFT / Tan Mastic

Lab ID-Version‡: 12565272-1

Sample Layers	Asbestos Content
Gray Floor Tile	ND
Tan Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: 93, Grey VFT / Tan Mastic

Lab ID-Version‡: 12565273-1

Sample Layers	Asbestos Content
Gray Floor Tile	ND
Tan Mastic	ND
Sample Composite Homogeneity:	Moderate

Location: 94, Grey VFT / Tan Mastic

Lab ID-Version‡: 12565274-1

Sample Layers	Asbestos Content
Gray Floor Tile	ND
Tan Mastic	ND
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT

Location: 98, Tan VFT / Tan Mastic

Lab ID-Version‡: 12565393-1

Sample Layers	Asbestos Content
Tan Floor Tile	ND
Black/Yellow Mastic	3% Chrysotile
Sample Composite Homogeneity: Poor	

Comments: Samples 99 and 100 were not analyzed due to prior positive series.

Location: 101, White Sink Caulk

Lab ID-Version‡: 12565396-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity: Good	

Location: 102, White Sink Caulk

Lab ID-Version‡: 12565397-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity: Good	

Location: 103, White Sink Caulk

Lab ID-Version‡: 12565398-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity: Good	

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ASBESTOS PLM REPORT

Location: 104, Cloth Pipe Wrap

Lab ID-Version‡: 12565399-1

Sample Layers	Asbestos Content
White Wrap	ND
Composite Non-Asbestos Content:	70% Cellulose
Sample Composite Homogeneity:	Good

Location: 105, Large Dot Ceiling - Tile

Lab ID-Version‡: 12565400-1

Sample Layers	Asbestos Content
Beige Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 40% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 106, Large Dot Ceiling - Tile

Lab ID-Version‡: 12565401-1

Sample Layers	Asbestos Content
Beige Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 40% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 107, Large Dot Ceiling - Tile

Lab ID-Version‡: 12565402-1

Sample Layers	Asbestos Content
Beige Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 40% Glass Fibers
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT

Location: 114, Gray Cove Base / White Mastic

Lab ID-Version: 12565409-1

Sample Layers	Asbestos Content
Gray Baseboard	ND
White Mastic	ND
Sample Composite Homogeneity: Moderate	

Location: 115, Gray Cove Base / White Mastic

Lab ID-Version: 12565410-1

Sample Layers	Asbestos Content
Gray Baseboard	ND
White Mastic	ND
Sample Composite Homogeneity: Moderate	

Location: 116, Gray Cove Base / White Mastic

Lab ID-Version: 12565411-1

Sample Layers	Asbestos Content
Gray Baseboard	ND
White Mastic	ND
Sample Composite Homogeneity: Moderate	

Location: 117, Blue Cove Base / Tan Mastic

Lab ID-Version: 12565412-1

Sample Layers	Asbestos Content
Blue Baseboard	ND
Tan Mastic	ND
Sample Composite Homogeneity: Moderate	

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ASBESTOS PLM REPORT

Location: 118, Blue Cove Base / Tan Mastic

Lab ID-Version‡: 12565413-1

Sample Layers	Asbestos Content
Blue Baseboard	ND
Tan Mastic	ND
Sample Composite Homogeneity: Moderate	

Location: 119, Blue Cove Base / Tan Mastic

Lab ID-Version‡: 12565414-1

Sample Layers	Asbestos Content
Blue Baseboard	ND
Tan Mastic	ND
Sample Composite Homogeneity: Moderate	

Location: 120, White 1"x1" Ceramic Tile / Grout

Lab ID-Version‡: 12565415-1

Sample Layers	Asbestos Content
White Ceramic Tile	ND
White Grout	ND
Black Mastic	2% Chrysotile
Sample Composite Homogeneity: Poor	

Comments: Samples 121 and 122 were not analyzed due to prior positive series.

Location: 123, White Sink Caulk

Lab ID-Version‡: 12565418-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity: Good	

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ASBESTOS PLM REPORT

Location: 124, White Sink Caulk

Lab ID-Version‡: 12565419-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity: Good	

Location: 125, White Sink Caulk

Lab ID-Version‡: 12565420-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity: Good	

Location: 126, Black AC Mastic

Lab ID-Version‡: 12565421-1

Sample Layers	Asbestos Content
Black Mastic	ND
Sample Composite Homogeneity: Good	

Location: 127, Black AC Mastic

Lab ID-Version‡: 12565422-1

Sample Layers	Asbestos Content
Black Mastic	ND
Sample Composite Homogeneity: Good	

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ASBESTOS PLM REPORT

Location: 128, Black AC Mastic

Lab ID-Version‡: 12565423-1

Sample Layers	Asbestos Content
Black Mastic	ND
Sample Composite Homogeneity: Good	

Location: 129, White AC Mastic

Lab ID-Version‡: 12565424-1

Sample Layers	Asbestos Content
Multicolored Wrap	ND
White Mastic	ND
Composite Non-Asbestos Content: 30% Glass Fibers 10% Cellulose	
Sample Composite Homogeneity: Moderate	

Location: 130, White AC Mastic

Lab ID-Version‡: 12565425-1

Sample Layers	Asbestos Content
Multicolored Wrap	ND
White Mastic	ND
Composite Non-Asbestos Content: 30% Glass Fibers 10% Cellulose	
Sample Composite Homogeneity: Moderate	

Location: 131, White AC Mastic

Lab ID-Version‡: 12565426-1

Sample Layers	Asbestos Content
Multicolored Wrap	ND
White Mastic	ND
Composite Non-Asbestos Content: 30% Glass Fibers 10% Cellulose	
Sample Composite Homogeneity: Moderate	

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by any agency of the federal government. Eurofins EMLab P&K reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2631395, Page 20 of 22

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting - Former Edu.
 Facility

Eurofins EMLab P&K
 4955 Yarrow Street , Arvada, CO 80002
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com
 Date of Sampling: 04-29-2021 and 04-30-2021
 Date of Receipt: 04-30-2021
 Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: 132, White VFT Under Carpet / Black Mastic

Lab ID-Version‡: 12565427-1

Sample Layers	Asbestos Content
White Floor Tile	ND
Black Mastic	8% Chrysotile
Sample Composite Homogeneity: Moderate	

Comments: Samples 133 and 134 were not analyzed due to prior positive series.

Location: 135, Black Cove Base / Tan Mastic

Lab ID-Version‡: 12565589-1

Sample Layers	Asbestos Content
Black Baseboard	ND
Tan Mastic	ND
Sample Composite Homogeneity: Moderate	

Location: 136, Black Cove Base / Tan Mastic

Lab ID-Version‡: 12565430-1

Sample Layers	Asbestos Content
Black Baseboard	ND
Tan Mastic	ND
Sample Composite Homogeneity: Moderate	

Location: 137, Black Cove Base / Tan Mastic

Lab ID-Version‡: 12565431-1

Sample Layers	Asbestos Content
Black Baseboard	ND
Tan Mastic	ND
Sample Composite Homogeneity: Moderate	

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2631395, Page 21 of 22

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting - Former Edu.
 Facility

Eurofins EMLab P&K
 4955 Yarrow Street , Arvada, CO 80002
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com
 Date of Sampling: 04-29-2021 and 04-30-2021
 Date of Receipt: 04-30-2021
 Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: 138, Grey Wall Mastic

Lab ID-Version‡: 12565432-1

Sample Layers	Asbestos Content
Gray Mastic	ND
Sample Composite Homogeneity: Good	

Location: 139, Grey Wall Mastic

Lab ID-Version‡: 12565433-1

Sample Layers	Asbestos Content
Gray Mastic	ND
Sample Composite Homogeneity: Good	

Location: 140, Grey Wall Mastic

Lab ID-Version‡: 12565434-1

Sample Layers	Asbestos Content
Gray Mastic	ND
Sample Composite Homogeneity: Good	

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2631395, Page 22 of 22

Email all results to: kristi.desjardis@lgresources.com and tcarump@lgresources.com

Invoice to: ktham@lgresources.com



8048 Northcourt Road
Houston, Texas 77040
713-744-5800

SOUTH WING



002629582

Pls Relinquished By: [Signature] Date: 4/28/21
Pls Received By: [Signature] Date: 4/28/21
Pls Relinquished By: [Signature] Date: 4/28/21
Pls Received By: [Signature] Date: 4/28/21

Project No.: R14234.01 PO: 9562
Client: GUSD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Watkins
License No.: 603802/603913

JUSTODY
Date Collected: 4/28/21
Laboratory Turnaround
Time (circle/bold): 24 48 72 STD (5 day)
Must have results by:
Analysis Requested; (circle one)
PLM TEM Point QL PCM TEM-Air

First Positive Stop ☒
(check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T	W, C, F, E, R**	MATERIAL SAMPLED***	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (pg)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
01	FOYER	M	W	CONCRETE	NA	Y	Y
02	2ND FL JANITOR	M	W	CONCRETE	NA	Y	Y
03	1ST FL JANITOR	M	W	CONCRETE	NA	Y	Y
04	FOYER	M	W	BROWN COARSE/TAN MASTIC	NA	Y	Y
05	NE CLASSROOM 2ND FL	M	W	BROWN COARSE/TAN MASTIC	NA	Y	Y
06	GYM BATHROOMS	M	W	BROWN COARSE/TAN MASTIC	NA	Y	Y
07	NW HALLWAY 1ST FL	M	C	DOT CEILING TILE	28,000 sq. ft.	Y	Y
08	SE CLASSROOM 1ST FL	M	C	DOT CEILING TILE	28,000 sq. ft.	Y	Y
09	WEST-MID CLASSROOM 1ST FL	M	C	DOT CEILING TILE	28,000 sq. ft.	Y	Y
10	NW HALLWAY 1ST FL	M	C	LARGE DOT CEILING TILE	15 sq. ft.	Y	Y
11	NORTH HALLWAY	M	C	LARGE DOT CEILING TILE	15 sq. ft.	Y	Y
12	NORTH HALLWAY	M	C	LARGE DOT CEILING TILE	15 sq. ft.	Y	Y
13	OUTLINE	M	F	TAN SPECK UPT/BLACK MASTIC	28,000 sq. ft.	Y	Y
14	SE HALL 1ST FL	M	F	TAN SPECK UPT/BLACK MASTIC	28,000 sq. ft.	Y	Y

* M - Misc., S - Surfacing, T - TSI
** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)
*** (continued from page 1)

1 of 211

SOUTA WING

Email all results to: kristi.deslouis@igeresources.com and tecrump@igeresources.com

Invoice to: k1pham@igeresources.com



6048 Northcourt Road
Houston, Texas 77040
713-744-5800

002629592

Res Relinquished By: ML Date: 4/12/12
Res Received By: ML Date: 4/12/12
Res Relinquished By: ML Date: 4/12/12
Res Received By: ML Date: 4/12/12

Project No.: R14234.01 PO: 4562
Client: GISD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Walkins
License No.: 603803/603913

CHAIN-OF-CUSTODY

Date Collected: 4/12/12
Laboratory Turnaround
Time (circle/bold): 24 48 72 60D (5 days)
Must have results by:

Analysis Requested; (circle one)
PLM TEM Point Cl. PCM TEM-Air

First Positive Stop ☒ (check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	MATERIAL SAMPLED**	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
15	1ST FL SE HALL 1ST FL	M	F	TAN GYCK VPT / BLACK MASTIC	28,000	Y (N)	Y (N)
16	SOUTH 1ST FL	M	F	TAN GYCK VPT / BLACK MASTIC	28,000	Y (N)	Y (N)
17	SOUTH HALL 2ND FL	M	F	TAN GYCK VPT / BLACK MASTIC	28,000	Y (N)	Y (N)
18	NORTH ROOM 2ND FL	M	F	TAN GYCK VPT / BLACK MASTIC	28,000	Y (N)	Y (N)
19	SOUTH HALL 2ND FL	M	F	TAN GYCK VPT / BLACK MASTIC	28,000	Y (N)	Y (N)
20	NORTH HALL 1ST FL	M	F	STONE VPT / CLEAR MASTIC	100 sq. ft.	Y (N)	Y (N)
21	NORTH HALL 1ST FL	M	F	STONE VPT / CLEAR MASTIC	100 sq. ft.	Y (N)	Y (N)
22	NORTH HALL 1ST FL	M	F	STONE VPT / CLEAR MASTIC	100 sq. ft.	Y (N)	Y (N)
23	1ST FL KITCHEN	M	F	BROWN LAMINATE TILE / GROUT	1,200 sq. ft.	Y (N)	Y (N)
24	1ST FL KITCHEN	M	F	BROWN LAMINATE TILE / GROUT	1,200 sq. ft.	Y (N)	Y (N)
25	1ST FL KITCHEN	M	F	BROWN LAMINATE TILE / GROUT	1,200 sq. ft.	Y (N)	Y (N)
26	1ST FL KITCHEN	M/S	C	WHITE WB TEXTURE / PAINT / TC	1,200 sq. ft.	Y (N)	Y (N)
27	1ST FL KITCHEN	M/S	C	WHITE WB TEXTURE / PAINT / TC	1,200 sq. ft.	Y (N)	Y (N)
28	1ST FL KITCHEN	M/S	C	WHITE WB TEXTURE / PAINT / TC	1,200 sq. ft.	Y (N)	Y (N)

* M - Muc., S - Surfacing, T - TSI

** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)

*** (Indicate all) Indicate all (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)

2 of 11

SOUTHWING

Email all results to: kfsti.destouet@igaresources.com and tecump@igaresources.com

Invoice to ktpam@igaresources.com



8046 Northcourt Road
Houston, Texas 77040
713-744-5800



002629582

opies Relinquished By:	<i>[Signature]</i>	Date:	4/27/21
opies Received By:		Date:	
opies Relinquished By:	<i>[Signature]</i>	Date:	
opies Received By:		Date:	4/23/21

Project No.: R14234.01 PO: 9562
Client: GISD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Waskins
License No.: 603803/604913

CHAIN-OF-CUSTODY

Date Collected: 4/12/21
Laboratory Turnaround
Time (circle/bold): 24 48 72 **STD (5 day)**
Must have results by:

Analysis Requested; (circle one)
PLM TEM Point CL PCM TEM-Air

First Positive Stop ☒
(check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	MATERIAL SAMPLED***	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (no)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
29	1ST FL KITCHEN	M/S	C	WHITE WB/TERRAZO/DE/TC	1,200 sq. ft.	Y (B)	(B) N
30	1ST FL KITCHEN	M/S	C	WHITE WB/TERRAZO/DE/TC	1,200 sq. ft.	Y (B)	(B) N
31		M/S	C	WHITE WB/TERRAZO/DE/TC	1,200	Y (B)	(B) N
32	BOYS RL 1ST FL	M	F	WHITE CERAMIC 12" x 12" FL TILE/GROUT	100 sq. ft.	Y (B)	Y (B)
33	BOYS RL 1ST FL	M	F	WHITE CERAMIC 12" x 12" FL TILE/GROUT	100 sq. ft.	Y (B)	Y (B)
34	BOYS RL 1ST FL	M	F	WHITE CERAMIC 12" x 12" FL TILE/GROUT	100 sq. ft.	Y (B)	Y (B)
35	BOYS RL 1ST FL	M	F	WHITE CERAMIC 12" x 12" FL TILE/GROUT	100 sq. ft.	Y (B)	Y (B)
36	BOYS RL 1ST FL	M	F	WHITE CERAMIC 12" x 12" FL TILE/GROUT	100 sq. ft.	Y (B)	Y (B)
						Y N	Y N
						Y N	Y N
						Y N	Y N
						Y N	Y N
						Y N	Y N

* M - Misc., S - Surfacing, T - TSI
** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)
*** Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Core Base (CB), Panel Board (PB), Panel Board (PB), etc.

2. 34 30/11

Email all results to: kristi.destouret@tigerresources.com and WALKER@TIGERRESOURCES.COM



8048 Northout Road
Houston, Texas 77040
713-744-5800

SOUTH WING
ATTACH

Samples Relinquished By:	<i>[Signature]</i>	Date:	4/30/21
Samples Received By:	<i>[Signature]</i>	Date:	4/29/21
Samples Relinquished By:		Date:	
Samples Received By:		Date:	

Project No.: R14234.01 PO: 9564
Client: GISD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Watkins
License No.: 603803/603913

CHAIN-OF-CUSTODY

Date Collected: 4/29/21
Laboratory Turnaround: 24 48 72 STD (5 day)
Must have results by:

Analysis Requested; (circle one)
PLM TEM Point Ct PCM TEM-Air

First Positive Stop ☒
(check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	M	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
37	1ST FL NORTH HALL	M	F	GREEN/BLACK VFT	20-100	Y	Y
38	1ST FL NORTH HALL	M	F	GREEN/BLACK VFT	20-100	Y	Y
39	1ST FL NORTH HALL	M	F	GREEN/BLACK VFT	20-100	Y	Y
40	1ST FL HALLWAY	M/S	W	WB/TEXTURE/TILE/TC	9,000	Y	Y
41	1ST NW CLASSROOM	M/S	W	WB/TEXTURE/TILE/TC	9,000	Y	Y
42	1ST SW CLASSROOM	M/S	W	WB/TEXTURE/TILE/TC	9,000	Y	Y
43	2ND NW CLASSROOM	M/S	W	WB/TEXTURE/TILE/TC	9,000	Y	Y
44	2ND N CLASSROOM	M/S	W	WB/TEXTURE/TILE/TC	9,000	Y	Y
45	STAIRWAY HALL	M	W	PAINT CARPET GROUT	NQ	Y	Y
46	STAIRWAY HALL	M	W	PAINT CARPET GROUT	NQ	Y	Y
47	STAIRWAY HALL	M	W	PAINT CARPET GROUT	NQ	Y	Y
48	2ND FL GIRLS	M	F	PINK CARPET FT/GROUT	200	Y	Y
49	2ND FL BOYS	M	F	PINK CARPET FT/GROUT	200	Y	Y
50	2ND FL GIRLS	M	F	PINK CARPET FT/GROUT	200	Y	Y

* M - Misc., S - Surfacing, T - TSI
** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)
*** Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Cove Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VFT)

4 of 11

Email all results to: kristi.destouet@geeresources.com and terry.patterson@geeresources.com



8048 Northcourt Road
Houston, Texas 77040
713-744-5600

900TH WPNB

Samples Relinquished By:	<i>[Signature]</i>	Date:	4/30/21
Samples Received By:	<i>[Signature]</i>	Date:	4/30/21
Samples Relinquished By:		Date:	
Samples Received By:		Date:	

Project No.: R14234.01

PO: 9564

Client: GISD

Project Name and Location: Asbestos Consulting - Former Edu. Facility

Samples Collected By: R. Lopez/L. Watkins

License No.: 603803 / 603913

CHAIN-OF-CUSTODY

Date Collected: 4/29/21
Laboratory Turnaround
Time (circle/bold): 24 48 72 **STD (5 day)**
Must have results by:

Analysis Requested; (circle one)
PLM TEM Point Ct. PCM TEM-Air

First Positive Stop ☒
(check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	MATERIAL SAMPL	QTY	FRIABLE (Yes/No)	DAMAGED (Yes/No)
51	MUSIC ROOM	5" M C		BLACK AC MASTIC SPOT	3 sq. ft.	Y	Y
52	MUSIC ROOM	5" M C		BLACK AC MASTIC SPOT	3 sq. ft.	Y	Y
53	SE CLASS ROOM	5" M C		BLACK AC MASTIC SPOT	3 sq. ft.	Y	Y
54	DRIVE ROOM	5" M C		WHITE AC MASTIC	N/A	Y	Y
55	SCIENCE ROOM	5" M C		WHITE AC MASTIC	N/A	Y	Y
56	SE CLASS ROOM	5" M C		WHITE AC MASTIC	N/A	Y	Y
57	2ND FL WHOLE RESTROOM	5" T/M C		THIN ASPHALT/MASTIC	200 LF	Y	Y
58	MUSIC ROOM	5" T/M C		THIN ASPHALT/MASTIC	200 LF	Y	Y
59	STAGE EQUIP	5" T/M C		THIN ASPHALT/MASTIC	200 LF	Y	Y
60	STAGE EQUIP	5" T/M C		THIN ASPHALT/MASTIC	50 LF	Y	Y
61	STAGE EQUIP	5" T/M C		THIN ASPHALT/MASTIC	50 LF	Y	Y
62	STAGE EQUIP	5" T/M C		THIN ASPHALT/MASTIC	50 LF	Y	Y
63	NORTH HALL	M	F	BROWN VET/TAN MASTIC	15 sq. ft.	Y	N
64	NORTH HALL	M	F	BROWN VET/TAN MASTIC	15 sq. ft.	Y	N

* M - Misc., S - Surfacing, T - TSI

** W - Wall, C - Ceiling, F - Floor, R - Roof, E - Exterior

*** Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Cove Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VFT)

5 of 11

Email all results to: krisit.destouet@igresources.com and regunip@igresources.com



6048 Northcourt Road
Houston, Texas 77040
713-744-8900

SOUTH WING
NORTHWEST WING

Samples Relinquished By:	<i>[Signature]</i>	Date:	4/30/21
Samples Received By:	<i>[Signature]</i>	Date:	4/30/21
Samples Relinquished By:		Date:	
Samples Received By:		Date:	

Project No.: R14234.01

PC: 9564

CHAIN-OF-CUSTODY

Date Collected: 4/30/21
Laboratory Turnaround
Time (circle/bold): 24 48 **STO (5 day)**
Must have result:

Analysis Requested: (circle one)
PLM TEM Point CL PCM TEM-Air

Client: GUSD

Project Name and Location: Asbestos Consulting - Former Edu. Facility

Samples Collected By: R. Lopez/L. Watkins

License No.: 603803 / 603913



002651395

First Positive Stop ☒ (check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T	W, C, F, E, R**	MATE	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
65	Basal VPT North Hall	M	F	BROWN VPT/TAN MASTIC	15 sq. ft.	Y (N)	Y (N)
66	CEILING	M	F	TAN CARPET MASTIC	3200 sq. ft.	Y (N)	Y (N)
67	Gym	M	F	TAN CARPET MASTIC	3200 sq. ft.	Y (N)	Y (N)
68	Gym	M	F	TAN CARPET MASTIC	3200 sq. ft.	Y (N)	Y (N)
69	2ND SE CLASSROOM	M, S	W	WB/TEXTURE/TANETC WALL	1200 sq. ft.	Y (N)	Y (N)
70	2ND SOUTH CLASS ROOM	M, S	W	WB/TEXTURE/TANETC WALL	9200 sq. ft.	Y (N)	Y (N)
71	STAIR WB WOODING	M, S	C	WB/TEXTURE/TANETC	1100 sq. ft.	Y (N)	Y (N)
72	STAIR WB CEILING	M, S	C	WB/TEXTURE/TANETC	1100 sq. ft.	Y (N)	Y (N)
73	STAIR WB CEILING	M, S	C	WB/TEXTURE/TANETC	1000 sq. ft.	Y (N)	Y (N)
74	CEILING	M	W	CMU GROUT	NA	Y (N)	Y (N)
75	CEILING	M	W	CMU GROUT	NA	Y (N)	Y (N)
76	CEILING	M	W	CMU GROUT	NA	Y (N)	Y (N)
77	WB LIBRARY HALL	M	F	WHITE/STAIN VPT/TAN MASTIC	1000 sq. ft.	Y (N)	Y (N)
78	SOUTH HALL EAST	M	F	WHITE/STAIN VPT/TAN MASTIC	1000 sq. ft.	Y (N)	Y (N)

* M - Mso, S - Surfacing, T - TSI
** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)
*** Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Cove Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VPT)

10 of 11

Email all results to: kris.alexander@gregson.com and joung@gregson.com



8048 Northcourt Road
Houston, Texas 77040
713-744-5800

NORTHWEST
WFNO

ASBESTOS

Samples Relinquished By:	<i>[Signature]</i>	Date:	4/30/21
Samples Received By:	<i>[Signature]</i>	Date:	4/30/21
Samples Relinquished By:		Date:	
Samples Received By:		Date:	

Project No.: R14234.01

PO: 9564

Client: GSD

Project Name and Location: Asbestos Consulting - Former Edu. Facility

Samples Collected By: R. Lopez/L. Watkins

License No.: 603803 / 603913

CHAIN-OF-CUSTODY

Date Collected: 4/30/21

Laboratory Turnaround

Time (circle/bold): 24 48 72 **810 (5 day)**

Must have result:

Analysis Requested: (circle one)

PLM TEM Point Cl. PCM TEM-Air

First Positive Stop ☒ (check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	MAT	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
79	SOUTH HALL WEST	M	F	WHITE/RED STREAK VFT/TAN MASTIC	1,000 sq. ft.	Y (A)	Y (A)
80	LIBRARY	M	W	BROWN CONCRETE BASE/TAN MASTIC	100 LF	Y (B)	Y (B)
81	LIBRARY	M	W	BROWN CONCRETE BASE/TAN MASTIC	100 LF	Y (B)	Y (B)
82	LIBRARY	M	W	BROWN CONCRETE BASE/TAN MASTIC	100 LF	Y (B)	Y (B)
83	ENTRANCE	M	F	WHITE/RED STREAK VFT/TAN MASTIC	1,000 sq. ft.	Y (A)	Y (A)
84	NORTH HALL EAST	M	F	WHITE/RED STREAK VFT/TAN MASTIC	1,000 sq. ft.	Y (A)	Y (A)
85	NORTH HALL WEST	M	F	WHITE/RED STREAK VFT/TAN MASTIC	1,000 sq. ft.	Y (A)	Y (A)
86	CONFERENCE RM	M	F	CARPET MASTIC - TAN	1,600 sq. ft.	Y (B)	Y (B)
87	CONFERENCE RM LIBRARY	M	F	CARPET MASTIC - TAN	1,600 sq. ft.	Y (B)	Y (B)
88	CONFERENCE RM OFFICE	M	F	CARPET MASTIC - TAN	1,600 sq. ft.	Y (B)	Y (B)
89	WEST HALL	M	C	POT CERAMIC TILE	60 sq. ft.	Y (B)	Y (B)
90	WEST HALL	M	C	POT CERAMIC TILE	50 sq. ft.	Y (B)	Y (B)
91	WEST HALL OFFICE	M	C	POT CERAMIC TILE	50 sq. ft.	Y (B)	Y (B)
92	CONFERENCE	M	F	GREY VFT/TAN MASTIC	150 sq. ft.	Y (B)	Y (B)

* M - Misc., S - Surfacing, T - TSI

** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)

*** Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Concrete Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VFT)

7 of 11

Email all results to: kristi.destouet@tigerresources.com and reynolds@tigerresources.com



8048 Northcourt Road
Houston, Texas 77040
713-744-5800

NORTH WEST
WING
AREA A

Samples Relinquished By:	<i>[Signature]</i>	Date:	4/30/21
Samples Received By:	<i>[Signature]</i>	Date:	4/30/21
Samples Relinquished By:		Date:	
Samples Received By:		Date:	

Project No.: R14234.01 PO: 9564
Client: GISD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Watkins
License No.: 603803/603913

CHAIN-OF-CUSTODY

Date Collected: 4/30/21
Laboratory Turnaround: 24 48 72 96 (5 day)
Analysis Requested: (circle one)
PLM TEM Point Ct PCM TEM-Air
Must have results by: 5/10/21
First Positive Stop ☒ (check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	M	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
93	CONFERENCE OFFICE	M	F	GREY VFT / TAN MASTIC	150 sq. ft.	Y	Y
94	CONFERENCE / STAFF BATH	M	F	GREY VFT / TAN MASTIC	150 sq. ft.	Y	Y
95	CONFERENCE	S		WHITE VFT / MASTIC		Y	Y
96		S		WHITE VFT / MASTIC		Y	Y
97		S		WHITE VFT / MASTIC		Y	Y
98	STAFF BATH	M	F	TAN VFT / TAN MASTIC	120 sq. ft.	Y	Y
99	STAFF BATH	M	F	TAN VFT / TAN MASTIC	120 sq. ft.	Y	Y
100	STAFF BATH	M	F	TAN VFT / TAN MASTIC	120 sq. ft.	Y	Y
101	STAFF BATH	M	W	WHITE SPUR CAULK	NR	Y	Y
102	STAFF BATH	M	W	WHITE SPUR CAULK	NR	Y	Y
103	STAFF BATH	M	W	WHITE SPUR CAULK	NR	Y	Y
104	SW WTR HEATER	T	W	CLOTH PIPE WRAP	NR	Y	Y
105	OFFICE	M	C	LARGE RT CEILING-TILE	60 sq. ft.	Y	Y
106	OFFICE	M	C	LARGE RT CEILING-TILE	60 sq. ft.	Y	Y

* M - Misc., S - Surfacing, T - TSI
** W - Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)
--- W - Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Cove Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VFT)

8 of 11

Email all results to: knsd.dest@stgresources.com and yourcompany@stgresources.com



8048 Northcourt Road
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713-744-5800

NORTH WEST
WING
AREA #

Samples Relinquished By:	<i>[Signature]</i>	Date:	4/30/21
Samples Received By:	<i>[Signature]</i>	Date:	4/30/21
Samples Relinquished By:		Date:	
Samples Received By:		Date:	

Project No.: R14234.01 PO: 9564
Client: GISD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Watkins
License No.: 603803/603913

CHAIN-OF-CUSTODY

Date Collected: 4/30/21 Analysis Requested: (circle one)
Laboratory Turnaround: PLM TEM Point CL PCM TEM-Air
Time (circle bold): 24 48 72 STD (5 day)
Must have results by: First Positive Stop ☒ (check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	MATE	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
107	OFFICE	M	C	LARGE DOT CERAMIC TILE	50 sq. ft.	Y (N)	Y (N)
108	OFFICE	M	F	TAN VFT		Y (N)	Y (N)
109	OFFICE	M	F	TAN VFT		Y (N)	Y (N)
110	OFFICE	M	F	TAN VFT		Y (N)	Y (N)
111	OFFICE	M	F	GRAY CARPET MASTIC		Y (N)	Y (N)
112	OFFICE	M	F	GRAY CARPET MASTIC		Y (N)	Y (N)
113	OFFICE	M	F	GRAY CARPET MASTIC		Y (N)	Y (N)
114	OFFICE	M	W	GRAY COVE BASE/WHITE MASTIC 800 LF		Y (N)	Y (N)
115	OFFICE	M	W	GRAY COVE BASE/WHITE MASTIC 800 LF		Y (N)	Y (N)
116	OFFICE	M	W	GRAY COVE BASE/WHITE MASTIC 800 LF		Y (N)	Y (N)
117	OFFICE	M	W	BLUE COVE BASE/TAN MASTIC 120 LF		Y (N)	Y (N)
118	OFFICE	M	W	BLUE COVE BASE/TAN MASTIC 120 LF		Y (N)	Y (N)
119	OFFICE	M	W	BLUE COVE BASE/TAN MASTIC 120 LF		Y (N)	Y (N)
120	WOMAN'S RR	M	F	WHITE 1"X1" CERAMIC TILE/GROUT 250 sq. ft.		Y (N)	Y (N)

* M - Misc., S - Surfacing, T - TSI
- Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)
- Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Cove Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VFT)

9 of 11

Email all results to: kristi.destouet@geresources.com and techsupport@geresources.com



9048 Northcourt Road
Houston, Texas 77040
713-744-5800

NORTHWEST
WING

ASBESTOS

Samples Relinquished By:	<i>[Signature]</i>	Date:	4/30/21
Samples Received By:	<i>[Signature]</i>	Date:	4/30/21 (y-1)
Samples Relinquished By:		Date:	
Samples Received By:		Date:	

Project No.: R14234.01 PO: 4564
Client: GISD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Watkins
License No.: 603803/603913

CHAIN-OF-CUSTODY
Date Collected: 4/30/21
Laboratory Turnaround: 24 48 72 STD (5 day)
Must have results by: 5/10/21
Analysis Requested; (circle one)
PLM TEM Point Ct. PCM TEM-Air
First Positive Stop ☒ (check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	M	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
121	BOYS RR	M	F	WHITE 1"X1" CERAMIC TILE/GROUT	250g	Y (N)	Y (N)
122	WOMANS RR	M	F	WHITE 1"X1" CERAMIC TILE/GROUT	250g	Y (N)	Y (N)
123	BOYS RR	M	W	WHITE SINK CAULK	NA	Y (N)	Y (N)
124	WOMANS RR	M	W	WHITE SINK CAULK	NA	Y (N)	Y (N)
125	BOYS RR	M	W	WHITE SINK CAULK	NA	Y (N)	Y (N)
126	JANITOR CLOSET	S th M	C	BLACK AC MASTIC	NA	Y (N)	Y (N)
127	JANITOR CLOSET	S th M	C	BLACK AC MASTIC	NA	Y (N)	Y (N)
128	JANITOR CLOSET	S th M	C	BLACK AC MASTIC	NA	Y (N)	Y (N)
129	JANITOR CLOSET	S th M	C	WHITE AC MASTIC	NA	Y (N)	Y (N)
130	JANITOR CLOSET	S th M	C	WHITE AC MASTIC	NA	Y (N)	Y (N)
131	JANITOR CLOSET	S th M	C	WHITE AC MASTIC	NA	Y (N)	Y (N)
132	LIBRARY EAST	M	F	WHITE VPT WOOD CARPET/PLA MASTIC	200g	Y (N)	Y (N)
133	LIBRARY EAST	M	F	WHITE VPT WOOD CARPET/PLA MASTIC	200g	Y (N)	Y (N)
134	LIBRARY EAST	M	F	WHITE VPT WOOD CARPET/PLA MASTIC	200g	Y (N)	Y (N)

* M - Misc., S - Surfacing, T-TSI
** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)
*** Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Cove Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VFT)

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Email all results to: kristi.destouet@tigerresources.com and tcrump@tigerresources.com



8048 Northcourt Road
Houston, Texas 77040
713-744-5800

NORTHWEST
WING
DATA FL
A

Samples Relinquished By:	<i>[Signature]</i>	Date:	4/30/21
Samples Received By:	<i>[Signature]</i>	Date:	4/30/21 (64)
Samples Relinquished By:		Date:	
Samples Received By:		Date:	

Project No.: R14234.01 PO: 9364
Client: GISD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Watkins
License No.: 603903/603913

CHAIN-OF-CUSTODY

Date Collected: 4/30/21
Laboratory Turnaround
Time (circle bold): 24 48 72 STD (5 day)
Must have results by:
Analysis Requested: (circle one)
PLM TEM Point Cl. PCM TEM-Air
First Positive Stop ☒ (check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	M	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
135	NORTH HALL	M	W	BLACK CONCRETE/TX MASTIC	500 LF	Y (B)	Y (B)
136	SOUTH HALL	M	W	BLACK CONCRETE/TX MASTIC	500 LF	Y (B)	Y (B)
137	SE ROOM	M	W	BLACK CONCRETE/TX MASTIC	500 LF	Y (B)	Y (B)
138	SE ROOM	M	W	GRAY WALL MASTIC	20 sq. ft.	Y (B)	Y (B)
139	NE ROOM	M	W	GRAY WALL MASTIC	20 sq. ft.	Y (B)	Y (B)
140	NE ROOM	M	W	GRAY WALL MASTIC	20 sq. ft.	Y (B)	Y (B)
						Y N	Y N
						Y N	Y N
						Y N	Y N
						Y N	Y N
						Y N	Y N
						Y N	Y N
						Y N	Y N
						Y N	Y N

* M - Misc., S - Surfacing, T - TSI
** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)
*** Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Cove Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VFT)

11 of 11



EMLab P&K

Report for:

Tim Crump, Kristi Destouet
TGE Resources, Inc
8048 Northcourt Road
Houston, TX 77040

Regarding: Project: R14234.01; Asbestos Consulting-Former Edu. Facility
EML ID: 2630638

Approved by:

Dates of Analysis:
Asbestos PLM: 05-04-2021 to 05-06-2021

Approved Signatory
Amber Rutter

Service SOPs: Asbestos PLM (EPA 40CFR App E to Sub E of Part 763 & EPA METHOD 600/R-93-116, SOP EM-AS-S-1267)
NVLAP Lab Code 500053-0

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the samples as received and tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

Eurofins EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting-Former Edu.
 Facility

Eurofins EMLab P&K
 4955 Yarrow Street , Arvada, CO 80002
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com
 Date of Sampling: 04-29-2021
 Date of Receipt: 04-30-2021
 Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Total Samples Submitted:	54
Total Samples Analyzed:	48
Total Samples with Layer Asbestos Content > 1%:	2

Location: H-01, CMN Grout

Lab ID-Version: 12567505-1

Sample Layers	Asbestos Content
Gray Grout	ND
Sample Composite Homogeneity:	Good

Location: H-02, CMN Grout

Lab ID-Version: 12567506-1

Sample Layers	Asbestos Content
Gray Grout	ND
Sample Composite Homogeneity:	Good

Location: H-03, CMN Grout

Lab ID-Version: 12567507-1

Sample Layers	Asbestos Content
Gray Grout	ND
Sample Composite Homogeneity:	Good

Location: H-04, Black Cover Base/ White Mastic

Lab ID-Version: 12567508-1

Sample Layers	Asbestos Content
Black Baseboard	ND
White Mastic	ND
Sample Composite Homogeneity:	Moderate

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by any agency of the federal government. Eurofins EMLab P&K reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2630638, Page 2 of 13

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting-Former Edu.
 Facility

Eurofins EMLab P&K
 4955 Yarrow Street , Arvada, CO 80002
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com
 Date of Sampling: 04-29-2021
 Date of Receipt: 04-30-2021
 Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: H-05, Black Cover Base/ White Mastic

Lab ID-Version‡: 12567509-1

Sample Layers	Asbestos Content
Black Baseboard	ND
White Mastic	ND
Sample Composite Homogeneity: Moderate	

Location: H-06, Black Cover Base/ White Mastic

Lab ID-Version‡: 12567510-1

Sample Layers	Asbestos Content
Black Baseboard	ND
White Mastic	ND
Sample Composite Homogeneity: Moderate	

Location: H-07, Carpet Mastic-Tan

Lab ID-Version‡: 12567511-1

Sample Layers	Asbestos Content
Tan Mastic	ND
Sample Composite Homogeneity: Good	

Location: H-08, Carpet Mastic-Tan

Lab ID-Version‡: 12567512-1

Sample Layers	Asbestos Content
Tan Mastic	ND
Sample Composite Homogeneity: Good	

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2630638, Page 3 of 13

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting-Former Edu.
 Facility

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 (800) 651-4802 Fax (623) 780-7695 www.emlab.com

Date of Sampling: 04-29-2021
 Date of Receipt: 04-30-2021
 Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: H-09, Carpet Mastic-Tan

Lab ID-Version‡: 12567513-1

Sample Layers	Asbestos Content
Tan Mastic	ND
Sample Composite Homogeneity:	Good

Location: H-10, White Speck VFT/Tank Black Mastic

Lab ID-Version‡: 12567514-1

Sample Layers	Asbestos Content
White Floor Tile	ND
Black/Yellow Mastic	2% Chrysotile
Sample Composite Homogeneity:	Poor

Comments: Samples H-11 and H-12 were not analyzed due to prior positive series.

Location: H-13, Grey Window Caulk

Lab ID-Version‡: 12567517-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

Location: H-14, Grey Window Caulk

Lab ID-Version‡: 12567518-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity:	Good

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2630638, Page 4 of 13

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting-Former Edu.
 Facility

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 Date of Sampling: 04-29-2021
 Date of Receipt: 04-30-2021
 Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: H-15, Grey Window Caulk

Lab ID-Version‡: 12567519-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity: Good	

Location: H-16, Grey FI Caulk

Lab ID-Version‡: 12567520-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity: Good	

Location: H-17, Grey FI Caulk

Lab ID-Version‡: 12567521-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity: Good	

Location: H-18, Grey FI Caulk

Lab ID-Version‡: 12567522-1

Sample Layers	Asbestos Content
Gray Caulk	ND
Sample Composite Homogeneity: Good	

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2630638, Page 5 of 13

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting-Former Edu.
 Facility

Eurofins EMLab P&K
 4955 Yarrow Street , Arvada, CO 80002
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com
 Date of Sampling: 04-29-2021
 Date of Receipt: 04-30-2021
 Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: H-19, White Cove Base

Lab ID-Version‡: 12567523-1

Sample Layers	Asbestos Content
White Baseboard	ND
Sample Composite Homogeneity: Good	

Location: H-20, White Cove Base

Lab ID-Version‡: 12567524-1

Sample Layers	Asbestos Content
White Baseboard	ND
Sample Composite Homogeneity: Good	

Location: H-21, White Cove Base

Lab ID-Version‡: 12567525-1

Sample Layers	Asbestos Content
White Baseboard	ND
Sample Composite Homogeneity: Good	

Location: H-22, Beige Cove Base

Lab ID-Version‡: 12567526-1

Sample Layers	Asbestos Content
Beige Baseboard	ND
Sample Composite Homogeneity: Good	

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2630638, Page 6 of 13

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting-Former Edu.
 Facility

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 4955 Yarrow Street , Arvada, CO 80002
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com
 Date of Sampling: 04-29-2021
 Date of Receipt: 04-30-2021
 Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: H-23, Beige Cove Base

Lab ID-Version†: 12567527-1

Sample Layers	Asbestos Content
Beige Baseboard	ND
Sample Composite Homogeneity:	Good

Location: H-24, Beige Cove Base

Lab ID-Version†: 12567528-1

Sample Layers	Asbestos Content
Beige Baseboard	ND
Sample Composite Homogeneity:	Good

Location: H-25, White HVAC Mastic

Lab ID-Version†: 12567529-1

Sample Layers	Asbestos Content
White Mastic	ND
Composite Non-Asbestos Content:	30% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Good

Location: H-26, White HVAC Mastic

Lab ID-Version†: 12567530-1

Sample Layers	Asbestos Content
White Mastic	ND
Composite Non-Asbestos Content:	30% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Good

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2630638, Page 7 of 13

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting-Former Edu.
 Facility

Eurofins EMLab P&K
 4955 Yarrow Street , Arvada, CO 80002
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com
 Date of Sampling: 04-29-2021
 Date of Receipt: 04-30-2021
 Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: H-27, White HVAC Mastic

Lab ID-Version‡: 12567531-1

Sample Layers	Asbestos Content
White Mastic	ND
Composite Non-Asbestos Content:	30% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Good

Location: H-28, Sink White Caulk

Lab ID-Version‡: 12567532-1

Sample Layers	Asbestos Content
White Caulk	ND
Sample Composite Homogeneity:	Good

Location: H-31, Pipe Wrap Mastic

Lab ID-Version‡: 12567535-1

Sample Layers	Asbestos Content
White Mastic	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Good

Location: H-32, Pipe Wrap Mastic

Lab ID-Version‡: 12567536-1

Sample Layers	Asbestos Content
White Mastic	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Good

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Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2630638, Page 8 of 13

Client: TGE Resources, Inc
C/O: Tim Crump, Kristi Destouet
Re: R14234.01; Asbestos Consulting-Former Edu.
Facility

Eurofins EMLab P&K
4955 Yarrow Street , Arvada, CO 80002
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Date of Sampling: 04-29-2021
Date of Receipt: 04-30-2021
Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: H-33, Pipe Wrap Mastic

Lab ID-Version: 12567537-1

Sample Layers	Asbestos Content
White Mastic	ND
Composite Non-Asbestos Content:	20% Glass Fibers 10% Cellulose
Sample Composite Homogeneity:	Good

Location: H-34, Dot Ceiling Tile

Lab ID-Version: 12567538-1

Sample Layers	Asbestos Content
Beige Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 40% Glass Fibers
Sample Composite Homogeneity:	Good

Location: H-35, Dot Ceiling Tile

Lab ID-Version: 12567539-1

Sample Layers	Asbestos Content
Beige Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 40% Glass Fibers
Sample Composite Homogeneity:	Good

Location: H-36, Dot Ceiling Tile

Lab ID-Version: 12567540-1

Sample Layers	Asbestos Content
Beige Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content:	40% Cellulose 40% Glass Fibers
Sample Composite Homogeneity:	Good

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2630638, Page 9 of 13

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting-Former Edu.
 Facility

Eurofins EMLab P&K
 4955 Yarrow Street , Arvada, CO 80002
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com
 Date of Sampling: 04-29-2021
 Date of Receipt: 04-30-2021
 Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: H-37, WB Wall

Lab ID-Version‡: 12567541-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Compound with Paint	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: H-38, WB Wall

Lab ID-Version‡: 12567542-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Compound with Paint	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: H-39, WB Wall

Lab ID-Version‡: 12567543-1

Sample Layers	Asbestos Content
White Drywall with Brown Paper	ND
White Compound with Paint	ND
Composite Non-Asbestos Content:	10% Cellulose
Sample Composite Homogeneity:	Moderate

Location: H-40, White VFT/Pink Mastic

Lab ID-Version‡: 12567544-1

Sample Layers	Asbestos Content
White Floor Tile	ND
Yellow Mastic	ND
Sample Composite Homogeneity:	Moderate

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2630638, Page 10 of 13

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting-Former Edu.
 Facility

Eurofins EMLab P&K
 4955 Yarrow Street , Arvada, CO 80002
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com
 Date of Sampling: 04-29-2021
 Date of Receipt: 04-30-2021
 Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: H-41, White VFT/Pink Mastic

Lab ID-Version‡: 12567545-1

Sample Layers	Asbestos Content
White Floor Tile	ND
Yellow Mastic	ND
Sample Composite Homogeneity: Moderate	

Location: H-42, White VFT/Pink Mastic

Lab ID-Version‡: 12567546-1

Sample Layers	Asbestos Content
White Floor Tile	ND
Yellow Mastic	ND
Sample Composite Homogeneity: Moderate	

Location: H-43, Cream Carpet Mastic

Lab ID-Version‡: 12567547-1

Sample Layers	Asbestos Content
Multicolored Mastic	< 1% Chrysotile
Sample Composite Homogeneity: Moderate	

Location: H-44, Cream Carpet Mastic

Lab ID-Version‡: 12567548-1

Sample Layers	Asbestos Content
Multicolored Mastic	< 1% Chrysotile
Sample Composite Homogeneity: Moderate	

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2630638, Page 11 of 13

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting-Former Edu.
 Facility

Eurofins EMLab P&K
 4955 Yarrow Street , Arvada, CO 80002
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com
 Date of Sampling: 04-29-2021
 Date of Receipt: 04-30-2021
 Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: H-45, Cream Carpet Mastie

Lab ID-Version: 12567549-1

Sample Layers	Asbestos Content
Multicolored Mastie	< 1% Chrysotile
Sample Composite Homogeneity: Moderate	

Location: H-46, Wall Board CT

Lab ID-Version: 12567550-1

Sample Layers	Asbestos Content
White Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content: 10% Cellulose	
Sample Composite Homogeneity: Good	

Location: H-47, Wall Board CT

Lab ID-Version: 12567551-1

Sample Layers	Asbestos Content
White Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content: 10% Cellulose	
Sample Composite Homogeneity: Good	

Location: H-48, Wall Board CT

Lab ID-Version: 12567552-1

Sample Layers	Asbestos Content
White Ceiling Tile with White Surface	ND
Composite Non-Asbestos Content: 10% Cellulose	
Sample Composite Homogeneity: Good	

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2630638, Page 12 of 13

Client: TGE Resources, Inc
 C/O: Tim Crump, Kristi Destouet
 Re: R14234.01; Asbestos Consulting-Former Edu.
 Facility

Eurofins EMLab P&K
 4955 Yarrow Street , Arvada, CO 80002
 (800) 651-4802 Fax (623) 780-7695 www.emlab.com
 Date of Sampling: 04-29-2021
 Date of Receipt: 04-30-2021
 Date of Report: 05-07-2021

ASBESTOS PLM REPORT

Location: H-49, White/Red Speck VFT/Blk Mastie

Lab ID-Version‡: 12567553-1

Sample Layers	Asbestos Content
White Floor Tile	ND
Black Mastie	10% Chrysotile
Sample Composite Homogeneity: Poor	

Comments: Samples H-50 and H-51 were not analyzed due to prior positive series.

Location: H-52, Brown VFT/Tan/Blk Mastie

Lab ID-Version‡: 12567556-1

Sample Layers	Asbestos Content
Brown Floor Tile	ND
Yellow Mastie	ND
Sample Composite Homogeneity: Moderate	

Location: H-53, Brown VFT/Tan/Blk Mastie

Lab ID-Version‡: 12567557-1

Sample Layers	Asbestos Content
Brown Floor Tile	ND
Yellow Mastie	ND
Sample Composite Homogeneity: Moderate	

Location: H-54, Brown VFT/Tan/Blk Mastie

Lab ID-Version‡: 12567558-1

Sample Layers	Asbestos Content
Brown Floor Tile	ND
Yellow Mastie	ND
Sample Composite Homogeneity: Moderate	

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Eurofins EPK Built Environment Testing, LLC

EMLab ID: 2630638, Page 13 of 13

NORTHEAST WING



8048 Northcourt Road
Houston, Texas 77040
713-744-5800



002630638

mples Relinquished By: Date: 4/29/21
mples Received By: Date:
mples Relinquished By: Date:
mples Received By: Date: 4/30/21

Project No.: R14234.01 PO: 9563
Client: GISD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez/L. Watkins
Licensee No.: 603803 / 603913

DATE OF CUSTODY
Date Collected: 4/29/21 Analysis Requested; (circle one)
Laboratory Turnaround: PLM TEM Point CL PCM TEM-Air
Time (circle/bold): 24 48 72 STD (6 day)
Must have results by: First Positive Stop X
(check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, G, F, E, R**	MATERIAL SAMPLED***	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (mg)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
H-01	ELECTRICAL ROOM	M	N	CAN GROUT	48,000 _{sq. ft.}	Y (N)	Y (N)
H-02	WASH ROOM	M	N	CAN GROUT	48,000 _{sq. ft.}	Y (N)	Y (N)
H-03	ELECTRICAL ROOM	M	N	CAN GROUT	48,000 _{sq. ft.}	Y (N)	Y (N)
H-04	FRONT OFFICE	M	N	BLACK COVERAGE/WHITE MASTIC	1600 LF	Y (N)	Y (N)
H-05	LOBBY	M	N	BLACK COVERAGE/WHITE MASTIC	1600 LF	Y (N)	Y (N)
H-06	ENTRY HALLWAY	M	N	BLACK COVERAGE/WHITE MASTIC	1600 LF	Y (N)	Y (N)
H-07	NEW FRONT OFFICE	M	F	CARPET MASTIC - TAN	300 _{sq. ft.}	Y (N)	Y (N)
H-08	WEST FRONT OFFICE	M	F	CARPET MASTIC - TAN	300 _{sq. ft.}	Y (N)	Y (N)
H-09	SE FRONT OFFICE	M	F	CARPET MASTIC - TAN	300 _{sq. ft.}	Y (N)	Y (N)
H-10	GOUTH HALLWAY	M	F	WHITE SPECK VPT/TAN/BLACK MASTIC	15,000 _{sq. ft.}	Y (N)	Y (N)
H-11	GOUTH HALLWAY	M	F	WHITE SPECK VPT/TAN/BLACK MASTIC	15,000 _{sq. ft.}	Y (N)	Y (N)
H-12	GOUTH HALLWAY	M	F	WHITE SPECK VPT/TAN/BLACK MASTIC	15,000 _{sq. ft.}	Y (N)	Y (N)
H-13	MEETING	M	N	GRAY WOODGRANULAR	N/A	Y (N)	Y (N)
H-14	HS RE-SAMPLE	M	N	GRAY WOODGRANULAR	N/A	Y (N)	Y (N)

* M - Misc., S - Surfacing, T - TSI
** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)
*** Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Cove Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VFT)

1 of 4

NORTHEAST WING



8048 Northcourt Road
Houston, Texas 77040
713-744-5800

002630638

Invoice to K&Epharm@kgeresources.com
Samples Relinquished By: [Signature]
Samples Received By: [Signature]
Samples Relinquished By: [Signature]
Samples Received By: [Signature]

Date: 7/29/12
Date: 7/29/12
Date: 7/29/12
Date: 7/29/12

Project No.: R14234.01

PO: 9563

Client: GISO

Project Name and Location: Asbestos Consulting - Former Edin. Facility

Samples Collected By: R. Lopez, L. Watkins

License No.: 603803/603913

CHAIN-OF-CUSTODY

Date Collected: 7/29/12

Laboratory Turnaround

Time (circle/bold): 24 48 72 STD (5 day)

Must have results by:

Analysis Requested; (circle one)

PLM TEM Point Ct. PCM TEM-Air

First Positive Stop
(check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	MATERIAL SAMPLED***	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
H-15	Room B	M	W	GRAY WHITE CAULK	NR	Y (N)	Y (N)
H-16	Room D	M	F	TAN VFT / GRAY CAULK	NR	Y (N)	Y (N)
H-17	Room D	M	F	TAN VFT / GRAY CAULK	NR	Y (N)	Y (N)
H-18	Room C	M	F	TAN VFT / GRAY CAULK	NR	Y (N)	Y (N)
H-19	Room C - North wall	M	F	WHITE COVERBASE / TAN MASTIC	250 sq. ft.	Y (N)	Y (N)
H-20	Room C Entrance	M	F	WHITE COVERBASE / TAN MASTIC	250 sq. ft.	Y (N)	Y (N)
H-21	Room B - North east	M	F	WHITE COVERBASE / TAN MASTIC	250 sq. ft.	Y (N)	Y (N)
H-22	Room B South wall	M	F	BEIGE COVERBASE / TAN MASTIC	200 sq. ft.	Y (N)	Y (N)
H-23	Room D South wall	M	F	BEIGE COVERBASE / TAN MASTIC	200 sq. ft.	Y (N)	Y (N)
H-24	Room D West wall	M	F	BEIGE COVERBASE / TAN MASTIC	200 sq. ft.	Y (N)	Y (N)
H-25	Mech Room	M	W/C	WHITE HVC MASTIC	NR	Y (N)	Y (N)
H-26	Mech Room	M	W/C	WHITE HVC MASTIC	NR	Y (N)	Y (N)
H-27	Mech Room	M	W/C	WHITE HVC MASTIC	NR	Y (N)	Y (N)
H-28	Mech Room	M	W	GRAY WHITE CAULK	NR	Y (N)	Y (N)

* M - Misc., S - Surfacing, T - TSI

** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)

*** Wetboard (WB), Joint Compound (JC), Ceiling Tile (CT), Ceiling Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VFT)

2 of 4

NORTHEAST WING



8048 Northcourt Road
Houston, Texas 77040
713-744-5800



D02630638

INVOICE TO: kspn@mgresources.com

samples Relinquished By:	<i>[Signature]</i>	Date:	4/29/21
samples Received By:	<i>[Signature]</i>	Date:	
samples Relinquished By:	<i>[Signature]</i>	Date:	
samples Received By:	<i>[Signature]</i>	Date:	4/30/21

Project No.: R14234.01

PO: 9563

Client: GUSD

Project Name and Location: Asbestos Consulting - Former Edu. Facility

Samples Collected By: R. Lopez-L. Watkins

License No.: 603803 / 603913

CHAIN-OF-CUSTODY

Date Collected: 4/29/21

Laboratory Turnaround

Time (circle bold): 24 48 72 STD (5 day)

Must have results by:

Analysis Requested: (circle one)

GLM TEM Point Ct PCM TEM-Air

First Positive Stop ☒ (check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	MATERIAL SAMPLED***	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
H-79	KITCHEN SINK	M	W	SINK WHITE CAULK	NA	Y (N)	Y (N)
H-80	KITCHEN SINK	M	W	SINK WHITE CAULK	NA	Y (N)	Y (N)
H-81	ELECTRICAL ROOM	S/T/M	W	PIPE WRAP MASTIC	NA	Y (N)	Y (N)
H-82	ELECTRICAL ROOM	S/T/M	W	PIPE WRAP MASTIC	NA	Y (N)	Y (N)
H-83	ELECTRICAL ROOM	S/T/M	W	PIPE WRAP MASTIC	NA	Y (N)	Y (N)
H-84	ROOM A	M	F	BROWN VFT / JOINT COMPOUND	19.20 sq. ft.	Y (N)	Y (N)
H-85	ROOM OFFICE	M	F	BROWN VFT / JOINT COMPOUND	19.20 sq. ft.	Y (N)	Y (N)
H-86	GOUTH HALL	M	F	BROWN VFT / JOINT COMPOUND	19.20 sq. ft.	Y (N)	Y (N)
H-87	ROOM B	M	W	WB WALL	200 sq. ft.	Y (N)	Y (N)
H-88	ROOM B	M	W	WB WALL	200 sq. ft.	Y (N)	Y (N)
H-89	ROOM B	M	W	WB WALL	200 sq. ft.	Y (N)	Y (N)
H-90	SOUTH HALL ELECTRICAL	M	F	WHITE VFT / JOINT COMPOUND	5 sq. ft.	Y (N)	Y (N)
H-91	SOUTH HALL ELECTRICAL	M	F	WHITE VFT / JOINT COMPOUND	5 sq. ft.	Y (N)	Y (N)
H-92	SOUTH HALL ELECTRICAL	M	F	WHITE VFT / JOINT COMPOUND	5 sq. ft.	Y (N)	Y (N)

* M - Misc., S - Surfacing, T - TSI

** Wall (W), Ceiling (C), Floor (F), Roof (R), Exterior (E)

*** Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Cove Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VFT)

3 of 4

NORTHEAST WING



8048 Northcourt Road
Houston, Texas 77040
713-744-6800



002630638

ASBESTOS

Samples Relinquished By:	<i>[Signature]</i>	Date:	4/29/21
Samples Received By:	<i>[Signature]</i>	Date:	
Samples Relinquished By:	<i>[Signature]</i>	Date:	4/30/21
Samples Received By:	<i>[Signature]</i>	Date:	

Project No.: R14234.01 PO: 9563
Client: GISD
Project Name and Location: Asbestos Consulting - Former Edu. Facility
Samples Collected By: R. Lopez, Watkins
License No.: 603403/603913

Chain-of-Custody
Date Collected: 4/29/21
Laboratory Turnaround
Time (circle/bold): 24 48 72 **5** (5-day)
Must have results by:

Analysis Requested: (circle one)
PLM TEM Point CL PCM TEM-Air

First Positive Stop ☒ (check if yes)

SAMPLE NO.	SAMPLE LOCATION	M, S, T*	W, C, F, E, R**	MATERIAL SAMPLED***	ESTIMATED SIZE (sq. ft., in. ft.) not quantified (ng)	FRIABLE (Yes/No)	DAMAGED (Yes/No)
H-43	ROOM A	M	F	CREAM CARPET MASTIC	400 sq. ft.	Y <input checked="" type="checkbox"/>	Y <input checked="" type="checkbox"/>
H-44	ROOM A	M	F	CREAM CARPET MASTIC	400 sq. ft.	Y <input checked="" type="checkbox"/>	Y <input checked="" type="checkbox"/>
H-45	ROOM A	M	F	CREAM CARPET MASTIC	400 sq. ft.	Y <input checked="" type="checkbox"/>	Y <input checked="" type="checkbox"/>
H-46	KITCHEN HALL	M	W	WALL BOARD CT	5 sq. ft.	Y <input checked="" type="checkbox"/>	Y <input checked="" type="checkbox"/>
H-47	KITCHEN HALL	M	W	WALL BOARD CT	5 sq. ft.	Y <input checked="" type="checkbox"/>	Y <input checked="" type="checkbox"/>
H-48	KITCHEN HALL	M	W	WALL BOARD CT	5 sq. ft.	Y <input checked="" type="checkbox"/>	Y <input checked="" type="checkbox"/>
H-49	NORTH HALL	M	F	WHITE/RED SPECK VFT/CM MASTIC	500 sq. ft.	Y <input checked="" type="checkbox"/>	Y <input checked="" type="checkbox"/>
H-50	NORTH HALL	M	F	WHITE/RED SPECK VFT/CM MASTIC	500 sq. ft.	Y <input checked="" type="checkbox"/>	Y <input checked="" type="checkbox"/>
H-51	NORTH HALL	M	F	WHITE/RED SPECK VFT/CM MASTIC	500 sq. ft.	Y <input checked="" type="checkbox"/>	Y <input checked="" type="checkbox"/>
H-52	NORTH HALL ROOM A	M	F	BROWN VFT/TAN/OLK MASTIC	5 sq. ft.	Y <input checked="" type="checkbox"/>	Y <input checked="" type="checkbox"/>
H-53	ROOM A	M	F	BROWN VFT/TAN/OLK MASTIC	5 sq. ft.	Y <input checked="" type="checkbox"/>	Y <input checked="" type="checkbox"/>
H-54	ROOM A	M	F	BROWN VFT/TAN/OLK MASTIC	5 sq. ft.	Y <input checked="" type="checkbox"/>	Y <input checked="" type="checkbox"/>
						Y N	Y N
						Y N	Y N

* M - Miso, S - Surfacing, T - TSI
** W - Wall, C - Ceiling, F - Floor, R - Roof, E - Exterior, R - Rebar
*** Wallboard (WB), Joint Compound (JC), Ceiling Tile (CT), Core Base (CB), Carpet Mastic (CM), Vinyl Floor Tile (VFT)

4 of 4

APPENDIX B



Photograph 1. View of tan speck vinyl floor tile (non-ACM) with black mastic (7% Chrysotile) within the South Wing (per PLM analysis).



Photograph 2. View of purple and brown VFT (both Non-ACM) with black/yellow mastic (2-3% Chrysotile) within the South Wing (per PLM analysis).



Photograph 3. View of pink ceramic floor tile and grout (both layers non-ACM) with black mastic (5% Chrysotile) within the South Wing 2nd floor Boy's and Girl's Restrooms (per PLM analysis).



Photograph 4. View of black HVAC mastic (10% Chrysotile per PLM analysis) located within select areas of the South Wing plenum.



Photograph 5. View of "Non-PCB" ballast within a light fixture observed within the South Wing.



Photograph 6. View of possible Freon™ containing refrigerator equipment observed within the South Wing Kitchen.



Photograph 7. View of 5-gallon partially full container of hydraulic oil adjacent to the elevator equipment within the South Wing.



Photograph 8. View of white/red streak VFT (non-ACM) with black mastic (10% Chrysotile) located in the Northwest Section (per PLM analysis).



Photograph 9. View of white VFT (non-ACM) with black mastic (5% Chrysotile) located in the Northwest Section (per PLM analysis).



Photograph 10. View of tan VFT (non-ACM) with black/yellow mastic (3% Chrysotile) located in the Northwest Section (per PLM analysis).



Photograph 11. View of white 1" x 1" ceramic floor tile (non-ACM) associated with black mastic (2% Chrysotile) within the Northwest Section Boy's and Girl's Restrooms (per PLM analysis).



Photograph 12. View of white VFT (non-ACM) and black mastic (8% Chrysotile) under carpeting within the Northwest Section Library (per PLM analysis).

R14234.01 – Former Giddings Elementary School



Photograph 13. Example of fluorescent bulb storage (universal waste) observed throughout the subject buildings.



Photograph 14. Example of pipe insulation associated with white mastic (non-ACM) in select locations.



Photograph 15. View of white speck VFT (non-ACM) with black/yellow mastic (2% Chrysotile) located with the Northeast Section (per PLM analysis).



Photograph 16. View of carpeting with multicolored mastic (<1% Chrysotile) within the Northeast Section (per PLM analysis).



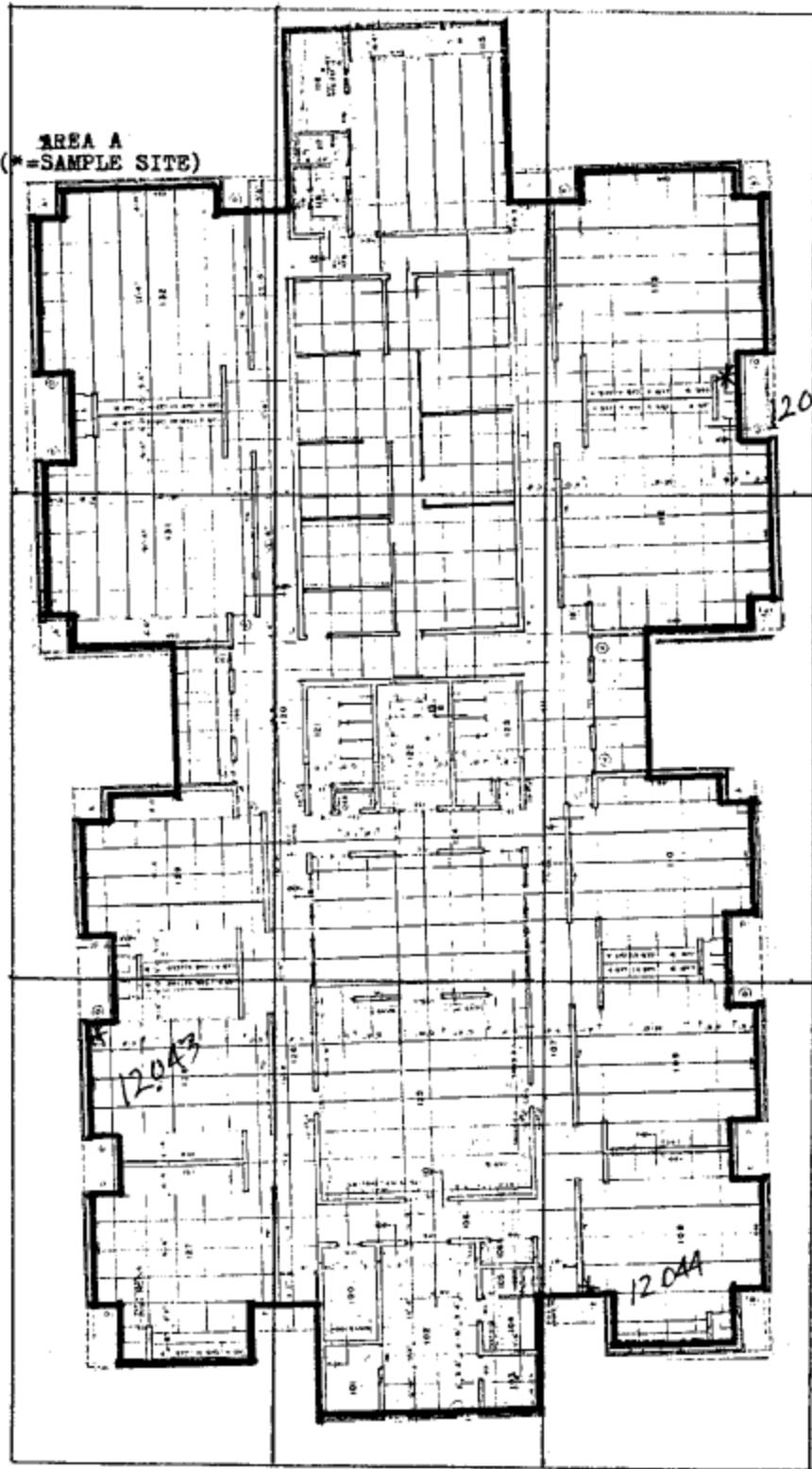
Photograph 17. View of white/red speck VFT (non-ACM) with black mastic (10% Chrysotile) located in the Northeast Section (per PLM analysis).



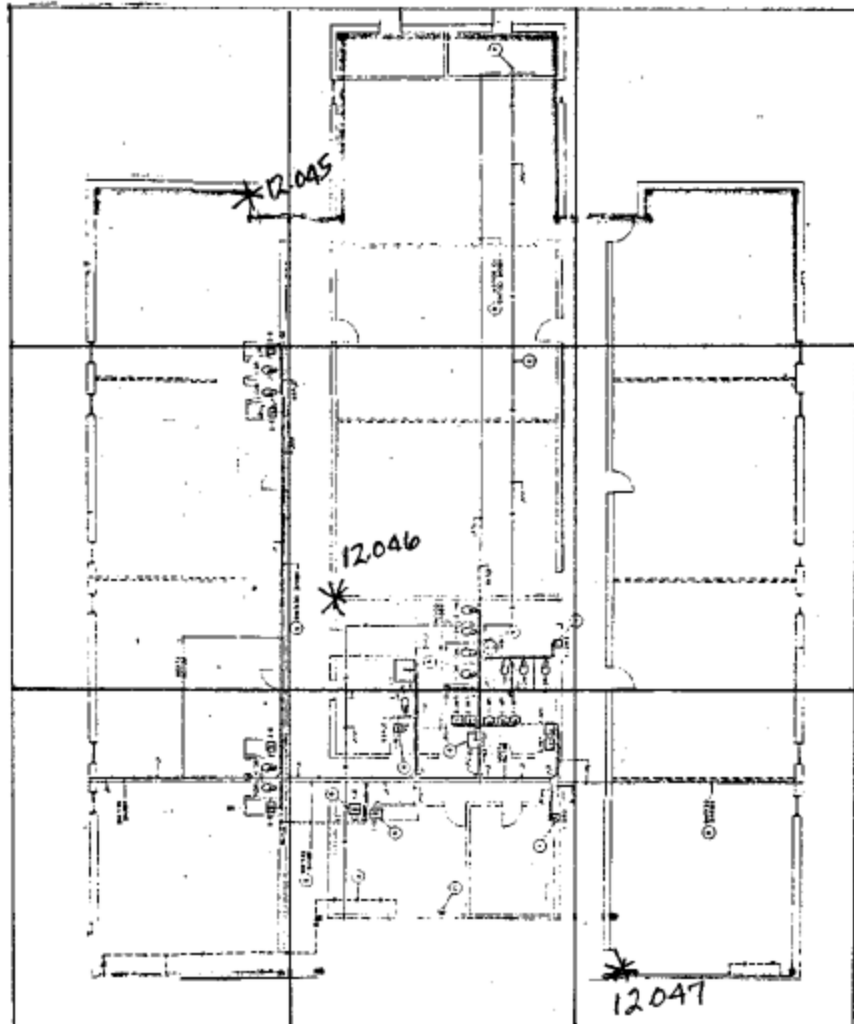
Photograph 18. View of household cleaning chemical storage within the Northeast Section.

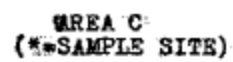
APPENDIX C

AREA A
(* = SAMPLE SITE)



AREA B
(* = SAMPLE SITE)





APPENDIX D



Texas Department of State Health Services

TGE RESOURCES INC

is certified to perform as an

Asbestos Consultant Agency

in the State of Texas and is hereby governed by the rights, privileges and responsibilities set forth in Texas Occupations Code, Chapter 1954 and Title 12, Texas Administrative Code, Chapter 295 relating to Texas Asbestos Health Protection, as long as this license is not suspended or revoked.



License Number: 100171

Control Number: 97380



Expiration Date: 04/04/2023

*John Hellerstedt, M.D.,
Commissioner of Health*

(Void After Expiration Date)

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Texas Department of State Health Services

TGE RESOURCES INC

is certified to perform as an

Asbestos Laboratory

PCM

in the State of Texas and is hereby governed by the rights, privileges and responsibilities set forth in Texas Occupations Code, Chapter 1954 and Title 12, Texas Administrative Code, Chapter 295 relating to Texas Asbestos Health Protection, as long as this license is not suspended or revoked.



License Number: 300275

Expiration Date: 04/05/2022

Control Number: 96440

*John Hellerstedt, M.D.,
Commissioner of Health*

(Void After Expiration Date)

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**Texas Department of
State Health Services**

Asbestos Individual Consultant

ROBIN D FRANKS

License No. 105379

Control No. 97718

Expiration Date: 19-May-2022





**ENVIRO-CON
SERVICES, INC.**

Certificate No. 47265-TX

IN-R-397



Awards this certificate to

Robin D. Franks
TX 08446199

for completion of the

4 HOUR ASBESTOS INSPECTOR REFRESHER COURSE (English)

HAS COMPLETED THE REQUISITE TRAINING FOR ASBESTOS ACCREDITATION

AS REQUIRED BY:

40 CFR 763, SUBPART E, APPENDIX C

TSCA TITLE II

AND

LAC 33:III.2799, APPENDIX A

COURSE DATE(S) September 2, 2020

EXAMINATION DATE September 2, 2020

EXPIRATION DATE September 2, 2021

Douglas S. Shotwell
Course Instructor - Douglas Shotwell

Douglas S. Shotwell
Director of Education and Operations
Douglas S. Shotwell
Enviro-Con Services, Inc.
1855 Barker Cypress Rd., Suite #130
Houston, Texas 77084
(281) 398-7000
www.enviro-conservices.com

CERTIFICATE INDICATES THAT COURSE AND EXAM WERE BOTH PASSED SATISFACTORILY



**Texas Department of
State Health Services**

Asbestos Individual Consultant

KRISTI M DESTOUET

License No. 105770

Control No. 97662

Expiration Date: 15-Feb-2022



CERTIFICATE

THIS CERTIFIES THAT
KRISTI DESTOUET

ID/DL# TX 20788090



AHERA/EPA Accredited Course for Asbestos Abatement Inspector Refresher English
has completed the NATEC

and has passed the Required Exam in that Discipline.

This Course is EPA Approved Under the Toxic Substance Control Act (TSCA) Title II.
LAC 33:III.2799, Appendix A and the TSCA title II.

November 4, 2020

Course Date

November 4, 2021

Expiration Date

November 4, 2020

Exam Date

NIR110420-8090

Certification #

Instructor's Signature
MAILING ADDRESS: 9802 Lawndale Avenue, Houston, Texas 77017, (713) 472-4022 Visit us at www.natec.org

Authorized Signature

David A. Roberts

e-mail natec@comcast.net



**Texas Department of
State Health Services**

Asbestos Inspector

RAYMOND D LOPEZ

License No. 603803

Control No. 99387

Expiration Date: 13-Jun-2021



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Department of State Health Services - MC2020
P.O. Box 145247
Austin, TX 78714-9347

It is a violation of the Department of State Health Services and a violation
of Texas Penal Code Sec. 37.30 to create any forged or fraudulent
documents in order to obtain a license.

Es una violacion de las regulaciones del Departamento Estatal de
Salud y del Texas Penal Code Sec. 37.30 al crear
cualquier tipo de documentos que sean falsificados o fabricados para
obtener una licencia.


John Hollenbeck M.D.
Commissioner



**Texas Department of
State Health Services**

Asbestos Inspector

LOGAN H WATKINS

License No. 603913

Control No. 99868

Expiration Date: 9-Feb-2023



CERTIFICATE

THIS CERTIFIES THAT
LOGAN WATKINS

ID/DL# TX 28368929



has completed the NATEC
AHERA/EPA Accredited Course for Asbestos Abatement Inspector Refresher (English)
and has passed the Required Exam in that Discipline.

This Course is EPA Approved Under the Toxic Substance Control Act (TSCA) Title II.

LAC 33:III,2799. Appendix A and the TSCA title II.

TEXAS DSHS Live on Line Refresher Training

March 3, 2021
Course Date

March 3, 2022
Expiration Date

March 3, 2021
Exam Date

Instructor's Signature

NIR030321-8929
Certification #

MAILING ADDRESS: 9802 Lawndale Avenue, Houston, Texas 77017, (713) 472-4022 Visit us at www.natectx.com
FL Course Number: 0006352 Provider Number 0003279

e-mail natectx@comcast.net



Texas Department of State Health Services

EMLAB P&K LLC

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Asbestos Laboratory

PLM

in the State of Texas and is hereby governed by the rights, privileges and responsibilities set forth in Texas Occupations Code, Chapter 1954 and Title 12, Texas Administrative Code, Chapter 295 relating to Texas Asbestos Health Protection, as long as this license is not suspended or revoked.



License Number: 300458

Control Number: 96461



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United States Department of Commerce
National Institute of Standards and Technology



Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 600122-0

Eurofins EMLab P&K
Houston, TX

*is accredited by the National Voluntary Laboratory Accreditation Program for specific services,
listed on the Scope of Accreditation, for:*

Asbestos Fiber Analysis

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017.
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

2021-04-01 through 2022-03-31
Effective Dates



[Signature]
For the National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

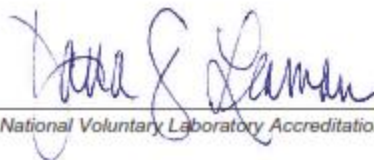
Eurofins EMLab P&K
10900 Brittmoore Park Drive
Suite G
Houston, TX 77041
Urooj Sagheer
Phone: 281-940-2576
Email: urooj.sagheer@eurofinset.com
<http://www.emlab.com>

ASBESTOS FIBER ANALYSIS

NVLAP LAB CODE 600122-0

Bulk Asbestos Analysis

<u>Code</u>	<u>Description</u>
18/A01	EPA -- 40 CFR Appendix E to Subpart E of Part 763, Interim Method of the Determination of Asbestos in Bulk Insulation Samples
18/A03	EPA 600/R-93/116: Method for the Determination of Asbestos in Bulk Building Materials



For the National Voluntary Laboratory Accreditation Program

Effective 2021-04-01 through 2022-03-31

Page 1 of 1

APPENDIX E

By Standard Number / 1910.1025 - Lead.

▪ Part Number:	1910
▪ Part Number Title:	Occupational Safety and Health Standards
▪ Subpart:	1910 Subpart Z
▪ Subpart Title:	Toxic and Hazardous Substances
▪ Standard Number:	1910.1025
▪ Title:	Lead.
▪ Appendix:	A; B; C; D
▪ GPO Source:	e-CFR

1910.1025(a)

Scope and application.

1910.1025(a)(1)

This section applies to all occupational exposure to lead, except as provided in paragraph (a)(2).

1910.1025(a)(2)

This section does not apply to the construction industry or to agricultural operations covered by 29 CFR Part 1928.

1910.1025(b)

Definitions.

Action level means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air (30 ug/m³) averaged over an 8-hour period.

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Director means the Director, National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health, Education, and Welfare, or designee.

Lead means metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.

1910.1025(c)

Permissible exposure limit (PEL).

1910.1025(c)(1)

The employer shall assure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air (50 ug/m³) averaged over an 8-hour period.

1910.1025(c)(2)

If an employee is exposed to lead for more than 8 hours in any work day, the permissible exposure limit, as a time weighted average (TWA) for that day, shall be reduced according to the following formula:

Maximum permissible limit (in ug/m³)=400 divided by hours worked in the day.

1910.1025(c)(3)

When respirators are used to supplement engineering and work practice controls to comply with the PEL and all the requirements of paragraph (f) have been met, employee exposure, for the purpose of determining whether the employer has complied with the PEL, may be considered to be at the level provided by the protection factor of the respirator for those periods the respirator is worn. Those periods may be averaged with exposure levels during periods when respirators are not worn to determine the employee's daily TWA exposure.

1910.1025(d)

Exposure monitoring -

1910.1025(d)(1)

General.

1910.1025(d)(1)(i)

For the purposes of paragraph (d), employee exposure is that exposure which would occur if the employee were not using a respirator.

1910.1025(d)(1)(ii)

With the exception of monitoring under paragraph (d)(3), the employer shall collect full shift (for at least 7 continuous hours) personal samples including at least one sample for each shift for each job classification in each work area.

1910.1025(d)(1)(iii)

Full shift personal samples shall be representative of the monitored employee's regular, daily exposure to lead.

1910.1025(d)(2)

Initial determination. Each employer who has a workplace or work operation covered by this standard shall determine if any employee may be exposed to lead at or above the action level.

1910.1025(d)(3)

Basis of initial determination.

1910.1025(d)(3)(i)

The employer shall monitor employee exposures and shall base initial determinations on the employee exposure monitoring results and any of the following, relevant considerations:

1910.1025(d)(3)(i)(A)

Any information, observations, or calculations which would indicate employee exposure to lead;

1910.1025(d)(3)(i)(B)

Any previous measurements of airborne lead; and

1910.1025(d)(3)(i)(C)

Any employee complaints of symptoms which may be attributable to exposure to lead.

1910.1025(d)(3)(ii)

Monitoring for the initial determination may be limited to a representative sample of the exposed employees who the employer reasonably believes are exposed to the greatest airborne concentrations of lead in the workplace.

1910.1025(d)(3)(iii)

Measurements of airborne lead made in the preceding 12 months may be used to satisfy the requirement to monitor under paragraph (d)(3)(i) if the sampling and analytical methods used meet the accuracy and confidence levels of paragraph (d)(9) of this section.

1910.1025(d)(4)

Positive initial determination and initial monitoring.

1910.1025(d)(4)(i)

Where a determination conducted under paragraphs (d)(2) and (3) of this section shows the possibility of any employee exposure at or above the action level, the employer shall conduct monitoring which is representative of the exposure for each employee in the workplace who is exposed to lead.

1910.1025(d)(4)(ii)

Measurements of airborne lead made in the preceding 12 months may be used to satisfy this requirement if the sampling and analytical methods used meet the accuracy and confidence levels of paragraph (d)(9) of this section.

1910.1025(d)(5)

Negative initial determination. Where a determination, conducted under paragraphs (d)(2) and (3) of this section is made that no employee is exposed to airborne concentrations of lead at or above the action level, the employer shall make a written record of such determination. The record shall include at least the information specified in paragraph (d)(3) of this section and shall also include the date of determination, location within the worksite, and the name of each employee monitored.

1910.1025(d)(6)

Frequency.

1910.1025(d)(6)(i)

If the initial monitoring reveals employee exposure to be below the action level the measurements need not be repeated except as otherwise provided in paragraph (d)(7) of this section.

1910.1025(d)(6)(ii)

If the initial determination or subsequent monitoring reveals employee exposure to be at or above the action level but below the permissible exposure limit the employer shall repeat monitoring in accordance with this paragraph at least every 6 months. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the employer may discontinue monitoring for that employee except as otherwise provided in paragraph (d)(7) of this section.

1910.1025(d)(6)(iii)

If the initial monitoring reveals that employee exposure is above the permissible exposure limit the employer shall repeat monitoring quarterly. The employer shall continue monitoring at the required frequency until at least

two consecutive measurements, taken at least 7 days apart, are below the PEL but at or above the action level at which time the employer shall repeat monitoring for that employee at the frequency specified in paragraph (d) (6)(ii), except as otherwise provided in paragraph (d)(7) of this section.

1910.1025(d)(7)

Additional monitoring. Whenever there has been a production, process, control or personnel change which may result in new or additional exposure to lead, or whenever the employer has any other reason to suspect a change which may result in new or additional exposures to lead, additional monitoring in accordance with this paragraph shall be conducted.

1910.1025(d)(8)

Employee notification.

1910.1025(d)(8)(i)

The employer must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to affected employees.

1910.1025(d)(8)(ii)

Whenever the results indicate that the representative employee exposure, without regard to respirators, exceeds the permissible exposure limit, the employer shall include in the written notice a statement that the permissible exposure limit was exceeded and a description of the corrective action taken or to be taken to reduce exposure to or below the permissible exposure limit.

1910.1025(d)(9)

Accuracy of measurement. The employer shall use a method of monitoring and analysis which has an accuracy (to a confidence level of 95%) of not less than plus or minus 20 percent for airborne concentrations of lead equal to or greater than 30 ug/m³.

1910.1025(e)

Methods of compliance -

1910.1025(e)(1)

Engineering and work practice controls.

1910.1025(e)(1)(i)

Where any employee is exposed to lead above the permissible exposure limit for more than 30 days per year, the employer shall implement engineering and work practice controls (including administrative controls) to reduce and maintain employee exposure to lead in accordance with the implementation schedule in Table I below, except to the extent that the employer can demonstrate that such controls are not feasible. Wherever the engineering and work practice controls which can be instituted are not sufficient to reduce employee exposure to or below the permissible exposure limit, the employer shall nonetheless use them to reduce exposures to the lowest feasible level and shall supplement them by the use of respiratory protection which complies with the requirements of paragraph (f) of this section.

1910.1025(e)(1)(ii)

Where any employee is exposed to lead above the permissible exposure limit, but for 30 days or less per year, the employer shall implement engineering controls to reduce exposures to 200 ug/m³, but thereafter may implement any combination of engineering, work practice (including administrative controls), and respiratory

controls to reduce and maintain employee exposure to lead to or below 50 ug/m³

TABLE I

Industry	Compliance dates(1): (50 UG/m ³)
Lead chemicals, secondary copper smelting.	July 19, 1996.
Nonferrous foundries.	July 19, 1996(2).
Brass and bronze ingot manufacture.	6 years(3).

Footnote(1) Calculated by counting from the date the stay on implementation of paragraph (e)(1) was lifted by the U.S. Court of Appeals for the District of Columbia, the number of years specified in the 1978 lead standard and subsequent amendments for compliance with the PEL of 50 ug/m³ for exposure to airborne concentrations of lead levels for the particular industry.

Footnote(2) Large nonferrous foundries (20 or more employees) are required to achieve the PEL of 50 ug/m³ by means of engineering and work practice controls. Small nonferrous foundries (fewer than 20 employees) are required to achieve an 8-hour TWA of 75 ug/m³ by such controls.

Footnote(3) Expressed as the number of years from the date on which the Court lifts the stay on the implementation of paragraph (e)(1) for this industry for employers to achieve a lead in air concentration of 75 ug/m³. Compliance with paragraph (e) in this industry is determined by a compliance directive that incorporates elements from the settlement agreement between OSHA and representatives of the injury. are required to comply within five years.

1910.1025(e)(2)

Respiratory protection. Where engineering and work practice controls do not reduce employee exposure to or below the 50 ug/m³ permissible exposure limit, the employer shall supplement these controls with respirators in accordance with paragraph (f).

1910.1025(e)(3)

Compliance program.

1910.1025(e)(3)(i)

Each employer shall establish and implement a written compliance program to reduce exposures to or below the permissible exposure limit, and interim levels if applicable, solely by means of engineering and work practice controls in accordance with the implementation schedule in paragraph (e)(1).

1910.1025(e)(3)(ii)

Written plans for these compliance programs shall include at least the following:

1910.1025(e)(3)(ii)(A)

A description of each operation in which lead is emitted; e.g. machinery used, material processed, controls in place, crew size, employee job responsibilities, operating procedures and maintenance practices;

1910.1025(e)(3)(ii)(B)

A description of the specific means that will be employed to achieve compliance, including engineering plans and studies used to determine methods selected for controlling exposure to lead;

1910.1025(e)(3)(ii)(C)

A report of the technology considered in meeting the permissible exposure limit;

1910.1025(e)(3)(ii)(D)

Air monitoring data which documents the source of lead emissions;

1910.1025(e)(3)(ii)(E)

A detailed schedule for implementation of the program, including documentation such as copies of purchase orders for equipment, construction contracts, etc.;

1910.1025(e)(3)(ii)(F)

A work practice program which includes items required under paragraphs (g), (h) and (i) of this regulation;

1910.1025(e)(3)(ii)(G)

An administrative control schedule required by paragraph (e)(5) of this section, if applicable;

1910.1025(e)(3)(ii)(H)

Other relevant information.

1910.1025(e)(3)(iii)

Written programs shall be submitted upon request to the Assistant Secretary and the Director, and shall be available at the worksite for examination and copying by the Assistant Secretary, Director, any affected employee or authorized employee representatives.

1910.1025(e)(3)(iv)

Written programs must be revised and updated at least annually to reflect the current status of the program.

1910.1025(e)(4)

Mechanical ventilation.

1910.1025(e)(4)(i)

When ventilation is used to control exposure, measurements which demonstrate the effectiveness of the system in controlling exposure, such as capture velocity, duct velocity, or static pressure shall be made at least every 3 months. Measurements of the system's effectiveness in controlling exposure shall be made within 5 days of any change in production, process, or control which might result in a change in employee exposure to lead.

1910.1025(e)(4)(ii)

Recirculation of air. If air from exhaust ventilation is recirculated into the workplace, the employer shall assure that (A) the system has a high efficiency filter with reliable back-up filter; and (B) controls to monitor the concentration of lead in the return air and to bypass the recirculation system automatically if it fails are installed, operating, and maintained.

1910.1025(e)(5)

Administrative controls. If administrative controls are used as a means of reducing employees TWA exposure to lead, the employer shall establish and implement a job rotation schedule which includes:

1910.1025(e)(5)(i)

Name or identification number of each affected employee;

1910.1025(e)(5)(ii)

Duration and exposure levels at each job or work station where each affected employee is located; and

1910.1025(e)(5)(iii)

Any other information which may be useful in assessing the reliability of administrative controls to reduce exposure to lead.

1910.1025(f)

Respiratory protection.

1910.1025(f)(1)

General. For employees who use respirators required by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this paragraph. Respirators must be used during:

1910.1025(f)(1)(i)

Periods necessary to install or implement engineering or work-practice controls.

1910.1025(f)(1)(ii)

Work operations for which engineering and work-practice controls are not sufficient to reduce employee exposures to or below the permissible exposure limit.

1910.1025(f)(1)(iii)

Periods when an employee requests a respirator.

1910.1025(f)(2)

Respirator program.

1910.1025(f)(2)(i)

The employer must implement a respiratory protection program in accordance with § 1910.134(b) through (d) (except (d)(1)(iii)), and (f) through (m), which covers each employee required by this section to use a respirator.

1910.1025(f)(2)(ii)

If an employee has breathing difficulty during fit testing or respirator use, the employer must provide the employee with a medical examination in accordance with paragraph (j)(3)(i)(C) of this section to determine whether or not the employee can use a respirator while performing the required duty.

1910.1025(f)(3)

Respirator selection.

1910.1025(f)(3)(i)

Employers must:

1910.1025(f)(3)(i)(A)

Select, and provide to employees, the appropriate respirators specified in paragraph (d)(3)(i)(A) of 29 CFR 1910.134.

1910.1025(f)(3)(i)(B)

Provide employees with full facepiece respirators instead of half mask respirators for protection against lead aerosols that cause eye or skin irritation at the use concentrations.

1910.1025(f)(3)(i)(C)

Provide HEPA filters for powered and non-powered air-purifying respirators.

1910.1025(f)(3)(ii)

Employers must provide employees with a powered air-purifying respirator (PAPR) instead of a negative pressure respirator selected according to paragraph (f)(3)(i) of this standard when an employee chooses to use a PAPR and it provides adequate protection to the employee as specified by paragraph (f)(3)(i) of this standard.

1910.1025(g)

Protective work clothing and equipment -

1910.1025(g)(1)

Provision and use. If an employee is exposed to lead above the PEL, without regard to the use of respirators or where the possibility of skin or eye irritation exists, the employer shall provide at no cost to the employee and assure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

1910.1025(g)(1)(i)

Coveralls or similar full-body work clothing;

1910.1025(g)(1)(ii)

Gloves, hats, and shoes or disposable shoe coverlets; and

1910.1025(g)(1)(iii)

Face shields, vented goggles, or other appropriate protective equipment which complies with 1910.133 of this Part.

1910.1025(g)(2)

Cleaning and replacement.

1910.1025(g)(2)(i)

The employer shall provide the protective clothing required in paragraph (g)(1) of this section in a clean and dry condition at least weekly, and daily to employees whose exposure levels without regard to a respirator are over 200 $\mu\text{g}/\text{m}^3$ of lead as an 8-hour TWA.

1910.1025(g)(2)(ii)

The employer shall provide for the cleaning, laundering, or disposal of protective clothing and equipment required by paragraph (g)(1) of this section.

1910.1025(g)(2)(iii)

The employer shall repair or replace required protective clothing and equipment as needed to maintain their effectiveness.

1910.1025(g)(2)(iv)

The employer shall assure that all protective clothing is removed at the completion of a work shift only in change rooms provided for that purpose as prescribed in paragraph (i)(2) of this section.

1910.1025(g)(2)(v)

The employer shall assure that contaminated protective clothing which is to be cleaned, laundered, or disposed of, is placed in a closed container in the change-room which prevents dispersion of lead outside the container.

1910.1025(g)(2)(vi)

The employer shall inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

1910.1025(g)(2)(vii)

Labeling of contaminated protective clothing and equipment.

1910.1025(g)(2)(vii)(A)

The employer shall ensure that labels of bags or containers of contaminated protective clothing and equipment include the following information:

DANGER: CLOTHING AND EQUIPMENT CONTAMINATED WITH LEAD. MAY DAMAGE FERTILITY OR THE UNBORN CHILD. CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM. DO NOT EAT, DRINK OR SMOKE WHEN HANDLING. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.

1910.1025(g)(2)(vii)(B)

Prior to June 1, 2015, employers may include the following information on bags or containers of contaminated protective clothing and equipment in lieu of the labeling requirements in paragraphs (g)(2)(vii)(A) of this section:

CAUTION: CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE, OR FEDERAL REGULATIONS.

1910.1025(g)(2)(viii)

The employer shall prohibit the removal of lead from protective clothing or equipment by blowing, shaking, or any other means which disperses lead into the air.

1910.1025(h)

Housekeeping -

1910.1025(h)(1)

Surfaces. All surfaces shall be maintained as free as practicable of accumulations of lead.

1910.1025(h)(2)

Cleaning floors.

1910.1025(h)(2)(i)

Floors and other surfaces where lead accumulates may not be cleaned by the use of compressed air.

1910.1025(h)(2)(ii)

Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other equally effective methods have been tried and found not to be effective.

1910.1025(h)(3)

Vacuuming. Where vacuuming methods are selected, the vacuums shall be used and emptied in a manner which minimizes the reentry of lead into the workplace.

1910.1025(i)

Hygiene facilities and practices.

1910.1025(i)(1)

The employer shall assure that in areas where employees are exposed to lead above the PEL, without regard to the use of respirators, food or beverage is not present or consumed, tobacco products are not present or used, and cosmetics are not applied, except in change rooms, lunchrooms, and showers required under paragraphs (i)(2) - through (i)(4) of this section.

1910.1025(i)(2)

Change rooms.

1910.1025(i)(2)(i)

The employer shall provide clean change rooms for employees who work in areas where their airborne exposure to lead is above the PEL, without regard to the use of respirators.

1910.1025(i)(2)(ii)

The employer shall assure that change rooms are equipped with separate storage facilities for protective work clothing and equipment and for street clothes which prevent cross-contamination.

1910.1025(i)(3)

Showers.

1910.1025(i)(3)(i)

The employer shall assure that employees who work in areas where their airborne exposure to lead is above the PEL, without regard to the use of respirators, shower at the end of the work shift.

1910.1025(i)(3)(ii)

The employer shall provide shower facilities in accordance with 1910.141 (d)(3) of this part.

1910.1025(i)(3)(iii)

The employer shall assure that employees who are required to shower pursuant to paragraph (i)(3)(i) do not leave the workplace wearing any clothing or equipment worn during the work shift.

1910.1025(i)(4)

Lunchrooms.

1910.1025(i)(4)(i)

The employer shall provide lunchroom facilities for employees who work in areas where their airborne exposure to lead is above the PEL, without regard to the use of respirators.

1910.1025(i)(4)(ii)

The employer shall assure that lunchroom facilities have a temperature controlled, positive pressure, filtered air supply, and are readily accessible to employees.

1910.1025(i)(4)(iii)

The employer shall assure that employees who work in areas where their airborne exposure to lead is above the PEL without regard to the use of a respirator wash their hands and face prior to eating, drinking, smoking or applying cosmetics.

1910.1025(i)(4)(iv)

The employer shall assure that employees do not enter lunchroom facilities with protective work clothing or equipment unless surface lead dust has been removed by vacuuming, down draft booth, or other cleaning method.

1910.1025(i)(5)

Lavatories. The employer shall provide an adequate number of lavatory facilities which comply with 1910.141(d) (1) and (2) of this part.

1910.1025(j)

Medical surveillance -

1910.1025(j)(1)

General.

1910.1025(j)(1)(i)

The employer shall institute a medical surveillance program for all employees who are or may be exposed at or above the action level for more than 30 days per year.

1910.1025(j)(1)(ii)

The employer shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician.

1910.1025(j)(1)(iii)

The employer shall provide the required medical surveillance including multiple physician review under paragraph (j)(3)(iii) without cost to employees and at a reasonable time and place.

1910.1025(j)(2)

Biological monitoring -

1910.1025(j)(2)(i)

Blood lead and ZPP level sampling and analysis. The employer shall make available biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels to each employee covered under paragraph (j)(1)(i) of this section on the following schedule:

1910.1025(j)(2)(i)(A)

At least every 6 months to each employee covered under paragraph (j)(1)(i) of this section;

1910.1025(j)(2)(i)(B)

At least every two months for each employee whose last blood sampling and analysis indicated a blood lead level at or above 40 ug/100 g of whole blood. This frequency shall continue until two consecutive blood samples and analyses indicate a blood lead level below 40 ug/100 g of whole blood; and

1910.1025(j)(2)(i)(C)

At least monthly during the removal period of each employee removed from exposure to lead due to an elevated blood lead level.

1910.1025(j)(2)(ii)

Follow-up blood sampling tests. Whenever the results of a blood lead level test indicate that an employee's blood lead level is at or above the numerical criterion for medical removal under paragraph (k)(1)(i)(A) of this section, the employer shall provide a second (follow-up) blood sampling test within two weeks after the employer receives the results of the first blood sampling test.

1910.1025(j)(2)(iii)

Accuracy of blood lead level sampling and analysis. Blood lead level sampling and analysis provided pursuant to this section shall have an accuracy (to a confidence level of 95 percent) within plus or minus 15 percent or 6 ug/100 ml, whichever is greater, and shall be conducted by a laboratory licensed by the Center for Disease Control, United States Department of Health, Education and Welfare (CDC) or which has received a satisfactory grade in blood lead proficiency testing from CDC in the prior twelve months.

1910.1025(j)(2)(iv)

Employee notification. Within five working days after the receipt of biological monitoring results, the employer shall notify in writing each employee whose blood lead level is at or above 40 [mu]g/100 g:

1910.1025(j)(2)(iv)(A)

Of that employee's blood lead level; and

1910.1025(j)(2)(iv)(B)

That the standard requires temporary medical removal with Medical Removal Protection benefits when an employee's blood lead level is at or above the numerical criterion for medical removal under paragraph (k)(1)(i) of this section.

1910.1025(j)(3)

Medical examinations and consultations -

1910.1025(j)(3)(i)

Frequency. The employer shall make available medical examinations and consultations to each employee covered under paragraph (j)(1)(i) of this section on the following schedule:

1910.1025(j)(3)(i)(A)

At least annually for each employee for whom a blood sampling test conducted at any time during the preceding 12 months indicated a blood lead level at or above 40 ug/100 g;

1910.1025(j)(3)(i)(B)

Prior to assignment for each employee being assigned for the first time to an area in which airborne concentrations of lead are at or above the action level;

1910.1025(j)(3)(i)(C)

As soon as possible, upon notification by an employee either that the employee has developed signs or symptoms commonly associated with lead intoxication, that the employee desires medical advice concerning the effects of current or past exposure to lead on the employee's ability to procreate a healthy child, or that the employee has demonstrated difficulty in breathing during a respirator fitting test or during use; and

1910.1025(j)(3)(i)(D)

As medically appropriate for each employee either removed from exposure to lead due to a risk of sustaining material impairment to health, or otherwise limited pursuant to a final medical determination.

1910.1025(j)(3)(ii)

Content. Medical examinations made available pursuant to paragraph (j)(3)(i)(A)-(B) of this section shall include the following elements:

1910.1025(j)(3)(ii)(A)

A detailed work history and a medical history, with particular attention to past lead exposure (occupational and non-occupational), personal habits (smoking, hygiene), and past gastrointestinal, hematologic, renal, cardiovascular, reproductive and neurological problems;

1910.1025(j)(3)(ii)(B)

A thorough physical examination, with particular attention to teeth, gums, hematologic, gastrointestinal, renal, cardiovascular, and neurological systems. Pulmonary status should be evaluated if respiratory protection will be used;

1910.1025(j)(3)(ii)(C)

A blood pressure measurement;

1910.1025(j)(3)(ii)(D)

A blood sample and analysis which determines:

1910.1025(j)(3)(ii)(D)(1)

Blood lead level;

1910.1025(j)(3)(ii)(D)(2)

Hemoglobin and hematocrit determinations, red cell indices, and examination of peripheral smear morphology;

1910.1025(j)(3)(ii)(D)(3)

Zinc protoporphyrin;

1910.1025(j)(3)(ii)(D)(4)

Blood urea nitrogen; and,

1910.1025(j)(3)(ii)(D)(5)

Serum creatinine;

1910.1025(j)(3)(ii)(E)

A routine urinalysis with microscopic examination; and

1910.1025(j)(3)(ii)(F)

Any laboratory or other test which the examining physician deems necessary by sound medical practice. The content of medical examinations made available pursuant to paragraph (j)(3)(i)(C) - (D) of this section shall be determined by an examining physician and, if requested by an employee, shall include pregnancy testing or laboratory evaluation of male fertility.

1910.1025(j)(3)(iii)

Multiple physician review mechanism.

1910.1025(j)(3)(iii)(A)

If the employer selects the initial physician who conducts any medical examination or consultation provided to an employee under this section, the employee may designate a second physician:

1910.1025(j)(3)(iii)(A)(1)

To review any findings, determinations or recommendations of the initial physician; and

1910.1025(j)(3)(iii)(A)(2)

To conduct such examinations, consultations, and laboratory tests as the second physician deems necessary to facilitate this review.

1910.1025(j)(3)(iii)(B)

The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within fifteen (15) days after receipt of the foregoing notification, or receipt of the initial physician's written opinion, whichever is later:

1910.1025(j)(3)(iii)(B)(1)

The employee informing the employer that he or she intends to seek a second medical opinion, and

1910.1025(j)(3)(iii)(B)(2)

The employee initiating steps to make an appointment with a second physician.

1910.1025(j)(3)(iii)(C)

If the findings, determinations or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve any disagreement.

1910.1025(j)(3)(iii)(D)

If the two physicians have been unable to quickly resolve their disagreement, then the employer and the employee through their respective physicians shall designate a third physician:

1910.1025(j)(3)(iii)(D)(1)

To review any findings, determinations or recommendations of the prior physicians; and

1910.1025(j)(3)(iii)(D)(2)

To conduct such examinations, consultations, laboratory tests and discussions with the prior physicians as the third physician deems necessary to resolve the disagreement of the prior physicians.

1910.1025(j)(3)(iii)(E)

The employer shall act consistent with the findings, determinations and recommendations of the third physician, unless the employer and the employee reach an agreement which is otherwise consistent with the recommendations of at least one of the three physicians.

1910.1025(j)(3)(iv)

Information provided to examining and consulting physicians.

1910.1025(j)(3)(iv)(A)

The employer shall provide an initial physician conducting a medical examination or consultation under this section with the following information:

1910.1025(j)(3)(iv)(A)(1)

A copy of this regulation for lead including all Appendices;

1910.1025(j)(3)(iv)(A)(2)

A description of the affected employee's duties as they relate to the employee's exposure;

1910.1025(j)(3)(iv)(A)(3)

The employee's exposure level or anticipated exposure level to lead and to any other toxic substance (if applicable);

1910.1025(j)(3)(iv)(A)(4)

A description of any personal protective equipment used or to be used;

1910.1025(j)(3)(iv)(A)(5)

Prior blood lead determinations; and

1910.1025(j)(3)(iv)(A)(6)

All prior written medical opinions concerning the employee in the employer's possession or control.

1910.1025(j)(3)(iv)(B)

The employer shall provide the foregoing information to a second or third physician conducting a medical examination or consultation under this section upon request either by the second or third physician, or by the employee.

1910.1025(j)(3)(v)

Written medical opinions.

1910.1025(j)(3)(v)(A)

The employer shall obtain and furnish the employee with a copy of a written medical opinion from each examining or consulting physician which contains the following information:

1910.1025(j)(3)(v)(A)(1)

The physician's opinion as to whether the employee has any detected medical condition which would place the employee at increased risk of material impairment of the employee's health from exposure to lead;

1910.1025(j)(3)(v)(A)(2)

Any recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead;

1910.1025(j)(3)(v)(A)(3)

Any recommended limitation upon the employee's use of respirators, including a determination of whether the employee can wear a powered air purifying respirator if a physician determines that the employee cannot wear a negative pressure respirator; and

1910.1025(j)(3)(v)(A)(4)

The results of the blood lead determinations.

1910.1025(j)(3)(v)(B)

The employer shall instruct each examining and consulting physician to:

1910.1025(j)(3)(v)(B)(1)

Not reveal either in the written opinion, or in any other means of communication with the employer, findings, including laboratory results, or diagnoses unrelated to an employee's occupational exposure to lead; and

1910.1025(j)(3)(v)(B)(2)

Advise the employee of any medical condition, occupational or nonoccupational, which dictates further medical examination or treatment.

1910.1025(j)(3)(vi)

Alternate Physician Determination Mechanisms. The employer and an employee or authorized employee representative may agree upon the use of any expeditious alternate physician determination mechanism in lieu of the multiple physician review mechanism provided by this paragraph so long as the alternate mechanism otherwise satisfies the requirements contained in this paragraph.

1910.1025(j)(4)

Chelation.

1910.1025(j)(4)(i)

The employer shall assure that any person whom he retains, employs, supervises or controls does not engage in prophylactic chelation of any employee at any time.

1910.1025(j)(4)(ii)

If therapeutic or diagnostic chelation is to be performed by any person in paragraph (j)(4)(i), the employer shall assure that it be done under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring and that the employee is notified in writing prior to its occurrence.

1910.1025(k)

Medical Removal Protection -

1910.1025(k)(1)

Temporary medical removal and return of an employee -

1910.1025(k)(1)(i)

Temporary removal due to elevated blood lead levels -

1910.1025(k)(1)(i)(A)

The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that a periodic and a follow-up blood sampling test conducted pursuant to this section indicate that the employee's blood lead level is at or above 60 ug/100 g of whole blood; and,

1910.1025(k)(1)(i)(B)

The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that the average of the last three blood sampling tests conducted pursuant to this section (or the average of all blood sampling tests conducted over the previous six (6) months, whichever is longer) indicates that the employee's blood lead level is at or above 50 [mu]g/100 g of whole blood; provided, however, that an employee need not be removed if the last blood sampling test indicates a blood lead level below 40 [mu]g/100 g of whole blood.

1910.1025(k)(1)(ii)

Temporary removal due to a final medical determination.

1910.1025(k)(1)(ii)(A)

The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that a final medical determination results in a medical finding, determination, or opinion that the employee has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to lead.

1910.1025(k)(1)(ii)(B)

For the purposes of this section, the phrase "final medical determination" shall mean the outcome of the multiple physician review mechanism or alternate medical determination mechanism used pursuant to the medical surveillance provisions of this section.

1910.1025(k)(1)(ii)(C)

Where a final medical determination results in any recommended special protective measures for an employee, or limitations on an employee's exposure to lead, the employer shall implement and act consistent with the recommendation.

1910.1025(k)(1)(iii)

Return of the employee to former job status.

1910.1025(k)(1)(iii)(A)

The employer shall return an employee to his or her former job status:

1910.1025(k)(1)(iii)(A)(1)

For an employee removed due to a blood lead level at or above 60 [mu]g/100 g, or due to an average blood lead level at or above 50 [mu]g/100 g, when two consecutive blood sampling tests indicate that the employee's blood lead level is below 40 [mu]g/100 g of whole blood;

1910.1025(k)(1)(iii)(A)(2)

For an employee removed due to a final medical determination, when a subsequent final medical determination results in a medical finding, determination, or opinion that the employee no longer has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to lead.

1910.1025(k)(1)(iii)(B)

For the purposes of this section, the requirement that an employer return an employee to his or her former job status is not intended to expand upon or restrict any rights an employee has or would have had, absent temporary medical removal, to a specific job classification or position under the terms of a collective bargaining agreement.

1910.1025(k)(1)(iv)

Removal of other employee special protective measure or limitations. The employer shall remove any limitations placed on an employee or end any special protective measures provided to an employee pursuant to a final medical determination when a subsequent final medical determination indicates that the limitations or special protective measures are no longer necessary.

1910.1025(k)(1)(v)

Employer options pending a final medical determination. Where the multiple physician review mechanism, or alternate medical determination mechanism used pursuant to the medical surveillance provisions of this section, has not yet resulted in a final medical determination with respect to an employee, the employer shall act as follows:

1910.1025(k)(1)(v)(A)

Removal. The employer may remove the employee from exposure to lead, provide special protective measures to the employee, or place limitations upon the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status.

1910.1025(k)(1)(v)(B)

Return. The employer may return the employee to his or her former job status, end any special protective measures provided to the employee, and remove any limitations placed upon the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status, with two exceptions. If -

1910.1025(k)(1)(v)(B)(1)

the initial removal, special protection, or limitation of the employee resulted from a final medical determination which differed from the findings, determinations, or recommendations of the initial physician or

1910.1025(k)(1)(v)(B)(2)

The employee has been on removal status for the preceding eighteen months due to an elevated blood lead level, then the employer shall await a final medical determination.

1910.1025(k)(2)

Medical removal protection benefits -

1910.1025(k)(2)(i)

Provision of medical removal protection benefits. The employer shall provide to an employee up to eighteen (18) months of medical removal protection benefits on each occasion that an employee is removed from exposure to lead or otherwise limited pursuant to this section.

1910.1025(k)(2)(ii)

Definition of medical removal protection benefits. For the purposes of this section, the requirement that an employer provide medical removal protection benefits means that the employer shall maintain the earnings, seniority and other employment rights and benefits of an employee as though the employee had not been removed from normal exposure to lead or otherwise limited.

1910.1025(k)(2)(iii)

Follow-up medical surveillance during the period of employee removal or limitation. During the period of time that an employee is removed from normal exposure to lead or otherwise limited, the employer may condition the provision of medical removal protection benefits upon the employee's participation in follow-up medical surveillance made available pursuant to this section.

1910.1025(k)(2)(iv)

Workers' compensation claims. If a removed employee files a claim for workers' compensation payments for a lead-related disability, then the employer shall continue to provide medical removal protection benefits pending disposition of the claim. To the extent that an award is made to the employee for earnings lost during the period of removal, the employer's medical removal protection obligation shall be reduced by such amount. The employer shall receive no credit for workers' compensation payments received by the employee for treatment related expenses.

1910.1025(k)(2)(v)

Other credits. The employer's obligation to provide medical removal protection benefits to a removed employee shall be reduced to the extent that the employee receives compensation for earnings lost during the period of removal either from a publicly or employer-funded compensation program, or receives income from employment with another employer made possible by virtue of the employee's removal.

1910.1025(k)(2)(vi)

Employees whose blood lead levels do not adequately decline within 18 months of removal. The employer shall take the following measures with respect to any employee removed from exposure to lead due to an elevated blood lead level whose blood lead level has not declined within the past eighteen (18) months of removal so that the employee has been returned to his or her former job status:

1910.1025(k)(2)(vi)(A)

The employer shall make available to the employee a medical examination pursuant to this section to obtain a final medical determination with respect to the employee;

1910.1025(k)(2)(vi)(B)

The employer shall assure that the final medical determination obtained indicates whether or not the employee may be returned to his or her former job status, and if not, what steps should be taken to protect the employee's health;

1910.1025(k)(2)(vi)(C)

Where the final medical determination has not yet been obtained, or once obtained indicates that the employee may not yet be returned to his or her former job status, the employer shall continue to provide medical removal protection benefits to the employee until either the employee is returned to former job status, or a final medical determination is made that the employee is incapable of ever safely returning to his or her former job status.

1910.1025(k)(2)(vi)(D)

Where the employer acts pursuant to a final medical determination which permits the return of the employee to his or her former job status despite what would otherwise be an unacceptable blood lead level, later questions concerning removing the employee again shall be decided by a final medical determination. The employer need not automatically remove such an employee pursuant to the blood lead level removal criteria provided by this section.

1910.1025(k)(2)(vii)

Voluntary Removal or Restriction of An Employee. Where an employer, although not required by this section to do so, removes an employee from exposure to lead or otherwise places limitations on an employee due to the effects of lead exposure on the employee's medical condition, the employer shall provide medical removal protection benefits to the employee equal to that required by paragraph (k)(2)(i) of this section.

1910.1025(l)

Employee information and training -

1910.1025(l)(1)

Training program.

1910.1025(l)(1)(i)

Each employer who has a workplace in which there is a potential exposure to airborne lead at any level shall inform employees of the content of Appendices A and B of this regulation.

1910.1025(l)(1)(ii)

The employer shall train each employee who is subject to exposure to lead at or above the action level, or for whom the possibility of skin or eye irritation exists, in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program.

1910.1025(l)(1)(iii)

The employer shall provide initial training by 180 days from the effective date for those employees covered by paragraph (l)(1)(ii) on the standard's effective date and prior to the time of initial job assignment for those employees subsequently covered by this paragraph.

1910.1025(l)(1)(iv)

The training program shall be repeated at least annually for each employee.

1910.1025(l)(1)(v)

The employer shall assure that each employee is informed of the following:

1910.1025(l)(1)(v)(A)

The content of this standard and its appendices;

1910.1025(l)(1)(v)(B)

The specific nature of the operations which could result in exposure to lead above the action level;

1910.1025(l)(1)(v)(C)

The purpose, proper selection, fitting, use, and limitations of respirators;

1910.1025(l)(1)(v)(D)

The purpose and a description of the medical surveillance program, and the medical removal protection program including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females);

1910.1025(l)(1)(v)(E)

The engineering controls and work practices associated with the employee's job assignment;

1910.1025(l)(1)(v)(F)

The contents of any compliance plan in effect; and

1910.1025(l)(1)(v)(G)

Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician;

1910.1025(l)(2)

Access to information and training materials.

1910.1025(l)(2)(i)

The employer shall make readily available to all affected employees a copy of this standard and its appendices.

1910.1025(l)(2)(ii)

The employer shall provide, upon request, all materials relating to the employee information and training program to the Assistant Secretary and the Director.

1910.1025(l)(2)(iii)

In addition to the information required by paragraph (l)(1)(v), the employer shall include as part of the training program, and shall distribute to employees, any materials pertaining to the Occupational Safety and Health Act, the regulations issued pursuant to that Act, and this lead standard, which are made available to the employer by the Assistant Secretary.

1910.1025(m)

Communication of hazards—

1910.1025(m)(1)

Hazard communication—general.

1910.1025(m)(1)(i)

Chemical manufacturers, importers, distributors and employers shall comply with all requirements of the Hazard Communication Standard (HCS) (§ 1910.1200) for lead.

1910.1025(m)(1)(ii)

In classifying the hazards of lead at least the following hazards are to be addressed:

Reproductive/developmental toxicity; central nervous system effects; kidney effects; blood effects; and acute toxicity effects.

1910.1025(m)(1)(iii)

Employers shall include lead in the hazard communication program established to comply with the HCS (§ 1910.1200). Employers shall ensure that each employee has access to labels on containers of lead and to safety data sheets, and is trained in accordance with the requirements of HCS and paragraph (l) of this section.

1910.1025(m)(2)

Signs.

1910.1025(m)(2)(i)

The employer shall post the following warning signs in each work area where the PEL is exceeded:

DANGER
LEAD
MAY DAMAGE FERTILITY OR THE UNBORN CHILD
CAUSES DAMAGE TO THE CENTRAL NERVOUS SYSTEM
DO NOT EAT, DRINK OR SMOKE IN THIS AREA

1910.1025(m)(2)(ii)

The employer shall ensure that no statement appears on or near any sign required by this paragraph (m)(2) which contradicts or detracts from the meaning of the required sign.

1910.1025(m)(2)(iii)

The employer shall ensure that signs required by this paragraph (m)(2) are illuminated and cleaned as necessary so that the legend is readily visible.

1910.1025(m)(2)(iv)

The employer may use signs required by other statutes, regulations, or ordinances in addition to, or in combination with, signs required by this paragraph (m)(2).

1910.1025(m)(2)(v)

Prior to June 1, 2016, employers may use the following legend in lieu of that specified in paragraph (m)(2)(ii) of this section:

WARNING
LEAD WORK AREA
POISON
NO SMOKING OR EATING

1910.1025(n)

Recordkeeping -

1910.1025(n)(1)

Exposure monitoring.

1910.1025(n)(1)(i)

The employer shall establish and maintain an accurate record of all monitoring required in paragraph (d) of this section.

1910.1025(n)(1)(ii)

This record shall include:

1910.1025(n)(1)(ii)(A)

The date(s), number, duration, location and results of each of the samples taken, including a description of the sampling procedure used to determine representative employee exposure where applicable;

1910.1025(n)(1)(ii)(B)

A description of the sampling and analytical methods used and evidence of their accuracy;

1910.1025(n)(1)(ii)(C)

The type of respiratory protective devices worn, if any;

1910.1025(n)(1)(ii)(D)

Name and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent; and

1910.1025(n)(1)(ii)(E)

The environmental variables that could affect the measurement of employee exposure.

1910.1025(n)(1)(iii)

The employer shall maintain these monitoring records for at least 40 years or for the duration of employment plus 20 years, whichever is longer.

1910.1025(n)(2)

Medical surveillance.

1910.1025(n)(2)(i)

The employer shall establish and maintain an accurate record for each employee subject to medical surveillance as required by paragraph (j) of this section.

1910.1025(n)(2)(ii)

This record shall include:

1910.1025(n)(2)(ii)(A)

The name and description of the duties of the employee;

1910.1025(n)(2)(ii)(B)

A copy of the physician's written opinions;

1910.1025(n)(2)(ii)(C)

Results of any airborne exposure monitoring done for that employee and the representative exposure levels supplied to the physician; and

1910.1025(n)(2)(ii)(D)

Any employee medical complaints related to exposure to lead.

1910.1025(n)(2)(iii)

The employer shall keep, or assure that the examining physician keeps, the following medical records:

1910.1025(n)(2)(iii)(A)

A copy of the medical examination results including medical and work history required under paragraph (j) of this section;

1910.1025(n)(2)(iii)(B)

A description of the laboratory procedures and a copy of any standards or guidelines used to interpret the test results or references to that information;

1910.1025(n)(2)(iii)(C)

A copy of the results of biological monitoring.

1910.1025(n)(2)(iv)

The employer shall maintain or assure that the physician maintains those medical records for at least 40 years, or for the duration of employment plus 20 years, whichever is longer.

1910.1025(n)(3)

Medical removals.

1910.1025(n)(3)(i)

The employer shall establish and maintain an accurate record for each employee removed from current exposure to lead pursuant to paragraph (k) of this section.

1910.1025(n)(3)(ii)

Each record shall include:

1910.1025(n)(3)(ii)(A)

The name of the employee;

1910.1025(n)(3)(ii)(B)

The date on each occasion that the employee was removed from current exposure to lead as well as the corresponding date on which the employee was returned to his or her former job status;

1910.1025(n)(3)(ii)(C)

A brief explanation of how each removal was or is being accomplished; and

1910.1025(n)(3)(ii)(D)

A statement with respect to each removal indicating whether or not the reason for the removal was an elevated blood lead level.

1910.1025(n)(3)(iii)

The employer shall maintain each medical removal record for at least the duration of an employee's employment.

1910.1025(n)(4)

Availability.

1910.1025(n)(4)(i)

The employer shall make available upon request all records required to be maintained by paragraph (n) of this section to the Assistant Secretary and the Director for examination and copying.

1910.1025(n)(4)(ii)

Environmental monitoring, medical removal, and medical records required by this paragraph shall be provided upon request to employees, designated representatives, and the Assistant Secretary in accordance with 29 CFR 1910.1020 (a)-(e) and (2)-(i). Medical removal records shall be provided in the same manner as environmental monitoring records.

1910.1025(n)(5)

Transfer of records.

1910.1025(n)(5)(i)

Whenever the employer ceases to do business, the successor employer shall receive and retain all records required to be maintained by paragraph (n) of this section.

1910.1025(n)(5)(ii)

The employer shall also comply with any additional requirements involving transfer of records set forth in 29 CFR 1910.1020(h).

1910.1025(o)

Observation of monitoring.

1910.1025(o)(1)

Employee observation. The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to lead conducted pursuant to paragraph (d) of this section.

1910.1025(o)(2)

Observation procedures.

1910.1025(o)(2)(i)

Whenever observation of the monitoring of employee exposure to lead requires entry into an area where the use of respirators, protective clothing or equipment is required, the employer shall provide the observer with and assure the use of such respirators, clothing and such equipment, and shall require the observer to comply with all other applicable safety and health procedures.

1910.1025(o)(2)(ii)

Without interfering with the monitoring, observers shall be entitled to:

1910.1025(o)(2)(ii)(A)

Receive an explanation of the measurement procedures;

1910.1025(o)(2)(ii)(B)

Observe all steps related to the monitoring of lead performed at the place of exposure; and

1910.1025(o)(2)(ii)(C)

Record the results obtained or receive copies of the results when returned by the laboratory.

1910.1025(p)

Appendices. The information contained in the appendices to this section is not intended by itself, to create any additional obligations not otherwise imposed by this standard nor detract from any existing obligation.

[60 FR 52856, Oct. 11, 1995; 61 FR 5507, Feb. 13, 1996; 63 FR 1152, Jan. 8, 1998; 63 FR 20098, April 23, 1998; 70 FR 1142, Jan. 5, 2005; 71 FR 16672 and 16673, April 3, 2006; 71 FR 50189, August 24, 2006; 73 FR 75585, Dec. 12, 2008; 76 FR 33608, June 8, 2011; 76 FR 80740, Dec. 27, 2011; 77 FR 17780, March 26, 2012; 84 FR 21598, May 14, 2019; 85 FR 8732, Feb. 18, 2020]

UNITED STATES DEPARTMENT OF LABOR

Occupational Safety & Health Administration
200 Constitution Ave NW
Washington, DC 20210
☎ 800-321-6742 (OSHA)
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to affected employees, former employees, designated representatives, and the Assistant Secretary, in accordance with 29 CFR 1910.33(a)-(e) and (g)-(i).

(iii) The employer, upon request, shall make employee medical records required by paragraphs (n) and (o) of this section available for examination and copying to the subject employee, anyone having the specific written consent of the subject employee, and the Assistant Secretary, in accordance with 29 CFR 1910.33.

(8) *Transfer of records.* (i) The employer shall comply with the requirements concerning transfer of records set forth in 29 CFR 1910.33(h).

(ii) Whenever the employer ceases to do business and there is no successor employer to receive and retain the records for the prescribed period, the employer shall notify the Director at least 90 days prior to disposal and, upon request, transmit them to the Director.

(p) *Observation of monitoring—(1) Employee observation.* The employer shall provide affected employees, or their designated representatives, an opportunity to observe the measuring or monitoring of employee exposure to MDA conducted pursuant to paragraph (f) of this section.

(2) *Observation procedures.* When observation of the measuring or monitoring of employee exposure to MDA requires entry into areas where the use of protective clothing and equipment or respirators is required, the employer shall provide the observer with personal protective clothing and equipment or respirators required to be worn by employees working in the area, assure the use of such clothing and equipment or respirators, and require the observer to comply with all other applicable safety and health procedures.

(q) *Appendices.* The information contained in appendices A, B, C, and D of this section is not intended, by itself, to create any additional obligations not otherwise imposed by this standard nor detract from any existing obligation.

APPENDIX A TO § 1926.60—SUBSTANCE DATA SHEET, FOR 4-4' METHYLENEDIANILINE

NOTE: The requirements applicable to construction work under this Appendix A are

identical to those set forth in Appendix A to § 1910.1009 of this chapter.

APPENDIX B TO § 1926.60—SUBSTANCE TECHNICAL GUIDELINES, MDA

NOTE: The requirements applicable to construction work under this Appendix B are identical to those set forth in Appendix B to § 1910.1009 of this chapter.

APPENDIX C TO § 1926.60—MEDICAL SURVEILLANCE GUIDELINES FOR MDA

NOTE: The requirements applicable to construction work under this Appendix C are identical to those set forth in Appendix C to § 1910.1009 of this chapter.

APPENDIX D TO § 1926.60—SAMPLING AND ANALYTICAL METHODS FOR MDA MONITORING AND MEASUREMENT PROCEDURES

NOTE: The requirements applicable to construction work under this Appendix D are identical to those set forth in Appendix D to § 1910.1009 of this chapter.

[57 FR 35081, Aug. 10, 1992, as amended at 57 FR 49649, Nov. 3, 1992; 61 FR 5510, Feb. 13, 1996; 61 FR 31431, June 20, 1996; 63 FR 1296, Jan. 8, 1998; 69 FR 70373, Dec. 6, 2004; 70 FR 1143, Jan. 5, 2005; 71 FR 10074, Apr. 3, 2006; 71 FR 50191, Aug. 24, 2006; 73 FR 75588, Dec. 12, 2008]

§ 1926.61 Retention of DOT markings, placards and labels.

NOTE: The requirements applicable to construction work under this section are identical to those set forth at § 1910.1201 of this chapter.

[61 FR 31432, June 20, 1996]

§ 1926.62 Lead.

(a) *Scope.* This section applies to all construction work where an employee may be occupationally exposed to lead. All construction work excluded from coverage in the general industry standard for lead by 29 CFR 1910.1025(a)(2) is covered by this standard. Construction work is defined as work for construction, alteration and/or repair, including painting and decorating. It includes but is not limited to the following:

(1) Demolition or salvage of structures where lead or materials containing lead are present;

(2) Removal or encapsulation of materials containing lead;

(3) New construction, alteration, repair, or renovation of structures, substrates, or portions thereof, that contain lead, or materials containing lead;

(4) Installation of products containing lead;

(5) Lead contamination/emergency cleanup;

(6) Transportation, disposal, storage, or containment of lead or materials containing lead on the site or location at which construction activities are performed, and

(7) Maintenance operations associated with the construction activities described in this paragraph.

(b) *Definitions.*

Action level means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air ($30 \mu\text{g}/\text{m}^3$) calculated as an 8-hour time-weighted average (TWA).

Assistant Secretary means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

Competent person means one who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them.

Director means the Director, National Institute for Occupational Safety and Health (NIOSH), U.S. Department of Health and Human Services, or designee.

Lead means metallic lead, all inorganic lead compounds, and organic lead soaps. Excluded from this definition are all other organic lead compounds.

This section means this standard.

(c) *Permissible exposure limit.* (1) The employer shall assure that no employee is exposed to lead at concentrations greater than fifty micrograms per cubic meter of air ($50 \mu\text{g}/\text{m}^3$) averaged over an 8-hour period.

(2) If an employee is exposed to lead for more than 8 hours in any work day the employees' allowable exposure, as a time weighted average (TWA) for that day, shall be reduced according to the following formula:

Allowable employee exposure (in $\mu\text{g}/\text{m}^3$)
= 400 divided by hours worked in the day.

(3) When respirators are used to limit employee exposure as required under paragraph (c) of this section and all the requirements of paragraphs (e)(1) and

(f) of this section have been met, employee exposure may be considered to be at the level provided by the protection factor of the respirator for those periods the respirator is worn. Those periods may be averaged with exposure levels during periods when respirators are not worn to determine the employee's daily TWA exposure.

(d) *Exposure assessment—(1) General.*

(i) Each employer who has a workplace or operation covered by this standard shall initially determine if any employee may be exposed to lead at or above the action level.

(ii) For the purposes of paragraph (d) of this section, employee exposure is that exposure which would occur if the employee were not using a respirator.

(iii) With the exception of monitoring under paragraph (d)(3), where monitoring is required under this section, the employer shall collect personal samples representative of a full shift including at least one sample for each job classification in each work area either for each shift or for the shift with the highest exposure level.

(iv) Full shift personal samples shall be representative of the monitored employee's regular, daily exposure to lead.

(2) *Protection of employees during assessment of exposure.* (i) With respect to the lead related tasks listed in paragraph (d)(2)(i) of this section, where lead is present, until the employer performs an employee exposure assessment as required in paragraph (d) of this section and documents that the employee performing any of the listed tasks is not exposed above the PEL, the employer shall treat the employee as if the employee were exposed above the PEL, and not in excess of ten (10) times the PEL, and shall implement employee protective measures prescribed in paragraph (d)(2)(v) of this section. The tasks covered by this requirement are:

(A) Where lead containing coatings or paint are present: Manual demolition of structures (e.g. dry wall), manual scraping, manual sanding, heat gun applications, and power tool cleaning with dust collection systems;

(B) Spray painting with lead paint.

(ii) In addition, with regard to tasks not listed in paragraph (d)(2)(i), where

the employee has any reason to believe that an employee performing the task may be exposed to lead in excess of the PEL, until the employer performs an employee exposure assessment as required by paragraph (d) of this section and documents that the employee's lead exposure is not above the PEL, the employer shall treat the employee as if the employee were exposed above the PEL and shall implement employee protective measures as prescribed in paragraph (d)(2)(v) of this section.

(iii) With respect to the tasks listed in paragraph (d)(2)(iii) of this section, where lead is present, until the employer performs an employee exposure assessment as required in paragraph (d) of this section, and documents that the employee performing any of the listed tasks is not exposed in excess of 500 µg/m³, the employer shall treat the employee as if the employee were exposed to lead in excess of 500 µg/m³ and shall implement employee protective measures as prescribed in paragraph (d)(2)(v) of this section. Where the employer does establish that the employee is exposed to levels of lead below 500 µg/m³, the employer may provide the exposed employee with the appropriate respirator prescribed for such use at such lower exposures, in accordance with Table 1 of this section. The tasks covered by this requirement are:

(A) Using lead containing mortar; lead burning

(B) Where lead containing coatings or paint are present: rivet busting; power tool cleaning without dust collection systems; cleanup activities where dry expendable abrasives are used; and abrasive blasting enclosure movement and removal.

(iv) With respect to the tasks listed in paragraph (d)(2)(iv) of this section, where lead is present, until the employer performs an employee exposure assessment as required in paragraph (d) of this section and documents that the employee performing any of the listed tasks is not exposed to lead in excess of 2,500 µg/m³ (50×PEL), the employer shall treat the employee as if the employee were exposed to lead in excess of 2,500 µg/m³ and shall implement employee protective measures as prescribed in paragraph (d)(2)(v) of this section. Where the employer does es-

tablish that the employee is exposed to levels of lead below 2,500 µg/m³, the employer may provide the exposed employee with the appropriate respirator prescribed for use at such lower exposures, in accordance with Table 1 of this section. Interim protection as described in this paragraph is required where lead containing coatings or paint are present on structures when performing:

- (A) Abrasive blasting,
- (B) Welding,
- (C) Cutting, and
- (D) Torch burning.

(v) Until the employer performs an employee exposure assessment as required under paragraph (d) of this section and determines actual employee exposure, the employer shall provide to employees performing the tasks described in paragraphs (d)(2)(i), (d)(2)(ii), (d)(2)(iii), and (d)(2)(iv) of this section with interim protection as follows:

(A) Appropriate respiratory protection in accordance with paragraph (f) of this section.

(B) Appropriate personal protective clothing and equipment in accordance with paragraph (g) of this section.

(C) Change areas in accordance with paragraph (i)(2) of this section.

(D) Hand washing facilities in accordance with paragraph (i)(5) of this section.

(E) Biological monitoring in accordance with paragraph (j)(1)(i) of this section, to consist of blood sampling and analysis for lead and zinc protoporphyrin levels, and

(F) Training as required under paragraph (l)(1)(i) of this section regarding 29 CFR 1926.59, Hazard Communication; training as required under paragraph (l)(2)(iii) of this section, regarding use of respirators; and training in accordance with 29 CFR 1926.21, Safety training and education.

(3) *Basis of initial determination.* (i) Except as provided under paragraphs (d)(3)(iii) and (d)(3)(iv) of this section the employer shall monitor employee exposures and shall base initial determinations on the employee exposure monitoring results and any of the following, relevant considerations:

(A) Any information, observations, or calculations which would indicate employee exposure to lead;

(B) Any previous measurements of airborne lead; and

(C) Any employee complaints of symptoms which may be attributable to exposure to lead.

(ii) Monitoring for the initial determination where performed may be limited to a representative sample of the exposed employees who the employer reasonably believes are exposed to the greatest airborne concentrations of lead in the workplace.

(iii) Where the employer has previously monitored for lead exposures, and the data were obtained within the past 12 months during work operations conducted under workplace conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the employer's current operations, the employer may rely on such earlier monitoring results to satisfy the requirements of paragraphs (d)(3)(i) and (d)(6) of this section if the sampling and analytical methods meet the accuracy and confidence levels of paragraph (d)(10) of this section.

(iv) Where the employer has objective data, demonstrating that a particular product or material containing lead or a specific process, operation or activity involving lead cannot result in employee exposure to lead at or above the action level during processing, use, or handling, the employer may rely upon such data instead of implementing initial monitoring.

(A) The employer shall establish and maintain an accurate record documenting the nature and relevancy of objective data as specified in paragraph (n)(4) of this section, where used in assessing employee exposure in lieu of exposure monitoring.

(B) Objective data, as described in paragraph (d)(3)(iv) of this section, is not permitted to be used for exposure assessment in connection with paragraph (d)(2) of this section.

(4) *Positive initial determination and initial monitoring.* (i) Where a determination conducted under paragraphs (d) (1), (2) and (3) of this section shows the possibility of any employee exposure at or above the action level the employer shall conduct monitoring which is representative of the exposure

for each employee in the workplace who is exposed to lead.

(ii) Where the employer has previously monitored for lead exposure, and the data were obtained within the past 12 months during work operations conducted under workplace conditions closely resembling the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the employer's current operations, the employer may rely on such earlier monitoring results to satisfy the requirements of paragraph (d)(4)(i) of this section if the sampling and analytical methods meet the accuracy and confidence levels of paragraph (d)(10) of this section.

(5) *Negative initial determination.* Where a determination, conducted under paragraphs (d) (1), (2), and (3) of this section is made that no employee is exposed to airborne concentrations of lead at or above the action level the employer shall make a written record of such determination. The record shall include at least the information specified in paragraph (d)(3)(i) of this section and shall also include the date of determination, location within the worksite, and the name and social security number of each employee monitored.

(6) *Frequency.* (i) If the initial determination reveals employee exposure to be below the action level further exposure determination need not be repeated except as otherwise provided in paragraph (d)(7) of this section.

(ii) If the initial determination or subsequent determination reveals employee exposure to be at or above the action level but at or below the PEL the employer shall perform monitoring in accordance with this paragraph at least every 6 months. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the employer may discontinue monitoring for that employee except as otherwise provided in paragraph (d)(7) of this section.

(iii) If the initial determination reveals that employee exposure is above the PEL the employer shall perform monitoring quarterly. The employer

shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are at or below the PEL but at or above the action level at which time the employer shall repeat monitoring for that employee at the frequency specified in paragraph (d)(6)(ii) of this section, except as otherwise provided in paragraph (d)(7) of this section. The employer shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the employer may discontinue monitoring for that employee except as otherwise provided in paragraph (d)(7) of this section.

(7) *Additional exposure assessments.* Whenever there has been a change of equipment, process, control, personnel or a new task has been initiated that may result in additional employees being exposed to lead at or above the action level or may result in employees already exposed at or above the action level being exposed above the PEL, the employer shall conduct additional monitoring in accordance with this paragraph.

(8) *Employee notification.* (i) The employer must, as soon as possible but no later than 5 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to employees.

(ii) Whenever the results indicate that the representative employee exposure, without regard to respirators, is at or above the PEL the employer shall include in the written notice a statement that the employee's exposure was at or above that level and a description of the corrective action taken or to be taken to reduce exposure to below that level.

(9) *Accuracy of measurement.* The employer shall use a method of monitoring and analysis which has an accuracy (to a confidence level of 95%) of not less than plus or minus 25 percent for airborne concentrations of lead equal to or greater than $30 \mu\text{g}/\text{m}^3$.

(e) *Methods of compliance.*—(1) *Engineering and work practice controls.* The employer shall implement engineering and work practice controls, including administrative controls, to reduce and maintain employee exposure to lead to or below the permissible exposure limit to the extent that such controls are feasible. Wherever all feasible engineering and work practices controls that can be instituted are not sufficient to reduce employee exposure to or below the permissible exposure limit prescribed in paragraph (c) of this section, the employer shall nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them by the use of respiratory protection that complies with the requirements of paragraph (f) of this section.

(2) *Compliance program.* (i) Prior to commencement of the job each employer shall establish and implement a written compliance program to achieve compliance with paragraph (c) of this section.

(ii) Written plans for these compliance programs shall include at least the following:

(A) A description of each activity in which lead is emitted; e.g., equipment used, material involved, controls in place, crew size, employee job responsibilities, operating procedures and maintenance practices;

(B) A description of the specific means that will be employed to achieve compliance and, where engineering controls are required engineering plans and studies used to determine methods selected for controlling exposure to lead;

(C) A report of the technology considered in meeting the PEL;

(D) Air monitoring data which documents the source of lead emissions;

(E) A detailed schedule for implementation of the program, including documentation such as copies of purchase orders for equipment, construction contracts, etc.;

(F) A work practice program which includes items required under paragraphs (g), (h) and (i) of this section and incorporates other relevant work practices such as those specified in paragraph (e)(5) of this section;

(G) An administrative control schedule required by paragraph (e)(4) of this section, if applicable;

(H) A description of arrangements made among contractors on multi-contractor sites with respect to informing affected employees of potential exposure to lead and with respect to responsibility for compliance with this section as set forth in § 1926.16.

(I) Other relevant information.

(iii) The compliance program shall provide for frequent and regular inspections of job sites, materials, and equipment to be made by a competent person.

(iv) Written programs shall be submitted upon request to any affected employee or authorized employee representatives, to the Assistant Secretary and the Director, and shall be available at the worksite for examination and copying by the Assistant Secretary and the Director.

(v) Written programs must be revised and updated at least annually to reflect the current status of the program.

(3) *Mechanical ventilation.* When ventilation is used to control lead exposure, the employer shall evaluate the mechanical performance of the system in controlling exposure as necessary to maintain its effectiveness.

(4) *Administrative controls.* If administrative controls are used as a means of reducing employees TWA exposure to lead, the employer shall establish and implement a job rotation schedule which includes:

(i) Name or identification number of each affected employee;

(ii) Duration and exposure levels at each job or work station where each affected employee is located; and

(iii) Any other information which may be useful in assessing the reliability of administrative controls to reduce exposure to lead.

(5) The employer shall ensure that, to the extent relevant, employees follow good work practices such as described in Appendix B of this section.

(f) *Respiratory protection.*—(1) *General.* For employees who use respirators required by this section, the employer must provide each employee an appropriate respirator that complies with the requirements of this paragraph. Respirators must be used during:

(i) Periods when an employee's exposure to lead exceeds the PEL.

(ii) Work operations for which engineering and work-practice controls are not sufficient to reduce employee exposures to or below the PEL.

(iii) Periods when an employee requests a respirator.

(iv) Periods when respirators are required to provide interim protection of employees while they perform the operations specified in paragraph (d)(2) of this section.

(2) *Respirator program.* (i) The employer must implement a respiratory protection program in accordance with § 1910.134(b) through (d) (except (d)(1)(iii)), and (f) through (m), which covers each employee required by this section to use a respirator.

(ii) If an employee has breathing difficulty during fit testing or respirator use, the employer must provide the employee with a medical examination in accordance with paragraph (j)(3)(1)(B) of this section to determine whether or not the employee can use a respirator while performing the required duty.

(3) *Respirator selection.* (i) Employers must:

(A) Select, and provide to employees, the appropriate respirators specified in paragraph (d)(3)(1)(A) of 29 CFR 1910.134.

(B) Provide employees with a full facepiece respirator instead of a half mask respirator for protection against lead aerosols that may cause eye or skin irritation at the use concentrations.

(C) Provide HEPA filters for powered and non-powered air-purifying respirators.

(ii) The employer must provide a powered air-purifying respirator when an employee chooses to use such a respirator and it will provide adequate protection to the employee.

(g) *Protective work clothing and equipment.*—(1) *Provision and use.* Where an employee is exposed to lead above the PEL without regard to the use of respirators, where employees are exposed to lead compounds which may cause skin or eye irritation (e.g. lead arsenate, lead azide), and as interim protection for employees performing tasks as specified in paragraph (d)(2) of this section, the employer shall provide at

no cost to the employee and assure that the employee uses appropriate protective work clothing and equipment that prevents contamination of the employee and the employee's garments such as, but not limited to:

(i) Coveralls or similar full-body work clothing;

(ii) Gloves, hats, and shoes or disposable shoe coverlets; and

(iii) Face shields, vented goggles, or other appropriate protective equipment which complies with §1910.133 of this chapter.

(2) *Cleaning and replacement.* (i) The employer shall provide the protective clothing required in paragraph (g)(1) of this section in a clean and dry condition at least weekly, and daily to employees whose exposure levels without regard to a respirator are over $200 \mu\text{g}/\text{m}^3$ of lead as an 8-hour TWA.

(ii) The employer shall provide for the cleaning, laundering, and disposal of protective clothing and equipment required by paragraph (g)(1) of this section.

(iii) The employer shall repair or replace required protective clothing and equipment as needed to maintain their effectiveness.

(iv) The employer shall assure that all protective clothing is removed at the completion of a work shift only in change areas provided for that purpose as prescribed in paragraph (i)(2) of this section.

(v) The employer shall assure that contaminated protective clothing which is to be cleaned, laundered, or disposed of, is placed in a closed container in the change area which prevents dispersion of lead outside the container.

(vi) The employer shall inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

(vii) The employer shall assure that the containers of contaminated protective clothing and equipment required by paragraph (g)(2)(v) of this section are labeled as follows:

Caution: Clothing contaminated with lead. Do not remove dust by blowing or shaking. Dispose of lead contaminated wash water in accordance with applicable local, state, or federal regulations.

(viii) The employer shall prohibit the removal of lead from protective clothing or equipment by blowing, shaking, or any other means which disperses lead into the air.

(h) *Housekeeping.*—(1) All surfaces shall be maintained as free as practicable of accumulations of lead.

(2) Clean-up of floors and other surfaces where lead accumulates shall wherever possible, be cleaned by vacuuming or other methods that minimize the likelihood of lead becoming airborne.

(3) Shoveling, dry or wet sweeping, and brushing may be used only where vacuuming or other equally effective methods have been tried and found not to be effective.

(4) Where vacuuming methods are selected, the vacuums shall be equipped with HEPA filters and used and emptied in a manner which minimizes the reentry of lead into the workplace.

(5) Compressed air shall not be used to remove lead from any surface unless the compressed air is used in conjunction with a ventilation system designed to capture the airborne dust created by the compressed air.

(i) *Hygiene facilities and practices.* (1) The employer shall assure that in areas where employees are exposed to lead above the PEL without regard to the use of respirators, food or beverage is not present or consumed, tobacco products are not present or used, and cosmetics are not applied.

(2) *Change areas.* (1) The employer shall provide clean change areas for employees whose airborne exposure to lead is above the PEL, and as interim protection for employees performing tasks as specified in paragraph (d)(2) of this section, without regard to the use of respirators.

(ii) The employer shall assure that change areas are equipped with separate storage facilities for protective work clothing and equipment and for street clothes which prevent cross-contamination.

(iii) The employer shall assure that employees do not leave the workplace wearing any protective clothing or equipment that is required to be worn during the work shift.

(3) *Showers.* (i) The employer shall provide shower facilities, where feasible, for use by employees whose airborne exposure to lead is above the PEL.

(ii) The employer shall assure, where shower facilities are available, that employees shower at the end of the work shift and shall provide an adequate supply of cleansing agents and towels for use by affected employees.

(4) *Eating facilities.* (i) The employer shall provide lunchroom facilities or eating areas for employees whose airborne exposure to lead is above the PEL, without regard to the use of respirators.

(ii) The employer shall assure that lunchroom facilities or eating areas are as free as practicable from lead contamination and are readily accessible to employees.

(iii) The employer shall assure that employees whose airborne exposure to lead is above the PEL, without regard to the use of a respirator, wash their hands and face prior to eating, drinking, smoking or applying cosmetics.

(iv) The employer shall assure that employees do not enter lunchroom facilities or eating areas with protective work clothing or equipment unless surface lead dust has been removed by vacuuming, downdraft booth, or other cleaning method that limits dispersion of lead dust.

(5) *Hand washing facilities.* (i) The employer shall provide adequate handwashing facilities for use by employees exposed to lead in accordance with 29 CFR 1926.51(f).

(ii) Where showers are not provided the employer shall assure that employees wash their hands and face at the end of the work shift.

(j) *Medical surveillance—(1) General.* (i) The employer shall make available initial medical surveillance to employees occupationally exposed on any day to lead at or above the action level. Initial medical surveillance consists of biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels.

(ii) The employer shall institute a medical surveillance program in accordance with paragraphs (j)(2) and (j)(3) of this section for all employees who are or may be exposed by the em-

ployer at or above the action level for more than 30 days in any consecutive 12 months;

(iii) The employer shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician.

(iv) The employer shall make available the required medical surveillance including multiple physician review under paragraph (j)(3)(iii) without cost to employees and at a reasonable time and place.

(2) *Biological monitoring—(1) Blood lead and ZPP level sampling and analysis.* The employer shall make available biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels to each employee covered under paragraphs (j)(1)(i) and (ii) of this section on the following schedule:

(A) For each employee covered under paragraph (j)(1)(ii) of this section, at least every 2 months for the first 6 months and every 6 months thereafter;

(B) For each employee covered under paragraphs (j)(1)(i) or (ii) of this section whose last blood sampling and analysis indicated a blood lead level at or above 40 µg/dl, at least every two months. This frequency shall continue until two consecutive blood samples and analyses indicate a blood lead level below 40 µg/dl; and

(C) For each employee who is removed from exposure to lead due to an elevated blood lead level at least monthly during the removal period.

(ii) *Follow-up blood sampling tests.* Whenever the results of a blood lead level test indicate that an employee's blood lead level exceeds the numerical criterion for medical removal under paragraph (k)(1)(i) of this section, the employer shall provide a second (follow-up) blood sampling test within two weeks after the employer receives the results of the first blood sampling test.

(iii) *Accuracy of blood lead level sampling and analysis.* Blood lead level sampling and analysis provided pursuant to this section shall have an accuracy (to a confidence level of 95 percent) within plus or minus 15 percent or 6 µg/dl, whichever is greater, and shall be conducted by a laboratory approved by OSHA.

(iv) *Employee notification.* (A) Within five working days after the receipt of biological monitoring results, the employer shall notify each employee in writing of his or her blood lead level; and

(B) The employer shall notify each employee whose blood lead level exceeds 40 µg/dl that the standard requires temporary medical removal with Medical Removal Protection benefits when an employee's blood lead level exceeds the numerical criterion for medical removal under paragraph (k)(1)(i) of this section.

(3) *Medical examinations and consultations—(i) Frequency.* The employer shall make available medical examinations and consultations to each employee covered under paragraph (j)(1)(ii) of this section on the following schedule:

(A) At least annually for each employee for whom a blood sampling test conducted at any time during the preceding 12 months indicated a blood lead level at or above 40 µg/dl;

(B) As soon as possible, upon notification by an employee either that the employee has developed signs or symptoms commonly associated with lead intoxication, that the employee desires medical advice concerning the effects of current or past exposure to lead on the employee's ability to procreate a healthy child, that the employee is pregnant, or that the employee has demonstrated difficulty in breathing during a respirator fitting test or during use; and

(C) As medically appropriate for each employee either removed from exposure to lead due to a risk of sustaining material impairment to health, or otherwise limited pursuant to a final medical determination.

(ii) *Content.* The content of medical examinations made available pursuant to paragraph (j)(3)(1)(B)-(C) of this section shall be determined by an examining physician and, if requested by an employee, shall include pregnancy testing or laboratory evaluation of male fertility. Medical examinations made available pursuant to paragraph (j)(3)(1)(A) of this section shall include the following elements:

(A) A detailed work history and a medical history, with particular attention to past lead exposure (occupational and non-occupational), personal

habits (smoking, hygiene), and past gastrointestinal, hematologic, renal, cardiovascular, reproductive and neurological problems;

(B) A thorough physical examination, with particular attention to teeth, gums, hematologic, gastrointestinal, renal, cardiovascular, and neurological systems. Pulmonary status should be evaluated if respiratory protection will be used;

(C) A blood pressure measurement;

(D) A blood sample and analysis which determines:

(1) Blood lead level;

(2) Hemoglobin and hematocrit determinations, red cell indices, and examination of peripheral smear morphology;

(3) Zinc protoporphyrin;

(4) Blood urea nitrogen; and,

(5) Serum creatinine;

(E) A routine urinalysis with microscopic examination; and

(F) Any laboratory or other test relevant to lead exposure which the examining physician deems necessary by sound medical practice.

(iii) *Multiple physician review mechanism.* (A) If the employer selects the initial physician who conducts any medical examination or consultation provided to an employee under this section, the employee may designate a second physician:

(1) To review any findings, determinations or recommendations of the initial physician; and

(2) To conduct such examinations, consultations, and laboratory tests as the second physician deems necessary to facilitate this review.

(B) The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within fifteen (15) days after receipt of the foregoing notification, or receipt of the initial physician's written opinion, whichever is later:

(J) The employee informing the employer that he or she intends to seek a second medical opinion, and

(2) The employee initiating steps to make an appointment with a second physician.

(C) If the findings, determinations or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve any disagreement.

(D) If the two physicians have been unable to quickly resolve their disagreement, then the employer and the employee through their respective physicians shall designate a third physician:

(1) To review any findings, determinations or recommendations of the prior physicians; and

(2) To conduct such examinations, consultations, laboratory tests and discussions with the prior physicians as the third physician deems necessary to resolve the disagreement of the prior physicians.

(E) The employer shall act consistent with the findings, determinations and recommendations of the third physician, unless the employer and the employee reach an agreement which is otherwise consistent with the recommendations of at least one of the three physicians.

(iv) *Information provided to examining and consulting physicians.* (A) The employer shall provide an initial physician conducting a medical examination or consultation under this section with the following information:

(1) A copy of this regulation for lead including all Appendices;

(2) A description of the affected employee's duties as they relate to the employee's exposure;

(3) The employee's exposure level or anticipated exposure level to lead and to any other toxic substance (if applicable);

(4) A description of any personal protective equipment used or to be used;

(5) Prior blood lead determinations; and

(6) All prior written medical opinions concerning the employee in the employer's possession or control.

(B) The employer shall provide the foregoing information to a second or third physician conducting a medical examination or consultation under this section upon request either by the second or third physician, or by the employee.

(v) *Written medical opinions.* (A) The employer shall obtain and furnish the employee with a copy of a written medical opinion from each examining or consulting physician which contains only the following information:

(1) The physician's opinion as to whether the employee has any detected medical condition which would place the employee at increased risk of material impairment of the employee's health from exposure to lead;

(2) Any recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead;

(3) Any recommended limitation upon the employee's use of respirators, including a determination of whether the employee can wear a powered air purifying respirator if a physician determines that the employee cannot wear a negative pressure respirator; and

(4) The results of the blood lead determinations.

(B) The employer shall instruct each examining and consulting physician to:

(1) Not reveal either in the written opinion or orally, or in any other means of communication with the employer, findings, including laboratory results, or diagnoses unrelated to an employee's occupational exposure to lead; and

(2) Advise the employee of any medical condition, occupational or non-occupational, which dictates further medical examination or treatment.

(vi) *Alternate physician determination mechanisms.* The employer and an employee or authorized employee representative may agree upon the use of any alternate physician determination mechanism in lieu of the multiple physician review mechanism provided by paragraph (j)(3)(iii) of this section so long as the alternate mechanism is as expeditious and protective as the requirements contained in this paragraph.

(4) *Chelation.* (i) The employer shall assure that any person whom he retains, employs, supervises or controls does not engage in prophylactic chelation of any employee at any time.

(ii) If therapeutic or diagnostic chelation is to be performed by any person in paragraph (j)(4)(i) of this section, the employer shall assure that it be done under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring and that the employee is notified in writing prior to its occurrence.

(k) *Medical removal protection—(1) Temporary medical removal and return of an employee—(i) Temporary removal due to elevated blood lead level.* The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that a periodic and a follow-up blood sampling test conducted pursuant to this section indicate that the employee's blood lead level is at or above 50 µg/dl; and,

(ii) *Temporary removal due to a final medical determination.* (A) The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that a final medical determination results in a medical finding, determination, or opinion that the employee has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to lead.

(B) For the purposes of this section, the phrase *final medical determination* means the written medical opinion on the employees' health status by the examining physician or, where relevant, the outcome of the multiple physician review mechanism or alternate medical determination mechanism used pursuant to the medical surveillance provisions of this section.

(C) Where a final medical determination results in any recommended special protective measures for an employee, or limitations on an employee's exposure to lead, the employer shall implement and act consistent with the recommendation.

(iii) *Return of the employee to former job status.* (A) The employer shall re-

turn an employee to his or her former job status:

(1) For an employee removed due to a blood lead level at or above 50 µg/dl when two consecutive blood sampling tests indicate that the employee's blood lead level is at or below 40 µg/dl;

(2) For an employee removed due to a final medical determination, when a subsequent final medical determination results in a medical finding, determination, or opinion that the employee no longer has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to lead.

(B) For the purposes of this section, the requirement that an employer return an employee to his or her former job status is not intended to expand upon or restrict any rights an employee has or would have had, absent temporary medical removal, to a specific job classification or position under the terms of a collective bargaining agreement.

(iv) *Removal of other employee special protective measure or limitations.* The employer shall remove any limitations placed on an employee or end any special protective measures provided to an employee pursuant to a final medical determination when a subsequent final medical determination indicates that the limitations or special protective measures are no longer necessary.

(v) *Employer options pending a final medical determination.* Where the multiple physician review mechanism, or alternate medical determination mechanism used pursuant to the medical surveillance provisions of this section, has not yet resulted in a final medical determination with respect to an employee, the employer shall act as follows:

(A) *Removal.* The employer may remove the employee from exposure to lead, provide special protective measures to the employee, or place limitations upon the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status.

(B) *Return.* The employer may return the employee to his or her former job status, end any special protective measures provided to the employee,

and remove any limitations placed upon the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status, with two exceptions.

(f) If the initial removal, special protection, or limitation of the employee resulted from a final medical determination which differed from the findings, determinations, or recommendations of the initial physician or;

(2) If the employee has been on removal status for the preceding eighteen months due to an elevated blood lead level, then the employer shall await a final medical determination.

(2) *Medical removal protection benefits.*—(i) *Provision of medical removal protection benefits.* The employer shall provide an employee up to eighteen (18) months of medical removal protection benefits on each occasion that an employee is removed from exposure to lead or otherwise limited pursuant to this section.

(ii) *Definition of medical removal protection benefits.* For the purposes of this section, the requirement that an employer provide medical removal protection benefits means that, as long as the job the employee was removed from continues, the employer shall maintain the total normal earnings, seniority and other employment rights and benefits of an employee, including the employee's right to his or her former job status as though the employee had not been medically removed from the employee's job or otherwise medically limited.

(iii) *Follow-up medical surveillance during the period of employee removal or limitation.* During the period of time that an employee is medically removed from his or her job or otherwise medically limited, the employer may condition the provision of medical removal protection benefits upon the employee's participation in follow-up medical surveillance made available pursuant to this section.

(iv) *Workers' compensation claims.* If a removed employee files a claim for workers' compensation payments for a lead-related disability, then the employer shall continue to provide medical removal protection benefits pending disposition of the claim. To the ex-

tent that an award is made to the employee for earnings lost during the period of removal, the employer's medical removal protection obligation shall be reduced by such amount. The employer shall receive no credit for workers' compensation payments received by the employee for treatment-related expenses.

(v) *Other credits.* The employer's obligation to provide medical removal protection benefits to a removed employee shall be reduced to the extent that the employee receives compensation for earnings lost during the period of removal either from a publicly or employer-funded compensation program, or receives income from employment with another employer made possible by virtue of the employee's removal.

(vi) *Voluntary removal or restriction of an employee.* Where an employer, although not required by this section to do so, removes an employee from exposure to lead or otherwise places limitations on an employee due to the effects of lead exposure on the employee's medical condition, the employer shall provide medical removal protection benefits to the employee equal to that required by paragraph (k)(2) (i) and (ii) of this section.

(i) *Employee information and training.*—

(1) *General.* (i) The employer shall communicate information concerning lead hazards according to the requirements of OSHA's Hazard Communication Standard for the construction industry, 29 CFR 1926.59, including but not limited to the requirements concerning warning signs and labels, material safety data sheets (MSDS), and employee information and training. In addition, employers shall comply with the following requirements:

(ii) The employer shall train each employee who is subject to exposure to lead at or above the action level on any day, or who is subject to exposure to lead compounds which may cause skin or eye irritation (e.g., lead arsenate, lead azide), in accordance with the requirements of this section. The employer shall institute a training program and ensure employee participation in the program.

(iii) The employer shall provide the training program as initial training prior to the time of job assignment or

prior to the start up date for this requirement, whichever comes last.

(iv) The employer shall also provide the training program at least annually for each employee who is subject to lead exposure at or above the action level on any day.

(2) *Training program.* The employer shall assure that each employee is trained in the following:

(i) The content of this standard and its appendices;

(ii) The specific nature of the operations which could result in exposure to lead above the action level;

(iii) The purpose, proper selection, fitting, use, and limitations of respirators;

(iv) The purpose and a description of the medical surveillance program, and the medical removal protection program including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females and hazards to the fetus and additional precautions for employees who are pregnant);

(v) The engineering controls and work practices associated with the employee's job assignment including training of employees to follow relevant good work practices described in Appendix B of this section;

(vi) The contents of any compliance plan in effect;

(vii) Instructions to employees that chelating agents should not routinely be used to remove lead from their bodies and should not be used at all except under the direction of a licensed physician; and

(viii) The employee's right of access to records under 29 CFR 1910.20.

(3) *Access to information and training materials.* (i) The employer shall make readily available to all affected employees a copy of this standard and its appendices.

(ii) The employer shall provide, upon request, all materials relating to the employee information and training program to affected employees and their designated representatives, and to the Assistant Secretary and the Director.

(m) *Signs.*—(1) *General.* (i) The employer may use signs required by other

statutes, regulations or ordinances in addition to, or in combination with, signs required by this paragraph.

(ii) The employer shall assure that no statement appears on or near any sign required by this paragraph which contradicts or detracts from the meaning of the required sign.

(2) *Signs.* (i) The employer shall post the following warning signs in each work area where an employee's exposure to lead is above the PEL.

WARNING

LEAD WORK AREA
POISON

NO SMOKING OR EATING

(ii) The employer shall assure that signs required by this paragraph are illuminated and cleaned as necessary so that the legend is readily visible.

(n) *Recordkeeping.*—(1) *Exposure assessment.* (i) The employer shall establish and maintain an accurate record of all monitoring and other data used in conducting employee exposure assessments as required in paragraph (d) of this section.

(ii) Exposure monitoring records shall include:

(A) The date(s), number, duration, location and results of each of the samples taken if any, including a description of the sampling procedure used to determine representative employee exposure where applicable;

(B) A description of the sampling and analytical methods used and evidence of their accuracy;

(C) The type of respiratory protective devices worn, if any;

(D) Name, social security number, and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent; and

(E) The environmental variables that could affect the measurement of employee exposure.

(iii) The employer shall maintain monitoring and other exposure assessment records in accordance with the provisions of 29 CFR 1910.33.

(2) *Medical surveillance.* (i) The employer shall establish and maintain an accurate record for each employee subject to medical surveillance as required by paragraph (j) of this section.

(ii) This record shall include:

(A) The name, social security number, and description of the duties of the employee;

(B) A copy of the physician's written opinions;

(C) Results of any airborne exposure monitoring done on or for that employee and provided to the physician; and

(D) Any employee medical complaints related to exposure to lead.

(iii) The employer shall keep, or assure that the examining physician keeps, the following medical records:

(A) A copy of the medical examination results including medical and work history required under paragraph (j) of this section;

(B) A description of the laboratory procedures and a copy of any standards or guidelines used to interpret the test results or references to that information;

(C) A copy of the results of biological monitoring.

(iv) The employer shall maintain or assure that the physician maintains medical records in accordance with the provisions of 29 CFR 1910.33.

(3) *Medical removals.* (i) The employer shall establish and maintain an accurate record for each employee removed from current exposure to lead pursuant to paragraph (k) of this section.

(ii) Each record shall include:

(A) The name and social security number of the employee;

(B) The date of each occasion that the employee was removed from current exposure to lead as well as the corresponding date on which the employee was returned to his or her former job status;

(C) A brief explanation of how each removal was or is being accomplished; and

(D) A statement with respect to each removal indicating whether or not the reason for the removal was an elevated blood lead level.

(iii) The employer shall maintain each medical removal record for at least the duration of an employee's employment.

(4) *Objective data for exemption from requirement for initial monitoring.* (i) For purposes of this section, objective data are information demonstrating that a particular product or material con-

taining lead or a specific process, operation, or activity involving lead cannot release dust or fumes in concentrations at or above the action level under any expected conditions of use. Objective data can be obtained from an industry-wide study or from laboratory product test results from manufacturers of lead containing products or materials. The data the employer uses from an industry-wide survey must be obtained under workplace conditions closely resembling the processes, types of material, control methods, work practices and environmental conditions in the employer's current operations.

(ii) The employer shall maintain the record of the objective data relied upon for at least 30 years.

(5) *Availability.* The employer shall make available upon request all records required to be maintained by paragraph (n) of this section to affected employees, former employees, and their designated representatives, and to the Assistant Secretary and the Director for examination and copying.

(6) *Transfer of records.* (i) Whenever the employer ceases to do business, the successor employer shall receive and retain all records required to be maintained by paragraph (n) of this section.

(ii) Whenever the employer ceases to do business and there is no successor employer to receive and retain the records required to be maintained by this section for the prescribed period, these records shall be transmitted to the Director.

(iii) At the expiration of the retention period for the records required to be maintained by this section, the employer shall notify the Director at least 3 months prior to the disposal of such records and shall transmit those records to the Director if requested within the period.

(iv) The employer shall also comply with any additional requirements involving transfer of records set forth in 29 CFR 1910.33(h).

(c) *Observation of monitoring—(1) Employee observation.* The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to lead conducted pursuant to paragraph (d) of this section.

(2) *Observation procedures.* (i) Whenever observation of the monitoring of employee exposure to lead requires entry into an area where the use of respirators, protective clothing or equipment is required, the employer shall provide the observer with and assure the use of such respirators, clothing and equipment, and shall require the observer to comply with all other applicable safety and health procedures.

(ii) Without interfering with the monitoring, observers shall be entitled to:

(A) Receive an explanation of the measurement procedures;

(B) Observe all steps related to the monitoring of lead performed at the place of exposure; and

(C) Record the results obtained or receive copies of the results when returned by the laboratory.

(D) *Appendices.* The information contained in the appendices to this section is not intended by itself, to create any additional obligations not otherwise imposed by this standard nor detract from any existing obligation.

APPENDIX A TO § 1926.62—SUBSTANCE DATA SHEET FOR OCCUPATIONAL EXPOSURE TO LEAD

1. Substance Identification

A. *Substance:* Pure lead (Pb) is a heavy metal at room temperature and pressure and is a basic chemical element. It can combine with various other substances to form numerous lead compounds.

B. *Compounds covered by the standard:* The word *lead* when used in this interim final standard means elemental lead, all inorganic lead compounds and a class of organic lead compounds called lead soaps. This standard does not apply to other organic lead compounds.

C. *Uses:* Exposure to lead occurs in several different occupations in the construction industry, including demolition or salvage of structures where lead or lead-containing materials are present; removal or encapsulation of lead-containing materials, new construction, alteration, repair, or renovation of structures that contain lead or materials containing lead. In addition, there are construction related activities where exposure to lead may occur, including transportation, disposal, storage, or containment of lead or materials containing lead on construction sites, and maintenance operations associated with construction activities.

D. *Permissible exposure:* The permissible exposure limit (PEL) set by the standard is 30

micrograms of lead per cubic meter of air (30 $\mu\text{g}/\text{m}^3$), averaged over an 8-hour workday.

E. *Action level:* The interim final standard establishes an action level of 30 micrograms of lead per cubic meter of air (30 $\mu\text{g}/\text{m}^3$), averaged over an 8-hour workday. The action level triggers several ancillary provisions of the standard such as exposure monitoring, medical surveillance, and training.

II. Health Hazard Data

A. *Ways in which lead enters your body.* When absorbed into your body in certain doses, lead is a toxic substance. The object of the lead standard is to prevent absorption of harmful quantities of lead. The standard is intended to protect you not only from the immediate toxic effects of lead, but also from the serious toxic effects that may not become apparent until years of exposure have passed. Lead can be absorbed into your body by inhalation (breathing) and ingestion (eating). Lead (except for certain organic lead compounds not covered by the standard, such as tetraethyl lead) is not absorbed through your skin. When lead is scattered in the air as a dust, fume respiratory tract. Inhalation of airborne lead is generally the most important source of occupational lead absorption. You can also absorb lead through your digestive system if lead gets into your mouth and is swallowed. If you handle food, cigarettes, chewing tobacco, or make-up which have lead on them or handle them with hands contaminated with lead, this will contribute to ingestion. A significant portion of the lead that you inhale or ingest gets into your blood stream. Once in your blood stream, lead is circulated throughout your body and stored in various organs and body tissues. Some of this lead is quickly filtered out of your body and excreted, but some remains in the blood and other tissues. As exposure to lead continues, the amount stored in your body will increase if you are absorbing more lead than your body is excreting. Even though you may not be aware of any immediate symptoms of disease, this lead stored in your tissues can be slowly causing irreversible damage, first to individual cells, then to your organs and whole body systems.

B. *Effects of overexposure to lead—(1) Short term (acute) overexposure.* Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. Taken in large enough doses, lead can kill you in a matter of days. A condition affecting the brain called acute encephalopathy may arise which develops quickly to seizures, coma, and death from cardiorespiratory arrest. A short term dose of lead can lead to acute encephalopathy. Short term occupational exposures of this magnitude are highly unusual, but not impossible. Similar forms of

encephalopathy may, however, arise from extended, chronic exposure to lower doses of lead. There is no sharp dividing line between rapidly developing acute effects of lead, and chronic effects which take longer to acquire. Lead adversely affects numerous body systems, and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years.

(2) *Long-term (chronic) overexposure.* Chronic overexposure to lead may result in severe damage to your blood-forming, nervous, urinary and reproductive systems. Some common symptoms of chronic overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, hyperactivity and colic. In lead colic there may be severe abdominal pain. Damage to the central nervous system in general and the brain (encephalopathy) in particular is one of the most severe forms of lead poisoning. The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. It may arise suddenly with the onset of seizures, followed by coma, and death. There is a tendency for muscular weakness to develop at the same time. This weakness may progress to paralysis often observed as a characteristic "wrist drop" or "foot drop" and is a manifestation of a disease to the nervous system called peripheral neuropathy. Chronic overexposure to lead also results in kidney disease with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Routine laboratory tests reveal the presence of this kidney disease only after about two-thirds of kidney function is lost. When overt symptoms of urinary dysfunction arise, it is often too late to correct or prevent worsening conditions, and progression to kidney dialysis or death is possible. Chronic overexposure to lead impairs the reproductive systems of both men and women. Overexposure to lead may result in decreased sex drive, impotence and sterility in men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. Lead exposure also may result in decreased fertility, and abnormal menstrual cycles in women. The course of pregnancy may be adversely affected by exposure to lead since lead crosses the placental barrier and poses risks to developing fetuses. Children born of parents either one of whom were exposed to excess lead levels are more likely to have birth defects, mental retardation, behavioral dis-

orders or die during the first year of childhood. Overexposure to lead also disrupts the blood-forming system resulting in decreased hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor and fatigability as a result of decreased oxygen carrying capacity in the blood.

(3) *Health protection goals of the standard.* Prevention of adverse health effects for most workers from exposure to lead throughout a working lifetime requires that a worker's blood lead level (BLL, also expressed as PbB) be maintained at or below forty micrograms per deciliter of whole blood (40 µg/dl). The blood lead levels of workers (both male and female workers) who intend to have children should be maintained below 30 µg/dl to minimize adverse reproductive health effects to the parents and to the developing fetus. The measurement of your blood lead level (BLL) is the most useful indicator of the amount of lead being absorbed by your body. Blood lead levels are most often reported in units of milligrams (mg) or micrograms (µg) of lead (1 mg=1000 µg) per 100 grams (100g), 100 milliliters (100 ml) or deciliter (dl) of blood. These three units are essentially the same. Sometimes BLLs are expressed in the form of mg% or µg%. This is a shorthand notation for 100g, 100 ml, or dl. (References to BLL measurements in this standard are expressed in the form of µg/dl.)

BLL measurements show the amount of lead circulating in your blood stream, but do not give any information about the amount of lead stored in your various tissues. BLL measurements merely show current absorption of lead, not the effect that lead is having on your body or the effects that past lead exposure may have already caused. Past research into lead-related diseases, however, has focused heavily on associations between BLLs and various diseases. As a result, your BLL is an important indicator of the likelihood that you will gradually acquire a lead-related health impairment or disease.

Once your blood lead level climbs above 40 µg/dl, your risk of disease increases. There is a wide variability of individual response to lead, thus it is difficult to say that a particular BLL in a given person will cause a particular effect. Studies have associated fatal encephalopathy with BLLs as low as 150 µg/dl. Other studies have shown other forms of diseases in some workers with BLLs well below 80 µg/dl. Your BLL is a crucial indicator of the risks to your health, but one other factor is also extremely important. This factor is the length of time you have had elevated BLLs. The longer you have an elevated BLL, the greater the risk that large quantities of lead are being gradually stored in your organs and tissues (body burden). The greater your overall body burden, the

greater the chances of substantial permanent damage. The best way to prevent all forms of lead-related impairments and diseases—both short term and long term—is to maintain your BLL below 40 µg/dl. The provisions of the standard are designed with this end in mind.

Your employer has prime responsibility to assure that the provisions of the standard are complied with both by the company and by individual workers. You, as a worker, however, also have a responsibility to assist your employer in complying with the standard. You can play a key role in protecting your own health by learning about the lead hazards and their control, learning what the standard requires, following the standard where it governs your own actions, and seeing that your employer complies with provisions governing his or her actions.

(4) *Reporting signs and symptoms of health problems.* You should immediately notify your employer if you develop signs or symptoms associated with lead poisoning or if you desire medical advice concerning the effects of current or past exposure to lead or your ability to have a healthy child. You should also notify your employer if you have difficulty breathing during a respirator fit test or while wearing a respirator. In each of these cases, your employer must make available to you appropriate medical examinations or consultations. These must be provided at no cost to you and at a reasonable time and place. The standard contains a procedure whereby you can obtain a second opinion by a physician of your choice if your employer selected the initial physician.

APPENDIX B TO § 1926.62—EMPLOYEE STANDARD SUMMARY

This appendix summarizes key provisions of the interim final standard for lead in construction that you as a worker should become familiar with.

I. Permissible Exposure Limit (PEL)—Paragraph (C)

The standard sets a permissible exposure limit (PEL) of 50 micrograms of lead per cubic meter of air (50 µg/m³) averaged over an 8-hour workday which is referred to as a time-weighted average (TWA). This is the highest level of lead in air to which you may be permissibly exposed over an 8-hour workday. However, since this is an 8-hour average, short exposures above the PEL are permitted so long as for each 8-hour work day your average exposure does not exceed this level. This interim final standard, however, takes into account the fact that your daily exposure to lead can extend beyond a typical 8-hour workday as the result of overtime or other alterations in your work schedule. To deal with this situation, the standard contains a formula which reduces your permis-

sible exposure when you are exposed more than 8 hours. For example, if you are exposed to lead for 10 hours a day, the maximum permitted average exposure would be 40 µg/m³.

II. Exposure Assessment—Paragraph (D)

If lead is present in your workplace in any quantity, your employer is required to make an initial determination of whether any employee's exposure to lead exceeds the action level (30 µg/m³ averaged over an 8-hour day). Employee exposure is that exposure which would occur if the employee were not using a respirator. This initial determination requires your employer to monitor workers' exposures unless he or she has objective data which can demonstrate conclusively that no employee will be exposed to lead in excess of the action level. Where objective data is used in lieu of actual monitoring the employer must establish and maintain an accurate record, documenting its relevancy in assessing exposure levels for current job conditions. If such objective data is available, the employer need proceed no further on employee exposure assessment until such time that conditions have changed and the determination is no longer valid.

Objective data may be compiled from various sources, e.g., insurance companies and trade associations and information from suppliers or exposure data collected from similar operations. Objective data may also comprise previously-collected sampling data including area monitoring. If it cannot be determined through using objective data that worker exposure is less than the action level, your employer must conduct monitoring or must rely on relevant previous personal sampling, if available. Where monitoring is required for the initial determination, it may be limited to a representative number of employees who are reasonably expected to have the highest exposure levels. If your employer has conducted appropriate air sampling for lead in the past 12 months, he or she may use these results, provided they are applicable to the same employee tasks and exposure conditions and meet the requirements for accuracy as specified in the standard. As with objective data, if such results are relied upon for the initial determination, your employer must establish and maintain a record as to the relevancy of such data to current job conditions.

If there have been any employee complaints of symptoms which may be attributable to exposure to lead or if there is any other information or observations which would indicate employee exposure to lead, this must also be considered as part of the initial determination.

If this initial determination shows that a reasonable possibility exists that any employee may be exposed, without regard to

respirators, over the action level, your employer must set up an air monitoring program to determine the exposure level representative of each employee exposed to lead at your workplace. In carrying out this air monitoring program, your employer is not required to monitor the exposure of every employee, but he or she must monitor a representative number of employees and job types. Enough sampling must be done to enable each employee's exposure level to be reasonably represent full shift exposure. In addition, these air samples must be taken under conditions which represent each employee's regular, daily exposure to lead. Sampling performed in the past 12 months may be used to determine exposures above the action level if such sampling was conducted during work activities essentially similar to present work conditions.

The standard lists certain tasks which may likely result in exposures to lead in excess of the PEL and, in some cases, exposures in excess of 50 times the PEL. If you are performing any of these tasks, your employer must provide you with appropriate respiratory protection, protective clothing and equipment, change areas, hand washing facilities, biological monitoring, and training until such time that an exposure assessment is conducted which demonstrates that your exposure level is below the PEL.

If you are exposed to lead and air sampling is performed, your employer is required to notify you in writing within 5 working days of the air monitoring results which represent your exposure. If the results indicate that your exposure exceeds the PEL (without regard to your use of a respirator), then your employer must also notify you of this in writing, and provide you with a description of the corrective action that has been taken or will be taken to reduce your exposure.

Your exposure must be rechecked by monitoring, at least every six months if your exposure is at or over the action level but below the PEL. Your employer may discontinue monitoring for you if 2 consecutive measurements, taken at least 7 days apart, are at or below the action level. Air monitoring must be repeated every 3 months if you are exposed over the PEL. Your employer must continue monitoring for you at this frequency until 2 consecutive measurements, taken at least 7 days apart, are below the PEL but above the action level, at which time your employer must repeat monitoring of your exposure every six months and may discontinue monitoring only after your exposure drops to or below the action level. However, whenever there is a change of equipment, process, control, or personnel or a new type of job is added at your workplace which may result in new or additional exposure to lead, your employer must perform additional monitoring.

III. Methods of Compliance—Paragraph (E)

Your employer is required to assure that no employee is exposed to lead in excess of the PEL as an 8-hour TWA. The interim final standard for lead in construction requires employers to institute engineering and work practice controls including administrative controls to the extent feasible to reduce employee exposure to lead. Where such controls are feasible but not adequate to reduce exposures below the PEL they must be used nonetheless to reduce exposures to the lowest level that can be accomplished by these means and then supplemented with appropriate respiratory protection.

Your employer is required to develop and implement a written compliance program prior to the commencement of any job where employee exposures may reach the PEL as an 8-hour TWA. The interim final standard identifies the various elements that must be included in the plan. For example, employers are required to include a description of operations in which lead is emitted, detailing other relevant information about the operation such as the type of equipment used, the type of material involved, employee job responsibilities, operating procedures and maintenance practices. In addition, your employer's compliance plan must specify the means that will be used to achieve compliance and, where engineering controls are required, include any engineering plans or studies that have been used to select the control methods. If administrative controls involving job rotation are used to reduce employee exposure to lead, the job rotation schedule must be included in the compliance plan. The plan must also detail the type of protective clothing and equipment, including respirators, housekeeping and hygiene practices that will be used to protect you from the adverse effects of exposure to lead.

The written compliance program must be made available, upon request, to affected employees and their designated representatives, the Assistant Secretary and the Director.

Finally, the plan must be reviewed and updated at least every 6 months to assure it reflects the current status in exposure control.

IV. Respiratory Protection—Paragraph (F)

Your employer is required to provide and assure your use of respirators when your exposure to lead is not controlled below the PEL by other means. The employer must pay the cost of the respirator. Whenever you request one, your employer is also required to provide you a respirator even if your air exposure level is not above the PEL. You might desire a respirator when, for example, you have received medical advice that your lead absorption should be decreased. Or, you may intend to have children in the near future, and want to reduce the level of lead in

your body to minimize adverse reproductive effects. While respirators are the least satisfactory means of controlling your exposure, they are capable of providing significant protection if properly chosen, fitted, worn, cleaned, maintained, and replaced when they stop providing adequate protection.

Your employer is required to select respirators from the types listed in Table I of the Respiratory Protection section of the standard (§ 1926.62 (f)). Any respirator chosen must be approved by the National Institute for Occupational Safety and Health (NIOSH) under the provisions of 42 CFR part 84. This respirator selection table will enable your employer to choose a type of respirator that will give you a proper amount of protection based on your airborne lead exposure. Your employer may select a type of respirator that provides greater protection than that required by the standard; that is, one recommended for a higher concentration of lead than is present in your workplace. For example, a powered air-purifying respirator (PAPR) is much more protective than a typical negative pressure respirator, and may also be more comfortable to wear. A PAPR has a filter, cartridge, or canister to clean the air, and a power source that continuously blows filtered air into your breathing zone. Your employer might make a PAPR available to you to ease the burden of having to wear a respirator for long periods of time. The standard provides that you can obtain a PAPR upon request.

Your employer must also start a Respiratory Protection Program. This program must include written procedures for the proper selection, use, cleaning, storage, and maintenance of respirators.

Your employer must ensure that your respirator facepiece fits properly. Proper fit of a respirator facepiece is critical to your protection from airborne lead. Obtaining a proper fit on each employee may require your employer to make available several different types of respirator masks. To ensure that your respirator fits properly and that facepiece leakage is minimal, your employer must give you either a qualitative or quantitative fit test as specified in Appendix A of the Respiratory Protection standard located at 29 CFR 1910.134.

You must also receive from your employer proper training in the use of respirators. Your employer is required to teach you how to wear a respirator, to know why it is needed, and to understand its limitations.

The standard provides that if your respirator uses filter elements, you must be given an opportunity to change the filter elements whenever an increase in breathing resistance is detected. You also must be permitted to periodically leave your work area to wash your face and respirator facepiece whenever necessary to prevent skin irritation. If you ever have difficulty in breathing

during a fit test or while using a respirator, your employer must make a medical examination available to you to determine whether you can safely wear a respirator. The result of this examination may be to give you a positive pressure respirator (which reduces breathing resistance) or to provide alternative means of protection.

V. Protective Work Clothing and Equipment— Paragraph (G)

If you are exposed to lead above the PEL as an 8-hour TWA, without regard to your use of a respirator, or if you are exposed to lead compounds such as lead arsenate or lead azide which can cause skin and eye irritation, your employer must provide you with protective work clothing and equipment appropriate for the hazard. If work clothing is provided, it must be provided in a clean and dry condition at least weekly, and daily if your airborne exposure to lead is greater than 200 $\mu\text{g}/\text{m}^3$. Appropriate protective work clothing and equipment can include coveralls or similar full-body work clothing, gloves, hats, shoes or disposable shoe coverlets, and face shields or vented goggles. Your employer is required to provide all such equipment at no cost to you. In addition, your employer is responsible for providing repairs and replacement as necessary, and also is responsible for the cleaning, laundering or disposal of protective clothing and equipment.

The interim final standard requires that your employer assure that you follow good work practices when you are working in areas where your exposure to lead may exceed the PEL. With respect to protective clothing and equipment, where appropriate, the following procedures should be observed prior to beginning work:

1. Change into work clothing and shoe covers in the clean section of the designated changing areas;
2. Use work garments of appropriate protective gear, including respirators before entering the work area; and
3. Store any clothing not worn under protective clothing in the designated changing area.

Workers should follow these procedures upon leaving the work area:

1. HEPA vacuum heavily contaminated protective work clothing while it is still being worn. At no time may lead be removed from protective clothing by any means which result in uncontrolled dispersal of lead into the air;
2. Remove shoe covers and leave them in the work area;
3. Remove protective clothing and gear in the dirty area of the designated changing area. Remove protective coveralls by carefully rolling down the garment to reduce exposure to dust.
4. Remove respirators last; and

3. Wash hands and face.

Workers should follow these procedures upon finishing work for the day (in addition to procedures described above):

1. Where applicable, place disposal coveralls and shoe covers with the abatement waste;

2. Contaminated clothing which is to be cleaned, laundered or disposed of must be placed in closed containers in the change room.

3. Clean protective gear, including respirators, according to standard procedures;

4. Wash hands and face again. If showers are available, take a shower and wash hair. If shower facilities are not available at the work site, shower immediately at home and wash hair.

VI. Housekeeping—Paragraph (H)

Your employer must establish a housekeeping program sufficient to maintain all surfaces as free as practicable of accumulations of lead dust. Vacuuming is the preferred method of meeting this requirement, and the use of compressed air to clean floors and other surfaces is generally prohibited unless removal with compressed air is done in conjunction with ventilation systems designed to contain dispersal of the lead dust. Dry or wet sweeping, shoveling, or brushing may not be used except where vacuuming or other equally effective methods have been tried and do not work. Vacuums must be used equipped with a special filter called a high-efficiency particulate air (HEPA) filter and emptied in a manner which minimizes the reentry of lead into the workplace.

VII. Hygiene Facilities and Practices—Paragraph (I)

The standard requires that hand washing facilities be provided where occupational exposure to lead occurs. In addition, change areas, showers (where feasible), and lunchrooms or eating areas are to be made available to workers exposed to lead above the PEL. Your employer must assure that except in these facilities, food and beverage is not present or consumed, tobacco products are not present or used, and cosmetics are not applied, where airborne exposures are above the PEL. Change rooms provided by your employer must be equipped with separate storage facilities for your protective clothing and equipment and street clothes to avoid cross-contamination. After showering, no required protective clothing or equipment worn during the shift may be worn home. It is important that contaminated clothing or equipment be removed in change areas and not be worn home or you will extend your exposure and expose your family since lead from your clothing can accumulate in your house, car, etc.

Lunchrooms or eating areas may not be entered with protective clothing or equipment unless surface dust has been removed by vacuuming, downdraft booth, or other cleaning method. Finally, workers exposed above the PEL must wash both their hands and faces prior to eating, drinking, smoking or applying cosmetics.

All of the facilities and hygiene practices just discussed are essential to minimize additional sources of lead absorption from inhalation or ingestion of lead that may accumulate on you, your clothes, or your possessions. Strict compliance with these provisions can virtually eliminate several sources of lead exposure which significantly contribute to excessive lead absorption.

VIII. Medical Surveillance—Paragraph (J)

The medical surveillance program is part of the standard's comprehensive approach to the prevention of lead-related disease. Its purpose is to supplement the main thrust of the standard which is aimed at minimizing airborne concentrations of lead and sources of ingestion. Only medical surveillance can determine if the other provisions of the standard have effectively protected you as an individual. Compliance with the standard's provision will protect most workers from the adverse effects of lead exposure, but may not be satisfactory to protect individual workers (1) who have high body burdens of lead acquired over past years, (2) who have additional uncontrolled sources of non-occupational lead exposure, (3) who exhibit unusual variations in lead absorption rates, or (4) who have specific non-work related medical conditions which could be aggravated by lead exposure (e.g., renal disease, anemia). In addition, control systems may fail, or hygiene and respirator programs may be inadequate. Periodic medical surveillance of individual workers will help detect those failures. Medical surveillance will also be important to protect your reproductive ability regardless of whether you are a man or woman.

All medical surveillance required by the interim final standard must be performed by or under the supervision of a licensed physician. The employer must provide required medical surveillance without cost to employees and at a reasonable time and place. The standard's medical surveillance program has two parts—periodic biological monitoring and medical examinations. Your employer's obligation to offer you medical surveillance is triggered by the results of the air monitoring program. Full medical surveillance must be made available to all employees who are or may be exposed to lead in excess of the action level for more than 90 days a year and whose blood lead level exceeds 40 µg/dl. Initial medical surveillance consisting of blood sampling and analysis for lead and zinc

protoporphyrin must be provided to all employees exposed at any time (1 day) above the action level.

Biological monitoring under the standard must be provided at least every 2 months for the first 6 months and every 6 months thereafter until your blood lead level is below 40 µg/dl. A zinc protoporphyrin (ZPP) test is a very useful blood test which measures an adverse metabolic effect of lead on your body and is therefore an indicator of lead toxicity.

If your BLL exceeds 40 µg/dl the monitoring frequency must be increased from every 6 months to at least every 2 months and not reduced until two consecutive BLLs indicate a blood lead level below 40 µg/dl. Each time your BLL is determined to be over 40 µg/dl, your employer must notify you of this in writing within five working days of his or her receipt of the test results. The employer must also inform you that the standard requires temporary medical removal with economic protection when your BLL exceeds 50 µg/dl. (See Discussion of Medical Removal Protection-Paragraph (k).) Anytime your BLL exceeds 50 µg/dl your employer must make available to you within two weeks of receipt of these test results a second follow-up BLL test to confirm your BLL. If the two tests both exceed 50 µg/dl, and you are temporarily removed, then your employer must make successive BLL tests available to you on a monthly basis during the period of your removal.

Medical examinations beyond the initial one must be made available on an annual basis if your blood lead level exceeds 40 µg/dl at any time during the preceding year and you are being exposed above the airborne action level of 30 µg/m³ for 30 or more days per year. The initial examination will provide information to establish a baseline to which subsequent data can be compared.

An initial medical examination to consist of blood sampling and analysis for lead and zinc protoporphyrin must also be made available (prior to assignment) for each employee being assigned for the first time to an area where the airborne concentration of lead equals or exceeds the action level at any time. In addition, a medical examination or consultation must be made available as soon as possible if you notify your employer that you are experiencing signs or symptoms commonly associated with lead poisoning or that you have difficulty breathing while wearing a respirator or during a respirator fit test. You must also be provided a medical examination or consultation if you notify your employer that you desire medical advice concerning the effects of current or past exposure to lead on your ability to procreate a healthy child.

Finally, appropriate follow-up medical examinations or consultations may also be provided for employees who have been temporarily removed from exposure under the

medical removal protection provisions of the standard. (See Part IX, below.)

The standard specifies the minimum content of pre-assignment and annual medical examinations. The content of other types of medical examinations and consultations is left up to the sound discretion of the examining physician. Pre-assignment and annual medical examinations must include (1) a detailed work history and medical history; (2) a thorough physical examination, including an evaluation of your pulmonary status if you will be required to use a respirator; (3) a blood pressure measurement; and (4) a series of laboratory tests designed to check your blood chemistry and your kidney function. In addition, at any time upon your request, a laboratory evaluation of male fertility will be made (microscopic examination of a sperm sample), or a pregnancy test will be given.

The standard does not require that you participate in any of the medical procedures, tests, etc. which your employer is required to make available to you. Medical surveillance can, however, play a very important role in protecting your health. You are strongly encouraged, therefore, to participate in a meaningful fashion. The standard contains a multiple physician review mechanism which will give you a chance to have a physician of your choice directly participate in the medical surveillance program. If you are dissatisfied with an examination by a physician chosen by your employer, you can select a second physician to conduct an independent analysis. The two doctors would attempt to resolve any differences of opinion, and select a third physician to resolve any firm dispute. Generally your employer will choose the physician who conducts medical surveillance under the lead standard-unless you and your employer can agree on the choice of a physician or physicians. Some companies and unions have agreed in advance, for example, to use certain independent medical laboratories or panels of physicians. Any of these arrangements are acceptable so long as required medical surveillance is made available to workers.

The standard requires your employer to provide certain information to a physician to aid in his or her examination of you. This information includes (1) the standard and its appendices, (2) a description of your duties as they relate to occupational lead exposure, (3) your exposure level or anticipated exposure level, (4) a description of any personal protective equipment you wear, (5) prior blood lead level results, and (6) prior written medical opinions concerning you that the employer has. After a medical examination or consultation the physician must prepare a written report which must contain (1) the physician's opinion as to whether you have any medical condition which places you at increased risk of material impairment to

health from exposure to lead, (2) any recommended special protective measures to be provided to you, (3) any blood lead level determinations, and (4) any recommended limitation on your use of respirators. This last element must include a determination of whether you can wear a powered air purifying respirator (PAPR) if you are found unable to wear a negative pressure respirator.

The medical surveillance program of the interim lead standard may at some point in time serve to notify certain workers that they have acquired a disease or other adverse medical condition as a result of occupational lead exposure. If this is true, these workers might have legal rights to compensation from public agencies, their employers, firms that supply hazardous products to their employers, or other persons. Some states have laws, including worker compensation laws, that disallow a worker who learns of a job-related health impairment to sue, unless the worker sues within a short period of time after learning of the impairment. (This period of time may be a matter of months or years.) An attorney can be consulted about these possibilities. It should be stressed that OSHA is in no way trying to either encourage or discourage claims or lawsuits. However, since results of the standard's medical surveillance program can significantly affect the legal remedies of a worker who has acquired a job-related disease or impairment, it is proper for OSHA to make you aware of this.

The medical surveillance section of the standard also contains provisions dealing with chelation. Chelation is the use of certain drugs (administered in pill form or injected into the body) to reduce the amount of lead absorbed in body tissues. Experience accumulated by the medical and scientific communities has largely confirmed the effectiveness of this type of therapy for the treatment of very severe lead poisoning. On the other hand, it has also been established that there can be a long list of extremely harmful side effects associated with the use of chelating agents. The medical community has balanced the advantages and disadvantages resulting from the use of chelating agents in various circumstances and has established when the use of these agents is acceptable. The standard includes these accepted limitations due to a history of abuse of chelation therapy by some lead companies. The most widely used chelating agents are calcium disodium EDTA, (Ca Na₂ EDTA), Calcium Disodium Versenate (Versenate), and D-penicillamine (penicillamine or Cupramine).

The standard prohibits "prophylactic chelation" of any employee by any person the employer retains, supervises or controls. *Prophylactic chelation* is the routine use of chelating or similarly acting drugs to prevent elevated blood levels in workers who

are occupationally exposed to lead, or the use of these drugs to routinely lower blood lead levels to predesignated concentrations believed to be "safe". It should be emphasized that where an employer takes a worker who has no symptoms of lead poisoning and has chelation carried out by a physician (either inside or outside of a hospital) solely to reduce the worker's blood lead level, that will generally be considered prophylactic chelation. The use of a hospital and a physician does not mean that prophylactic chelation is not being performed. Routine chelation to prevent increased or reduce current blood lead levels is unacceptable whatever the setting.

The standard allows the use of "therapeutic" or "diagnostic" chelation if administered under the supervision of a licensed physician in a clinical setting with thorough and appropriate medical monitoring. Therapeutic chelation responds to severe lead poisoning where there are marked symptoms. Diagnostic chelation involved giving a patient a dose of the drug then collecting all urine excreted for some period of time as an aid to the diagnosis of lead poisoning.

In cases where the examining physician determines that chelation is appropriate, you must be notified in writing of this fact before such treatment. This will inform you of a potentially harmful treatment, and allow you to obtain a second opinion.

IX. Medical Removal Protection—Paragraph (K)

Excessive lead absorption subjects you to increased risk of disease. Medical removal protection (MRP) is a means of protecting you when, for whatever reasons, other methods, such as engineering controls, work practices, and respirators, have failed to provide the protection you need. MRP involves the temporary removal of a worker from his or her regular job to a place of significantly lower exposure without any loss of earnings, seniority, or other employment rights or benefits. The purpose of this program is to cease further lead absorption and allow your body to naturally excrete lead which has previously been absorbed. Temporary medical removal can result from an elevated blood lead level, or a medical opinion. For up to 18 months, or for as long as the job the employee was removed from lasts, protection is provided as a result of either form of removal. The vast majority of removed workers, however, will return to their former jobs long before this eighteen month period expires.

You may also be removed from exposure even if your blood lead level is below 50 µg/dl if a final medical determination indicates that you temporarily need reduced lead exposure for medical reasons. If the physician who is implementing your employers medical program makes a final written opinion

recommending your removal or other special protective measures, your employer must implement the physician's recommendation. If you are removed in this manner, you may only be returned when the doctor indicates that it is safe for you to do so.

The standard does not give specific instructions dealing with what an employer must do with a removed worker. Your job assignment upon removal is a matter for you, your employer and your union (if any) to work out consistent with existing procedures for job assignments. Each removal must be accomplished in a manner consistent with existing collective bargaining relationships. Your employer is given broad discretion to implement temporary removals so long as no attempt is made to override existing agreements. Similarly, a removed worker is provided no right to veto an employer's choice which satisfies the standard.

In most cases, employers will likely transfer removed employees to other jobs with sufficiently low lead exposure. Alternatively, a worker's hours may be reduced so that the time weighted average exposure is reduced, or he or she may be temporarily laid off if no other alternative is feasible.

In all of these situations, MRP benefits must be provided during the period of removal—i.e., you continue to receive the same earnings, seniority, and other rights and benefits you would have had if you had not been removed. Earnings includes more than just your base wage; it includes overtime, shift differentials, incentives, and other compensation you would have earned if you had not been removed. During the period of removal you must also be provided with appropriate follow-up medical surveillance. If you were removed because your blood lead level was too high, you must be provided with a monthly blood test. If a medical opinion caused your removal, you must be provided medical tests or examinations that the doctor believes to be appropriate. If you do not participate in this follow up medical surveillance, you may lose your eligibility for MRP benefits.

When you are medically eligible to return to your former job, your employer must return you to your "former job status." This means that you are entitled to the position, wages, benefits, etc., you would have had if you had not been removed. If you would still be in your old job if no removal had occurred that is where you go back. If not, you are returned consistent with whatever job assignment discretion your employer would have had if no removal had occurred. MRP only seeks to maintain your rights, not expand them or diminish them.

If you are removed under MRP and you are also eligible for worker compensation or other compensation for lost wages, your employer's MRP benefits obligation is reduced by the amount that you actually receive

from these other sources. This is also true if you obtain other employment during the time you are laid off with MRP benefits.

The standard also covers situations where an employer voluntarily removes a worker from exposure to lead due to the effects of lead on the employee's medical condition, even though the standard does not require removal. In these situations MRP benefits must still be provided as though the standard required removal. Finally, it is important to note that in all cases where removal is required, respirators cannot be used as a substitute. Respirators may be used before removal becomes necessary, but not as an alternative to a transfer to a low exposure job, or to a lay-off with MRP benefits.

X. Employee Information and Training— Paragraph (L)

Your employer is required to provide an information and training program for all employees exposed to lead above the action level or who may suffer skin or eye irritation from lead compounds such as lead arsenate or lead azide. The program must train these employees regarding the specific hazards associated with their work environment, protective measures which can be taken, including the contents of any compliance plan in effect, the danger of lead to their bodies (including their reproductive systems), and their rights under the standard. All employees must be trained prior to initial assignment to areas where there is a possibility of exposure over the action level.

This training program must also be provided at least annually thereafter unless further exposure above the action level will not occur.

XI. Signs—Paragraph (M)

The standard requires that the following warning sign be posted in work areas where the exposure to lead exceeds the PEL:

WARNING
LEAD WORK AREA
POISON

NO SMOKING OR EATING

These signs are to be posted and maintained in a manner which assures that the legend is readily visible.

XII. Recordkeeping—Paragraph (N)

Your employer is required to keep all records of exposure monitoring for airborne lead. These records must include the name and job classification of employees measured, details of the sampling and analytical techniques, the results of this sampling, and the type of respiratory protection being worn by the person sampled. Such records are to be retained for at least 30 years. Your employer is also required to keep all records

of biological monitoring and medical examination results. These records must include the names of the employees, the physician's written opinion, and a copy of the results of the examination. Medical records must be preserved and maintained for the duration of employment plus 30 years. However, if the employee's duration of employment is less than one year, the employer need not retain that employee's medical records beyond the period of employment if they are provided to the employee upon termination of employment.

Recordkeeping is also required if you are temporarily removed from your job under the medical removal protection program. This record must include your name and social security number, the date of your removal and return, how the removal was or is being accomplished, and whether or not the reason for the removal was an elevated blood lead level. Your employer is required to keep each medical removal record only for as long as the duration of an employee's employment.

The standard requires that if you request to see or copy environmental monitoring, blood lead level monitoring, or medical removal records, they must be made available to you or to a representative that you authorize. Your union also has access to these records. Medical records other than BLL's must also be provided upon request to you, to your physician or to any other person whom you may specifically designate. Your union does not have access to your personal medical records unless you authorize their access.

XIII. Observation of Monitoring—Paragraph (C)

When air monitoring for lead is performed at your workplace as required by this standard, your employer must allow you or someone you designate to act as an observer of the monitoring. Observers are entitled to an explanation of the measurement procedure, and to record the results obtained. Since results will not normally be available at the time of the monitoring, observers are entitled to record or receive the results of the monitoring when returned by the laboratory. Your employer is required to provide the observer with any personal protective devices required to be worn by employees working in the area that is being monitored. The employer must require the observer to wear all such equipment and to comply with all other applicable safety and health procedures.

XIV. For Additional Information

A. A copy of the interim standard for lead in construction can be obtained free of charge by calling or writing the OSHA Office of Publications, room N-3101, United States

Department of Labor, Washington, DC 20210; Telephone (202) 219-4697.

B. Additional information about the standard, its enforcement, and your employer's compliance can be obtained from the nearest OSHA Area Office listed in your telephone directory under United States Government/Department of Labor.

APPENDIX C TO § 1926.02—MEDICAL SURVEILLANCE GUIDELINES

Introduction

The primary purpose of the Occupational Safety and Health Act of 1970 is to assure, so far as possible, safe and healthful working conditions for every working man and woman. The interim final occupational health standard for lead in construction is designed to protect workers exposed to inorganic lead including metallic lead, all inorganic lead compounds and organic lead soaps.

Under this interim final standard occupational exposure to inorganic lead is to be limited to 50 µg/m³ (micrograms per cubic meter) based on an 8 hour time-weighted average (TWA). This permissible exposure limit (PEL) must be achieved through a combination of engineering, work practice and administrative controls to the extent feasible. Where these controls are in place but are found not to reduce employee exposures to or below the PEL, they must be used nonetheless, and supplemented with respirators to meet the 50 µg/m³ exposure limit.

The standard also provides for a program of biological monitoring for employees exposed to lead above the action level at any time, and additional medical surveillance for all employees exposed to levels of inorganic lead above 30 µg/m³ (TWA) for more than 30 days per year and whose BLL exceeds 40 µg/dl.

The purpose of this document is to outline the medical surveillance provisions of the interim standard for inorganic lead in construction, and to provide further information to the physician regarding the examination and evaluation of workers exposed to inorganic lead.

Section 1 provides a detailed description of the monitoring procedure including the required frequency of blood testing for exposed workers, provisions for medical removal protection (MRP), the recommended right of the employee to a second medical opinion, and notification and recordkeeping requirements of the employer. A discussion of the requirements for respirator use and respirator monitoring and OSHA's position on prophylactic chelation therapy are also included in this section.

Section 2 discusses the toxic effects and clinical manifestations of lead poisoning and effects of lead intoxication on enzymatic

pathways in heme synthesis. The adverse effects on both male and female reproductive capacity and on the fetus are also discussed.

Section 3 outlines the recommended medical evaluation of the worker exposed to inorganic lead, including details of the medical history, physical examination, and recommended laboratory tests, which are based on the toxic effects of lead as discussed in Section 2.

Section 4 provides detailed information concerning the laboratory tests available for the monitoring of exposed workers. Included also is a discussion of the relative value of each test and the limitations and precautions which are necessary in the interpretation of the laboratory results.

1. Medical Surveillance and Monitoring Requirements for Workers Exposed to Inorganic Lead

Under the interim final standard for inorganic lead in the construction industry, initial medical surveillance consisting of biological monitoring to include blood lead and ZPP level determination shall be provided to employees exposed to lead at or above the action level on any one day. In addition, a program of biological monitoring is to be made available to all employees exposed above the action level at any time and additional medical surveillance is to be made available to all employees exposed to lead above $30 \mu\text{g}/\text{m}^3$ TWA for more than 30 days each year and whose BLL exceeds $40 \mu\text{g}/\text{dl}$. This program consists of periodic blood sampling and medical evaluation to be performed on a schedule which is defined by previous laboratory results, worker complaints or concerns, and the clinical assessment of the examining physician.

Under this program, the blood lead level (BLL) of all employees who are exposed to lead above $30 \mu\text{g}/\text{m}^3$ for more than 30 days per year or whose blood lead is above $40 \mu\text{g}/\text{dl}$ but exposed for no more than 30 days per year is to be determined at least every two months for the first six months of exposure and every six months thereafter. The frequency is increased to every two months for employees whose last blood lead level was $40 \mu\text{g}/\text{dl}$ or above. For employees who are removed from exposure to lead due to an elevated blood lead, a new blood lead level must be measured monthly. A zinc protoporphyrin (ZPP) measurement is strongly recommended on each occasion that a blood lead level measurement is made.

An annual medical examination and consultation performed under the guidelines discussed in Section 3 is to be made available to each employee exposed above $30 \mu\text{g}/\text{m}^3$ for more than 30 days per year for whom a blood test conducted at any time during the preceding 12 months indicated a blood lead level at or above $40 \mu\text{g}/\text{dl}$. Also, an examination is to be given to all employees prior to their as-

signment to an area in which airborne lead concentrations reach or exceed the $30 \mu\text{g}/\text{m}^3$ for more than 30 days per year. In addition, a medical examination must be provided as soon as possible after notification by an employee that the employee has developed signs or symptoms commonly associated with lead intoxication, that the employee desires medical advice regarding lead exposure and the ability to procreate a healthy child, or that the employee has demonstrated difficulty in breathing during a respirator fitting test or during respirator use. An examination is also to be made available to each employee removed from exposure to lead due to a risk of sustaining material impairment to health, or otherwise limited or specially protected pursuant to medical recommendations.

Results of biological monitoring or the recommendations of an examining physician may necessitate removal of an employee from further lead exposure pursuant to the standard's medical removal protection (MRP) program. The object of the MRP program is to provide temporary medical removal to workers either with substantially elevated blood lead levels or otherwise at risk of sustaining material health impairment from continued substantial exposure to lead.

Under the standard's ultimate worker removal criteria, a worker is to be removed from any work having an eight hour TWA exposure to lead of $30 \mu\text{g}/\text{m}^3$ when his or her blood lead level reaches $50 \mu\text{g}/\text{dl}$ and is confirmed by a second follow-up blood lead level performed within two weeks after the employer receives the results of the first blood sampling test. Return of the employee to his or her job status depends on a worker's blood lead level declining to $40 \mu\text{g}/\text{dl}$.

As part of the interim standard, the employer is required to notify in writing each employee whose blood lead level exceeds $40 \mu\text{g}/\text{dl}$. In addition each such employee is to be informed that the standard requires medical removal with MRP benefits, discussed below, when an employee's blood lead level exceeds the above defined limit.

In addition to the above blood lead level criterion, temporary worker removal may also take place as a result of medical determinations and recommendations. Written medical opinions must be prepared after each examination pursuant to the standard. If the examining physician includes a medical finding, determination or opinion that the employee has a medical condition which places the employee at increased risk of material health impairment from exposure to lead, then the employee must be removed from exposure to lead at or above $30 \mu\text{g}/\text{m}^3$. Alternatively, if the examining physician recommends special protective measures for an employee (e.g., use of a powered air purifying respirator) or recommends limitations

on an employee's exposure to lead, then the employer must implement these recommendations.

Recommendations may be more stringent than the specific provisions of the standard. The examining physician, therefore, is given broad flexibility to tailor special protective procedures to the needs of individual employees. This flexibility extends to the evaluation and management of pregnant workers and male and female workers who are planning to raise children. Based on the history, physical examination, and laboratory studies, the physician might recommend special protective measures or medical removal for an employee who is pregnant or who is planning to conceive a child when, in the physician's judgment, continued exposure to lead at the current job would pose a significant risk. The return of the employee to his or her former job status, or the removal of special protections or limitations, depends upon the examining physician determining that the employee is no longer at increased risk of material impairment or that special measures are no longer needed.

During the period of any form of special protection or removal, the employer must maintain the worker's earnings, seniority, and other employment rights and benefits (as though the worker had not been removed) for a period of up to 18 months or for as long as the job the employee was removed from lasts if less than 18 months. This economic protection will maximize meaningful worker participation in the medical surveillance program, and is appropriate as part of the employer's overall obligation to provide a safe and healthful workplace. The provisions of MRF benefits during the employee's removal period may, however, be conditioned upon participation in medical surveillance.

The lead standard provides for a multiple physician review in cases where the employee wishes a second opinion concerning potential lead poisoning or toxicity. If an employee wishes a second opinion, he or she can make an appointment with a physician of his or her choice. This second physician will review the findings, recommendations or determinations of the first physician and conduct any examinations, consultations or tests deemed necessary in an attempt to make a final medical determination. If the first and second physicians do not agree in their assessment they must try to resolve their differences. If they cannot reach an agreement then they must designate a third physician to resolve the dispute.

The employer must provide examining and consulting physicians with the following specific information: A copy of the lead regulations and all appendices, a description of the employee's duties as related to exposure, the exposure level or anticipated level to lead and any other toxic substances (if applicable), a description of personal protective

equipment used, blood lead levels, and all prior written medical opinions regarding the employee in the employer's possession or control. The employer must also obtain from the physician and provide the employee with a written medical opinion containing blood lead levels, the physician's opinion as to whether the employee is at risk of material impairment to health, any recommended protective measures for the employee if further exposure is permitted, as well as any recommended limitations upon an employee's use of respirators.

Employers must instruct each physician not to reveal to the employer in writing or in any other way his or her findings, laboratory results, or diagnoses which are felt to be unrelated to occupational lead exposure. They must also instruct each physician to advise the employee of any occupationally or non-occupationally related medical condition requiring further treatment or evaluation.

The standard provides for the use of respirators where engineering and other primary controls are not effective. However, the use of respirator protection shall not be used in lieu of temporary medical removal due to elevated blood lead levels or findings that an employee is at risk of material health impairment. This is based on the numerous inadequacies of respirators including skin rash where the facepiece makes contact with the skin, unacceptable stress to breathing in some workers with underlying cardiopulmonary impairment, difficulty in providing adequate fit, the tendency for respirators to create additional hazards by interfering with vision, hearing, and mobility, and the difficulties of assuring the maximum effectiveness of a complicated work practice program involving respirators. Respirators do, however, serve a useful function where engineering and work practice controls are inadequate by providing supplementary, interim, or short-term protection, provided they are properly selected for the environment in which the employee will be working, properly fitted to the employee, maintained and cleaned periodically, and worn by the employee when required.

In its interim final standard on occupational exposure to inorganic lead in the construction industry, OSHA has prohibited prophylactic chelation. Diagnostic and therapeutic chelation are permitted only under the supervision of a licensed physician with appropriate medical monitoring in an acceptable clinical setting. The decision to initiate chelation therapy must be made on an individual basis and take into account the severity of symptoms felt to be a result of lead toxicity along with blood lead levels, ZPP levels, and other laboratory tests as appropriate. EDTA and penicillamine which are the primary chelating agents used in the therapy of occupational lead poisoning have

significant potential side effects and their use must be justified on the basis of expected benefits to the worker. Unless frank and severe symptoms are present, therapeutic chelation is not recommended, given the opportunity to remove a worker from exposure and allow the body to naturally excrete accumulated lead. As a diagnostic aid, the chelation mobilization test using CA-KDTA has limited applicability. According to some investigators, the test can differentiate between lead-induced and other nephropathies. The test may also provide an estimation of the mobile fraction of the total body lead burden.

Employers are required to assure that accurate records are maintained on exposure assessment, including environmental monitoring, medical surveillance, and medical removal for each employee. Exposure assessment records must be kept for at least 30 years. Medical surveillance records must be kept for the duration of employment plus 30 years except in cases where the employment was less than one year. If duration of employment is less than one year, the employer need not retain this record beyond the term of employment if the record is provided to the employee upon termination of employment. Medical removal records also must be maintained for the duration of employment. All records required under the standard must be made available upon request to the Assistant Secretary of Labor for Occupational Safety and Health and the Director of the National Institute for Occupational Safety and Health. Employers must also make environmental and biological monitoring and medical removal records available to affected employees and to former employees or their authorized employee representatives. Employees or their specifically designated representatives have access to their entire medical surveillance records.

In addition, the standard requires that the employer inform all workers exposed to lead at or above $30 \mu\text{g}/\text{m}^3$ of the provisions of the standard and all its appendices, the purpose and description of medical surveillance and provisions for medical removal protection if temporary removal is required. An understanding of the potential health effects of lead exposure by all exposed employees along with full understanding of their rights under the lead standard is essential for an effective monitoring program.

II. Adverse Health Effects of Inorganic Lead

Although the toxicity of lead has been known for 2,000 years, the knowledge of the complex relationship between lead exposure and human response is still being refined. Significant research into the toxic properties of lead continues throughout the world, and it should be anticipated that our understanding of thresholds of effects and

margins of safety will be improved in future years. The provisions of the lead standard are founded on two prime medical judgments: First, the prevention of adverse health effects from exposure to lead throughout a working lifetime requires that worker blood lead levels be maintained at or below $40 \mu\text{g}/\text{dl}$ and second, the blood lead levels of workers, male or female, who intend to parent in the near future should be maintained below $30 \mu\text{g}/\text{dl}$ to minimize adverse reproductive health effects to the parents and developing fetus. The adverse effects of lead on reproduction are being actively researched and OSHA encourages the physician to remain abreast of recent developments in the area to best advise pregnant workers or workers planning to conceive children.

The spectrum of health effects caused by lead exposure can be subdivided into five developmental stages: Normal, physiological changes of uncertain significance, pathophysiological changes, overt symptoms (morbidity), and mortality. Within this process there are no sharp distinctions, but rather a continuum of effects. Boundaries between categories overlap due to the wide variation of individual responses and exposures in the working population. OSHA's development of the lead standard focused on pathophysiological changes as well as later stages of disease.

1. **Heme Synthesis Inhibition.** The earliest demonstrated effect of lead involves its ability to inhibit at least two enzymes of the heme synthesis pathway at very low blood levels. Inhibition of delta aminolevulinic acid dehydrase (ALA-D) which catalyzes the conversion of delta-aminolevulinic acid (ALA) to protoporphyrin is observed at a blood lead level below $20 \mu\text{g}/\text{dl}$. At a blood lead level of $40 \mu\text{g}/\text{dl}$, more than 20% of the population would have 70% inhibition of ALA-D. There is an exponential increase in ALA excretion at blood lead levels greater than $40 \mu\text{g}/\text{dl}$.

Another enzyme, ferrochelatase, is also inhibited at low blood lead levels. Inhibition of ferrochelatase leads to increased free erythrocyte protoporphyrin (FEP) in the blood which can then bind to zinc to yield zinc protoporphyrin. At a blood lead level of $50 \mu\text{g}/\text{dl}$ or greater, nearly 100% of the population will have an increase in FEP. There is also an exponential relationship between blood lead levels greater than $40 \mu\text{g}/\text{dl}$ and the associated ZPP level, which has led to the development of the ZPP screening test for lead exposure.

While the significance of these effects is subject to debate, it is OSHA's position that these enzyme disturbances are early stages of a disease process which may eventually result in the clinical symptoms of lead poisoning. Whether or not the effects do progress to the later stages of clinical disease, disruption of these enzyme processes

over a working lifetime is considered to be a material impairment of health.

One of the eventual results of lead-induced inhibition of enzymes in the heme synthesis pathway is anemia which can be asymptomatic if mild but associated with a wide array of symptoms including dizziness, fatigue, and tachycardia when more severe. Studies have indicated that lead levels as low as 50 µg/dl can be associated with a definite decreased hemoglobin, although most cases of lead-induced anemia, as well as shortened red-cell survival times, occur at lead levels exceeding 80 µg/dl. Inhibited hemoglobin synthesis is more common in chronic cases whereas shortened erythrocyte life span is more common in acute cases.

In lead-induced anemias, there is usually a reticulocytosis along with the presence of basophilic stippling, and ringed sideroblasts, although none of the above are pathognomonic for lead-induced anemia.

2. Neurological Effects. Inorganic lead has been found to have toxic effects on both the central and peripheral nervous systems. The earliest stages of lead-induced central nervous system effects first manifest themselves in the form of behavioral disturbances and central nervous system symptoms including irritability, restlessness, insomnia and other sleep disturbances, fatigue, vertigo, headache, poor memory, tremor, depression, and apathy. With more severe exposure, symptoms can progress to drowsiness, stupor, hallucinations, delirium, convulsions and coma.

The most severe and acute form of lead poisoning which usually follows ingestion or inhalation of large amounts of lead is acute encephalopathy which may arise precipitously with the onset of intractable seizures, coma, cardiorespiratory arrest, and death within 48 hours.

While there is disagreement about what exposure levels are needed to produce the earliest symptoms, most experts agree that symptoms definitely can occur at blood lead levels of 60 µg/dl whole blood and therefore recommend a 40 µg/dl maximum. The central nervous system effects frequently are not reversible following discontinued exposure or chelation therapy and when improvement does occur, it is almost always only partial.

The peripheral neuropathy resulting from lead exposure characteristically involves only motor function with minimal sensory damage and has a marked predilection for the extensor muscles of the most active extremity. The peripheral neuropathy can occur with varying degrees of severity. The earliest and mildest form which can be detected in workers with blood lead levels as low as 50 µg/dl is manifested by slowing of motor nerve conduction velocity often without clinical symptoms. With progression of the neuropathy there is development of painless extensor muscle weakness usually involving the extensor muscles of the fingers

and hand in the most active upper extremity, followed in severe cases by wrist drop or, much less commonly, foot drop.

In addition to slowing of nerve conduction, electromyographical studies in patients with blood lead levels greater than 50 µg/dl have demonstrated a decrease in the number of acting motor unit potentials, an increase in the duration of motor unit potentials, and spontaneous pathological activity including fibrillations and fasciculations. Whether these effects occur at levels of 40 µg/dl is undetermined.

While the peripheral neuropathies can occasionally be reversed with therapy, again such recovery is not assured particularly in the more severe neuropathies and often improvement is only partial. The lack of reversibility is felt to be due in part to segmental demyelination.

3. Gastrointestinal. Lead may also affect the gastrointestinal system producing abdominal colic or diffuse abdominal pain, constipation, obstipation, diarrhea, anorexia, nausea and vomiting. Lead colic rarely develops at blood lead levels below 80 µg/dl.

4. Renal. Renal toxicity represents one of the most serious health effects of lead poisoning. In the early stages of disease nuclear inclusion bodies can frequently be identified in proximal renal tubular cells. Renal function remains normal and the changes in this stage are probably reversible. With more advanced disease there is progressive interstitial fibrosis and impaired renal function. Eventually extensive interstitial fibrosis ensues with sclerotic glomeruli and dilated and atrophied proximal tubules; all represent end stage kidney disease. Azotemia can be progressive, eventually resulting in frank uremia necessitating dialysis. There is occasionally associated hypertension and hyperuricemia with or without gout.

Early kidney disease is difficult to detect. The urinalysis is normal in early lead nephropathy and the blood urea nitrogen and serum creatinine increase only when two-thirds of kidney function is lost. Measurement of creatinine clearance can often detect earlier disease as can other methods of measurement of glomerular filtration rate. An abnormal Ca-EDTA mobilization test has been used to differentiate between lead-induced and other nephropathies, but this procedure is not widely accepted. A form of Fanconi syndrome with aminoaciduria, glycosuria, and hyperphosphaturia indicating severe injury to the proximal renal tubules is occasionally seen in children.

5. Reproductive effects. Exposure to lead can have serious effects on reproductive function in both males and females. In male workers exposed to lead there can be a decrease in sexual drive, impotence, decreased ability to produce healthy sperm, and sterility. Malformed sperm (teratospermia), decreased number of sperm (hypospermia), and

sperm with decreased motility (asthenospermia) can all occur. Teratospermia has been noted at mean blood lead levels of 33 $\mu\text{g}/\text{dl}$ and hypospermia and asthenospermia at 41 $\mu\text{g}/\text{dl}$. Furthermore, there appears to be a dose-response relationship for teratospermia in lead exposed workers.

Women exposed to lead may experience menstrual disturbances including dysmenorrhea, menorrhagia and amenorrhea. Following exposure to lead, women have a higher frequency of sterility, premature births, spontaneous miscarriages, and stillbirths.

Germ cells can be affected by lead and cause genetic damage in the egg or sperm cells before conception and result in failure to implant, miscarriage, stillbirth, or birth defects.

Infants of mothers with lead poisoning have a higher mortality during the first year and suffer from lowered birth weights, slower growth, and nervous system disorders.

Lead can pass through the placental barrier and lead levels in the mother's blood are comparable to concentrations of lead in the umbilical cord at birth. Transplacental passage becomes detectable at 12-14 weeks of gestation and increases until birth.

There is little direct data on damage to the fetus from exposure to lead but it is generally assumed that the fetus and newborn would be at least as susceptible to neurological damage as young children. Blood lead levels of 50-60 $\mu\text{g}/\text{dl}$ in children can cause significant neurobehavioral impairments and there is evidence of hyperactivity at blood levels as low as 25 $\mu\text{g}/\text{dl}$. Given the overall body of literature concerning the adverse health effects of lead in children, OSHA feels that the blood lead level in children should be maintained below 30 $\mu\text{g}/\text{dl}$ with a population mean of 15 $\mu\text{g}/\text{dl}$. Blood lead levels in the fetus and newborn likewise should not exceed 30 $\mu\text{g}/\text{dl}$.

Because of lead's ability to pass through the placental barrier and also because of the demonstrated adverse effects of lead on reproductive function in both the male and female as well as the risk of genetic damage of lead on both the ovum and sperm, OSHA recommends a 30 $\mu\text{g}/\text{dl}$ maximum permissible blood lead level in both males and females who wish to bear children.

6. Other toxic effects. Debate and research continue on the effects of lead on the human body. Hypertension has frequently been noted in occupationally exposed individuals although it is difficult to assess whether this is due to lead's adverse effects on the kidney or if some other mechanism is involved. Vascular and electrocardiographic changes have been detected but have not been well characterized. Lead is thought to impair thyroid function and interfere with the pituitary-ad-

renal axis, but again these effects have not been well defined.

III. Medical Evaluation

The most important principle in evaluating a worker for any occupational disease including lead poisoning is a high index of suspicion on the part of the examining physician. As discussed in Section 2, lead can affect numerous organ systems and produce a wide array of signs and symptoms, most of which are non-specific and subtle in nature at least in the early stages of disease. Unless serious concern for lead toxicity is present, many of the early clues to diagnosis may easily be overlooked.

The crucial initial step in the medical evaluation is recognizing that a worker's employment can result in exposure to lead. The worker will frequently be able to define exposures to lead and lead containing materials but often will not volunteer this information unless specifically asked. In other situations the worker may not know of any exposures to lead but the suspicion might be raised on the part of the physician because of the industry or occupation of the worker. Potential occupational exposure to lead and its compounds occur in many occupations in the construction industry, including demolition and salvaging operations, removal or encapsulation of materials containing lead, construction, alteration, repair or renovation of structures containing lead, transportation, disposal, storage or containment of lead or lead-containing materials on construction sites, and maintenance operations associated with construction activities.

Once the possibility for lead exposure is raised, the focus can then be directed toward eliciting information from the medical history, physical exam, and finally from laboratory data to evaluate the worker for potential lead toxicity.

A complete and detailed work history is important in the initial evaluation. A listing of all previous employment with information on job description, exposure to fumes or dust, known exposures to lead or other toxic substances, a description of any personal protective equipment used, and previous medical surveillance should all be included in the worker's record. Where exposure to lead is suspected, information concerning on-the-job personal hygiene, smoking or eating habits in work areas, laundry procedures, and use of any protective clothing or respiratory protection equipment should be noted. A complete work history is essential in the medical evaluation of a worker with suspected lead toxicity, especially when long term effects such as neurotoxicity and nephrotoxicity are considered.

The medical history is also of fundamental importance and should include a listing of all past and current medical conditions, current medications including proprietary drug

intake, previous surgeries and hospitalizations, allergies, smoking history, alcohol consumption, and also non-occupational lead exposures such as hobbies (hunting, riflery). Also known childhood exposures should be elicited. Any previous history of hematological, neurological, gastrointestinal, renal, psychological, gynecological, genetic, or reproductive problems should be specifically noted.

A careful and complete review of systems must be performed to assess both recognized complaints and subtle or slowly acquired symptoms which the worker might not appreciate as being significant. The review of symptoms should include the following:

1. General—weight loss, fatigue, decreased appetite.
2. Head, Eyes, Ears, Nose, Throat (HEENT)—headaches, visual disturbances or decreased visual acuity, hearing deficits or tinnitus, pigmentation of the oral mucosa, or metallic taste in mouth.
3. Cardio-pulmonary—shortness of breath, cough, chest pains, palpitations, or orthopnea.
4. Gastrointestinal—nausea, vomiting, heartburn, abdominal pain, constipation or diarrhea.
5. Neurologic—irritability, insomnia, weakness (fatigue), dizziness, loss of memory, confusion, hallucinations, incoordination, ataxia, decreased strength in hands or feet, disturbances in gait, difficulty in climbing stairs, or seizures.
6. Hematologic—pallor, easy fatigability, abnormal blood loss, melena.
7. Reproductive (male and female and spouse where relevant)—history of infertility, impotence, loss of libido, abnormal menstrual periods, history of miscarriages, stillbirths, or children with birth defects.
8. Musculo-skeletal—muscle and joint pains.

The physical examination should emphasize the neurological, gastrointestinal, and cardiovascular systems. The worker's weight and blood pressure should be recorded and the oral mucosa checked for pigmentation characteristic of a possible Burtonian or lead line on the gingiva. It should be noted, however, that the lead line may not be present even in severe lead poisoning if good oral hygiene is practiced.

The presence of pallor on skin examination may indicate an anemia which, if severe, might also be associated with a tachycardia. If an anemia is suspected, an active search for blood loss should be undertaken including potential blood loss through the gastrointestinal tract.

A complete neurological examination should include an adequate mental status evaluation including a search for behavioral and psychological disturbances, memory testing, evaluation for irritability, insomnia, hallucinations, and mental clouding. Gait

and coordination should be examined along with close observation for tremor. A detailed evaluation of peripheral nerve function including careful sensory and motor function testing is warranted. Strength testing particularly of extensor muscle groups of all extremities is of fundamental importance.

Cranial nerve evaluation should also be included in the routine examination.

The abdominal examination should include auscultation for bowel sounds and abdominal bruits and palpation for organomegaly, masses, and diffuse abdominal tenderness.

Cardiovascular examination should evaluate possible early signs of congestive heart failure. Pulmonary status should be addressed particularly if respirator protection is contemplated.

As part of the medical evaluation, the interim lead standard requires the following laboratory studies:

1. Blood lead level
2. Hemoglobin and hematocrit determinations, red cell indices, and examination of the peripheral blood smear to evaluate red blood cell morphology
3. Blood urea nitrogen
4. Serum creatinine
5. Routine urinalysis with microscopic examination.
6. A zinc protoporphyrin level.

In addition to the above, the physician is authorized to order any further laboratory or other tests which he or she deems necessary in accordance with sound medical practice. The evaluation must also include pregnancy testing or laboratory evaluation of male fertility if requested by the employee. Additional tests which are probably not warranted on a routine basis but may be appropriate when blood lead and ZPP levels are equivocal include delta aminolevulinic acid and coproporphyrin concentrations in the urine, and dark-field illumination for detection of basophilic stippling in red blood cells.

If an anemia is detected further studies including a careful examination of the peripheral smear, reticulocyte count, stool for occult blood, serum iron, total iron binding capacity, bilirubin, and, if appropriate, vitamin B12 and folate may be of value in attempting to identify the cause of the anemia.

If a peripheral neuropathy is suspected, nerve conduction studies are warranted both for diagnosis and as a basis to monitor any therapy.

If renal disease is questioned, a 24 hour urine collection for creatinine clearance, protein, and electrolytes may be indicated. Elevated uric acid levels may result from lead-induced renal disease and a serum uric acid level might be performed.

An electrocardiogram and chest x-ray may be obtained as deemed appropriate.

Sophisticated and highly specialized testing should not be done routinely and where indicated should be under the direction of a specialist.

IV. Laboratory Evaluation

The blood lead level at present remains the single most important test to monitor lead exposure and is the test used in the medical surveillance program under the lead standard to guide employee medical removal. The ZPP has several advantages over the blood lead level. Because of its relatively recent development and the lack of extensive data concerning its interpretation, the ZPP currently remains an ancillary test.

This section will discuss the blood lead level and ZPP in detail and will outline their relative advantages and disadvantages. Other blood tests currently available to evaluate lead exposure will also be reviewed.

The blood lead level is a good index of current or recent lead absorption when there is no anemia present and when the worker has not taken any chelating agents. However, blood lead levels along with urinary lead levels do not necessarily indicate the total body burden of lead and are not adequate measures of past exposure. One reason for this is that lead has a high affinity for bone and up to 90% of the body's total lead is deposited there. A very important component of the total lead body burden is lead in soft tissue (liver, kidney, and brain). This fraction of the lead body burden, the biologically active lead, is not entirely reflected by blood lead levels since it is a function of the dynamics of lead absorption, distribution, deposition in bone and excretion. Following discontinuation of exposure to lead, the excess body burden is only slowly mobilized from bone and other relatively stable body stores and excreted. Consequently, a high blood lead level may only represent recent heavy exposure to lead without a significant total body excess and likewise a low blood lead level does not exclude an elevated total body burden of lead.

Also due to its correlation with recent exposures, the blood lead level may vary considerably over short time intervals.

To minimize laboratory error and erroneous results due to contamination, blood specimens must be carefully collected after thorough cleaning of the skin with appropriate methods using lead-free blood containers and analyzed by a reliable laboratory. Under the standard, samples must be analyzed in laboratories which are approved by OSHA. Analysis is to be made using atomic absorption spectrophotometry, anodic stripping voltammetry or any method which meets the accuracy requirements set forth by the standard.

The determination of lead in urine is generally considered a less reliable monitoring technique than analysis of whole blood pri-

marily due to individual variability in urinary excretion capacity as well as the technical difficulty of obtaining accurate 24 hour urine collections. In addition, workers with renal insufficiency, whether due to lead or some other cause, may have decreased lead clearance and consequently urine lead levels may underestimate the true lead burden. Therefore, urine lead levels should not be used as a routine test.

The zinc protoporphyrin test, unlike the blood lead determination, measures an adverse metabolic effect of lead and as such is a better indicator of lead toxicity than the level of blood lead itself. The level of ZPP reflects lead absorption over the preceding 3 to 4 months, and therefore is a better indicator of lead body burden. The ZPP requires more time than the blood lead to read significantly elevated levels; the return to normal after discontinuing lead exposure is also slower. Furthermore, the ZPP test is simpler, faster, and less expensive to perform and no contamination is possible. Many investigators believe it is the most reliable means of monitoring chronic lead absorption.

Zinc protoporphyrin results from the inhibition of the enzyme ferrochelatase which catalyzes the insertion of an iron molecule into the protoporphyrin molecule, which then becomes heme. If iron is not inserted into the molecule then zinc, having a greater affinity for protoporphyrin, takes the place of the iron, forming ZPP.

An elevation in the level of circulating ZPP may occur at blood lead levels as low as 20-30 $\mu\text{g}/\text{dl}$ in some workers. Once the blood lead level has reached 40 $\mu\text{g}/\text{dl}$ there is more marked rise in the ZPP value from its normal range of less than 100 $\mu\text{g}/\text{dl}$ to 100 $\mu\text{g}/\text{dl}$. Increases in blood lead levels beyond 40 $\mu\text{g}/\text{dl}$ are associated with exponential increases in ZPP.

Whereas blood lead levels fluctuate over short time spans, ZPP levels remain relatively stable. ZPP is measured directly in red blood cells and is present for the cell's entire 120 day life-span. Therefore, the ZPP level in blood reflects the average ZPP production over the previous 3-4 months and consequently the average lead exposure during that time interval.

It is recommended that a hematocrit be determined whenever a confirmed ZPP of 50 $\mu\text{g}/\text{dl}$ whole blood is obtained to rule out a significant underlying anemia. If the ZPP is in excess of 100 $\mu\text{g}/\text{dl}$ and not associated with abnormal elevations in blood lead levels, the laboratory should be checked to be sure that blood leads were determined using atomic absorption spectrophotometry anodic stripping voltammetry, or any method which meets the accuracy requirements set forth by the standard by an OSHA approved laboratory which is experienced in lead level determinations. Repeat periodic blood lead

studies should be obtained in all individuals with elevated ZPP levels to be certain that an associated elevated blood lead level has not been missed due to transient fluctuations in blood leads.

ZPP has a characteristic fluorescence spectrum with a peak at 594 nm which is detectable with a hematofluorimeter. The hematofluorimeter is accurate and portable and can provide on-site, instantaneous results for workers who can be frequently tested via a finger prick.

However, careful attention must be given to calibration and quality control procedures. Limited data on blood lead-ZPP correlations and the ZPP levels which are associated with the adverse health effects discussed in Section 2 are the major limitations of the test. Also it is difficult to correlate ZPP levels with environmental exposure and there is some variation of response with age and sex. Nevertheless, the ZPP promises to be an important diagnostic test for the early detection of lead toxicity and its value will increase as more data is collected regarding its relationship to other manifestations of lead poisoning.

Levels of delta-aminolevulinic acid (ALA) in the urine are also used as a measure of lead exposure. Increasing concentrations of ALA are believed to result from the inhibition of the enzyme delta-aminolevulinic acid dehydratase (ALA-D). Although the test is relatively easy to perform, inexpensive, and rapid, the disadvantages include variability in results, the necessity to collect a complete 24 hour urine sample which has a specific gravity greater than 1.010, and also the fact that ALA decomposes in the presence of light.

The pattern of porphyrin excretion in the urine can also be helpful in identifying lead intoxication. With lead poisoning, the urine concentrations of coproporphyrins I and II, porphobilinogen and uroporphyrin I rise. The most important increase, however, is that of coproporphyrin III: levels may exceed 5,000 µg/l in the urine in lead poisoned individuals, but its correlation with blood lead levels and ZPP are not as good as those of ALA. Increases in urinary porphyrins are not diagnostic of lead toxicity and may be seen in porphyria, some liver diseases, and in patients with high reticulocyte counts.

Summary. The Occupational Safety and Health Administration's interim standard for inorganic lead in the construction industry places significant emphasis on the medical surveillance of all workers exposed to levels of inorganic lead above 30 µg/m³ TWA. The physician has a fundamental role in this surveillance program, and in the operation of the medical removal protection program.

Even with adequate worker education on the adverse health effects of lead and appropriate training in work practices, personal hygiene and other control measures, the

physician has a primary responsibility for evaluating potential lead toxicity in the worker. It is only through a careful and detailed medical and work history, a complete physical examination and appropriate laboratory testing that an accurate assessment can be made. Many of the adverse health effects of lead toxicity are either irreversible or only partially reversible and therefore early detection of disease is very important.

This document outlines the medical monitoring program as defined by the occupational safety and health standard for inorganic lead. It reviews the adverse health effects of lead poisoning and describes the important elements of the history and physical examinations as they relate to these adverse effects. Finally, the appropriate laboratory testing for evaluating lead exposure and toxicity is presented.

It is hoped that this review and discussion will give the physician a better understanding of the OSHA standard with the ultimate goal of protecting the health and well-being of the worker exposed to lead under his or her care.

[58 FR 28627, May 4, 1993, as amended at 58 FR 34218, June 24, 1993; 61 FR 5510, Feb. 13, 1996; 63 FR 1256, Jan. 8, 1998; 70 FR 1143, Jan. 5, 2005; 71 FR 10674, Apr. 3, 2006; 71 FR 50131, Aug. 24, 2006; 73 FR 75588, Dec. 12, 2008]

§ 1926.64 Process safety management of highly hazardous chemicals.

Purpose. This section contains requirements for preventing or minimizing the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals. These releases may result in toxic, fire or explosion hazards.

(a) Application. (1) This section applies to the following:

(i) A process which involves a chemical at or above the specified threshold quantities listed in Appendix A to this section;

(ii) A process which involves a flammable liquid or gas (as defined in § 1926.55(c) of this part) on site in one location, in a quantity of 10,000 pounds (4535.9 kg) or more except for:

(A) Hydrocarbon fuels used solely for workplace consumption as a fuel (e.g., propane used for comfort heating, gasoline for vehicle refueling), if such fuels are not a part of a process containing another highly hazardous chemical covered by this standard;

(B) Flammable liquids stored in atmospheric tanks or transferred which are kept below their normal boiling