CAL POLY HUMBOLDT

April 1, 2022

To All Prospective Bidders

SUBJECT: IFB #PW21-5, Canyon Residence Hall Fire Alarm Replacement, Project #XHS240

Addendum #3

The following changes, omissions and/or additions to the Bidding Documents shall apply to proposals made for and to the execution of the various parts of the work affected thereby and all other conditions shall remain the same. In case of conflict between Bidding Documents and this Addendum, this Addendum shall govern.

1. Bid Opening Date

Bid Due Date has not changed and remains Friday, April 8, 2022 at 3:00 p.m.

2. Exhibit E, Contract Special Conditions, Section 2, Hazardous Materials Abatement

Based on other similar fire alarm projects performed in this housing complex, the University has completed an asbestos survey to evaluate and test building materials we believe will be impacted for the presence of asbestos. This survey has been included here as well as the specifications for the project that cover contractor's responsibility when impacting these materials. See included attachments.

3. The following is provided in answer to a question posed by a potential bidder:

Question: Do the Fire alarm systems for Canyon Halls projects need Voice evacuation system and speakers "Alert" to evacuate the buildings in case of fire. This is in leu of traditional horns and strobes. Many Colleges have switched from traditional audibles to voice evacuation to give clear direction to the residence in case of emergencies.

Answer: This recommendation is acceptable and is the direction the University would prefer in this, as well as, future retrofits. Base bid shall include installation of a voice evacuation system, appropriate speakers/strobes with white "Alert" cover to evacuate the buildings in case of fire. Voice system will serve other future evaluation alerts. Install (1) Notifier NCA-2 network voice annunciator with LCD graphic display on fire alarm fiber network to provide speaker system voice operation to both buildings.

-END OF ADDENDUM-

Contracts & Procurement

Addie Dunaway

Digitally signed by Addie Dunaway
Date: 2022.04.01 15:02:06 -07'00'

Addie Dunaway
Procurement Specialist

Limited Asbestos Assessment Report

Canyon Complex, Maple and Hemlock Residence Halls – Fire System Upgrades

1 Harpst Street, Arcata, CA 95521

Cal Poly Humboldt

April 01, 2022

→ **The Power of Commitment**

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Author	Alex Crowe
Project manager	Scott Harris
Client name	Cal Poly Humboldt (Humboldt)
Project name	Canyon Complex, Maple and Hemlock, Fire System Upgrades Project
Document title	Limited Asbestos Assessment Report | Canyon Complex, Maple and Hemlock Residence Halls – Fire System Upgrades
Revision version	Final (Rev. 0)
Project number	12579661

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Status Code	Revision	Author	Reviewer		Approved for issue		
			Name	Signature	Name	Signature	Date
S4	0	Alex Crowe	Ashley Giesa		Scott Harris		4/1/2022

Executive Summary

On March 25, 2022, GHD Inc. (GHD) conducted a limited asbestos assessment on behalf of Cal Poly Humboldt (Humboldt) at the Humboldt Canyon Complex, Maple and Hemlock Residence Halls (herein “project site”) situated on the Humboldt campus located at 1 Harpst Street in Arcata, California. The survey included bulk sampling of suspect Asbestos Containing Material (ACM) in association with the Canyon Complex, Maple and Hemlock, Fire System Upgrades Project (herein “the project”).

The survey included assessment of suspect ACM distributed throughout the project site, specifically suspect ACM representative of the building materials to be impacted by the project renovation scope defined by Humboldt. GHD, under contract with Humboldt, collected 30 bulk samples of suspect ACM from the project site for this survey. Collected samples were analyzed for asbestos content by an accredited laboratory via polarized light microscopy (PLM) in accordance with USEPA method 600/R-93-116. The project site and location of bulk samples collected for the survey are depicted on the Project Site Sample Location Map (Figure 1) located in Appendix A.

As discussed in Section 3, 14 of the 30 bulk samples collected for this survey were reported by the analyzing laboratory to contain asbestos via PLM. Six (6) of the 14 samples containing asbestos were further analyzed via Point Count 400 (PC400) methodology, to more precisely define the amount of asbestos within the materials. The 14 samples reported to contain asbestos represent six (6) discrete homogeneous areas of material as listed in Table 3.1. Photographs of the project site, including select asbestos materials identified therein, are located in Appendix B.

A tabulated summary of all PLM and PC400 laboratory data associated with the survey is provided in Table C1.1 located in Appendix C. The laboratory analytical reports associated with this survey are located in Appendix D. A summary of applicable governmental asbestos regulations is provided in Appendix E.

This report is subject to, and must be read in conjunction with, the limitations set out in section 2.1 and the assumptions and qualifications contained throughout the report.

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Appendices

1. Introduction

GHD Inc. (GHD) is pleased to provide Cal Poly Humboldt (Humboldt) with the following Limited Asbestos Assessment Report (herein “the report”) detailing the findings of the assessment survey conducted by GHD on March 25, 2022, (herein “the survey”) at the Humboldt Canyon Complex, specifically the walls and ceilings of common areas within the Maple and Hemlock Residence Halls (herein “project site”). The project site is situated on the Humboldt campus located at 1 Harpst Street in Arcata, California. The survey was conducted in association with the planned Canyon Complex, Maple and Hemlock, Fire System Upgrades Project (herein “the project”).

GHD performed the survey at the request of, and on behalf of Humboldt to evaluate specific project site areas and building materials for the presence of asbestos. The purpose of the report is to transmit to Humboldt the findings and conclusions resultant from the survey.

The services undertaken by GHD in connection with preparing the report were limited as defined herein and are subject to the assumptions set out in the report and associated contracting documents. The following subsections provide pertinent contextual information regarding the survey, the project, and the project site.

1.1 Client

The survey was conducted by GHD under contract with Humboldt, the owner of the project site. Humboldt shall herein be defined as the client for this report. The project-specific client information is as follows:

Cal Poly Humboldt – Facilities Management
1 Harpst Street
Arcata, California, 95521
Client Representative: Bruce Ryan, Project Manager

1.2 Project Site

The project site shall be defined as the interior areas of the Maple and Hemlock Residence Halls where renovation work is planned to occur as described by Humboldt in association with the Canyon Complex, Maple and Hemlock, Fire System Upgrades Project. The project site is located at the following street address:

Cal Poly Humboldt
Canyon Complex – Maple and Hemlock Residence Halls
1 Harpst Street
Arcata, California, 95521

For this survey, samples were collected from Maple and Hemlock Residence Halls at the interior corridors and common areas at locations where Humboldt plans to install the fire system upgrades. The location of project work as described herein shall collectively define the project site as shown on Figure 1 (Appendix A). The project site is located at the northwest portion of the Humboldt campus at the above street address. The individual structures which comprise the project site are listed in the following table (Table 1.1)

Table 1.1 Project Site Building List

Building #	Building Name	Building #	Building Name
065	Maple Hall – Interior Corridors and Kitchen	067	Hemlock Hall – Interior Corridors and Kitchen

1.2.1 Project Site Existing Conditions

The project site consists of two (2) multi-level residence halls The buildings are generally supported by concrete and/or steel structural members and constructed on concrete slab foundations. Interior wall and ceiling systems generally consist of drywall and joint compound installed over wood framing. Fiberglass batt insulation is present behind select walls and above hard lid ceilings.

This report includes the following information about the specific structure(s) and building features surveyed in association with this survey, which shall further define the project site:

1. Approximate locations of general site features and bulk samples collected by GHD are shown on Figure 1 (Appendix A). The extent and distribution of sample points shown on Figure 1 shall define the survey boundary.
2. Photographs depicting the project site and specific sample points are located in Appendix B.
3. Descriptions of the specific building materials included in the survey are listed in Section 3, Table C1.1 (Appendix C), and the laboratory analytical reports (Appendix D).

1.3 Project Understanding

Humboldt intends to install new fire alarms and associated conduit within the common areas throughout the project site. Existing ceiling and wall systems will be drilled to facilitate mounting of electrical conduit and fastener anchors associated with the new alarms. In support of Humboldt's compliance with United States Environmental Protection Agency (USEPA) National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations, GHD, under contract with and on behalf of Humboldt, collected samples of suspect Asbestos Containing Material (ACM) associated with the interior areas of the project site to be impacted by planned renovation work.

2. Survey Description

The survey was conducted to support Humboldt in their compliance with USEPA and Cal/OSHA regulations governing asbestos, as applicable to the project and project site. A general summary of the regulatory context governing the survey is provided in Section 2.2.

For this survey, the following number of bulk samples were collected from the project site and submitted under chain of custody to EMSL Laboratories (EMSL) for analysis via the referenced methodology:

1. A total of 30 bulk material samples (numbers 12579661-1 through 30) were analyzed for asbestos content via polarized light microscopy (PLM) methodology following USEPA method 600/R-93-116.
    a. Six (6) bulk samples (sample numbers: 12579661-7, 12, 17, 21, 23, 27), reported to contain two percent (2%) asbestos via PLM methodology, were subsequently quantified via Point Count 400 (PC400) procedure following USEPA 600/R-93-116 method to precisely define the asbestos content of the materials.

See Figure 1 located in Appendix A for the approximate sample locations. Photographs of the project site generally depicting the homogeneous areas of asbestos material identified during this survey are located in Appendix B. A tabulated summary of all PLM and PC400 analytical data is provided in Appendix C. The survey laboratory analytical reports and chain of custody documentation describe the materials sampled at the project site and are located in Appendix D.

2.1 Survey Scope and Limitations

The survey scope of work associated with this report was limited to the project site areas shown on Figure 1 (Appendix A) and the suspect hazardous materials described herein. The survey included the safely accessible areas of the project site listed in Section 1.2 and shown on Figure 1 (Appendix A).

Some areas and components associated with the project site were not sampled for the survey, as such areas/materials are not expected to be impacted per the project scope. Areas not surveyed by GHD (areas not in scope and/or not specifically defined in this report) are excluded from the definition of the project site. The areas and materials excluded from the scope of the survey included the following (areas and/or components not surveyed):

1. Flooring throughout project site
2. Exterior areas not specifically defined herein, such as exterior walls, roofs, porticos, walkways, ramps, patios, parking areas, soil and/or naturally-occurring aggregate
3. Materials not to be disturbed during the project, located outside the project scope, such as plumbing and HVAC systems, or associated with modular components which may be moved intact, such as furniture, doors, and equipment
4. Suspect materials located within permit-required confined spaces, or otherwise inaccessible including material located within sealed interstitial spaces, crawlspaces, or buried underground
5. Pressurized and/or energized systems, including: plumbing, wiring, interior of mechanical units and machinery
6. Any other areas and/or components not specifically defined herein or listed on the laboratory analytical reports

2.1.1 Survey and Reporting Assumptions

The content of the report is based on assumptions made by GHD as described in this report and associated contracting documents. This report is an instrument of service of GHD. It is GHD's understanding that the report is to be used by Humboldt specifically in connection with the project and project site, and this stated purpose was a significant factor in determining the survey scope and level of service provided for in the contracting documents. Should the project or the report purpose change, this report immediately ceases to be valid and use of it by Humboldt, or any other party without GHD's prior review and written authorization, shall be at the user's sole risk.

GHD has endeavored to conduct the services identified herein in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions as this project. No other representation, express or implied, is included or intended in this document. The scope of service GHD implemented was based, in part, on rules and regulations that GHD understood to be current or expected at the time GHD developed its proposal. Changes in regulations, interpretations, and/or enforcement policies may occur at any time and such changes could affect the extent of remediation required.

The report's findings are based on conditions that existed on the date(s) of GHD's site visit(s) and should not be relied upon to precisely represent conditions at any other time. Conclusions about site conditions under no circumstances comprise a warranty that conditions in all areas within the site are of the same quality as those sampled. Recognize, too, that hazardous materials and/or contamination might exist in forms not indicated by the limited assessment described herein.

Samples of soil or naturally occurring rock were not collected for this survey. Based on California Department of Conservation Division of Mines and Geology data[1], rock and/or soils associated with Naturally Occurring Asbestos (NOA) are known to be present in the project site region. Regulations governing NOA, including those enforced by the California Air Resources Board (CARB), may apply to the project subject to the site-specific occurrence and/or

[1] State of California Department of Conservation Division of Mines and Geology, *A General Location guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos* (August 2000), accessed on February 1, 2022 via: https://ww3.arb.ca.gov/toxics/asbestos/ofr_2000-019.pdf

disturbance of NOA. The site-specific existence of NOA must be defined by a Professional Geologist using sampling and analysis methods compliant with the Test Method 435 (CARB 435) methodology per 17 CCR 94147.

2.2 Survey Regulatory Setting

This section provides a regulatory context for the survey and generally summarizes the asbestos regulatory setting applicable to the project site. Further information is provided in Appendix E.

The USEPA enforces asbestos regulations authorized under the Clean Air Act and specifies work practices to be followed at facilities to mitigate asbestos air pollution. To mitigate airborne asbestos fiber release, a survey must be conducted at facilities prior to renovation and/or demolition work to identify and sample suspect asbestos materials[2] in compliance with the USEPA National Emissions Standards for Hazardous Air Pollutants (NESHAP) regulations, per Title 40 Code of Federal Regulations (CFR) Section 61, Subparts A and M. Materials reported to contain greater than one percent (1%) asbestos by weight are regulated by the USEPA as either Asbestos Containing Material (ACM) or Regulated Asbestos Containing Material (RACM) based on each material's distinctive physical characteristics, specifically a material's friability. Materials containing less than 1% asbestos as determined using an approved analytical method are not subject to USEPA asbestos regulations.

Asbestos is a known human carcinogen, thus worker exposure to asbestos is regulated by Cal/OSHA. Employee protection protocols per Title 8 California Code of Regulations (CCR) Sections 1529 (8CCR1529) apply to disturbance of material containing asbestos in any detectable concentration. Per Cal/OSHA, material containing greater than 1% asbestos is defined as Asbestos Containing Material (ACM), while Asbestos Containing Construction Material (ACCM) refers to material containing greater than 0.1% asbestos. Cal/OSHA requires that specific types of suspect asbestos materials located in buildings constructed no later than 1980 must be presumed to contain asbestos, unless sampled and proven to be otherwise. Presumed Asbestos Containing Material (PACM) includes thermal system insulation[3] (TSI) and surfacing materials[4]. Work conducted by an employee impacting ACM, ACCM, or PACM is regulated by Cal/OSHA according to the specific material(s) to be disturbed and the size of the job. Materials reported to be non-detect via laboratory analysis are not subject to regulation by Cal/OSHA as ACM, ACCM, or PACM.

2.3 Survey Methodology

The following protocol generally describes the sampling methodology for the survey. Copies of the professional certifications for key GHD personnel, including survey field staff, are included in Appendix F. The following list summarizes the sampling procedures utilized:

1. Suspect asbestos materials were visually identified at the project site.
    a. Suspect ACM was categorized into homogeneous materials/areas. Note: for the purpose of this report, "homogeneous" defines visually similar materials that are uniform in texture, color, and date of installation/application.
2. A sampling scheme was developed based on the location and quantity of surface coatings and identified homogeneous materials/areas.
    a. Representative suspect ACM was identified and selected for sampling in general accordance with NESHAP sampling guidelines.

[2] Suspect asbestos material includes, but is not limited to, the following materials: mastics, caulking, base cove, Thermal System Insulation applied to pipes, boilers, or other components to prevent heat loss or gain; Surfacing Materials, including spray or troweled-on surface coatings and acoustic/decorative textures; cementitious products, including cement paneling/piping; roofing products, including associated mastics, felts, or coatings; resilient flooring; gaskets and lagging; drywall; joint compound; plasters; vibration cloths, or expansion joints.
[3] Thermal system insulation (TSI) is defined by 8 CCR 1529 as ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.
[4] Surfacing material is defined by 8 CCR 1529 as material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).

3. Bulk samples were collected using appropriate sampling tools. Samples were placed in leak-tight containers and labeled with a unique numerical identifier (sample number).
4. Decontamination of sampling tools was employed to prevent the spread of secondary contamination to subsequent bulk samples.
5. Friability, defined as the susceptibility of a dry material to be crumbled, pulverized or reduced to a powder using hand pressure, was determined for each sampled suspect ACM.
6. Multiple samples were taken of some homogeneous suspect ACM distributed throughout the project site, in general accordance with regulatory and industry standards.
7. The general location of each bulk sample was noted on a project site plan-view diagram.
8. The sample number, collection location and a description of the physical attributes of each bulk sample were recorded on a chain of custody form.
    a. The custody forms accompanied the sample set(s) to the analyzing laboratory.
9. Bulk samples were submitted under chain of custody via overnight shipment to EMSL Laboratories (EMSL), located in San Leandro, California, for analysis of asbestos content via PLM following USEPA method 600/R-93-116.
    a. Copies of the EMSL accreditations and certifications are located in Appendix G.

3. Findings for Asbestos

Of the suspect ACM samples collected for this survey, 14 of the 30 bulk samples were reported by the analyzing laboratory to contain asbestos. The 14 samples reported to contain asbestos via PLM analysis represent six (6) homogeneous areas of material. Six (6) of the samples reported to contain low levels of asbestos via PLM were subsequently analyzed via PC400 method to more precisely define the asbestos content in accordance with USEPA standards. The asbestos materials identified during the survey are described in Table 3.1 which begins on page 6.

Table 3.1 lists the physical description, approximate location, and reported asbestos content for the identified asbestos materials. In addition, the applicable Cal/OSHA asbestos work class, the Cal/OSHA or USEPA asbestos material category, and the anticipated waste designation for each material type are listed in Table 3.1. Materials that are homogeneous to (i.e., alike and may be represented by) those materials listed in Table 3.1 shall be presumed to contain asbestos.

Quantity estimates for the asbestos material identified at the project site are provided in Table 3.1. The quantities include the observed distribution of asbestos material calculated for the project scope of work as defined by Humboldt. The quantity estimates provided herein do not define any partial quantities potentially disturbed during project work impacting only discrete location(s) or limited amount(s) of material(s). The actual quantity of asbestos to be impacted in association with the project is undefined, as the amount of asbestos disturbance is dependent on developing project needs, abatement scoping, and contractor means/methods. Quantities shall be confirmed by bidding contractor(s) prior to bid submittal.

Materials that do not contain asbestos fibers above the laboratory detection limit are noted on the laboratory analytical reports (Appendix D) as non-detect (ND), or no asbestos detected (NAD). Materials reported to be ND or NAD are not listed in Table 3.1. A summary table, Table C1.1, listing all laboratory data for the samples collected by GHD for the survey, including ND/NAD data, is provided in Appendix C. The laboratory analytical reports associated with the survey are located in Appendix D.

Table 3.1 Asbestos Laboratory Data and Quantification Summary

Canyon Complex, Maple and Hemlock, Fire System Upgrades Project, Arcata, California

Sample Number(s)	Material Description	Material Location	Asbestos %/Type	Estimated Quantity	Asbestos Material Category[1]	Cal/OSHA Work Class[2]	Projected Waste Designation[3]
12579661-7, 9	Surface texture (white, knock down)	Maple – Interior wall and ceiling systems throughout	<1%-2% CH	8,000 SF	ACCM	Class II Recommended	Non-hazardous Asbestos Waste
12579661-10, 11, 12	Joint compound (white)	Maple – Interior wall and ceiling systems throughout associated with knock-down texture	<0.25% CH via PC400 (2% CH via PLM)	Included in 8,000 SF estimate (above)	ACCM	Class II Recommended	Non-hazardous Asbestos Waste
12579661-16, 17	Surface coating (white, smooth)	Hemlock – Interior wall and ceiling systems throughout kitchen, stairwell and at soffits	<0.25% CH via PC400 (2% CH via PLM)	3,000 SF	ACCM	Class II Recommended	Non-hazardous Asbestos Waste
12579661-19, 21	Joint compound (white)	Hemlock – Interior wall and ceiling systems throughout associated with smooth coated drywall	<0.25% CH via PC400 (2% CH via PLM)	Included in 3,000 SF estimate (above)	ACCM	Class II Recommended	Non-hazardous Asbestos Waste
12579661-23, 24	Surface texture (white, knock down)	Hemlock – Interior wall and ceiling systems throughout	<0.25% CH via PC400 (2% CH via PLM)	7,500 SF	ACCM	Class II Recommended	Non-hazardous Asbestos Waste
12579661-25, 26, 27	Joint compound (white)	Hemlock – Interior wall and ceiling systems throughout associated with knock-down texture	<0.25% CH via PC400 (2% CH via PLM)	Included in 7,500 SF estimate (above)	ACCM	Class II Recommended	Non-hazardous Asbestos Waste

Acronyms:

- ACM = Asbestos Containing Material (>1% asbestos)
- ACCM = Asbestos Containing Construction Material (>0.1% asbestos)
- Cal/OSHA = California Department of Industrial Relations, Division of Occupational Safety and Health
- CH = Chrysotile (serpentine form of asbestos)
- ND = Nondetect, or No Asbestos Detected
- NA = Not applicable
- PC400 = Point Count 400 analysis method
- PLM = Polarized Light Microscopy analysis method
- PACM = Presumed Asbestos Containing Material
- RACM = Regulated Asbestos Containing Material
- RCRA = Resource Conservation and Recovery Act
- SF = Square Feet
- USEPA = United States Environmental Protection Agency
- < = Symbol meaning “less than”
- > = Symbol meaning “greater than”

Table 3.1 Asbestos Laboratory Data and Quantification Summary

Canyon Complex, Maple and Hemlock, Fire System Upgrades Project, Arcata, California

Sample Number(s)	Material Description	Material Location	Asbestos %/Type	Estimated Quantity	Asbestos Material Category[1]	Cal/OSHA Work Class[2]	Projected Waste Designation[3]

Annotations:

- [1] = USEPA regulates material containing >1% asbestos, classified into two broad categories: friable (RACM) and nonfriable (Category I and II ACM).
- [2] = Cal/OSHA regulates material containing ANY quantity of asbestos. Cal/OSHA regulates material containing >0.1% asbestos as ACCM and >1% asbestos as ACM. Cal/OSHA differentiates asbestos removal operations into five classes (Class I to IV, plus unclassified work). Class I through IV operations include tasks impacting material containing >1% asbestos (ACM). Unclassified work includes tasks impacting material containing <1% asbestos. Work impacting asbestos in any quantity is subject to Cal/OSHA requirements.
    - It is recommended that unclassified work be conducted per Class II work protocols.
    - It is recommended that interior work, regardless of work classification, be conducted within sealed negative pressure containments.
- [3] = RACM is a California hazardous waste (non-RCRA hazardous waste). USEPA Category I and II nonfriable ACM that remains nonfriable during removal is characterized as non-hazardous asbestos-containing waste. The non-hazardous waste designation presumes that nonfriable material will not become friable due to contractor removal practices. If nonfriable ACM is rendered friable (e.g., via the use of mechanical removal means, fire damage, etc.), then such material shall be reclassified as RACM and disposed of as a California hazardous waste.

Notes:

- Work impacting material homogeneous (alike) to that noted in this table shall be understood to impact asbestos, regardless of location.
- See Appendix E for further information on the asbestos regulatory environment, including USEPA material categories and Cal/OSHA work classes.

4. Regulatory Jurisdiction and Notification

The project is subject to USEPA NESHAP regulations governing renovation and demolition work. The USEPA authority responsible for enforcing the NESHAP regulations in the project region is the North Coast Unified Air Quality Management District (NCUAQMD). The NCUAQMD requires that the project owner submit a notification form and associated fee to the NCUAQMD at least 10 business days prior to the commencement of a demolition project and/or work that impacts RACM in excess of certain quantity thresholds. Specifically, a NCUAQMD notification is required if a project includes one or more of the following:

1. The impaction of RACM in quantities greater than, or equal to 160 linear feet, 260 square feet, or 35 cubic feet
2. Work that meets the NESHAP definition of a "demolition," which is defined as the unweighting or removal of any structural members. Note: NCUAQMD notification and fee submittal is required for all demolition projects and is not dependent on the presence or absence of asbestos (ACM or RACM).

Contact information for the NCUAQMD is provided below:

North Coast Unified Air Quality Management District
707 L Street, Eureka, CA 95501
Phone: (707) 443-3093
Website: http://www.ncuaqmd.org

In addition to the NESHAP regulations, construction work at the project site is subject to employee protection regulations enforced by Cal/OSHA, including 8CCR1529, 8CCR1532.1, 5203 341.6-341.26 and the California Health and Safety Code. As required by 8CCR1529(r) and 5203, written notification must be made to the nearest Cal/OSHA district enforcement office with jurisdiction over the project site. Cal/OSHA notification shall be made at least 24 hours prior to the start of hazardous material-related work and is required if the project scope includes one or both of the following elements:

1. The impaction of ACM, ACCM and/or LBP in excess of 100 square feet

Table 4.1 (below) summarizes the NESHAP and Cal/OSHA notifications anticipated in association with the project. Further information on the USEPA and Cal/OSHA asbestos regulations is located in Appendix E.

Table 4.1 Pre-Work Regulatory Notifications

Agency	Notification Type	Anticipated Notification Requirement		Submittal Timeline
NCUAQMD	NESHAP Notification	Notification:	☐ Required	>10 Business Days Prior to Work Start
			☒ Not anticipated [1]	
Cal/OSHA	Temporary Worksite Notification	Notification:	☒ Required [2]	≥24 Hours Prior to Work Start
			☐ Not anticipated	

Notes:
- Cal/OSHA = California Department of Industrial Relations, Division of Occupational Safety and Health
- NESHAP = National Emissions Standards for Hazardous Air Pollutants
- NCUAQMD = Local USEPA-delegated authority with jurisdiction over the project site
- USEPA = United States Environmental Protection Agency
- [1] = Assumption: Removal/unweighting of structural members (demolition work) and/or disturbance of RACM in excess of NCUAQMD notification thresholds **is not** expected to occur during this project
- [2] = Assumption: asbestos work in excess of 100 square feet **is** expected to occur

5. Conclusion

The findings in this report are based on information obtained from the specific sample points noted on Figure 1 (Appendix A) and described by the laboratory analytical reports (Appendix D). Site conditions at other parts of the project site may be different from the conditions found at the specific sample points. This report should not be used to evaluate the potential disturbance of suspect hazardous materials in association with area(s), site feature(s), and/or projects beyond the scope of the survey.

GHD recommends that necessary asbestos material removal, if any, be conducted by a licensed abatement contractor prior to the commencement of other project work that may impact the hazardous materials described herein. It is recommended that this report be provided to contractors and/or personnel who conduct work at the project site. It is recommended that Humboldt maintain copies of this report for as long as the known hazardous materials remain at the project site, plus an additional period of 30 years.

5.1 Key Personnel

The survey was completed at the project site by Alex Crowe, a GHD Certified Site Surveillance Technician (#10-6761) working in collaboration with Scott Harris, a GHD Certified Asbestos Consultant (#11-4713). This report was produced for Humboldt by GHD and was authored by Mr. Crowe. This report was reviewed by Mr. Harris and Ashley Giesa, a GHD Certified Industrial Hygienist. Copies of the certifications for key GHD staff are included in Appendix F.

5.2 Conclusions and Recommendations for Asbestos

As discussed in Section 3, 14 of the 30 bulk samples collected at the project site were reported to contain asbestos via PLM. The 14 materials reported or presumed to contain asbestos represent six (6) homogeneous areas of material as listed in Table 3.1. Materials represented by samples reported to contain >1% asbestos are classified as ACM or RACM, depending on the physical characteristics of each material. Six (6) of the 14 samples were analyzed via Point Count 400 method and reported to contain <1% asbestos, thus are classified as ACCM.

A tabulated summary of all bulk samples analyzed via PLM and PC400 for this project is provided in Appendix C. As applicable to the project scope of work, the agency notifications summarized in Table 4.1 in Section 4, must be submitted by the contractor or Humboldt prior to the commencement of work at the project site.

If additional suspect ACM is discovered at the project site, beyond the materials included in this survey as listed in Table 3.1 (Section 3) and Table C1.1 (Appendix C), then such suspect material shall be presumed to be ACM (i.e., contain greater than 1% asbestos), unless appropriately sampled, analyzed, and reported not to contain asbestos. If supplemental suspect ACM is exposed during renovation or demolition, then work in that area shall stop, the suspect ACM wetted, and access to the area restricted until an appropriate characterization of the material can be made.

In general, demolition or renovation should not commence until the asbestos materials identified in this report have been properly removed and disposed of by a licensed abatement contractor. After the completion of abatement, it is recommended that a trained individual, such as a Cal/OSHA Asbestos Contractor Supervisor or Certified Asbestos Consultant, conduct a post-abatement inspection of the project site to confirm that the abatement scope has been completed and the area properly cleaned. If the project site interior is to be re-occupied by Humboldt, contractors, or other personnel after the conclusion of abatement, it is recommended that post-abatement air samples be collected and associated data meeting the established clearance criteria received, prior to allowing untrained or unprotected personnel back into the project site.

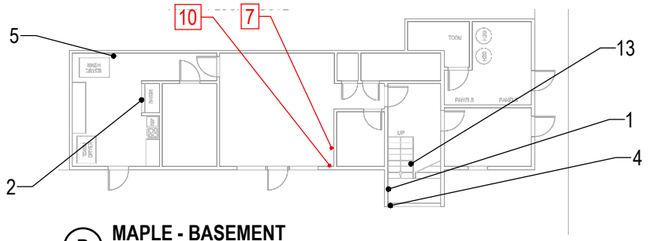
Work impacting asbestos materials, such as ACM/RACM (>1% asbestos) and ACCM (>0.1% asbestos), is subject to applicable asbestos regulations, including 8CCR1529. A summary of asbestos regulations is provided in Appendix E.

Appendices

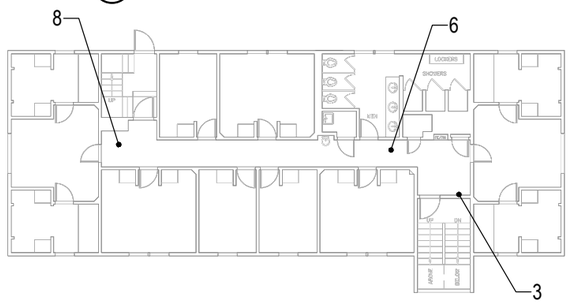
Appendix A

Figures

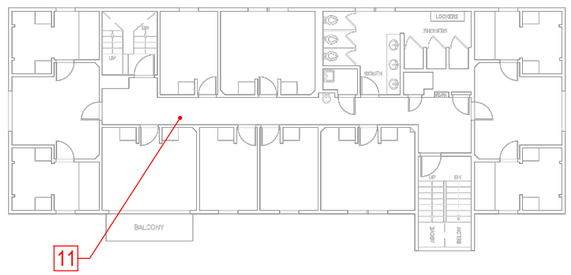
Figure(s) Depicting Survey Sample Locations at the Project Site



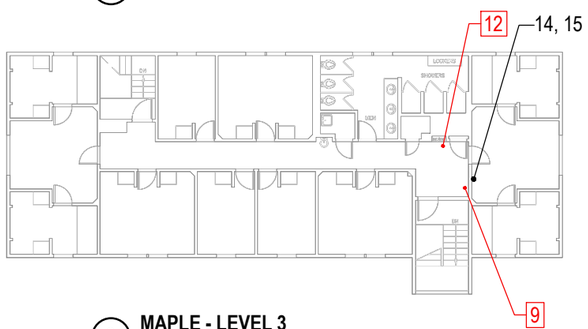
B **MAPLE - BASEMENT**



1 **MAPLE - LEVEL 1**



2 **MAPLE - LEVEL 2**

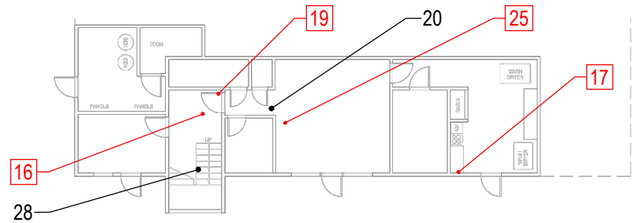


3 **MAPLE - LEVEL 3**

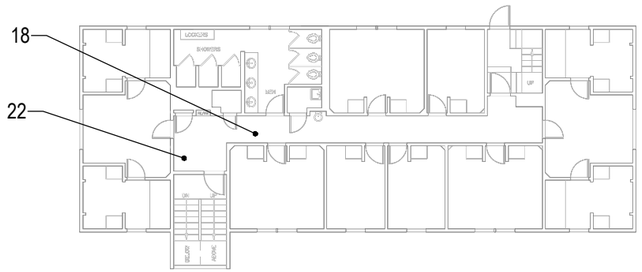
N

PROJECT

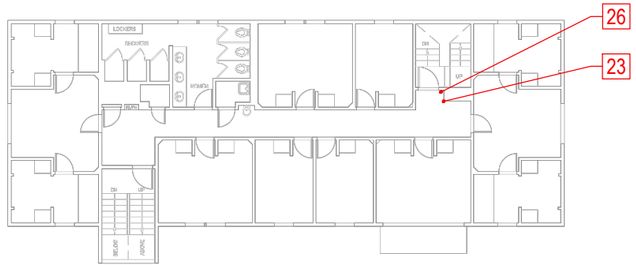
A | **MAPLE RESIDENCE HALL** | NOT TO SCALE



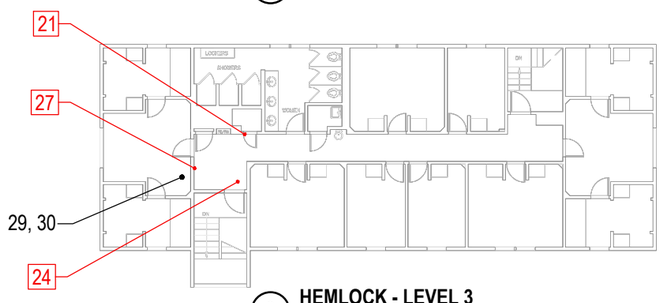
B **HEMLOCK - BASEMENT**



1 **HEMLOCK - LEVEL 1**



2 **HEMLOCK - LEVEL 2**



3 **HEMLOCK - LEVEL 3**

N

PROJECT

B | **HEMLOCK RESIDENCE HALL** | NOT TO SCALE

SHEET GENERAL NOTES

1. DRAWING IS NOT TO SCALE.
2. ALL LOCATIONS ARE APPROXIMATE.
3. THIS SHEET TRANSMITS GHD SAMPLE LOCATIONS ONLY. NOT TO BE USED FOR CONSTRUCTION WORK.

LEGEND

\# — LOCATION OF BULK SAMPLE COLLECTED FOR ASBESTOS (PLM) ANALYSIS

\# — SAMPLE REPORTED TO CONTAIN ASBESTOS

CPH CANYON COMPLEX - ARCATA, CALIFORNIA

N

GHD

CAL POLY HUMBOLDT
CANYON COMPLEX RESIDENCE HALLS

FIRE SYSTEM UPGRADES
LIMITED ASBESTOS ASSESSMENT
PROJECT SITE SAMPLE LOCATION MAP

Project No. **12579661**
Date **March 2022**

FIGURE_1

Filename: C:\Users\acrowe\Documents_Alex's Files_Projects_(NEW) HazMat Stuffs\2022 - Projects\HSU - Carn\acHSU_ACAD 2018\Figures\12579661-SLM-CPH Canyon - Fire Sys.dwg
Plot Date: 30 March 2022 2:20 PM

SURVEY DATE: 2022-03-25

Appendix B

Photographs

Photographs Generally Depicting the Project Site and Select Sample Locations

Site Photographs

The photographs presented in the following section generally depict the project site, including some of the materials sampled for the survey.

Photo 1 *Hemlock and Maple Residence Halls*

Photo 2 *Hemlock – Third Level Corridor – Drywall/joint compound wall and ceiling systems (indicated by arrow, typical for project site) reported to contain asbestos.*

Photo 3 *Hemlock – First Level Corridor – Drywall/joint compound wall and ceiling systems, including at soffit (indicated by arrow) reported to contain asbestos.*

Photo 4 *Maple – Third Level Corridor – Knock down surface texture (indicated by arrow, typical) associated with drywall wall and ceiling systems reported to contain asbestos.*

Photo 5 *Hemlock – Basement Crawlspace – Drywall/joint compound wall and ceiling systems (indicated by arrow) reported to contain asbestos.*

Photo 6 *Maple – Basement Crawlspace – Drywall/joint compound wall and ceiling systems (indicated by arrow) associated with knock down surface texture reported to contain asbestos.*

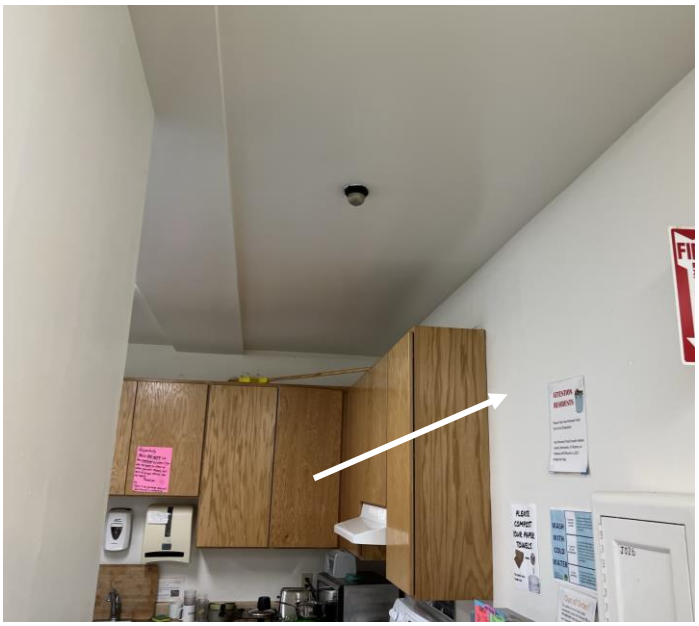


Photo 7 *Maple – Basement Kitchen Area – Drywall/joint compound wall and ceiling systems (indicated by arrow) associated with smooth surface coating reported to be nondetect for asbestos.*

Photo 8 *Maple – Third Leve Attic/Crawlspace – Blown-in insulation (white) and batt insulation (yellow) were both reported as nondetect for asbestos.*

Appendix C

Asbestos Data Summary Table

Table Summarizing All Asbestos Laboratory Analytical Data

Table C1.1 PLM and PC400 Laboratory Data Summary

Canyon Complex, Maple and Hemlock, Fire System Upgrades Project, Arcata, California

Sample Number(s)	Material Description	Material Location	Asbestos %/Type	Asbestos Material Category[1]	Cal/OSHA Work Class[2]	Projected Waste Designation[3]
12579661-1	Surface Coating (White, Smooth)	Maple - Basement west wall in east stairwell	ND	NA	NA	Not Asbestos Waste
12579661-2	Surface Coating (White, Smooth)	Maple - Basement ceiling in kitchen at northeast center	ND	NA	NA	Not Asbestos Waste
12579661-3	Surface Coating (White, Smooth)	Maple - Level 1 east wall at southeast	ND	NA	NA	Not Asbestos Waste
12579661-4	Drywall + Joint Compound (White)	Maple - Basement west wall under stairs in east stairwell associated with smooth surface coat	ND	NA	NA	Not Asbestos Waste
12579661-5	Drywall + Joint Compound (White)	Maple - Kitchen north wall at center associated with smooth surface coat	ND	NA	NA	Not Asbestos Waste
12579661-6	Drywall + Joint Compound (White)	Maple - Level 1 soffit at east center associated with smooth surface coat	ND	NA	NA	Not Asbestos Waste
12579661-7	**Surface Texture (White, Knock-down)**	**Maple - Basement east wall in lobby area at southeast corner**	**<0.25% CH via PC400 (2% CH via PLM)**	**ACCM**	**Class II Recommended**	**Non-hazardous asbestos waste**
12579661-8	Surface Texture (White, Knock-down)	Maple - Level 1 ceiling in corridor outside room 1150	ND	NA	NA	Not Asbestos Waste
12579661-9	**Surface Texture (White, Knock-down)**	**Maple - Level 3 ceiling at east wall at southeast center**	**<1% CH via PLM** (homogenous with sample 12579661-7)	**ACCM**	**Class II Recommended**	**Non-hazardous asbestos waste**
12579661-10	Drywall + **Joint Compound (White)**	**Maple - Basement east wall in lobby area at southeast corner associated with knock-down texture**	**2% CH via PLM** (homogenous with sample 12579661-12)	**ACCM**	**Class II Recommended**	**Non-hazardous asbestos waste**
12579661-11	Drywall + **Joint Compound (White)**	**Maple - Level 2 ceiling in corridor outside room 2250 associated with knock-down texture**	**2% CH via PLM** (homogenous with sample 12579661-12)	**ACCM**	**Class II Recommended**	**Non-hazardous asbestos waste**

Table C1.1 PLM and PC400 Laboratory Data Summary

Canyon Complex, Maple and Hemlock, Fire System Upgrades Project, Arcata, California

Sample Number(s)	Material Description	Material Location	Asbestos %/Type	Asbestos Material Category[1]	Cal/OSHA Work Class[2]	Projected Waste Designation[3]
12579661-12	Drywall + **Joint Compound (White)**	**Maple - Level 3 ceiling at northeast corner associated with knock-down texture**	**<0.25% CH via PC400 (2% CH via PLM)**	**ACCM**	**Class II Recommended**	**Non-hazardous asbestos waste**
12579661-13	Concrete (Grey/Brown)	Maple - East stairwell step at staircase between basement and level 1	ND	NA	NA	Not Asbestos Waste
12579661-14	Blown-in Insulation (White)	Maple - Attic space above level 3 at east access hatch, blown in between wood framing	ND	NA	NA	Not Asbestos Waste
12579661-15	Batt Insulation (Yellow) + Paper (Black)	Maple - Attic space above level 3 at east access hatch	ND	NA	NA	Not Asbestos Waste
12579661-16	**Surface Coating (White, Smooth)**	**Hemlock - Basement ceiling in west stairwell at north center**	**2% CH via PLM** (homogenous with sample 12579661-17)	**ACCM**	**Class II Recommended**	**Non-hazardous asbestos waste**
12579661-17	**Surface Coating (White, Smooth)**	**Hemlock - Basement ceiling in east kitchen at south wall southwest corner**	**<0.25% CH via PC400 (2% CH via PLM)**	**ACCM**	**Class II Recommended**	**Non-hazardous asbestos waste**
12579661-18	Surface Coating (White, Smooth)	Hemlock - Level 1 soffit in corridor outside room 1227	ND	NA	NA	Not Asbestos Waste
12579661-19	Drywall + **Joint Compound (White)**	**Hemlock - Basement ceiling above door to lobby associated with smooth surface coat**	**2% CH via PLM** (homogenous with sample 12579661-21)	**ACCM**	**Class II Recommended**	**Non-hazardous asbestos waste**
12579661-20	Drywall + Joint Compound (White)	Hemlock - Basement ceiling in lobby area at center-west wall associated with smooth surface coat	ND	NA	NA	Not Asbestos Waste
12579661-21	Drywall + **Joint Compound (White)**	**Hemlock -Level 3 ceiling in northwest janitor closet at southwest corner associated with smooth surface coat**	**<0.25% CH via PC400 (2% CH via PLM)**	**ACCM**	**Class II Recommended**	**Non-hazardous asbestos waste**
12579661-22	Surface Texture (White, Knock-down)	Hemlock - Level 1 ceiling in west corridor outside room 1214 at southwest corner	ND	NA	NA	Not Asbestos Waste

Table C1.1 PLM and PC400 Laboratory Data Summary

Canyon Complex, Maple and Hemlock, Fire System Upgrades Project, Arcata, California

Sample Number(s)	Material Description	Material Location	Asbestos %/Type	Asbestos Material Category[1]	Cal/OSHA Work Class[2]	Projected Waste Designation[3]
12579661-23	**Surface Texture (White, Knock-down)**	**Hemlock - Level 2 east wall at northeast corner by door to east stairwell**	**<0.25% CH via PC400 (2% CH via PLM)**	**ACCM**	**Class II Recommended**	**Non-hazardous asbestos waste**
12579661-24	**Surface Texture (White, Knock-down)**	**Hemlock - Level 3 ceiling in corridor at west center**	**2% CH via PLM** (homogenous with sample 12579661-23)	**ACCM**	**Class II Recommended**	**Non-hazardous asbestos waste**
12579661-25	Drywall + **Joint Compound (White)**	**Hemlock - Basement ceiling in lobby area at southeast corner associated with knock-down texture**	**2% CH via PLM** (homogenous with sample 12579661-27)	**ACCM**	**Class II Recommended**	**Non-hazardous asbestos waste**
12579661-26	Drywall + **Joint Compound (White)**	**Hemlock - Level 2 wall in corridor at door to northeast stairwell associated with knock-down texture**	**2% CH via PLM** (homogenous with sample 12579661-27	**ACCM**	**Class II Recommended**	**Non-hazardous asbestos waste**
12579661-27	Drywall + **Joint Compound (White)**	**Hemlock - Level 3 ceiling at northwest corner associated with knock-down texture**	**<0.25% CH via PC400 (2% CH via PLM)**	**ACCM**	**Class II Recommended**	**Non-hazardous asbestos waste**
12579661-28	Concrete (Grey/Brown)	Hemlock - West stairwell step at staircase between basement and level 1	ND	NA	NA	Not Asbestos Waste
12579661-29	Blown-in Insulation (White)	Hemlock - Attic space above level 3 at west access hatch, blown in between wood framing	ND	NA	NA	Not Asbestos Waste
12579661-30	Batt Insulation (Pink) + Paper (Brown/Black)	Hemlock - Attic space above level 3 at west access hatch	ND	NA	NA	Not Asbestos Waste

Acronyms:

- ACM = Asbestos Containing Material (>1% asbestos)
- ACCM = Asbestos Containing Construction Material (>0.1% asbestos)
- Cal/OSHA = California Department of Industrial Relations, Division of Occupational Safety and Health
- CH = Chrysotile (serpentine form of asbestos)
- ND = Nondetect, or No Asbestos Detected
- PC400 = Point Count 400 analysis method
- PLM = Polarized Light Microscopy analysis method
- PACM = Presumed Asbestos Containing Material
- RACM = Regulated Asbestos Containing Material
- RCRA = Resource Conservation and Recovery Act
- SF = Square Feet
- USEPA = United States Environmental Protection Agency
- < = Symbol meaning “less than”
- > = Symbol meaning “greater than”

Table C1.1 PLM and PC400 Laboratory Data Summary

Canyon Complex, Maple and Hemlock, Fire System Upgrades Project, Arcata, California

Sample Number(s)	Material Description	Material Location	Asbestos %/Type	Asbestos Material Category[1]	Cal/OSHA Work Class[2]	Projected Waste Designation[3]

Annotations:

- [1] = Cal/OSHA regulates material containing ANY quantity of asbestos. Cal/OSHA regulates material containing >0.1% asbestos as ACCM and >1% asbestos as ACM. USEPA regulates material containing >1% asbestos, differentiated into two broad ACM categories: friable (RACM) and nonfriable (Category I and II ACM).
- [2] = Cal/OSHA differentiates asbestos removal operations into five classes (Class I to IV, plus unclassified work). Class I through IV operations include tasks impacting material containing >1% asbestos (ACM). Unclassified work includes tasks impacting material containing <1% asbestos. Work impacting asbestos in any quantity is subject to Cal/OSHA requirements.
    - It is recommended that unclassified work be conducted per Class II work protocols.
    - It is recommended that interior work, regardless of work classification, be conducted within sealed negative pressure containments.
- [3] = RACM is a California hazardous waste (non-RCRA hazardous waste). USEPA Category I and II nonfriable ACM that remains nonfriable during removal is characterized as non-hazardous asbestos-containing waste. The non-hazardous waste designation presumes that nonfriable material will not become friable due to contractor removal practices. If nonfriable ACM is rendered friable (e.g., via the use of mechanical removal means, fire damage, etc.), then such material shall be reclassified as RACM and disposed of as a California hazardous waste.

Notes:

- See Appendix E for further information on the asbestos regulatory environment, including USEPA material categories and Cal/OSHA work classes.

Appendix D

Asbestos Analytical Data

PLM and PC400 Laboratory Analytical Reports and Associated Chain of Custody Documentation

EMSL Analytical, Inc.
464 McCormick Street San Leandro, CA 94577
Phone/Fax: (510) 895-3675 / (510) 895-3680
http://www.EMSL.com / sanleandrolab@emsl.com

EMSL Order:	092206114
Customer ID:	WKC50
Customer PO:	38005320
Project ID:	PO 38005320

Attention: Scott Harris
GHD
718 Third Street
Eureka, CA 95501

Phone:	(707) 599-6974
Fax:	(707) 444-8330
Received:	03/26/2022 9:00 AM
Analysis Date:	03/29/2022 - 03/31/2022
Collected:	03/25/2022

Project: 12579661.001 - CPH MAPLE/HEMLOCK FIRE SYSTEM UPGRADE - ARCATA, CA / 38005320 (PO 38005320)

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy. Quantitation using 400 Point Count Procedure

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
12579661-7 *092206114-0007*	SURFACE TEXTURE (WHITE, KNOCK-DOWN) - MAPLE - BASEMENT EAST WALL IN LOBBY AREA AT SOUTHEAST CORNER	White Non-Fibrous Homogeneous		100.0% Non-fibrous (Other)	**<0.25%** **Chrysotile**
12579661-12*-Joint Compound 1 *092206114-0012A*	DRYWALL + JOINT COMPOUND (WHITE) - MAPLE - LEVEL 3 CEILING AT NORTHEAST CORNER ASSOCIATED WITH KNOCK-DOWN TEXTURE	White Non-Fibrous Homogeneous		100.0% Non-fibrous (Other)	**<0.25%** **Chrysotile**
12579661-17* -Surfacing Coat *092206114-0017*	SURFACE COATING (WHITE, SMOOTH) - HEMLOCK - BASEMENT CEILING IN EAST KITCHEN AT SOUTH WALL SOUTHWEST CORNER	White Non-Fibrous Homogeneous		100.0% Non-fibrous (Other)	**<0.25%** **Chrysotile**
12579661-21*-Joint Compound *092206114-0021A*	DRYWALL + JOINT COMPOUND (WHITE) - HEMLOCK - LEVEL 3 CEILING IN NORTHWEST JANITOR CLOSET AT SOUTHWEST CORNER ASSOCIATED WITH SMOOTH SURFACE COAT	White Non-Fibrous Homogeneous		100.0% Non-fibrous (Other)	**<0.25%** **Chrysotile**

Report amended: 03/31/2022 11:35:00 Replaces initial report from: 03/30/2022 09:48:36 Reason Code: Client-Additional Analysis

EMSL Analytical, Inc.
464 McCormick Street San Leandro, CA 94577
Phone/Fax: (510) 895-3675 / (510) 895-3680
http://www.EMSL.com / sanleandrolab@emsl.com

EMSL Order:	092206114
Customer ID:	WKC50
Customer PO:	38005320
Project ID:	PO 38005320

Attention: Scott Harris
GHD
718 Third Street
Eureka, CA 95501

Phone:	(707) 599-6974
Fax:	(707) 444-8330
Received:	03/26/2022 9:00 AM
Analysis Date:	03/29/2022 - 03/31/2022
Collected:	03/25/2022

Project: 12579661.001 - CPH MAPLE/HEMLOCK FIRE SYSTEM UPGRADE - ARCATA, CA / 38005320 (PO 38005320)

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy. Quantitation using 400 Point Count Procedure

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
12579661-23-Texture *092206114-0023*	SURFACE TEXTURE (WHITE, KNOCK-DOWN) - HEMLOCK - LEVEL 2 EAST WALL AT NORTHEAST CORNER BY DOOR TO EAST STAIRWELL	White Non-Fibrous Homogeneous		100.0% Non-fibrous (Other)	**<0.25% Chrysotile**
12579661-27*-Joint Compound 2 *092206114-0027B*	DRYWALL + JOINT COMPOUND (WHITE) - HEMLOCK - LEVEL 3 CEILING AT NORTHWEST CORNER ASSOCIATED WITH KNOCK-DOWN TEXTURE	White Non-Fibrous Homogeneous		100.0% Non-fibrous (Other)	**<0.25% Chrysotile**

Analyst(s)

David Nguyen (4)
Jon Abdon (2)

Cecilia Yu, Laboratory Manager
or other approved signatory

Report amended: 03/31/2022 11:35:00 Replaces initial report from: 03/30/2022 09:48:36 Reason Code: Client-Additional Analysis

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	718 Third Street	**Received Date:**	03/26/2022 9:00 AM
	Eureka, CA 95501	**Analysis Date:**	03/29/2022 - 03/30/2022
		Collected Date:	03/25/2022

Project: 12579661.001 - CPH MAPLE/HEMLOCK FIRE SYSTEM UPGRADE - ARCATA, CA / 38005320 (PO 38005320)

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
12579661-1 *092206114-0001*	SURFACE COATING (WHITE, SMOOTH) - MAPLE - BASEMENT WEST WALL IN EAST STAIRWELL	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
12579661-2-Surface Coating 1 *092206114-0002*	SURFACE COATING (WHITE, SMOOTH) - MAPLE - BASEMENT CEILING IN KITCHEN AT NORTHEAST CENTER	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
12579661-2-Surface Coating 2 *092206114-0002A*	SURFACE COATING (WHITE, SMOOTH) - MAPLE - BASEMENT CEILING IN KITCHEN AT NORTHEAST CENTER	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
12579661-3* *092206114-0003*	SURFACE COATING (WHITE, SMOOTH) - MAPLE - LEVEL 1 EAST WALL AT SOUTHEAST	White Non-Fibrous Homogeneous		80% Matrix 20% Non-fibrous (Other)	None Detected
12579661-4-Drywall *092206114-0004*	DRYWALL + JOINT COMPOUND (WHITE) - MAPLE - BASEMENT WEST WALL UNDER STAIRS IN EAST STAIRWELL ASSOCIATED WITH SMOOTH SURFACE COAT	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
12579661-4-Joint Compound 1 *092206114-0004A*	DRYWALL + JOINT COMPOUND (WHITE) - MAPLE - BASEMENT WEST WALL UNDER STAIRS IN EAST STAIRWELL ASSOCIATED WITH SMOOTH SURFACE COAT	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected

Report amended: 03/30/2022 14:47:00 Replaces initial report from: 03/30/2022 09:48:36 Reason Code: Client-Results Changed

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EMSL Order:	092206114
Customer ID:	WKC50
Customer PO:	38005320
Project ID:	PO 38005320

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
12579661-4-Joint Compound 2 *092206114-0004B*	DRYWALL + JOINT COMPOUND (WHITE) - MAPLE - BASEMENT WEST WALL UNDER STAIRS IN EAST STAIRWELL ASSOCIATED WITH SMOOTH SURFACE COAT	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
12579661-5*-Drywall *092206114-0005*	DRYWALL + JOINT COMPOUND (WHITE) - MAPLE - KITCHEN NORTH WALL AT CENTER ASSOCIATED WITH SMOOTH SURFACE COAT	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
12579661-5*-Joint Compound *092206114-0005B*	DRYWALL + JOINT COMPOUND (WHITE) - MAPLE - KITCHEN NORTH WALL AT CENTER ASSOCIATED WITH SMOOTH SURFACE COAT	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
12579661-6-Drywall *092206114-0006*	DRYWALL + JOINT COMPOUND (WHITE) - MAPLE - LEVEL 1 SOFFIT AT EAST CENTER ASSOCIATED WITH SMOOTH SURFACE COAT	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
12579661-6-Joint Compound *092206114-0006A*	DRYWALL + JOINT COMPOUND (WHITE) - MAPLE - LEVEL 1 SOFFIT AT EAST CENTER ASSOCIATED WITH SMOOTH SURFACE COAT	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
12579661-7 *092206114-0007*	SURFACE TEXTURE (WHITE, KNOCK-DOWN) - MAPLE - BASEMENT EAST WALL IN LOBBY AREA AT SOUTHEAST CORNER	White Non-Fibrous Homogeneous		80% Ca Carbonate 18% Non-fibrous (Other)	2% Chrysotile
12579661-8*-Texture *092206114-0008*	SURFACE TEXTURE (WHITE, KNOCK-DOWN) - MAPLE - LEVEL 1 CEILING IN CORRIDOR OUTSIDE ROOM 1150	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected

Report amended: 03/30/2022 14:47:00 Replaces initial report from: 03/30/2022 09:48:36 Reason Code: Client-Results Changed

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EMSL Order:	092206114
Customer ID:	WKC50
Customer PO:	38005320
Project ID:	PO 38005320

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
12579661-8*-Drywall *092206114-0008A*	SURFACE TEXTURE (WHITE, KNOCK-DOWN) - MAPLE - LEVEL 1 CEILING IN CORRIDOR OUTSIDE ROOM 1150	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
12579661-9 *092206114-0009*	SURFACE TEXTURE (WHITE, KNOCK-DOWN) - MAPLE - LEVEL 3 CEILING AT EAST WALL AT SOUTHEAST CENTER	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	<1% Chrysotile
12579661-10-Drywall *092206114-0010*	DRYWALL + JOINT COMPOUND (WHITE) - MAPLE - BASEMENT EAST WALL IN LOBBY AREA AT SOUTHEAST CORNER ASSOCIATED WITH KNOCK-DOWN TEXTURE	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
12579661-10-Joint Compound 1 *092206114-0010A* *Inseparable paint / coating layer included in analysis*	DRYWALL + JOINT COMPOUND (WHITE) - MAPLE - BASEMENT EAST WALL IN LOBBY AREA AT SOUTHEAST CORNER ASSOCIATED WITH KNOCK-DOWN TEXTURE	Beige Non-Fibrous Homogeneous		80% Ca Carbonate 18% Non-fibrous (Other)	2% Chrysotile
12579661-10-Joint Compound 2 *092206114-0010B*	DRYWALL + JOINT COMPOUND (WHITE) - MAPLE - BASEMENT EAST WALL IN LOBBY AREA AT SOUTHEAST CORNER ASSOCIATED WITH KNOCK-DOWN TEXTURE	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
12579661-11-Drywall *092206114-0011*	DRYWALL + JOINT COMPOUND (WHITE) - MAPLE - LEVEL 2 CEILING IN CORRIDOR OUTSIDE ROOM 2250 ASSOCIATED WITH KNOCK-DOWN TEXTURE	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected

Report amended: 03/30/2022 14:47:00 Replaces initial report from: 03/30/2022 09:48:36 Reason Code: Client-Results Changed

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EMSL Order:	092206114
Customer ID:	WKC50
Customer PO:	38005320
Project ID:	PO 38005320

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
12579661-11-Joint Compound *092206114-0011A*	DRYWALL + JOINT COMPOUND (WHITE) - MAPLE - LEVEL 2 CEILING IN CORRIDOR OUTSIDE ROOM 2250 ASSOCIATED WITH KNOCK-DOWN TEXTURE	White Non-Fibrous Homogeneous		80% Ca Carbonate 18% Non-fibrous (Other)	2% Chrysotile
12579661-12*-Drywall *092206114-0012*	DRYWALL + JOINT COMPOUND (WHITE) - MAPLE - LEVEL 3 CEILING AT NORTHEAST CORNER ASSOCIATED WITH KNOCK-DOWN TEXTURE	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
12579661-12*-Joint Compound 1 *092206114-0012A*	DRYWALL + JOINT COMPOUND (WHITE) - MAPLE - LEVEL 3 CEILING AT NORTHEAST CORNER ASSOCIATED WITH KNOCK-DOWN TEXTURE	White Non-Fibrous Homogeneous		80% Ca Carbonate 18% Non-fibrous (Other)	2% Chrysotile
12579661-12*-Joint Compound 2 *092206114-0012B*	DRYWALL + JOINT COMPOUND (WHITE) - MAPLE - LEVEL 3 CEILING AT NORTHEAST CORNER ASSOCIATED WITH KNOCK-DOWN TEXTURE	Tan Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	<1% Chrysotile
12579661-13 *092206114-0013*	CONCRETE (GREY / BROWN) - MAPLE - EAST STAIRWELL STEP AT STAIRCASE BETWEEN BASEMENT AND LEVEL 1	Gray Non-Fibrous Homogeneous		30% Quartz 30% Ca Carbonate 40% Non-fibrous (Other)	None Detected
12579661-14 *092206114-0014*	BLWON-IN INSULATION (WHITE) - MAPLE - ATTIC SPACE ABOVE LEVEL 3 AT EAST ACCESS HATCH, BLOWN IN BETWEEN WOOD FRAMING	White Non-Fibrous Homogeneous	90% Glass	10% Non-fibrous (Other)	None Detected
12579661-15-Insulation *092206114-0015*	BATT INSULATION (YELLOW) + PAPER (BLACK) - MAPLE - ATTIC SPACE ABOVE LEVEL 3 AT EAST ACCESS HATCH	Yellow Fibrous Homogeneous	90% Glass	10% Non-fibrous (Other)	None Detected

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
12579661-15-Paper *092206114-0015A*	BATT INSULATION (YELLOW) + PAPER (BLACK) - MAPLE - ATTIC SPACE ABOVE LEVEL 3 AT EAST ACCESS HATCH	Black Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
12579661-16-Surface Coat *092206114-0016*	SURFACE COATING (WHITE, SMOOTH) - HEMLOCK - BASEMENT CEILING IN WEST STAIRWELL AT NORTH CENTER	White Non-Fibrous Homogeneous		80% Ca Carbonate 18% Non-fibrous (Other)	2% Chrysotile
12579661-16-Drywall *092206114-0016A*	SURFACE COATING (WHITE, SMOOTH) - HEMLOCK - BASEMENT CEILING IN WEST STAIRWELL AT NORTH CENTER	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
12579661-17*-Surfacing Coat *092206114-0017*	SURFACE COATING (WHITE, SMOOTH) - HEMLOCK - BASEMENT CEILING IN EAST KITCHEN AT SOUTH WALL SOUTHWEST CORNER	White Non-Fibrous Homogeneous		80% Ca Carbonate 18% Non-fibrous (Other)	2% Chrysotile
12579661-17*-Drywall *092206114-0017A*	SURFACE COATING (WHITE, SMOOTH) - HEMLOCK - BASEMENT CEILING IN EAST KITCHEN AT SOUTH WALL SOUTHWEST CORNER	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
12579661-18-Surface Coat *092206114-0018*	SURFACE COATING (WHITE, SMOOTH) - HEMLOCK - LEVEL 1 SOFFIT IN CORRIDOR OUTSIDE ROOM 1227	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
12579661-18-Drywall *092206114-0018A*	SURFACE COATING (WHITE, SMOOTH) - HEMLOCK - LEVEL 1 SOFFIT IN CORRIDOR OUTSIDE ROOM 1227	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
12579661-19-Drywall *092206114-0019*	DRYWALL + JOINT COMPOUND (WHITE) - HEMLOCK - BASEMENT CEILING ABOVE DOOR TO LOBBY ASSOCIATED WITH SMOOTH SURFACE COAT	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected

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Customer PO:	38005320
Project ID:	PO 38005320

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
12579661-19-Joint Compound *092206114-0019A*	DRYWALL + JOINT COMPOUND (WHITE) - HEMLOCK - BASEMENT CEILING ABOVE DOOR TO LOBBY ASSOCIATED WITH SMOOTH SURFACE COAT	White Non-Fibrous Homogeneous		80% Ca Carbonate 18% Non-fibrous (Other)	2% Chrysotile
12579661-20-Drywall *092206114-0020*	DRYWALL + JOINT COMPOUND (WHITE) - HEMLOCK - BASEMENT CEILING IN LOBBY AREA AT CENTER-WEST WALL ASSOCIATED WITH SMOOTH SURFACE COAT	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
12579661-20-Joint Compound *092206114-0020A*	DRYWALL + JOINT COMPOUND (WHITE) - HEMLOCK - BASEMENT CEILING IN LOBBY AREA AT CENTER-WEST WALL ASSOCIATED WITH SMOOTH SURFACE COAT	White Non-Fibrous Homogeneous		80% Ca Carbonate 20% Non-fibrous (Other)	None Detected
12579661-21*-Drywall *092206114-0021*	DRYWALL + JOINT COMPOUND (WHITE) - HEMLOCK - LEVEL 3 CEILING IN NORTHWEST JANITOR CLOSET AT SOUTHWEST CORNER ASSOCIATED WITH SMOOTH SURFACE COAT	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
12579661-21*-Joint Compound *092206114-0021A*	DRYWALL + JOINT COMPOUND (WHITE) - HEMLOCK - LEVEL 3 CEILING IN NORTHWEST JANITOR CLOSET AT SOUTHWEST CORNER ASSOCIATED WITH SMOOTH SURFACE COAT	White Non-Fibrous Homogeneous		80% Ca Carbonate 18% Non-fibrous (Other)	2% Chrysotile
12579661-22*-Texture *092206114-0022*	SURFACE TEXTURE (WHITE, KNOCK-DOWN) - HEMLOCK - LEVEL 1 CEILING IN WEST CORRIDOR OUTSIDE ROOM 1214 AT SOUTHWEST CORNER				Layer Not Present

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
12579661-22*-Drywall *092206114-0022A*	SURFACE TEXTURE (WHITE, KNOCK-DOWN) - HEMLOCK - LEVEL 1 CEILING IN WEST CORRIDOR OUTSIDE ROOM 1214 AT SOUTHWEST CORNER	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
12579661-23-Texture *092206114-0023*	SURFACE TEXTURE (WHITE, KNOCK-DOWN) - HEMLOCK - LEVEL 2 EAST WALL AT NORTHEAST CORNER BY DOOR TO EAST STAIRWELL	White Non-Fibrous Homogeneous		80% Ca Carbonate 18% Non-fibrous (Other)	2% Chrysotile
12579661-23-Drywall *092206114-0023A*	SURFACE TEXTURE (WHITE, KNOCK-DOWN) - HEMLOCK - LEVEL 2 EAST WALL AT NORTHEAST CORNER BY DOOR TO EAST STAIRWELL	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
12579661-24 *092206114-0024*	SURFACE TEXTURE (WHITE, KNOCK-DOWN) - HEMLOCK - LEVEL 3 CEILING IN CORRIDOR AT WEST CENTER	White Non-Fibrous Homogeneous		80% Ca Carbonate 18% Non-fibrous (Other)	2% Chrysotile
12579661-25-Drywall *092206114-0025*	DRYWALL + JOINT COMPOUND (WHITE) - HEMLOCK - BASEMENT CEILING IN LOBBY AREA AT SOUTHEAST CORNER ASSOCIATED WITH KNOCK-DOWN TEXTURE	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
12579661-25-Joint Compound *092206114-0025A*	DRYWALL + JOINT COMPOUND (WHITE) - HEMLOCK - BASEMENT CEILING IN LOBBY AREA AT SOUTHEAST CORNER ASSOCIATED WITH KNOCK-DOWN TEXTURE	White Non-Fibrous Homogeneous		80% Ca Carbonate 18% Non-fibrous (Other)	2% Chrysotile

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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
12579661-26-Drywall *092206114-0026*	DRYWALL + JOINT COMPOUND (WHITE) - HEMLOCK - LEVEL 2 WALL IN CORRIDOR AT DOOR TO NORTHEAST STAIRWELL ASSOCIATED WITH KNOCK-DOWN TEXTURE	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
12579661-26-Joint Compound *092206114-0026A*	DRYWALL + JOINT COMPOUND (WHITE) - HEMLOCK - LEVEL 2 WALL IN CORRIDOR AT DOOR TO NORTHEAST STAIRWELL ASSOCIATED WITH KNOCK-DOWN TEXTURE	White Non-Fibrous Homogeneous		80% Ca Carbonate 18% Non-fibrous (Other)	2% Chrysotile
12579661-27*-Drywall *092206114-0027*	DRYWALL + JOINT COMPOUND (WHITE) - HEMLOCK - LEVEL 3 CEILING AT NORTHWEST CORNER ASSOCIATED WITH KNOCK-DOWN TEXTURE	White Non-Fibrous Homogeneous		80% Gypsum 20% Non-fibrous (Other)	None Detected
12579661-27*-Joint Compound 1 *092206114-0027A*	DRYWALL + JOINT COMPOUND (WHITE) - HEMLOCK - LEVEL 3 CEILING AT NORTHWEST CORNER ASSOCIATED WITH KNOCK-DOWN TEXTURE	Beige Non-Fibrous Homogeneous		70% Ca Carbonate 28% Non-fibrous (Other)	2% Chrysotile
12579661-27*-Joint Compound 2 *092206114-0027B*	DRYWALL + JOINT COMPOUND (WHITE) - HEMLOCK - LEVEL 3 CEILING AT NORTHWEST CORNER ASSOCIATED WITH KNOCK-DOWN TEXTURE	White Non-Fibrous Homogeneous		80% Ca Carbonate 18% Non-fibrous (Other)	2% Chrysotile
12579661-28 *092206114-0028*	CONCRETE (GREY / BROWN) - HEMLOCK - WEST STAIRWELL STEP AT STAIRCASE BETWEEN BASEMENT AND LEVEL 1	Brown/Gray Non-Fibrous Homogeneous		30% Quartz 30% Ca Carbonate 40% Non-fibrous (Other)	None Detected

Report amended: 03/30/2022 14:47:00 Replaces initial report from: 03/30/2022 09:48:36 Reason Code: Client-Results Changed

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EMSL Order:	092206114
Customer ID:	WKC50
Customer PO:	38005320
Project ID:	PO 38005320

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
12579661-29 *092206114-0029*	BLOWN-IN INSULATION (WHITE) - HEMLOCK - ATTIC SPACE ABOVE LEVEL 3 AT WEST ACCESS HATCH, BRLOWN IN BETWEEN WOOD FRAMING	White Fibrous Homogeneous	90% Glass	10% Non-fibrous (Other)	None Detected
12579661-30-Insulation *092206114-0030*	BATT INSULATION (PINK) + PAPER (BROWN / BLACK) - HEMLOCK - ATTIC SPACE ABOVE LEVEL 3 AT WEST ACCESS HATCH	Pink Fibrous Homogeneous	90% Glass	10% Non-fibrous (Other)	None Detected
12579661-30-Paper *092206114-0030A*	BATT INSULATION (PINK) + PAPER (BROWN / BLACK) - HEMLOCK - ATTIC SPACE ABOVE LEVEL 3 AT WEST ACCESS HATCH	Brown/Red/Black Fibrous Homogeneous	70% Cellulose	30% Non-fibrous (Other)	None Detected

Analyst(s)

David Nguyen (4)
Gavin Lee (2)
Jon Abdon (13)
Jose Madrid (25)
Xeena Paul (14)

Cecilia Yu, Laboratory Manager
or Other Approved Signatory

Report amended: 03/30/2022 14:47:00 Replaces initial report from: 03/30/2022 09:48:36 Reason Code: Client-Results Changed

#09220611 4

GHD
718 3rd Street
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Contact Name(s):	Scott Harris, Matt Tolley, Alex Crowe		**Sampling Date(s):**	3/25/2022
Contact Email(s):	scott.harris@ghd.com, matthew.tolley@ghd.com, alexander.crowe@ghd.com		**Client:**	CPH
Site Name:	CPH Maple/Hemlock Fire System Upgrade - Arcata, CA		**Analysis Method:**	PLM (Asbestos)
Project Number:	**12579661.001**	**PO Number: 38005320**	**Turnaround Time:**	**24-Hour**

NOTE: ** = **If** individual layer in sample is reported to contain asbestos via PLM, analyze via PC400 on a 24-hour TAT*

BULK SAMPLE COLLECTION CHAIN OF CUSTODY

SAMPLE NUMBER	SAMPLE DESCRIPTION	LOCATION	MATERIAL TYPE	FRIABILITY
12579661-1	Surface Coating (White, Smooth)	Maple - Basement west wall in east stairwell	SM	NF
12579661-2	Surface Coating (White, Smooth)	Maple - Basement ceiling in kitchen at northeast cente	SM	NF
12579661-3*	Surface Coating (White, Smooth)	Maple - Level 1 east wall at southeast	SM	NF
12579661-4	Drywall + Joint Compound (White)	Maple - Basement west wall under stairs in east stairwe associated with smooth surface coat	MM/SM	F
12579661-5*	Drywall + Joint Compound (White)	Maple - Kitchen north wall at center associated with smooth surface coat	MM/SM	F
12579661-6	Drywall + Joint Compound (White)	Maple - Level 1 soffit at east center associated with smooth surface coat	MM/SM	F
12579661-7	Surface Texture (White, Knock-down)	Maple - Basement east wall in lobby area at southeast corner	SM	F
12579661-8*	Surface Texture (White, Knock-down)	Maple - Level 1 ceiling in corridor outside room 1150	SM	F
12579661-9	Surface Texture (White, Knock-down)	Maple - Level 3 ceiling at east wall at southeast center	SM	F
12579661-10	Drywall + Joint Compound (White)	Maple - Basement east wall in lobby area at southeast corner associated with knock-down texture	MM/SM	F
12579661-11	Drywall + Joint Compound (White)	Maple - Level 2 ceiling in corridor outside room 2250 associated with knock-down texture	MM/SM	F

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GHD	718 3rd Street Eureka, California Ph: (707) 443-8326 eureka@ghd.com	Contact Name(s):	Scott Harris, Matt Tolley, Alex Crowe	Sampling Date(s):	3/25/2022
		Contact Email(s):	scott.harris@ghd.com, matthew.tolley@ghd.com, alexander.crowe@ghd.com	Client:	CPH
		Site Name:	CPH Maple/Hemlock Fire System Upgrade - Arcata, CA	Analysis Method:	PLM (Asbestos)
		Project Number:	12579661.001 PO Number: 38005320	Turnaround Time:	24-Hour

NOTE: ** = **If** individual layer in sample is reported to contain asbestos via PLM, analyze via PC400 on a 24-hour TAT*

BULK SAMPLE COLLECTION CHAIN OF CUSTODY

SAMPLE NUMBER	SAMPLE DESCRIPTION	LOCATION	MATERIAL TYPE	FRIABILITY
12579661-12*	Drywall + Joint Compound (White)	Maple - Level 3 ceiling at northeast corner associated with knock-down texture	MM/SM	F
12579661-13	Concrete (Grey/Brown)	Maple - East stairwell step at staircase between basement and level 1	MM	NF
12579661-14	Blown-in Insulation (White)	Maple - Attic space above level 3 at east access hatc blown in between wood framing	TSI	F
12579661-15	Batt Insulation (Yellow) + Paper (Black)	Maple - Attic space above level 3 at east access hatch	TSI	F
12579661-16	Surface Coating (White, Smooth)	Hemlock - Basement ceiling in west stairwell at north center	SM	NF
12579661-17*	Surface Coating (White, Smooth)	Hemlock - Basement ceiling in east kitchen at south wall southwest corner	SM	NF
12579661-18	Surface Coating (White, Smooth)	Hemlock - Level 1 soffit in corridor outside room 1227	SM	NF
12579661-19	Drywall + Joint Compound (White)	Hemlock - Basement ceiling above door to lobby associated with smooth surface coat	MM/SM	F
12579661-20	Drywall + Joint Compound (White)	Hemlock - Basement ceiling in lobby area at center-west wall associated with smooth surface coat	MM/SM	F
12579661-21*	Drywall + Joint Compound (White)	Hemlock -Level 3 ceiling in northwest janitor closet at southwest corner associated with smooth surface coat	MM/SM	F
2579661-22*	Surface Texture (White, Knock-down)	Hemlock - Level 1 ceiling in west corridor outside room 1214 at southwest corner	SM	F

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718 3rd Street Eureka, California Ph: (707) 443-8326 eureka@ghd.com	**Contact Name(s):**	Scott Harris, Matt Tolley, Alex Crowe		**Sampling Date(s):**	3/25/2022
	Contact Email(s):	scott.harris@ghd.com, matthew.tolley@ghd.com, alexander.crowe@ghd.com		**Client:**	CPH
	Site Name:	CPH Maple/Hemlock Fire System Upgrade - Arcata, CA		**Analysis Method:**	PLM (Asbestos)
	Project Number:	**12579661.001**	**PO Number: 38005320**	**Turnaround Time:**	**24-Hour**

***NOTE:** * = **If** individual layer in sample is reported to contain asbestos via PLM, analyze via PC400 on a 24-hour TAT*

BULK SAMPLE COLLECTION CHAIN OF CUSTODY

SAMPLE NUMBER	SAMPLE DESCRIPTION	LOCATION	MATERIAL TYPE	FRIABILITY
12579661-23	Surface Texture (White, Knock-down)	Hemlock - Level 2 east wall at northeast corner by doo to east stairwell	SM	F
12579661-24	Surface Texture (White, Knock-down)	Hemlock - Level 3 ceiling in corridor at west center	SM	F
12579661-25	Drywall + Joint Compound (White)	Hemlock - Basement ceiling in lobby area at southeast corner associated with knock-down texture	MM/SM	F
12579661-26	Drywall + Joint Compound (White)	Hemlock - Level 2 wall in corridor at door to northeast stairwell associated with knock-down texture	MM/SM	F
12579661-27*	Drywall + Joint Compound (White)	Hemlock - Level 3 ceiling at northwest corner associated with knock-down texture	MM/SM	F
12579661-28	Concrete (Grey/Brown)	Hemlock - West stairwell step at staircase between basement and level 1	MM	NF
12579661-29	Blown-in Insulation (White)	Hemlock - Attic space above level 3 at west access hatch, blown in between wood framing	TSI	F
12579661-30	Batt Insulation (Pink) + Paper (Brown/Black)	Hemlock - Attic space above level 3 at west access hatch	TSI	F

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Notes:

MM	Misc. Material
SM	Surfacing Material
TSI	Thermal System Insulation
Friability	F = Friable; NF = Nonfriable (Friable material, when dry, may be crumbled, pulverized, etc. by hand pressure)

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Appendix E

Asbestos Regulatory Summary

General Informational Summary of Governmental Rules and Regulations Concerning Asbestos

Appendix E Asbestos Regulations

This appendix section provides a summary of governmental regulations applicable to asbestos in construction work and is applicable to the impaction of the asbestos building materials present at the project site.

E1.1 California Code of Regulations

The following is a summary list of United States governmental regulations concerning asbestos:

1. 29 Code of Federal Regulations (CFR) 1926.1101, Asbestos (including all mandatory appendices)
2. 40 CFR 61, Subpart A and Subpart M USEPA National Emissions Standards for Hazardous Air Pollutants (NESHAP)
3. 40 CFR Parts 261, 265, and 268, Hazardous Waste Management
4. 40 CFR Part 763, Asbestos Emergency Hazard Emergency Response Act (AHERA)
5. 49 CFR Parts 172, 173, 178, 179, Hazardous Material Transportation

E1.2 California Code of Regulations

The following is a summary list of State of California governmental regulations concerning asbestos:

1. 8 CCR Division 1, Chapter 4, Construction Safety Orders
2. 8 CCR Article 2.5, Registration of Asbestos Work, Sections 341.6–341.14
3. 8 CCR Section 1529, Asbestos
4. 8 CCR Section 5144, Respiratory Protection
5. 22 CCR Division 4.5, Environmental Health Standards for Management of Hazardous Waste
6. California Environmental Protection Agency (Cal/EPA), California Air Resource Board (CARB), Final Regulation Order, Section 93105, Asbestos Airborne Toxic Control Measures for Construction, Grading, Quarrying, and Surface Mining Operations

E1.3 Definitions

For the purpose of this report, the following definitions will apply to the discussion of hazardous materials contained herein.

1. Abatement – Hazardous materials related construction undertaken for the purpose of eliminating or reducing existing recognized hazardous materials related hazards as adapted from 29 CFR Part 1903 Inspections, Citation and Proposed Penalties, Standard 1903.19 Abatement Verification (29 CFR 1903.19), Subsection (b)(1).
2. Asbestos Containing Material (ACM) – A material determined to contain greater than one percent (1%) asbestos by weight as defined by the Title 8 California Code of Regulations (CCR), Subchapter 4, Construction Safety Orders, Article 4. Dusts, Fumes, Mists, Vapors, and Gases, Section 1529 (8CCR1529), Subsection (b).
3. Asbestos Containing Construction Material (ACCM) – A construction material determined to contain detectable levels of asbestos fibers in concentrations of greater than 0.1 percent asbestos by weight as defined by Chapter 3.2 of the California Occupational Safety and Health Regulations, Subchapter 2, Regulations of the Division of Occupational Safety and Health, Article 2.5. Registration--Asbestos-Related Work, Section 341.6(c).

4. Containment – Protective physical barriers and associated means and methods used to contain airborne contaminant dust within the abatement work area and prevent contamination of surfaces and grounds below and adjacent to areas where a hazardous material is being disturbed.
5. Hazardous Material – Substance with properties that can cause injury or illness to humans or adversely impact living organisms in the environment under certain conditions. Hazardous materials include both organic and inorganic chemicals and chemical compounds. Includes any substance on the list of hazardous substances prepared by the Director, California Department of Industrial Relations, pursuant to Labor Code Section 6382 and also known as the Director's List.
6. Hazardous Waste – Waste material that is listed or meets the criteria for hazardous waste as set forth in CCR, Title 22, Division 4.5 and Article 9. at minimum, with regard to asbestos, the following shall be considered to be hazardous wastes with respect to this section:
    a. Nonfriable Asbestos Containing Material (Category I and II) rendered friable during renovation or renovation
    b. Regulated Asbestos Containing Material

E1.3.1 Nonfriable Asbestos Containing Material

Friability is a qualitative measure of a material's affinity for producing airborne asbestos fibers (dust). A material that, when dry, can be crumbled, pulverized or reduced to powder using hand pressure is classified as friable according to USEPA regulations. Nonfriable materials are those that do not meet the above definition of friable.

Nonfriable materials are classified by the USEPA into the following categories:

1. Category I Nonfriable – Any asbestos containing gasket, packing, resilient floor covering, or asphalt roofing product that contains greater than 1% asbestos as determined by PLM, that, when dry cannot be crumbled, pulverized, or reduced to a powder using hand pressure.
2. Category II Nonfriable – Any material, excluding Category I nonfriable ACM, that contains greater than 1% asbestos as determined by PLM, that, when dry cannot be crumbled, pulverized, or reduced to a powder using hand pressure.

Category I Nonfriable ACM may be left in place during renovation work. Certain Category II Nonfriable ACM may be left in place during renovation or renovation; however, Category II ACM that may become friable (e.g., damaged, brittle and/or cementitious materials) must be removed prior to renovation or renovation. Category I ACM and some Category II ACM may be left in situ during renovation; however, Cal/OSHA will regulate such renovation activities as Class II work, as defined herein.

Note: Cal/OSHA employee protection protocols, including those summarized herein, apply to any disturbance of asbestos material, regardless of the USEPA material category (Category I, Category II, RACM), concentration of asbestos, or quantity of material. As such worker protection protocols per 8CCR1529 apply to work disturbing any asbestos.

If a nonfriable material is impacted with mechanical means (power tools, abrasive mechanical means, etc.) such material shall no longer be classified as nonfriable and shall instead be classified as RACM. A nonfriable material that has been significantly damaged may also be classified as friable, if the damaged material can be reduced to powder or crumbled using hand pressure.

E1.3.2 Regulated Asbestos Containing Material

A material is regulated by the USEPA as RACM if it conforms to one or more of the following:

1. It is a friable ACM
2. It is a Category I or II ACM that has become friable

3. It is a Category I ACM that will be subject to mechanical impaction
4. It is a Category II ACM that has a high probability of becoming friable during the course of renovation or demolition activities that are expected to impact the material

While the USEPA does not regulate material determined by PLM laboratory analysis using point count 400 methodology to contain less than 1% asbestos, some Cal/OSHA regulations apply to material determined to contain any detectable amount of asbestos.

Pursuant to NESHAP regulations, nonfriable materials are not classified as RACM if removed essentially intact using hand methods and not made “friable” during removal. The use of mechanical means to remove or impact nonfriable ACM will render that material friable, thus mechanically impacted materials shall be considered RACM and subject to handling and disposal requirements governing RACM.

Asbestos containing material that meets the USEPA definition of RACM, if present in quantities greater than the NCUAQMD quantity thresholds noted in Section 5, must be removed from the project site prior to renovation. Additionally, Category I and Category II ACM that is associated with a fire-damaged structure must be classified as RACM, per USEPA regulation. Materials identified in this report as USEPA RACM will require disposal as a non-Resource Conservation and Recovery Act (RCRA) California hazardous asbestos waste, if disposed of in California.

Abatement of RACM that is Thermal System Insulation (TSI) or surfacing material requires Class I abatement methods as defined by the Occupational Safety and Health Administration (OSHA) and Cal/OSHA. RACM that is not TSI or surfacing material requires Class II abatement methods as defined by OSHA and Cal/OSHA. Class I and Class II abatement methods are described below.

E1.4 Cal/OSHA Work Classes

Cal/OSHA regulates material containing asbestos at any detectable level, thus worker protection, material handling, material labelling, and material disposal protocols per California Code of Regulations (CCR), Title 8, Section 1529 (8CCR1529) apply to impaction of any material determined to contain asbestos above the laboratory detection limit. Impaction of material determined to contain asbestos in concentrations of less than 1% by weight (ACCM and <0.1%) is categorized by Cal/OSHA as unclassified work.

Cal/OSHA regulates worker exposure to airborne asbestos by instituting work practice, notification, training, and personal protective equipment requirements for employers and employees. In an effort to mitigate worker exposure to airborne asbestos fibers, Cal/OSHA mandates specific material containerization and work practices when workers impact materials containing asbestos at any detectable level. Cal/OSHA categorizes asbestos related work into four work classes as described below and defined in 8CCR1529.

E1.4.1 Class I Work

Class I asbestos work consists of activities involving the removal of asbestos-containing TSI, asbestos-containing surfacing material, or PACM. TSI includes pipe, pipe fitting, duct, boiler, and flue asbestos-containing insulation. Surfacing material includes sprayed-on or troweled-on asbestos-containing fire proofing, acoustical plaster or decorative plaster. PACM is TSI or surfacing material installed prior to 1981. PACM is presumed to contain asbestos and must be handled according to Class I work protocols unless sampled and determined by PLM analysis to contain no detectable asbestos fibers. Class I abatement work is subject to OSHA and Cal/OSHA regulations. Class I work must be conducted within a regulated negative-pressure containment equipped with a three-stage decontamination chamber that includes an operable shower. Class I work must be performed by properly trained and protected workers using appropriate means and methods as described by 8CCR1529.

E1.4.2 Class II Work

Class II asbestos work means activities involving the impaction and removal of ACM, which is not TSI or surfacing material, and results in more than one bag of waste materials. This includes but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics. Class II

work must be conducted within a regulated area containment and must be performed by properly trained and protected workers using appropriate means and methods as described by 8CCR1529.

E1.4.3 Class III Work

Class III asbestos work means activities involving the repair and maintenance operations, where ACM, including TSI, surfacing ACM and/or PACM, is likely to be disturbed. Class III asbestos removal operations are limited to work that generates no more waste than that which can fit into one 60 inch by 60-inch (60” x 60”) waste bag. Class III work must be conducted within a regulated area containment by properly trained and protected workers using appropriate means and methods described by 8CCR1529.

E1.3.4 Class IV Work

Class IV asbestos work means maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities. Class IV work must be conducted by properly trained and protected workers using appropriate means and methods described by 8CCR1529.

E1.5 Asbestos Containing Construction Material

Materials reported by laboratory analysis to contain detectable concentrations of asbestos fibers of less than 1% by weight are not regulated by the USEPA as ACM or RACM and are not governed by NESHAP regulations. While not regulated by the USEPA, materials containing less than 1% asbestos by weight are regulated by Cal/OSHA as ACCM and are subject to Cal/OSHA employee protection, waste labeling, and handling protocols. Employees impacting materials containing detectable levels of asbestos fibers, but in concentrations less than 1% asbestos by weight, must adhere to work practices and methods of compliance as mandated by Cal/OSHA and described in 8CCR1529.

E1.6 Exposure Limits for Asbestos

Employers must monitor the air their workers are breathing to determine the airborne concentration of asbestos fibers present in the work environment during the various shifts and while performing various tasks. Phase contract microscopy (PCM) sampling cassettes and low-volume air pumps are worn by employees during their work shift, typically for a period of eight hours. The PCM cassettes are analyzed by a laboratory and an exposure is determined, measured in asbestos fibers per cubic centimeter of air (fibers/cc), extrapolated across the eight-hour work shift. The eight-hour exposure is known as a time-weighted average (TWA).

The Contractor should conduct representative breathing zone personal air monitoring of its employees, including a minimum of 25 percent of the crew, once each shift and repeated daily or until a negative exposure assessment (NEA), as derived in accordance with 8CCR1529 (f)(2)(C), can be established. A NEA is documented proof that a given activity will not expose employees to asbestos in concentrations above the PELs noted in the following table. A NEA may be established by maintaining initial air monitoring from the beginning of a project that is representative of work employees will be performing during the entire project showing exposure below the PEL or Short-Term Exposure Limit (STEL).

The exposure limits noted in Table E1.6 Cal/OSHA Airborne Exposure Limits for Asbestos (Table E1.6) must be adhered to for employee protection to establish appropriate protective measures and controls when impacting material containing asbestos.

Table E1.6. Cal/OSHA Airborne Exposure Limits for Asbestos

Air Contaminant	Excursion Limit (Short Term Exposure Limit)	Permissible Exposure Limit (PEL) (8-hour TWA)
Asbestos	1.0 fibers/cc over 30 minutes	0.1 fibers/cc over an 8-hour TWA

Notes:

- Permissible Exposure Limit (PEL): Employer must ensure no employee is exposed above this level based on an 8-hour TWA. When employee expose levels meet or exceed the PEL, administrative, engineering and work practice controls must be implemented. Respiratory protection and other protective measures are required pending feasible engineering controls. Additional training, monitoring, and medical surveillance requirements apply to respirator usage and for exposure levels exceeding PEL.
- Short Term Exposure Limit (STEL): Short term exposure is measured over 30 minutes during periods of maximum expected exposure operations and is also known as the Excursion Limit

Workers should wear personal air sampling devices for the full duration of their shift (eight hours). At least one sample should be collected representing each position/job classification in each work area of the project site. If exposures are determined to be above the PEL or STEL, appropriate worker protections should be instituted per 8CCR1529. Exposure monitoring should document the source of asbestos emissions.

Until an employee exposure assessment is completed, and it has been determined and documented that the employee is not exposed above the PEL, the Contractor should treat the employee as if the employee were exposed above the PEL and should implement employee protective measures per 8CCR1529. Monitoring should be conducted by an individual experienced and knowledgeable about the methods of air monitoring in compliance with applicable regulatory standards.

F2 Requirements for Asbestos Work

E2.1 Asbestos Administrative Controls

Employers must establish a written hazard communication (HAZCOM) training program and train their employees to the hazards to which they are exposed. A HAZCOM program should be implemented for employees who will impact asbestos. If exposure monitoring shows worker airborne exposure to asbestos above the PEL, or above the excursion limit, then additional training and worker certification is necessary.

Supervisors who oversee asbestos work shall have completed 40 hours of USEPA Asbestos Hazard Emergency Response Act (AHERA)-accredited supervisor training. Employees interacting with asbestos must have a level of training appropriate for the class of asbestos work, ranging from two hours (HAZCOM) to 32 hours (AHERA-accredited Worker). At no time should suspected or known asbestos material be drilled, cut, sanded, scraped, or otherwise disturbed by untrained personnel.

Asbestos disturbance and/or removal operations must be conducted by a Cal/OSHA-registered and State-licensed asbestos removal contractor. Contractor registration with Cal/OSHA is required if greater than 100 square feet of ACM, RACM, or ACCM are disturbed by a contractor within a one-year period of time. Employers whose employees disturb asbestos must file a written Report of Use of Regulated Carcinogens (Report of Use) form with Cal/OSHA. A Report of Use form must be filed with Cal/OSHA by employers whose workers disturb material containing greater than 0.1 percent asbestos. Disturbance of asbestos and/or abatement operations should be supervised by a Competent Person, as defined by 8CCR1529, who is trained, knowledgeable and qualified in the techniques of asbestos abatement.

One or more of the following specialty certifications for asbestos is/are required by the California Contractors' State License Board (CSLB) for contractors who disturb greater than 100 square feet of asbestos in a year (some exceptions for specific materials apply):

1. C-22 – Asbestos abatement

E2.2 Work Practice Controls

Asbestos abatement should be performed by persons trained, qualified, licensed, and equipped to perform asbestos abatement. Employees must never be exposed to airborne asbestos above the PEL, thus specific administrative controls, work practice controls and personal protective equipment (PPE) protocols must be implemented by the employer. Whole-body coverings (including hood and foot-coverings), gloves, and HEPA cartridge-equipped respirators are the standard PPE utilized for asbestos work in most circumstances. The remainder of this section consists of a brief summary of selected work practices required when impacting materials containing asbestos.

A regulated area is required to be established using signage and/or barrier tape around a work area where asbestos is to be impacted if there is a “reasonable possibility” that airborne concentrations of asbestos will exceed the PEL (8CCR1529). A regulated area is also required for all Class I, II and III work. Regulated areas shall be demarcated “in a manner that minimized the number of persons within the area and protects persons outside the area from exposure to airborne asbestos” (8CCR1529). Access to regulated areas shall be limited to properly trained and protected workers.

The use of wet methods (water) to mitigate emissions of airborne dust is required whenever material containing asbestos is disturbed. The goal of using wet methods is to achieve no visible emissions of asbestos-related dust.

Vacuum cleaners equipped with High Efficiency Particulate Filters (HEPA) must be used by employees impacting material containing asbestos in detectable quantities and must also be used to address associated dust and debris. Material containing asbestos in detectable quantities may not be impacted by non-HEPA-equipped sanders, grinders, saws, or other abrasive power tools. Material containing asbestos (including associated dust and debris) may not be addressed using compressed air, dry sweeping, or dry shoveling.

Material containing asbestos in detectable quantities must be “promptly” containerized in leak tight containers. Prompt clean-up generally is understood to mean that material should not be left un-containerized (unpackaged or outside of a sealable disposal container or waste bin) after any work stoppage such as scheduled breaks and the end of any work shift. Waste containers containing ACM or RACM must be labeled in accordance with Cal/OSHA labeling requirements. Waste containers of RACM must be additionally labeled in accordance with USEPA labeling requirements.

E2.3 Asbestos Work Notifications

Notifications are required by regulatory agencies prior to conducting certain types of work which may impact hazardous materials. Pre-work notifications are required for the project by the local USEPA NESHAP delegated authority and Cal/OSHA office with jurisdiction over the project site as noted in the report.

E2.3.1 Cal/OSHA Temporary Worksite Notification

For Project activities which will involve asbestos-related work in excess of 100 square or linear feet, written notification must be made to Cal/OSHA. Such written notification to Cal/OSHA must be submitted to the nearest Cal/OSHA office exercising regulatory authority over the project at least 24 hours prior to the start of asbestos-related work. In addition, certain unexpected events related to asbestos work, such as employees exposed over the PEL without a respirator, must be reported to Cal/OSHA within 15 days of the incident.

E2.3.2 NESHAP Renovation or Renovation Notification

The USEPA NESHAP regulations are authorized by Section 112 of the Clean Air Act (published in 40 Code of Federal Regulations Parts 61 and 63) and specify work practices for asbestos to be followed during renovations and renovations of all structures meeting the NESHAP definition of a facility. The NESHAP regulations require the owner of the facility, or the facility operator, to notify a USEPA delegated authority at least 10 business days prior to the planned commencement of abatement, renovation, and/or renovation work triggering notification.

A Renovation/Demolition Notification must be supplied to the NCUAQMD 10 business days before any work meeting one or more of the following criteria:

1. Impaction or removal of RACM in quantities greater than the notification thresholds noted in Section 5
2. Facility renovation, including unweighting or removal of any load-bearing structure
3. Intentional burning for fire training purposes

E2.4 Asbestos Disposal Requirements

Category I and Category II nonfriable ACM should be disposed of as asbestos-containing waste in California. Friable ACM (RACM), including nonfriable material that has become or will be rendered friable, should be disposed of in California as non-Resource Conservation and Recovery Act (non-RCRA) hazardous waste. Impacting nonfriable ACM with mechanical means will render such material friable and reclassify the material as RACM.

If point count laboratory analysis (Point Count 400) shows that a given material contains less than 1% asbestos, then such material is not considered a hazardous waste by USEPA, or the California Department of Toxic Substances Control (DTSC). Asbestos material containing less than 1% asbestos is not subject to Cal/OSHA asbestos waste labeling requirements. Waste materials containing less than 1% asbestos may generally be disposed of as construction debris in many California landfills and at many municipal transfer stations; however, the acceptance criteria of each facility may differ. The waste acceptor should be contacted, and their individual acceptance-criteria abided by, prior to waste transport and disposal.

Appendix F

Personnel Certifications

Accreditations and Certifications for Key Project Personnel

Key Project Personnel Certifications

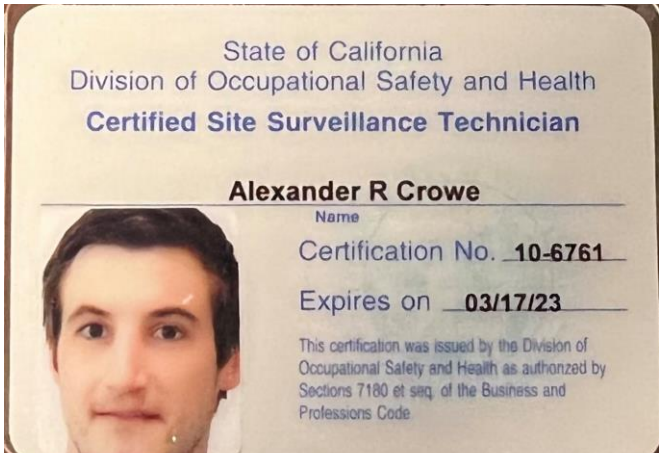

State of California
Division of Occupational Safety and Health
Certified Asbestos Consultant

Scott S Harris
Name

Certification No. 11-4713

Expires on 02/16/23

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.


State of California
Division of Occupational Safety and Health
Certified Site Surveillance Technician

Alexander R Crowe
Name

Certification No. 10-6761

Expires on 03/17/23

This certification was issued by the Division of Occupational Safety and Health as authorized by Sections 7180 et seq. of the Business and Professions Code.

Appendix G

Laboratory Certifications

Accreditations and Certifications for Laboratories Providing Analytical Data for the project

United States Department of Commerce
National Institute of Standards and Technology

Certificate of Accreditation to ISO/IEC 17025:2017

NVLAP LAB CODE: 101048-3

EMSL Analytical, Inc.

San Leandro, CA

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 Communique dated January 2009).

2021-07-01 through 2022-06-30

Effective Dates

For the National Voluntary Laboratory Accreditation Program

National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017

EMSL Analytical, Inc.
464 McCormick St.
San Leandro, CA 94577
Cecilia Yu
Phone: 510-895-3675
Email: cyu@emsl.com
http://www.emsl.com

ASBESTOS FIBER ANALYSIS **NVLAP LAB CODE 101048-3**

Bulk Asbestos Analysis

Code	*Description*
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

Airborne Asbestos Analysis

Code	*Description*
18/A02	U.S. EPA's "Interim Transmission Electron Microscopy Analytical Methods-Mandatory and Nonmandatory-and Mandatory Section to Determine Completion of Response Actions" as found in 40 CFR, Part 763, Subpart E, Appendix A.

For the National Voluntary Laboratory Accreditation Program

CALIFORNIA
Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

CALIFORNIA STATE

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM

CERTIFICATE OF ENVIRONMENTAL LABORATORY ACCREDITATION

Is hereby granted to

EMSL Analytical Inc.

San Leandro, CA

464 McCormick Street

San Leandro, CA 94577

Scope of the certificate is limited to the
"Fields of Accreditation"
which accompany this Certificate.

Continued accredited status depends on compliance with applicable laws and regulations, proficiency testing studies, and payment of applicable fees.

This Certificate is granted in accordance with provisions of
Section 100825, et seq. of the Health and Safety Code.

Certificate No.: **1620**

Effective Date: **7/1/2020**

Expiration Date: **6/30/2022**

Sacramento, California
subject to forfeiture or revocation

Christine Sotelo, Chief
Environmental Laboratory Accreditation Program

CALIFORNIA STATE
ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM
Fields of Accreditation

EMSL Analytical Inc.
San Leandro, CA
464 McCormick Street
San Leandro, CA 94577
Phone: 5108953675

Certificate Number: **1620**
Expiration Date: **6/30/2022**

Field of Accreditation: 103 - Toxic Chemical Elements of Drinking Water			
103.300	001	Asbestos	EPA 100.1
103.301	001	Asbestos	EPA 100.2
Field of Accreditation: 114 - Inorganic Constituents in Hazardous Waste			
114.130	001	Lead	EPA 7420
Field of Accreditation: 121 - Bulk Asbestos Analysis of Hazardous Waste			
121.010	001	Bulk Asbestos	EPA 600/M4-82-020

As of 6/23/2021 , this list supersedes all previous lists for this certificate number.
Customers: Please verify the current accreditation standing with the State.

AIHA Laboratory Accreditation Programs, LLC

acknowledges that

EMSL Analytical, Inc.

464 McCormick Street, San Leandro, CA 94577

Laboratory ID: LAP-101748

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA LAP), LLC accreditation to the ISO/IEC 17025:2017 international standard, General Requirements for the Competence of Testing and Calibration Laboratories in the following:

LABORATORY ACCREDITATION PROGRAMS

☑	**INDUSTRIAL HYGIENE**	Accreditation Expires: February 01, 2022
☑	**ENVIRONMENTAL LEAD**	Accreditation Expires: February 01, 2022
☑	**ENVIRONMENTAL MICROBIOLOGY**	Accreditation Expires: February 01, 2022
☐	**FOOD**	Accreditation Expires:
☐	**UNIQUE SCOPES**	Accreditation Expires:

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached Scope of Accreditation. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2017 and AIHA LAP, LLC requirements. This certificate is not valid without the attached Scope of Accreditation. Please review the AIHA LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

Beth Bair

Elizabeth Bair
Chairperson, Analytical Accreditation Board

Cheryl O. Morton

Cheryl O Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC

Revision19.1: 07/28/2021

Date Issued: 07/28/2021

AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

EMSL Analytical, Inc
464 McCormick Street, San Leandro, CA 94577

Laboratory ID: LAP-101748
Issue Date: 01/31/2020

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

The EPA recognizes the AIHA-LAP, LLC ELLAP program as meeting the requirements of the National Lead Laboratory Accreditation Program (NLLAP) established under Title X of the Residential Lead-Based Paint Hazard Reduction Act of 1992 and includes paint, soil and dust wipe analysis. Air and composited wipes analyses are not included as part of the NLLAP.

Environmental Lead Laboratory Accreditation Program (ELLAP)

Initial Accreditation Date: 02/01/2020

Component, parameter or characteristic tested	Technology sub-type/Detector	Method	Method Description *(for internal methods only)*
Airborne Dust	AA	NIOSH 7082	
Paint	AA	EPA SW 846 7000B	
		EPA SW-846 3050B	
Settled Dust by Wipe	AA	EPA SW 846 7000B	
		EPA SW-846 3050B	
Soil	AA	EPA SW 846 7000B	
		EPA SW-846 3050B	

A complete listing of currently accredited ELLAP laboratories is available on the AIHA-LAP, LLC website at: *http://www.aihaaccreditedlabs.org*

SECTION 02 82 00

ASBESTOS REMEDIATION

PART 1 GENERAL

1.1 SUMMARY OF ASBESTOS-RELATED WORK

A. The work described by these specifications is applicable to the Humboldt State University (HSU) Various Housing Units (Housing Units) Security Camera Upgrade Project (Project).

B. The work to be conducted at the project site includes the removal, transport, and disposal of the following asbestos contaminated materials:
   1. All asbestos materials and contaminated waste and debris listed in Survey Report by GHD.
      a. Dispose of waste properly per the regulatory classifications as listed in Survey Report, or as applicable to the condition of the waste at the time of debris containerization
   2. All materials used for work area preparation
   3. All discarded personnel protective equipment
   4. All other potentially contaminated materials

C. Contractor shall furnish all labor, materials, services, insurance and equipment which are specified, shown or reasonably implied for effective cleaning, removal, transport and disposal of asbestos containing materials from the project site.

D. The asbestos containing materials denoted in this specification shall be abated by a licensed abatement contractor (Contractor) using trained and certified workers. Contractor workers shall employ proper personal protection and containment protocols during asbestos abatement work at the project site.

E. Abatement shall be supervised by Competent Person(s), individuals who are trained, experienced and qualified in the techniques of asbestos abatement.

F. Moveable objects within the work area shall be decontaminated and removed by the Contractor, as needed, to access Asbestos Containing Material (ACM), Regulated ACM (RACM), Presumed ACM (PACM) and Asbestos Containing Construction Material (ACCM) within the Contractor's scope of work.

G. Suspect ACM, RACM, and/or PACM identified at the project site during abatement or renovation that is not identified by this specification shall be assumed to be ACM and/or RACM and handled in accordance with these specifications unless such suspect material is sampled in accordance with United States Environmental Protection Agency (USEPA) protocol and proven by laboratory analysis to be nondetect for asbestos fibers (no fibers detected above the laboratory detection limit) via Polarized Light Microscopy (PLM) following National Institute of Occupational Safety and Health (NIOSH) Method 9002.

I. Removal and disposal of non–asbestos containing materials:
   1. Any non-asbestos equipment, fixtures and furniture removed incidental to abatement activities and stored at the work site, shall be free of asbestos contamination and stowed in a safe manner as to avoid pedestrian/equipment/vehicle traffic obstruction, and staged as to mitigate slips, trips and/or falls.

J. Replacement of removed asbestos materials:
   1. This specification generally applies to the impaction of the identified ACM within the scope of this project, including demolition work that may impact such material.

K. Prior to project start-up, the area(s) of work shall be rendered unoccupied and secured against general entry by non–Contractor workers. Contractor shall provide warning placards at all entrances and approaches to the abatement Work Areas. Contractor shall assume responsibility for the exclusion of pedestrians and vehicular traffic from Work Areas during the abatement project. Contractor will be responsible for security of all Contractor's equipment stored on HSU premises.

L. Decontamination areas, associated containment structures, waste load out, and/or other project equipment may need to be established and/or stored outside of the project site. The Contractor is required to provide protection, exclusion, and security of these features, and to secure against unauthorized entry into these areas, equipment storage and waste containers.

1.2 RELATED DOCUMENTS

A. *Limited Asbestos Assesment Report, Canyon Complex, Maple and Hemlock-Residence Halls-Fire System Upgrades Project, Arcata, California* prepared by GHD and dated April 01, 2022.

1.3 REFERENCES

A. The following referenced documents form part of the specifications and the applicable requirements of those documents are incorporated by reference. Conflicts between these Specifications and the referenced documents should be brought to the attention of HSU, in writing, for resolution before taking any related action. Where differences exist between codes and standards, the one affording the greatest protection shall apply.

B. Code of Federal Regulations (CFR)
   1. 29 CFR 1926.1101, Asbestos (including all mandatory appendices)
   2. 40 CFR 61, Subpart A and Subpart M, USEPA National Emission Standards for Hazardous Air Pollutants (NESHAP)
   3. 40 CFR Parts 261, 265, and 268, Hazardous Waste Management
   4. 40 CFR Part 763 – Asbestos Emergency Hazard Emergency Response Act (AHERA)
   5. 49 CFR Parts 172, 173, 178, 179, Hazardous Material Transportation

C. California Code of Regulations (CCR)
   1. 8 CCR Division 1, Chapter 4, Construction Safety Orders
   2. 8 CCR Article 2.5, Registration of Asbestos Work, Sections 341.6–341.14
   3. 8 CCR Section 1529, Asbestos
   4. 8 CCR Section 5144 Respiratory Protection
   5. 22 CCR Division 4.5, Environmental Health Standards for Management of Hazardous Waste
   6. California Environmental Protection Agency (Cal/EPA), California Air Resource Board (CARB), Final Regulation Order, Section 93105, Asbestos Airborne Toxic Control Measures for Construction, Grading, Quarrying, and Surface Mining Operations

D. North Coast Unified Air Quality Management District (NCUAQMD)
   1. The Rules and Regulations of the NCUAQMD

E. Fire, Life & Safety Regulatory Authority
   1. Applicable rules and regulations issued by the State Fire Marshall

F. American National Standards Institute (ANSI) publications
   1. Z9.2, Design and Operation of Local Exhaust Systems
   2. Z87.1, Occupational and Educational Eye and Face Protection
   3. Z88.2, Practices for Respiratory Protection
   4. Z41, Personal Protection – Protective Footwear
   5. E 1494, Practice for Encapsulants for Spray or Trowel–Applied Friable Asbestos–Containing Building Materials

G. Compressed Gas Association, Inc.
   1. G–7.1, Commodity Specification for Air

H. National Fire Protection Association (NFPA)
   1. NFPA No. 70, National Electrical Code

I. Underwriters Laboratories (UL)
   1. UL 586, High Efficiency Particulate Air Filter Units

J. National Institute for Occupational Safety and Health (NIOSH)
   1. Manual of Analytical Methods, Method 7400, Asbestos and Other Fibers by PCM

1.4 DEFINITIONS

A. The following definitions apply to this section:
   1. Abatement – Work impacting material(s) containing asbestos that is undertaken for the purpose of removing such asbestos material(s) and reducing associated asbestos-related hazards from the project site.
   2. Airlock – A system for permitting ingress or egress with minimum air movement between a contaminated area and an uncontaminated area, typically consisting of two curtained doorways at least three feet apart.

3. Air Monitoring – The process of measuring the air contaminant (e.g. asbestos) content of a specified volume of air in a stated period of time. The purpose of air monitoring is to determine compliance with regulatory occupational and specified environmental exposure limits for airborne contaminates.
4. Asbestos Containing Material (ACM) – Any material containing more than one percent asbestos.
5. Asbestos Containing Construction Material (ACCM) – Any manufactured construction material which contains more than one tenth of one percent asbestos by weight.
6. Asbestos-related work – Any activity that disturbs ACCM and may release fibers into the air.
7. Cal/OSHA – The California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA).
8. Class I Work – Class I asbestos work means activities involving the removal of ACM thermal system insulation (TSI), ACM surfacing material, or presumed ACM (PACM). TSI includes pipe, pipe fitting, duct, boiler and flue ACM insulation. Surfacing material includes sprayed-on or troweled-on ACM fire proofing, or acoustical plaster or decorative plaster. PACM is TSI or surfacing material installed prior to 1981 unless proven otherwise.
9. Class II Operations – Class II asbestos work means activities involving the removal of ACM which is not TSI, or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing, siding shingles and construction mastics.
10. Class III Work – Class III asbestos work means activities involving the repair and maintenance operations, where ACM, including TSI, surfacing ACM and/or PACM, is likely to be disturbed. Class III work is limited to operations that generate no more waste then what can fit into one 60 inch by 60-inch (60”x60”) waste bag.
11. Competent Person – An onsite supervisor who has been formally trained in asbestos work and who is capable of identifying existing and predictable asbestos and non-asbestos hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate such hazards. In addition, a competent person is one who is specially trained in accordance with the USEPA Model Accreditation Plan (40 CFR part 763) for supervisor, or its equivalent, and who is capable of selecting the appropriate control strategy for asbestos exposure and/or asbestos-related hazards.
12. Containment – Protective physical barriers and associated means and methods used to contain airborne contaminant dust within the Work Area and prevent contamination of surfaces and grounds below and adjacent to areas where a hazardous material is being disturbed.
13. Contractor – The company, or individual, that enters into a contract with HSU to perform the hazardous material impaction and/or work as described by this specification.
14. Hazardous Materials – Substances with properties that can cause injury or illness to humans or adversely impact living organisms in the environment under certain conditions. Hazardous materials include both organic and inorganic chemicals and chemical compounds. Includes any substance on the list of hazardous substances

prepared by the Director of the California Department of Industrial Relations, pursuant to Labor Code Section 6382 and also known as the Director's List. For this project, hazardous materials include but are not limited to asbestos, lead, chromium, hexavalent chromium, PCB, and mercury compounds.

15. Hazardous Waste – Waste material that is listed or meets the criteria for hazardous waste as set forth in California Code of Regulations (CCR), Title 22, Division 4.5 and Article 9. At minimum, the following shall be considered to be hazardous wastes with respect to this section:
    a. Friable Asbestos Containing Material (RACM), or nonfriable ACM rendered friable during work or demolition.
16. Heavy Metals – Toxic metals, including but not limited to lead, arsenic, cadmium, chromium including chromium (VI), mercury and others that have toxic properties to humans and the environment.
17. HEPA Filter – A High Efficiency Particulate Air (HEPA) filter capable of trapping and retaining 99.97 percent of particles greater than 0.3 microns in diameter.
18. HEPA Vacuum Equipment – HEPA-filtered vacuuming equipment with a filter system capable of collecting and retaining dust. Filters shall be certified to be of 99.97 percent efficiency for retaining particles of 0.3 microns diameter or larger.
19. HSU – Humboldt State University, owner and operator of the project site, and HSU's authorized personnel and designated representatives.
20. HSU designee or representative – HSU's designated representative (HSU designee or authorized representative) who is contracted to observe the work project, inspect containments, perform post-work air sampling and document Contractor regulatory/specification compliance observations.
21. Mini-containment or Mini-enclosure – A small temporary enclosure constructed of impervious material (such as plastic sheeting). The entire Work Area is contained or enclosed by this system to prevent the escape of contamination outside the Work Area. Except when used on man lifts, mini-containments are typically required to have an air lock at the point of entry/egress.
22. Permissible Exposure Limit (PEL) – This is the highest level of a regulated contaminant in air that an employee can be permitted to be exposed to in an eight-hour work day without respiratory protection.
23. Asbestos PEL – An exposure to airborne asbestos fibers of 0.1 fibers per cubic centimeter of air), averaged over an 8-hour workday (0.1 f/cc TWA).
24. Personal Protective Equipment (PPE) – Coveralls, respirators, gloves, eye and hearing protection, hardhats and/or other personal equipment worn by individuals for the purpose of shielding the wearer from exposure to potentially hazardous materials or site conditions.
25. Qualified Person – The specially trained individual to be responsible for conducting air sampling, calibration of air sampling pumps, evaluating sampling results, and conducting respirator fit tests. This role is often assigned to the Competent Person.
26. Regulated Area/Work Area – An area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which

airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit.

27. Removal – Procedures specified as necessary to remove and clean-up hazardous materials, paint and debris with heavy metal contamination or components with heavy metal containing coatings from the designated areas and to dispose of these materials at an acceptable site in accordance with federal, state and local regulations.
28. State – The State of California.
29. Transportation Storage Disposal (TSD) Facility – USEPA or State-permitted facility for transportation, storage, and disposal of hazardous wastes.
30. Unclassified Abatement Work/Unclassified Operations – Activities involving the disturbance and/or removal of ACCM and/or other material which contains less than one percent asbestos.
31. Universal Waste – Certain common designated hazardous wastes that are required to be handled and disposed of or recycled in accordance with special rules. Includes fluorescent light tubes, high intensity discharge (HID) lamps, sodium vapor lamps, mercury switches, mercury thermostats, nickel-cadmium (NiCad), Silver, Mercury and other batteries (often used in building alarms and emergency systems), and other items.
32. USEPA – United States Environmental Protection Agency.
33. Visually Clean – Free of visible dust, dirt, debris, or films removable by vacuuming or wet cleaning methods specified. For outside soil or ground cover areas, visually clean shall mean free of construction or work-related debris, paint chips or dust distinguishable from the initial soil or ground conditions.
34. Washroom/Hygiene Facility – A room or area established or designated outside the Work Area for personnel decontamination. For Class I work, or as specified, the washroom/hygiene facility shall contain a shower with hot and cold water and a water filtration system.
35. Waste Coordinator – HSU individual(s) identified to provide waste material handling, storage, transportation, disposal and general waste regulation compliance oversight and guidance.
36. Wet Cleaning – The process of eliminating dust contamination (lead and asbestos) from building surfaces and objects by using wet cloths, mops, or other cleaning tools which have been washed with specified detergent solutions and rinsed with clean water.

PART 2 PRODUCTS

2.1 MATERIALS – GENERAL

A. Contractor shall adhere to the following:
   1. Deliver all materials in the original packages, containers, or bundles bearing the name of the manufacturer and brand name (where applicable).
   2. All plastic, spray-on strippable coatings and structural materials used shall be UL certified as fire retardant or non-combustible.
   3. Spray adhesive for sealing polyethylene to polyethylene shall contain no methylene chloride compounds.

2.2 PROTECTIVE COVERING (PLASTIC)

A. Contractor shall adhere to the following:
   1. Polyethylene sheeting (poly) used onsite shall be (at minimum) 6-mil fire–retardant polyethylene and sized to minimize frequency of junctures, approved and listed by State Fire Marshall per the California Health and Safety Code Sections 13121 and 13144.1.
   2. Fire retardant polyethylene sheeting utilized for worker decontamination and critical barriers shall be a minimum thickness of 6-mil.

2.3 TAPE, ADHESIVE AND SEALANTS

A. Contractor shall adhere to the following:
   1. Self-adhesive tape, two inches or wider in width, capable of sealing joints of adjacent sheets of plastic, for attachment of plastic sheets to finished or unfinished surfaces and capable of adhering under both dry and wet conditions.
   2. Adhesives used onsite shall not contain methylene chloride compounds.
   3. Fire resistant sealants shall be compatible with concrete, metals, wood, cable jacketing, or other substrate as applicable to the abatement project site and containment construction. Sealant shall prevent fire, smoke, water, and toxic fumes from penetrating through sealants. Sealant shall have flame spread, smoke and fuel contribution of zero, and shall be rated by ASTM International, formerly American Society for Testing and Materials (ASTM), and Underwriters Laboratories (UL) for three hours via standard method of fire test for Fire Stop Systems.

2.4 PROTECTIVE PACKAGING/LABELING

A. Contractor shall adhere to the following:
   1. Poly bags used for containerizing asbestos waste shall be a minimum thickness of 6-mil and shall have appropriate asbestos warning labels.
   2. Impermeable drum containers, or other containers used to store asbestos waste, shall be sealed once filled and shall have the exterior cleaned prior to removal from Work Area containment.
   3. Asbestos warning labels as required by USEPA regulation 40 CFR 61.152 (b)(I)(iv), NCUAQMD, and/or applicable Cal/OSHA requirements, shall be affixed to packaging containing asbestos waste.
   4. Disposal drums, if used, will be 55-gallon United States Department of Transportation (DOT) A1A or DOT 17H with locking ring tops.
   5. Labels for packaging and containers containing asbestos waste must contain the following wording:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATH DUST
AVOID CREATING DUST

2.5 ENCAPSULANTS

A. Contractor may use a suitable encapsulant (lock-down) inside the Work Area after asbestos abatement has been completed and visually approved by HSU. Clear encapsulant compatible with replacement materials is suitable for renovation projects, while tinted encapsulants are suitable for building demolition projects.

B. Encapsulants used onsite shall not contain methylene chloride compounds.

2.6 EQUIPMENT

A. HEPA Equipment:
   1. Contractor shall provide a sufficient quantity of vacuums equipped with HEPA filtration systems as necessary to appropriately complete the work. Such equipment shall comply with ANSI Z9.2 (Local Exhaust Ventilation) and USEPA guidance document Guidance for Controlling Friable Asbestos Containing Materials in Buildings (USEPA 560/5–83–002).
   2. HEPA filtration systems shall be equipped with filtration equipment in compliance with ANSI Z9.2, local exhaust ventilation. No air movement system or air filtering equipment shall discharge unfiltered air inside or outside the Work Area.
   3. Contractor shall replace HEPA filters when filters become clogged with particulate matter. Provide enough air filtration devices within the Work Area to maintain fiber levels within the protection factors of workers' respirators.

B. Respirators:
   1. Contractor shall provide all workers, foremen, superintendents, authorized visitors, and inspectors personally issued and marked respiratory equipment approved by NIOSH. When respirators with disposable filters are employed, provide sufficient filters for replacement as recommended by respirator manufacturer(s).
   2. Contractor respirator selection of respirators shall be made according to 8 CCR 1529 and 5144, and the guidance of ANSI Z88.2; USEPA 560 OPTS–86.001; and Table 3 of this section.
   3. Selection of HEPA filters (N100, R100, or P100) shall be made according to 42 CFR Part 84.
   4. When positive pressure supplied air respirator (SAR) systems are employed, the air supply system shall provide Type I, Grade “D” breathing air in accordance with the Compressed Gas Association (CGA) Commodity Specification for Air (G7.1). If air compressors are used, they shall be dedicated breathing air compressors designed, equipped and properly maintained for breathing air use only. Note: it is not anticipated that SAR will be required for this project, however, if applicable, SAR use shall be in accordance with the following:
      a. The compressed air system for SAR’s shall be capable of delivering air according to the respirator manufacturer’s recommendations.
      b. The receiver shall have sufficient capacity to allow a 15-minute escape time for the respirator wearers in the event of compressor failure of malfunction.

c. SAR's with HEPA filter disconnect may be used as an alternate to the 15-minute escape time required with event of compressor failure.
d. The Compressed Air System shall have a carbon monoxide alarm and suitable inline air purifying sorbent beds and filters to assure Grade "D" breathing air.

C. Asbestos Exposure Limits
1. The following exposure limits and action levels will be adhered to for employee protection and establishing appropriate protection measures and controls as applicable for each process or operation.

TABLE 2 - CAL/OSHA EXPOSURE LIMITS FOR ASBESTOS

Airborne Contaminant	Permissible Exposure Limit (PEL) 8 Hour TWA	Short Term Exposure Limit (STEL) 30 Minute Excursion Limit
Asbestos	0.1 fiber/cm^3	1.0 fiber/cm^3

Notes:
- Permissible Exposure Limit (PEL): Employer must ensure no employee is exposed above this level based on an eight-hour time weighted average (8-hour TWA). Where expose levels exceed this level feasible engineering and work practice controls must be implemented. Respiratory protection and other protective measures are required pending feasible engineering controls. Other training, monitoring, and medical surveillance requirements apply for exposure levels exceeding PEL.
- Short Term Exposure Limit (STEL): Short term PEL–compliance is measured over 30 minutes during maximum exposure operations and is also known as the Excursion Limit.

D. Requisite Respiratory Protection
1. The minimum respiratory protection required for this project is as follows:
e. Class I Work:
1) Use powered air-purifying respirators (PAPRs) equipped with HEPA filter cartridges for Class I Work and all other asbestos-related work where the Contractor's exposure assessment indicates the exposure level to employees may, or has been shown to exceed 0.1 fibers/cc, but less than 1.0 fibers/cc.
f. Class II Work and Other Abatement Work:
1) Use negative pressure air-purifying respirators (half- or full-face) equipped with HEPA filter cartridges for Class II Work and all other asbestos-related work where the Contractor's exposure assessment indicates the airborne exposure level to employees has been shown to be less than one–tenth of one asbestos fiber per cubic centimeter of air (0.1 fiber/cc).
g. If airborne fiber concentrations outside the respirator exceed 1.0 fibers/cc, the Contractor shall use SARs operated in pressure demand mode. In addition, the following requirements apply for use of SARs:
1) Respirators shall be worn clipped to a belt above the quick disconnect fitting to minimize possibility of dislodging face mask when hose becomes snagged in the Work Area.

2) A minimum of two spare hoses to be available at any time to authorized visitors to allow entry without having to displace workers from the abatement area.
3) Pressure at the manifold connection to each airline must be set for the specific respirator make, model, and length of hose in use.

2. Alternate respiratory protection systems may be proposed by the Contractor, however exposure assessment documentation must be provided demonstrating that asbestos levels during previous comparable operations, performed under similar conditions within the past 12 months, were within the protection factors of the respirators to be used as outlined in Table 3.

TABLE 3 - RESPIRATOR PROTECTION FACTORS

Maximum Airborne Fiber Concentration Outside Respirator	Protection Factor	Minimum Acceptable Respirator
0.1 fiber/cc**	10	Half or full-face mask and dual cartridge air purifying respirator with cartridges approved for asbestos and with high efficiency filters. (e.g. P100 cartridges)*
1.0 fibers/cc	50 (half) 1000 (full)	Powered air purifying respirator (half or full face piece) with high efficiency (e.g. P100) filters.*
1.0 fibers/cc	1000	Type "C" supplied air respirators, full face piece, and operated in continuous flow or pressure–demand mode.
10.0 fibers/cc**	1000	Type "C" supplied air respirators, full face piece, operated in pressure demand mode.
Over 10.0 fibers/cc**	1000+	Type "C" supplied air respirators, full face piece, in pressure demand mode and equipped with an auxiliary positive pressure, self–contained breathing apparatus.

Notes:

- * Greater respiratory protection is always acceptable regardless of asbestos concentrations.
- ** Must demonstrate that the fiber levels will not exceed 0.01 f/cc inside the respirator based on nominal protection factor assigned to each properly selected and individually fitted make, model, and type of respirator assigned.
- Disposable (single use) respirators are not to be worn for protection against lead or asbestos.

2.7 GENERAL EQUIPMENT REQUIREMENTS

A. Contractor shall furnish the following equipment to personnel as needed to safely complete the work:
1. A sufficient supply of scaffolds, ladders, lifts, and hand tools (e.g., scrapers, wire cutters, brushes, utility knives, wire saws, etc.) shall be supplied to contractor personnel for material access and removal operations.
2. A sufficient supply of disposable mops, rags, rubber squeegees, rubber dustpans and sponges shall be supplied to contractor personnel for Work Area decontamination.

3. A sufficient supply of HEPA filtered vacuum systems shall be furnished during abatement and clean-up work. All scaffolding, ladders, and lifts must be in conformance with Cal/OSHA standards.
   a. Brushes utilized for removing loose asbestos containing material shall not have metal bristles.
   b. Metal bristle tools shall not be used onsite for abatement work
4. For Class I and Class II interior work, a sufficient number of negative air machines, each equipped with HEPA filtration systems, shall be installed by the Contractor within the work area to ensure maintenance of at least -0.02" of pressure differential between the interior and exterior of the containment.
5. Power tools equipped with HEPA filtered local exhaust ventilation shall be utilized during the installation of enclosures and supports if there is any need to disturb asbestos containing materials during this process. As an alternative to use of HEPA–equipped tools, asbestos material may be partially removed following controlled removal procedures approved by HSU.
6. Surfactant (wetting agent) is required to be used by the Contractor, if workers are impacting material containing the Amosite form of asbestos.
7. Full body disposable protective clothing, including head, body, and foot coverings shall be worn by all abatement workers for all Class I and II work, and will be furnished in sizes adequate to accommodate movement without tearing.
8. Additional safety equipment shall be furnished to all workers and authorized visitors, as necessary, including: hard hats meeting the requirements of ANSI Standard Z89.1–1981, eye protection meeting the requirements of ANSI Standard Z87.1–1979, safety shoes meeting the requirements of ANSI Standard Z41.1–1967 and disposable gloves.
9. Non-skid footwear shall be furnished to all abatement workers. Disposable clothing shall be adequately sealed to the footwear to prevent body contamination.

PART 3 PROJECT EXECUTION

3.1 REQUIRED LICENSURE/CERTIFICATES

A. Contractor shall be licensed by the State of California Contractors State License Board (CSLB) and be registered to perform asbestos related work with the Cal/OSHA. At a minimum, the contractor shall hold the following license classification:
   1. C-22 – Asbestos Abatement

B. Transportation of friable ACM or nonfriable ACM that has become friable:
   1. Contractor shall itself be or have a subcontractor who is a registered hazardous waste transporter with the California Department of Toxic Substances Control (DTSC). The contractor shall submit to HSU's Representative the names, terminal addresses and commercial hauler CA numbers for at least two potential hazardous waste haulers at least 10 days prior to the start of abatement activities. Notification fees shall be paid for by the contractor.

C. Subcontractors shall hold all licenses applicable to specified trade work.

3.2 PERMITS/NOTIFICATIONS

A. Contractor shall be responsible for obtaining all required notifications and permits, including payment of all associated fees, as needed to perform the work outlined in this specification, at no additional cost to HSU or its affiliates.

B. The following permits and/or notifications are applicable to the project:
   1. USEPA National Emissions Standards for Hazardous Air Pollutants (NESHAP) Notification
      a. A NESHAP notification form is necessary if the scope of work is planned to include removal of RACM in quantities greater than: 160 square feet, 260 linear feet, or 35 cubic feet.
      a. Contractor shall submit notification documentation to the NCUAQMD at least 10 business days prior to the planned commencement of abatement activities.
      b. If nonfriable ACM may become friable during removal and/or nonfriable ACM is impacted with mechanical means, the nonfriable ACM shall be reclassified as RACM and a NESHAP notification shall be submitted by the Contractor if the above-noted quantity thresholds are met or exceeded.
      c. If structural (load bearing) members are to be impacted and/or unweighted, meeting the USEPA definition of demolition, NESHAP notification is necessitated, regardless of the presence, absence, or quantity of any asbestos material.
   2. Cal/OSHA Temporary Worksite Notification
      a. Cal/OSHA Temporary Worksite Notification to the nearest Cal/OSHA office with jurisdiction over the project site must be made at least 24 hours prior to the commencement of asbestos-related work (8 CCR 1529(r) and 5203).

3.3 PROCEDURES

A. Contractor shall perform all Work in compliance with the most recent edition of all applicable federal, state, and local regulations, standards and codes governing asbestos abatement, transport, and disposal.
   1. Requirements include obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements associated with codes, regulations, and standards.

3.4 REGULATIONS, STANDARDS AND CODES (GENERAL)

A. General applicability of federal, state, and local regulations, standards and codes governing asbestos abatement, transport, and disposal, except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable regulations, standards, and codes have the same force and effect and are made a part of the contract documents as if copied directly into the contract documents, or as if published copies are bound herewith.

3.5 CONTRACTOR RESPONSIBILITY

A. The Contractor shall assume full responsibility and liability for the compliance with all applicable federal, state, and local regulations pertaining to work practices, transport, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site.

B. The Contractor is responsible for the installation of back flow protection and ground-fault circuit interrupters (GFCI) on all utilities provided by HSU.

C. The Contractor is responsible for providing training, medical examinations and maintaining training/medical records of personnel as required by the applicable federal, state, and local regulations.

D. The Contractor shall indemnify and hold HSU, HSU's representative and/or affiliates harmless for failure to comply with any applicable asbestos abatement, transport, disposal, safety, health or other regulation on the part of himself, his employees, or his subcontractors.

E. The contractor will be held responsible for any delays created by failure to comply with any applicable law or regulation.

F. HSU reserves the right to stop the contractor's work at no cost to HSU in the event that the contractor's noncompliance poses an imminent health and safety risk to HSU employees, contractors, consultants or individuals onsite during abatement activities. If the contractor fails to take effective measures to correct noncompliant work practices, then HSU shall contact the appropriate regulatory agency.

3.6 PRE-ABATEMENT SUBMITTAL REQUIREMENTS

A. Obtain written approval from HSU prior to starting onsite setup for asbestos removal work.

B. All work shall be performed in accordance with the requirements established by HSU, or HSU's authorized representative.

C. Contractor shall submit the following documentation at least five (5) business days prior to the anticipated commencement of site work. Copies of the below-listed documents shall be maintained onsite by the Contractor in an organized and tabulated project binder:
   1. Licensing and Registration
      a. Submit copies of current and valid certificates for the following:
         1) Contractor's license and Contractor's asbestos certificate issued by the California Department of Consumer Affairs Contractors State License Board (CSLB)
         2) Registration for Asbestos–Related Work from Cal/OSHA in accordance with 8 CCR, Article 2.5 (asbestos abatement Contractors only)

2. Notifications, Communications and Postings:
   a. Contractor shall provide copies of all required notifications with signatures/stamps indicating submittal date, including:
      1) Cal/OSHA Notification:
         a) Temporary worksite notification shall be submitted to Cal/OSHA at least 24 hours prior to commencement of abatement activities.
      2) NESHAP Notification
         a) As applicable to the project work, a NESHAP notification form shall be submitted to the NCUAQMD at least 10 business days prior to the commencement of abatement work.
   b. Where local police and fire departments have jurisdiction, provide required notifications
3. Project Schedule
   a. A work schedule shall be provided to HSU by the Contractor detailing the anticipated dates of abatement work. The schedule shall include, at minimum, the following information: onsite work start date, containment setup completion (pre-abatement inspection), abatement start date and abatement completion date (post-abatement inspection).
4. Respiratory Protection Plan
   a. Submit a work–site specific written respiratory protection plan along with a written standard operating procedure governing selection, fit testing, use, and storage of respirators in accordance with applicable regulation. Include National Institute of Occupational Safety and Health (NIOSH) Certification and manufacturer's information that indicates respirators to be used in this project have been properly selected for the anticipated hazards and hazard levels.
5. Detailed Work Plan
   a. Submit a detailed work plan proposed for use in complying with the requirements of the specifications, as well as local, state and federal regulations, at each abatement/removal location and phase. Each work plan shall include:
      1) A drawing or sketch showing details of each containment area including location of the containment boundaries, decontamination enclosure system(s), portable fire extinguishers and emergency exit routes.
      2) Description of Regulated Area/Containment construction including materials used
      3) Description of proposed removal methods, equipment, and materials for each type of hazardous material and condition.
      4) Emergency Procedures for containment and clean-up of hazardous materials if there is an unexpected breakage or breach of containment.
      5) Detailed schedule for completing hazardous materials work within the allowable time frame. The schedule shall identify hours of work and locations of work and the anticipated schedule of completion (number of days) for each regulated Work Area or removal phase of work. Note: actual start and completion date(s) may be provided with the overall project schedule.
      6) Method of secure storage of hazardous materials and all asbestos wastes at the site.

6. Waste Transportation and Disposal
    a. Contractor shall provide the following to HSU:
        7) Name, address, USEPA identification (ID) number and telephone number of each transporter of hazardous material waste.
        8) Name, class, address, USEPA identification number and telephone number of each treatment, storage, and disposal (TSD) waste site(s) to be utilized for disposal of asbestos wastes. Clearly indicate what wastes are anticipated to be disposed or recycled at each TSD site or facility.
7. Rental Equipment Notifications
    a. When rental equipment is to be used in Work Areas or to transport asbestos waste materials, Contractor shall provide a copy of written notification given to the rental company informing them of the nature of use of the rented equipment. Otherwise, the Contractor shall certify that no rental equipment is to be used.
8. Product Data
    a. Manufacturer's product data for all items required for complete and proper execution of the work, this includes but is not limited to product data for items listed in the Products Section as applicable. Product data shall include manufacturing product data, specifications, application instructions; safety data sheets (SDS), formerly known as material safety data sheets (MSDS), and other information as necessary or required. All data sheets must be legible. Do not submit data for products not intended for use on this project.
    b. HEPA filter certifications shall be provided for each piece of HEPA equipment to be used onsite. HEPA certifications shall be issued by a third-party and dated within 30 calendar days of the start date of the project. The certifications shall verify that the HEPA filters are operating at or above 99.97% efficiency and in accordance with manufacturer specifications. Certification documentation shall include: the date of the test, the test result (pass/fail), and the specific serial number of the equipment tested.
9. Personnel Qualifications
    a. Personnel documents required by this section shall be organized by individual employees and must be current and valid. Employees who do not have all the required valid documentation present onsite shall not be permitted to conduct work.
    b. The following documentation for shall be provided by the Contractor for each employee who performs work onsite.
    c. Training Certificates
        1) Submit documentation that Contractor's employees, including foreman, supervisor, and any other company personnel or agents who may be exposed to airborne asbestos fibers or who may be responsible for any aspects of abatement activities, have received training as required by CFR 1926.1101 and 8 CCR 1529.
        2) Submit copies of abatement personnel Cal/OSHA Asbestos Worker and/or Contractor Supervisor Certifications
    d. Medical Examination
        1) Submit proper documentation, in the form of the physician's written opinion, showing that all asbestos abatement personnel scheduled for this project have had the appropriate medical examinations applicable to their assignments.

Exams must be conducted in accordance with 8 CCR 1529 for asbestos and 8 CCR 5144 for respiratory protection. Note: Respiratory use evaluation exams alone do not suffice for asbestos work. Do not submit actual medical exam results. The written physician's opinion should indicate what type exam(s) was provided and whether there are limitations on the worker.

e. Respirator Fit Tests
   1) Submit proper documentation that personnel who will be entering Regulated Areas have had a qualitative respirator fit test performed within the last 12 months for all face-fitting respirators.

10. Supervision/Quality Control
    a. Submit name(s) and contact information for Contractor's Competent Person and any additional personnel responsible for inspection of Work Area containments, completion status, personal air monitoring and to ensure general contract and regulatory compliance on behalf of the Contractor for this project.

D. Daily and Other Progress Submittals
   1. Submit the following information to HSU at the completion of abatement work, or as requested by HSU:
      a. Submit an employee roster for each work shift
         1) Submit Work Area entry/exit log for each work shift
         2) Personal Air Monitoring Results
            a) Provide copies of all personal air sampling results, 8-hour TWA and short-term exposure limit (STEL) results as applicable.
      b. Waste Characterization Results
         1) Waste characterization laboratory analytical results and waste profiles for each waste stream as applicable. This is allowed only where homogenous materials such as wallboard systems are removed without cross contamination with other materials for disposal purposes. Note: Removed RACM shall be considered a non-Resource Conservation and Recovery Act (non-RCRA) California hazardous waste and removed non-friable ACM uncontaminated by RACM shall be disposed of as non-friable ACM waste.
      c. Waste Manifests and Shipping Records
         1) For each shipment of asbestos from the site; the Contractor shall submit copies of completed, signed manifests and/or shipping records as appropriate. For hazardous waste manifests, submit the generator and the DTSC copies including a copy of the completed Land Disposal Restriction Form for each shipment.

E. Special Reports
   1. The Contractor shall submit a special report of any event or incident of significance which occurs at the site. Significance means the event or incident did or could have resulted in an environmental spill or release, immediate agency reportable injury or illness, or reportable property damage. The report shall include the date and time of the event, activities leading up to the event, a detailed account of the event, persons involved, corrective actions taken, and action taken to prevent a reoccurrence.

3.7 POST–ABATEMENT SUBMITTAL REQUIREMENTS

A. Following the conclusion of abatement activities, the Contractor shall submit documentation that includes, without limitation, the following to HSU:
   1. Submit copies of the Work Area entry/exit log. Log must record name, affiliation, time in, and time out for each entry into the Work Area.
   2. Submit results of required Cal/OSHA personnel air monitoring. Results shall be made available to HSU within one calendar week after the performance of air sampling.
   3. Submit copies of all accident/incident reports where injury or damage has occurred on or to HSU's property.
   4. Submit copies of daily logs indicating location(s) worked, type of materials removed, quantity of materials removed and number of personnel conducting the activities.
   5. Submit copies of manometer charts and/or records.
   6. Submit copies of all hazardous waste manifests and shipping documents for hazardous and non–hazardous asbestos wastes.

3.8 NOTICES

A. Post in the Work Area the name(s) and telephone number(s) of the Abatement Contractor as well as the following individuals:
   1. HSU Onsite Project Coordinator – to be determined

B. Post in the clean room area of the worker decontamination enclosure a list of all persons authorized to enter the Work Area.
   1. Additional postings shall include, but not be limited to:
   2. Visitor Entry and Exit Log
   3. Employee Daily Sign-in Log
   4. Entry and Exit Procedures
   5. Emergency Procedures
   6. Federal OSHA “Danger” Warning Signs
   7. Proposition 65 Warning Signs
   8. Cal/OSHA Asbestos Registration
   9. Cal/OSHA Carcinogen Registration
   10. Cal/OSHA Temporary Worksite Notification
   11. NESHAP Notification(s) (and Local Enforcement Agency [LEA], if applicable)
   12. Emergency Exit Diagram (including placement of fire extinguishers)
   13. Emergency Phone Numbers and Location of Phone
   14. Federal OSHA Poster on Workers’ Rights
   15. Workman’s Compensation Poster

3.9 ONSITE RECORDS

A. Onsite records shall include, but not be limited to the following:
   1. Hazard Communication (HAZCOM) Program and Injury Illness Prevention Program (IIPP)

a. HAZCOM/IIPP to include: Written plan with required topics, material safety data sheets for products at the site, documentation of training, and proper labeling and handling of containers
2. Emergency Action and Fire Prevention Plan
3. Respiratory Protection Program (Include documentation of training)
4. Personal air sampling results
5. Documentation of asbestos training for all abatement workers and supervisors

3.10 SITE USE AND SECURITY

A. Confine operations at the site to the areas permitted under the Contract. Portions of the site beyond Work Areas are not to be disturbed.

B. Access to the Work Area shall be restricted to authorized, trained and protected personnel, including Contractor, HSU, HSU's project management personnel or authorized representative, State and local inspectors.

C. It is the Contractor's responsibility to ensure that the entire abatement Work Area is closed to entry by all personnel with the exception of abatement workers and HSU project management personnel or authorized representatives. Ensure that all spaces in the project area are unoccupied prior to and during work.

D. Entry into the Work Area by unauthorized individuals shall be reported immediately to HSU Project Management personnel.

E. Contractor shall be responsible for project site security during abatement operations in order to protect work efforts and equipment.

F. Contractor shall notify other contractors who will be performing work at the project site of the presence and location of ACM, ACCM, and RACM at the project site as well as the abatement project schedule.

3.11 SAFETY

A. The Contractor has sole responsibility for the safety of Contractor's personnel, subcontractors and vendors. The Contractor is also responsible for ensuring project work under the Contractor's control does not endanger any other project personnel, members of the public or the environment.

B. The Contractor shall take all necessary personal protective measures and provide sufficient safety training related to the following anticipated hazards, including but not limited to: asbestos, lead, organic vapors from solvents/chemical agents, noise, heat stress/stroke, hypothermia, confined space(s), electrical safety (including lockout and tag out), fall protection/fall hazards, water usage, work in vicinity of hot objects, power tool usage, eye hazards/protection and falling object hazards/protection.
1. Safety Compliance

a. The Contractor shall comply with this section and all laws, ordinances, rules, and regulations of federal, state, regional and local authorities regarding removal, handling, storing, transporting and disposing of asbestos waste materials and conducting construction work. Where requirements of this section and any regulation or reference documents may vary, the most stringent requirements shall apply to this project.
b. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting work.

3.12 HSU'S REPRESENTATIVE

A. The HSU's Representative shall act as HSU's designee onsite and is authorized to observe the Contractor's hazardous material related work, including but not be limited to: Contractor document submittal review; Work Area containment, removal processes, cleaning, post-abatement evaluations, air monitoring and observation of disposal operations.

B. The work of HSU's Representative does not relieve the Contractor of the responsibility to fully and completely comply with contract documents and all applicable regulations.

3.13 COMPETENT PERSON

A. The Contractor-assigned Competent Person for this project shall conduct inspections as needed to ensure compliance with this specification and applicable regulations.

B. The Competent Person may designate a qualified representative to assist or conduct quality assurance/quality control (QA/QC) activities including: containment inspections, exposure air monitoring and compliance checks for the Contractor.

C. The Competent Person will coordinate scheduling of required inspections with HSU's Representative and will promptly respond to reports of non-compliance or unsatisfactory work when notified of such by HSU's Representative or any other concerned person.

3.14 EMERGENCY PLANNING

A. Emergency planning and procedures shall be developed by Contractor prior to abatement/work initiation.

B. Emergency procedures shall be in written form and prominently posted. Contractor shall ensure that all persons entering the Work Area read these procedures and understand the Project site layout, location of emergency exits and emergency procedures.

C. Emergency planning shall include considerations of fire, explosion, electrical hazards, slips, trips and falls, confined spaces, and heat related injury. Written procedures shall be developed and employee training in procedures shall be provided by Contractor.

D. Employees shall be trained in evacuation procedures in the event of workplace emergencies.

1. For non-life-threatening situations, employees injured or otherwise incapacitated shall decontaminate following normal procedures with assistance from fellow workers, if necessary, before exiting the work place to obtain proper medical treatment.
2. For life-threatening injury or illness, worker decontamination shall take least priority. After measures to stabilize the injured worker, remove him from the workplace and secure proper medical treatment.
3. Telephone numbers of all emergency response personnel shall be prominently posted in the clean and equipment rooms.

3.15 FIRE PROTECTION

A. All plastic, spray-on strippable coatings, and structural materials used in the asbestos abatement process shall be UL approved and certified as fire retardant or noncombustible.

B. Safety data sheets for fire retardant materials and other chemicals used at the project site shall maintained onsite by the Contractor and made available to HSU and other employees upon request.

C. All combustible waste and debris, including properly bagged asbestos, shall be properly containerized and/or disposed of at the end of each working day.

D. A minimum of one (1) 4-A, 60-B, C dry-chemical extinguisher shall be maintained at each of the following locations:
   1. One in each Work Area and one near each decontamination area
      a. Exception: Where the total abatement containment area is less than 1,000 square feet, two (2) 4A/60BC extinguishers shall be provided. All extinguishers shall be clearly identified with high–visibility tape and/or signage on the walls.
   2. Contractor shall ensure that onsite personnel are aware of the location and proper use of all extinguishers and other fire/life safety equipment.

E. Existing fire detection, alarm systems, connections and standpipes shall remain in place, active and unobstructed, unless deactivated by planned utility disconnection or lock-out/tag-out. Any alteration to this equipment must be approved by HSU.

F. Contractor shall conduct activities in accordance with all procedures and requirements of the local fire department.

3.16 GENERAL EXECUTION

A. Coordination Requirements
   1. Coordinate all asbestos related work with non-asbestos work to prevent exposure to unprotected personnel.
   2. Phase asbestos removal work activities and general construction/demolition work accordingly to prevent non–asbestos operations from impacting asbestos air sample results outside removal Work Areas.

3. Coordinate and complete the shut down and isolation energized electrical power to the Work Area(s) to the extent possible and install temporary power as needed. Power lines which must remain energized to support other building/facilities shall be marked and adequately protected.
4. Coordinate and provide to HSU's Representative the required number of power outlets needed inside and outside each Work Area to provide compliance and/or post-abatement air monitoring, as applicable.

3.17 ASBESTOS ABATEMENT PROCEDURE PLANS

A. Submit a detailed plan of the work procedures for abatement of asbestos materials to HSU or authorized representative, including the following:
   1. A description of personnel monitoring procedures in accordance with 8 CCR 1529.
   2. Proposed schedule of abatement work, phasing of abatement, number of containment areas, and work indicating daily roster of workers for each phase.
   3. Security system warning signs locations in accordance with 8 CCR 1529.
   4. Detailed plan-view figures, showing location of decontamination facilities, waste load-out path(s) of travel, access/egress routes, waste storage, and equipment staging areas.
   5. Standard procedures for protecting workers, visitors, and employees and protection of spaces outside Work Area from contamination.
   6. The Work Area containment shall be sized to adequately contain the amount of material expected to be disturbed during the project task.
   7. Visible emissions of dust are not to be produced during asbestos abatement.
   8. Wind shall be understood to affect the Work Area and the Contractor shall address the effect of wind on the abatement process in the work plan, including mitigation measures which prevent the migration of loose debris outside of the containment due to wind.

3.18 DECONTAMINATION ENCLOSURE SYSTEMS

A. Worker decontamination enclosure systems (decon units) shall be provided for asbestos abatement locations where workers will enter or exit regulated and contained Work Areas.

B. Worker decontamination enclosure systems shall consist of at least the following three distinct areas:
   1. Clean Area
   2. Hygiene Area, including an operable shower equipped with water heater and wastewater filtration systems (Note: shower not required for Class II work, however a hygiene facility allowing adequate worker decontamination of person and equipment is required)
   3. Equipment Area
      a. Contaminated work footwear shall be stored in the equipment room when not in use in the Work Area. Upon completion of asbestos–related work, dispose of footwear as contaminated waste, if complete decontamination is not possible.

C. The entrance to the work area and/or decon unit shall be securable to prevent unwanted entry.

D. Clean areas/room shall be sized to adequately accommodate the work crew. Space for storing respirators shall be provided in this area. Clean work clothes, clean disposable clothing, replacement filters for respirators, towels and other necessary items shall be provided in adequate supply at the clean room. A location for posting notices shall also be provided in the area.

E. Alternate methods of providing decontamination facilities may be submitted to HSU or authorized representative for approval. The contractor shall not proceed with any such method(s) without written authorization.

3.19 MAINTENANCE OF CONTAINMENT SYSTEMS

A. Ensure that barriers and plastic linings are effectively sealed and taped. Repair damaged barriers and remedy defects immediately upon discovery.

B. Visually inspect containments at the beginning of each work period and continuously throughout the shift.

C. Document all tests and observations on a daily log and provide a copy of documentation to HSU at the completion of the abatement project, or as requested by HSU.

3.20 WORKER DECONTAMINATION

A. Provide authorized visitors with suitable protective clothing, hardhat, eye protection, and footwear whenever they enter Work Area.

B. Each worker and authorized visitor shall, upon entering the job site: remove street clothes in the clean-change room and don a respirator and clean protective clothing before entering the equipment room or Work Area.

C. Workers shall, each time they leave the Work Area adequately decontaminate their persons, including the following:
   1. Remove gross contamination from clothing before leaving the Work Area
   2. Proceed to the equipment room and remove protective clothing, except for respirator
   3. While wearing the respirator, individuals shall proceed to the decontamination unit
   4. The outside of the respirator shall be cleaned
   5. For Class II work: individuals are to decontaminate themselves using a Contractor–established hygiene facility and HEPA vacuum

D. Following decontamination, each worker shall proceed directly to the change room and dress in clean clothes at the end of each shift and before eating, smoking, or drinking. Before re-entering the Work Area from the clean change room, each worker and authorized visitor shall put on a clean respirator and shall dress in clean protective clothing.

E. Workers removing waste containers from the equipment decontamination enclosure shall enter the holding area from outside wearing a respirator and dressed in clean disposable

coveralls. No worker shall use this system as a means to leave or enter the washroom or the Work Area.

F. Workers shall not eat, drink, smoke, chew gum, apply cosmetics, or use tobacco while in the Work Area.

3.21 ESTABLISHMENT OF REGULATED AREAS

A. Signage
   1. A regulated area shall be established to include all Work Areas within which asbestos may be impacted. Post warning signs meeting the specifications of 8 CCR 1529 at perimeter/entry points to the regulated area where airborne concentration of asbestos fibers may exceed ambient background levels.
   2. Signs shall be posted at a distance sufficiently far enough away from a Work Area to permit a person to read the sign and take necessary protective measures to avoid exposure.
   3. Language for warning signs is typically presented in the following format:

DANGER
ASBESTOS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
AUTHORIZED PERSONNEL ONLY
WEAR RESPIRATORY PROTECTION AND
PROTECTIVE CLOTHING IN THIS AREA

B. Critical Barriers
   1. Isolate the Work Area(s) by installing critical barriers constructed with two layers of 6-mil fire retardant polyethylene sheeting across all openings (critical barriers) where airborne asbestos fiber migration may cause secondary asbestos contamination. Curtained doorways shall be installed for personnel decontamination areas requiring entry/egress.

3.22 PERSONNEL AIR MONITORING

A. Air monitoring required by Cal/OSHA is the obligation of the Contractor. The Contractor is responsible for providing daily Cal/OSHA compliance monitoring as per 8 CCR 1529 (Asbestos) and 1532.1 (Lead). Contractor shall monitor workers for both asbestos and lead exposure.
   1. At a minimum, Contractor shall conduct representative breathing zone personal air monitoring of its employees once each shift and repeated daily or until a negative exposure assessment, as derived in accordance with 8 CCR 1529 (f)(2)(C) and 8 CCR 1532.1 (d) can be established.
   2. Representative air monitoring shall include not less than 25 percent of Contractor employees engaged in abatement work.

3. Monitoring shall be conducted by a qualified air professional experienced and knowledgeable about the methods of air monitoring and in accordance with 8 CCR 1529 and 1532.1.
4. Monitoring results and appropriate laboratory analysis work shall be submitted to HSU or authorized representative within seven days of the monitoring work.

3.23 ASBESTOS ABATEMENT PREREQUISITES

A. Abatement Prerequisites
   1. Asbestos abatement work shall not commence until:
      a. Submittals as required herein have been reviewed and approved in writing by HSU
      b. A securable waste dumpster present onsite lined with one layer of 6-mil polyethylene sheeting
      c. Competent Person and HSU or authorized representative have inspected and approved the containment system for start of asbestos-related work
      d. Work area is securable from unauthorized entry during removal as well as non–work hours and non-workdays

B. Pre-abatement Visual Inspection
   1. A pre-abatement visual inspection of the regulated Work Area will be conducted after the preparation of the Work Area and prior to the commencement of abatement work. The pre-abatement visual inspection will be conducted by HSU and/or HSU's authorized representative to evaluate containment preparation, the establishment of engineering controls and the installation of critical barriers.
   2. Contractor shall notify HSU at least 48 hours prior to the anticipated completion of containment setup work to be evaluated by the pre-abatement visual inspection.
   3. Abatement work shall not commence until HSU has authorized the commencement of work by the Contractor.

3.24 GENERAL PREPARATION REQUIREMENTS FOR ABATEMENT WORK AREAS

A. Prior to Work Area set up and preparation, remove all movable objects and debris that are not contaminated with asbestos, and/or that will not disturb existing ACM or asbestos contaminated materials, from the Work Area.
   1. Conduct any required non-ACM selective demolition including demolition to reveal concealed ACM prior to starting ACM removal work.

B. Shut down electric power to the Work Area to the greatest extent possible. Consult with HSU and HSU's representative before shutting down power. Provide temporary power and lighting and ensure safe installation of temporary power sources and equipment per applicable electrical code requirements and provide ground fault interrupter circuits as power source for electrical equipment.

C. The containment shall be constructed and sized appropriately to contain all debris which may be generated by within the Work Area.

D. Contractor shall coordinate with HSU to ensure water sources are active and available to supply water to the Work Area for remediation activities.

E. Contractor shall coordinate with HSU to ensure shut down, isolation lock-out/tag-out of all HVAC air systems which affect the Work Area.
   1. The openings of ventilation intakes and exhausts within the Work Area shall be sealed with tape and plastic sheeting.

F. Seal roof openings, including but limited to drains, vent penetrations and any other penetrations of the Work Area, with two layers of 6-mil polyethylene sheeting sealed with tape.
   1. Seal all open conduit/piping/vents, junction boxes, and ductwork to remain. Cover and protect components to remain during abatement.

G. Waste containers connected to the regulated Work Area via shoots or other mechanisms shall be considered part of the Work Area and such waste staging areas prepared and demarcated according to these specifications.

H. Install a decontamination enclosure system or equivalent prefabricated portable decontamination unit(s) as approved. This system will be the primary entrance and exit to the Work Area.

I. Guard rails, or other fall protection systems, shall be installed as necessary at roof perimeters or other elevated work areas greater than six feet above the ground in compliance with Cal/OSHA working at heights requirements, including 8 CCR 1620, 1621 and 3210.
   1. Where work necessitates worker approach to within six feet or less of a leading edge, fall protection shall be employed which complies with Cal/OSHA Approved Personal Fall Arrest, Personal Fall Restraint or Positioning Systems per 8 CCR 1670.

J. Pre-clean fixed objects and surfaces within the proposed Work Areas that are not to be disturbed during abatement, using HEPA filtered vacuum equipment and/or wet cleaning methods as appropriate, and enclose with protective barriers. Protective barriers will consist of plastic sheeting and plywood as appropriate.

K. Establish and maintain emergency and fire exits from each Work Area.

3.25 CLASS I ASBESTOS REMOVAL OPERATIONS

L. Class I Work Area Preparation (General)
   1. The following methodology shall be used when preparing for Class I work at the project site:
      a. Cover floor surfaces with two independent layers of 6-mil polyethylene sheeting sealed with tape. Cover the floor so that the polyethylene sheeting extends up the wall at least 12 inches.
         1) If abatement scope of work, includes removal of flooring systems, then the requirement for floor covering may be disregarded.

b. An additional layer of polyethylene sheeting encompassing the entire floor of the work area (drop sheet) shall be used during periods of gross material removal.
c. Differential pressure equipment shall be installed, operating continually during abatement project and able to maintain a negative pressure of at least -0.02" of water column with a minimum of four (4) air changes per hour during abatement.
d. A manometer, with digital and print readout, shall be operating continuously during Class I work to document the maintenance of negative pressure within the containment.

M. Class I Abatement Procedures (General)
1. The following methodology shall be used when performing impaction of Class I work at the project site:
2. Conduct any necessary non-asbestos demolition required to expose concealed ACM such as pipe insulation, flooring or wallboard prior to the start of any ACM removal.
3. Install any necessary hard barriers, pony walls, and critical barriers necessary to seal openings to spaces beyond the Work Area as necessary to ensure negative pressure is maintained at -0.02" or more throughout the removal process. Add additional HEPA capacity as necessary after installing all additional critical barriers.

N. Use wet removal procedures:
1. Spray asbestos materials with water, using spray equipment capable of dispensing a fine mist application. Saturate material without causing excess water pooling.
2. Spray materials and work area repeatedly to control airborne fiber levels and mitigate visible emissions during project work.
3. In work areas with active electrical equipment, spray material with only enough water to dampen material, do not saturate material. Immediately vacuum up any standing water on floor of the work area.
4. Electrical cords should be secured above the floor and kept away from areas of accumulated water.

O. Remove saturated asbestos materials in small manageable sections. As it is removed, immediately place materials in six mil sealable plastic bags or appropriate containers labeled for asbestos wastes.

P. All waste put in plastic bags must be sealed using the "goose neck" technique by twisting the neck of the bag, bending it over and taping it with multiple wraps of tape.

Q. Clean external surfaces of containers thoroughly in the designated wet cleaning area of the equipment decontamination unit/area. Wet wipe each container thoroughly and move to holding area pending removal to uncontaminated areas.

R. Ensure that waste containers are removed from the holding area by workers who have entered from uncontaminated areas dressed in clean coveralls. Ensure that workers do not enter from uncontaminated areas into the washroom or the Work Area.

S. After completion of asbestos–related work, surfaces from which asbestos has been removed shall be Wet Cleaned and decontaminated to remove all visible material and residue. During this work the surfaces being cleaned shall be kept damp. Do not allow water to pond at any time.

T. Remove outer layer of polyethylene sheeting (drop sheet) only. Clean all surfaces of the work area, including remaining poly sheeting, using wet methods and HEPA-filtered vacuums.

U. Mini Containments:
   1. The use of mini-containments shall be permitted only if entire removal can be completely contained by the enclosure or as needed to isolate the HVAC, plumbing, electrical or other system as part of localized preparatory activities.
   2. Mini–containments shall be constructed with rigid framing and shall have a minimum of one layer of 6-mil polyethylene sheeting sealed with tape.
   3. The mini–containment enclosure shall have a decontamination enclosure system in accordance with the requirements herein or as approved by the HSU or designee.
   4. The mini–containment enclosure shall be placed under negative pressure for the duration of work in the containment until a visual inspection performed by HSU or HSU designee has established that the area is clean.

3.26 CLASS II ASBESTOS REMOVAL OPERATIONS

A. Class II Work Area Preparation
   1. Prepare Work Area applicable regulations and this specification including, but not limited to: HVAC isolation, electrical isolation, pre-cleaning, establishment of critical barriers and decon units.
   2. Cover floor, windows, doors and other surfaces not scheduled for removal with two layers of 6-mil poly sheeting. Sealy poly sheeting appropriately to mitigate contamination of covered surfaces and/or adjacent areas.
   3. Where Class I Asbestos Work and Class II Asbestos Work will be conducted in same work area, the Contractor shall perform the removal as required for Class I work.
   4. **For interior Class II work**: Work Area(s) shall be prepared in accordance with the negative pressure containment requirements stipulated herein and the Class II work conducted under negative pressure. Negative pressure shall be maintained within the Work Area until the clearance requirements have been met.

B. Class II Work Procedures (General)
   1. Use wet methods continuously during abatement work to ensure visible emissions are not produced during abatement work.
      a. Do not allow water to pond or drain outside of the Work Area.
   2. Use hand-tools to cut, loosen and remove material from substrate.
   3. Use HEPA-equipped vacuum to address dust/debris generated during removal.
   4. Immediately place removed materials in labeled 6-mil waste bags or labeled containers and seal such containers immediately after filling.

5. If visible dust is produced at any time during the operation, immediately stop work and mist area with water.
6. Do not allow abatement-related debris (including water) to migrate out of the Work Area.
7. The Contractor shall regulate all areas contaminated with abatement-related debris similarly to the Work Area and include such areas within the abatement containment and scope of cleanup work.
8. If mechanical means are used on any nonfriable ACM, such material shall be considered to be rendered friable (RACM) and subsequently disposed of as a non-RCRA California hazardous waste.
9. Complete Work Area clean-up: clean all exposed surfaces in the Work Area using wet methods and HEPA vacuum equipment.
10. All waste shall be double bagged and/or sealed in a leak-tight container prior to removal from the regulated area.
    a. The Contractor shall only remove as much material as can be properly containerized during that work shift.
    b. Loose debris shall be containerized no later than the end of each work shift.
    c. All containerized debris shall exhibit adequate wetting.
    d. Waste shall not be staged within the Work Area overnight.
    e. The method used to deliver waste bags from the Work Area into the waste containers shall not produce visible dust or uncontained debris.

C. Drilling into Asbestos Wall Systems
1. Work Areas where only drilling impacts to wall systems are planned shall be prepared in accordance with the Class II Work Area Preparation procedures outlined above in this Section, excluding Subsection 3.26(A)(4), as the HEPA-equipped dust collection systems noted below in 3.26(C)(4)-(5) satisfies the negative pressure requirement for interior work.
2. Signage and/or barrier tape shall be established by the Contractor to delineate the boundary of the Work Area.
3. Impacts to wall systems containing asbestos shall be conducted in accordance with the Class II Work Procedures outlined above in this section.
4. Drills and other power tools shall be equipped with HEPA-filtered dust collection systems (shrouds).
5. Dust collection systems shall be capable of capturing all dust produced by the shrouded tool at the point of dust generation (point source collection) and shall be operational at all times during use of the shrouded tool.
6. Personnel air monitoring shall be conducted by the Contractor in accordance with this Section on a representative selection of their workers using shrouded tools. Representative air sampling shall include at least 25% of the crew and shall not be less than one (1) worker per shift.
7. Dust and HEPA filters associated with the dust collection system shall be properly contained and disposed of as RACM.
8. Any accumulated dust and/or debris within the Work Area after the completion of drilling shall be the Contractor's responsibility to remove, contain, and dispose of as RACM.
9. Post-drilling Work Area Inspection and Air Sampling:

a. After the completion of all drilling and cleaning within a given Work Area, the Contractor shall request a visual inspection from HSU.
b. HSU's representative shall conduct a visual inspection of the Work Area in general accordance with Subsection 3.29(A).
c. At HSU's discretion, air sampling may be conducted within the Contractor's Work Area(s). If applicable, air sampling would be conducted in general accordance with Subsection 3.29(B).

3.27 ENCAPSULATION

A. Encapsulants shall not be applied within the containment until the area has been visually inspected by HSU or authorized representative.

B. Any encapsulating agent to be applied shall adhere to the substrate surfaces from which asbestos containing material has been stripped.

C. The encapsulating agent shall not be flammable and should not be solvent-based or utilize a base (the liquid in which the solid parts of the encapsulant are suspended) containing hydrocarbons.

3.28 EXTENSION OF WORK AREA

A. If a critical barrier is breached and/or a spill occurs outside the Work Area or regulated area, the Work Area shall be extended to include the affected area.

B. Take all necessary precautions to prevent the spread of asbestos debris and/or asbestos fibers during extension of the Work Area.

C. Construct the extended Work Area in accordance with the requirements of the asbestos work class involved.

D. Clean all surfaces within the work area using wet methods and HEPA vacuum equipment. Floor and wall surfaces shall be free of any visible asbestos material, debris and/or dust.

E. The Competent Person shall perform a complete visual inspection of the Work Area under adequate lighting to ensure that the Work Area is free of visible asbestos material, debris, dust, waste bags or containers, and equipment. Additional cleaning shall be conducted until the area is completely clean of all dust, debris, and residues.

F. Request post-abatement inspection by contacting HSU and HSU designee. Request(s) shall be submitted by the contractor at least 48-hours in advance of the anticipated inspection time.

G. If the HSU or designee finds the work area decontamination to be acceptable for encapsulation based on visual inspection, spray substrate surfaces with a lock down encapsulant. Apply encapsulant coating using airless spray equipment as specified by the manufacturer. If the work area is not found to be visually acceptable, the area must be re–

cleaned and decontaminated prior to subsequent inspections by HSU or authorized representative.

H. Decontaminate all tools and equipment and remove at the appropriate time in the cleaning sequence.

I. Remove and containerize all visible accumulations of asbestos containing material and asbestos contaminated debris utilizing rubber dust pans and rubber squeegees to move material around. Do not use metal shovels to pick up or move accumulated waste.

J. Asbestos containing/contaminated waste shall be placed in disposal bags. Disposal bags shall be 6-mil polyethylene, pre-printed with labels as required by USEPA regulation 40 CFR 61.152 (b)(I)(iv) and Cal/OSHA 8 CCR 1529 (k)(8).

K. Dry sweeping of any debris is prohibited. All loose debris is to be kept wetted. All debris is to be cleaned frequently and placed, while still wet, in disposal bags.

L. Waste disposal bags are to be double bagged. The first bag is to be taped closed. The second bag is to be taped closed, closed in a goose necked fashion, and taped closed again prior to removal from containment.

M. Dispose of ACCM, ACM, RACM and contaminated waste in accordance with this specification and applicable regulations.

3.29 CLEARANCE PROCEDURES

A. Post-Abatement Visual Inspection
   1. Contractor shall notify HSU at least 48 hours prior to the anticipated completion of abatement work to be evaluated by the post-abatement visual inspection.
   2. Prior to post-abatement visual inspection, Contractor shall remove all containerized waste from the work areas. HSU's project management and/or HSU or designee personnel will inspect the work area for visible residue. The post-abatement visual inspection may include use of tools, flashlight, hand-wiping or other methods to observe residual dust/debris.
   3. If unacceptable accumulation of residue is observed, it will be assumed to be asbestos and a second cleaning cycle and settling period repeated at no additional cost to HSU or the HSU or designee.
   4. All critical barriers and decontamination areas shall remain in place until abatement area has been sufficiently cleaned and passed both post-abatement visual inspection as verified by HSU or authorized representative and air monitoring.

B. Post-Abatement Air Monitoring
   1. Following the completion of final clean-up operations, visual inspection and encapsulation, HSU may, at their discretion, collect post-abatement air sampling.

2. If air sampling is to be conducted, HSU shall notify Contractor that sampling to be conducted, then collect samples within the Contractor's work area in accordance with this subsection.
3. Once the encapsulant has dried (a minimum of four hours after the completion of encapsulant application), HSU, or authorized and appropriately certified representative, will then sample the air in the work area for airborne asbestos fibers using Transmission Electron Microscopy (TEM) cassettes.
4. TEM Air Sampling: In each containment area after completion of cleaning work, a minimum number of air samples will be collected and analyzed as follows:
5. Five (5) samples for each work area that had asbestos materials removed unless otherwise noted and approved. All TEM samples to be analyzed in general accordance with 40 CFR Part 763.
6. Release Criteria:
    a. Decontamination of the work site is complete when the average of five TEM samples is less than or equal to 70 structures per square millimeter of filter area (s/mm^2). Note: the laboratory detection limit will be used to calculate the average fiber density (s/mm^2) in the event that no structures are observed by the laboratory in a given sample.
    b. If the laboratory analysis of the collected air samples determines that the average of the five samples is greater than 70 s/mm^2, then the area must be re-cleaned by the Contractor at no additional cost to HSU or authorized representative.
7. After the completion of re-cleaning, a second post-abatement visual inspection conducted by HSU or authorized representative.
8. If the containment passes the second post-abatement visual inspection, a second set of TEM air samples will be collected within the containment and submitted to the analyzing laboratory for analysis of asbestos content. The above-described release criteria shall apply to all air sampling events.

3.30 DECONSTRUCTION OF WORK AREA CONTAINMENTS

A. Deconstruction of the work area containments (critical barriers, decontamination units, etc.) shall not occur until the following work has been completed:
    1. Abatement debris/residue clean-up has been completed by Contractor
    2. Post-abatement visual inspection has been performed by Contractor and HSU or designee.
    3. Approval has been given to Contractor by HSU or HSU or designee

B. Upon approval by HSU or HSU or designee, the Contractor shall remove critical barriers, decontamination units, project fencing and associated equipment from the work area.
    1. The regulated area must be removed within 24 hours of work completion approval being submitted to Contractor.

3.31 DECONSTRUCTION OF WORK AREA CONTAINMENTS

A. Deconstruction of the Work Area containments (critical barriers, decontamination units, etc.) shall not occur until the following work has been completed:
   1. Abatement debris/residue clean-up has been completed by Contractor
   2. Post-abatement evaluations have been performed by Contractor, HSU and/or HSU's Representative
   3. Approval has been given to Contractor by HSU

B. Upon approval by HSU or HSU's Representative, the Contractor shall remove critical barriers, decontamination units, project fencing and associated equipment from the Work Area.

C. The regulated area must be removed within 24 hours of HSU work completion approval being submitted to Contractor.

3.32 ALTERNATIVE PROCEDURES

A. If specified procedures cannot be utilized, a request shall be made in writing to HSU providing details of the problem encountered and recommended alternatives.

B. Alternative procedures shall provide equivalent or greater protection than procedures that are replaced.

C. Any alternative procedure must be approved in writing by HSU prior to the implementation of the procedure.

3.33 WASTE DISPOSAL PROCEDURES

A. The contractor is fully responsible for identifying, collecting, bagging, containerizing and labeling asbestos containing wastes per applicable regulations.

B. Waste shall be removed from the Work Area and properly containerized no later than the end of each work shift.
   1. Loose debris shall be containerized no later than the end of each work shift.
   2. Uncontainerized waste shall not be left within the Work Area overnight.

C. Waste containers shall be secured by the Contractor (locked) at the end of each work shift.

D. Portions of this section apply to RACM and may be applicable to nonfriable ACM, if such nonfriable materials are rendered friable and/or impacted with mechanical means (i.e. Category I and II Nonfriable ACM are impacted using mechanical tools or otherwise pulverized during removal). See Table 1 for asbestos waste characterization estimates.

3.34 ASBESTOS DISPOSAL PROCEDURES

A. All nonfriable ACM shall be labeled as nonfriable ACM waste and must be transported and disposed of as nonfriable asbestos waste and labeled:

DANGER
CONTAINS ASBESTOS FIBERS
MAY CAUSE CANCER
CAUSES DAMAGE TO LUNGS
DO NOT BREATH DUST
AVOID CREATING DUST

B. All ACM waste shall be placed and stored in sealed and labeled containers and transported to appropriate landfills or disposal facilities as approved by HSU.

C. The contractor is fully responsible for identifying, collecting, bagging, containerizing and labeling all friable asbestos containing wastes, if produced during this project, per the hazardous waste control regulations.

D. The contractor shall be responsible for compliance with all applicable DOT regulations governing the transportation of hazardous materials and hazardous wastes as applicable to the project.

E. The contractor shall submit to HSU the name, addresses (both business and truck terminal), USEPA identification number, California hazardous waste hauler registration number (if applicable), and California 'CA' commercial transporter number of the firm that is intended to be utilized to transport for disposal the asbestos wastes. This information shall be sent to:

Humboldt State University
Environmental Health & Safety Services
Attn: Sabrina Zink, HSU EH&S
1 Harpst Street
Arcata, CA 95521
(707) 826-3302

F. HSU may utilize this information to obtain a Management Information System Terminal Evaluation Report (MISTER) from the California Highway Patrol. The hazardous waste hauler must have no “Unsatisfactory” ratings in the report if the hauler is to be approved by HSU.

G. If the Contractor subcontracts for the transportation of the waste, then it is the contractor’s responsibility to ensure that the transporter/hauler is covered by the following minimum insurance coverage:

1. Transporters shall maintain Transporter’s Auto Liability insurance for bodily injury and property damage liability. The policy must also have a MCS-90 Endorsement and Sudden and Accidental Pollution Insurance Endorsement. A higher limit on the MCS–90

endorsement required by law must be matched by the Sudden and Accidental Pollution Insurance. Contractor and transporters shall maintain Worker's Compensation Insurance.

2. If the contractor will be transporting the asbestos wastes to the disposal sites, then the Contractor must have insurance coverage per this section.

H. The contractor may only dispose of nonfriable asbestos-containing waste at landfills approved by California Environmental Protection Agency (CAL/EPA) for disposal of nonfriable asbestos, and as approved by HSU.

I. The contractor shall coordinate with HSU to arrange a date and time for disposal shipments that is mutually convenient. The Contractor shall prepare the Uniform Hazardous or Non-hazardous Waste Manifest, as applicable. HSU Project Manager, or HSU designee, shall review the manifest and shall be the only individual authorized to sign the manifest on behalf of HSU. No contractor employee shall sign a waste manifest on behalf of HSU.

J. Prior to transport of waste offsite contact HSU and inform them of the intention to transport waste. All waste manifests, weight tickets and Bills of Lading shall be sent to:

Humboldt State University
Environmental Health & Safety Services
Attn: Sabrina Zink, HSU EH&S
1 Harpst Street
Arcata, CA 95521
(707) 826-3302

K. If bags of friable asbestos wastes are to be temporarily stored prior to being placed into a labeled DOT approved shipping container, then each bag must be labeled in accordance with the California Hazardous Waste Control regulations, as follows:

Hazardous Waste
Humboldt State University Campus Housing Units
Arcata, CA 95521
(707) 826-3302
Asbestos Waste Solid,
Inhalation Hazard
Accumulation Start Date: (date that each bag is filled)
USEPA Identification (ID) Number: (Contractor to request ID number from HSU)

L. The contractor will be held financially responsible for any penalties (and associated costs) assessed against HSU as a result of violations cited by regulatory agencies where the violations are a direct result of the contractor's negligence to properly label, handle, store and/or transport the asbestos-containing hazardous wastes.

M. Abatement Contractor shall defend, indemnify, and hold harmless, HSU and/or authorized representative from any and all claims, damages, losses, and expenses against HSU and/or authorized representative, including attorney's fees arising out of or resulting from asbestos spills on the site or spills en route to the disposal site.

N. When loading ACM waste for disposal, establish a regulated area, restrict general access, and post warning signs meeting the specifications of Cal/OSHA General Industry Safety Order Section 5208 and/or Cal/OSHA 8 CCR Section 1529 (k)(7) at perimeter/entry points to the loading area.

3.35 STOPPING THE WORK

A. If at any time HSU or HSU's Representative observes that the Contractor's work practices are violating these specifications, federal, state, or local regulations to the extent of potential endangerment of building users, workers, the public and/or the environment, the Contractor will be verbally notified by HSU (followed up in writing) or HSU designee that abatement operations shall cease until corrective action is taken.

B. The Contractor shall take such corrective action before proceeding with work. Loss or damage due to stop work order(s) shall be the Contractor's responsibility.

C. A stop work order issued by HSU or designee shall become effective immediately.

D. Contractor work shall not recommence work after a stop work notice is given until written notice to proceed has been provided to the Contractor by HSU.

END OF SECTION