Summary of Changes (v198.082)

1. Comprehensive updates necessary for TG 13288 Technical Guide (last update was done in May 2003).

Asbestos ~~Abatement~~ ~~Testing and~~ Monitoring
TECHNICAL GUIDE

TG 13288

1. COORDINATION ISSUES:

1.1 Because of the serious health threat that exposure to asbestos fibers pose, the Federal government as well as the State government have enacted laws controlling the removal of ACM. Federal and State agencies administering these laws, in turn have promulgated numerous regulations. Since asbestos ~~is~~ has so much risk of potential public harm, it is imperative that asbestos containing materials (ACM), when removed from ~~State~~ buildings, are removed safely in accordance not with only the project plans and specifications, but also in strict compliance with all applicable State and Federal laws and regulations. Asbestos abatement projects can deteriorate rather rapidly if~~with regard to~~ the quality of work performed by the Contractor is less than satisfactory and if the Contractor is left unsupervised. It is therefore essential that a team of competent personnel provide constant inspection at every aspect of the abatement project. This is the objective of the consultant's construction management team.

1.2 ~~T~~The construction management team shall provide inspection to include on-site examination of the abatement work to ensure that the work is being performed in accordance with the plans and specs, federal and state regulations. The CMB area architect/engineer shall ensure the building manager inform building occupants (or selected building representative) starting with an invitation to the pre-construction meeting and followed by notices to the building occupants regarding general nature of work to be done, what kind of hazardous material will be abated, what area(s) will be affected approximate dates of work, whether work will be done during the day, night or weekend, need to clear breakable/valuable items on their desks, etc. The CMB architect/engineer should insure the building manager attend those OAC meetings when hazardous abatement work is discussed such that the manager can obtain the necessary information to inform the building occupants. Advance notification (number of days should be discussed with building representatives) should be given as sometimes certain buildings have special security requirements like doors with cypher locks where someone from the building may need to be present at least to allow entry to certain spaces or just so building occupants can be prepared for abatement work and workers being in their office areas (there may be other unforeseen reasons requiring advance notification). Advance notification should be given for each different location of abatement work. Adequate number of warning signs should be posted to prevent building occupants or the public from entering any potential hazardous areas. ~~Daily C~~~~communication with the occupants is the responsibility of the building Owner. Direct communication between the building occupants and the Contractor/Consultant is not usually done without the permission of the building Owner. Contractor/Consultant will notify the building occupants to inquire with the building Owner for any information unless otherwise directed by the Contracting Officer.~~ ~~building users is mandatory as is periodic clarification and instructions from the project designer.~~

1.3 Personal a~~A~~ir monitoring during the removal, encapsulation, enclosure and clean-up operations of an asbestos abatement project is required by OSHA regulation 29 CFR 1926.~~58~~1101. A visual inspection and clearance air monitoring conducted after abatement work is completed is required by EPA 40 CFR Part 763, Subpart G, Worker Protection and HAR 11-~~0~~502. It is vital to protect the health, safety and interests of the State, the building occupants, and the contractor's abatement workers as well as the consultant's employees at the project site.

1.4 Minimum qualifications of the Consultant pertinent for the project scope are as follows:

1.4.1 Current certification through the Hawaii Department of Health as an Asbestos Project Designer.~~;~~

1.4.2 Current certification through the Hawaii Department of Health as an Asbestos Project Monitor~~r~~;

1.4.3 Current certification through the Hawaii Department of Health as an Asbestos Inspector.~~;~~

2. DESIGN ISSUES: (Not Used)

3. DRAWING NOTES: (Not Used)

4. STANDARD DRAWINGS: (Not Used)

5. SPECIFICATION NOTES: (Not Used)

6. GUIDE SPECIFICATION:

6.1 Section 13288 ~~–~~ ASBESTOS TESTING AND ~~sbestos Abatement~~ MONITORING~~onitoring~~.

SPECIFIER'S NOTE: Blue colored italicized text is used for notes to the specifier and should be completely deleted from the final text. Where [Red colored italicized text in parentheses] is shown in this specification section, insert wording, numbers, etc. as appropriate and delete parentheses. Where <Red colored text in brackets> is shown, a choice is indicated. Make the appropriate choice and delete the brackets. Maintain footer notation with the current version used (e.g. TG13288009900 v19~~02~~.08~~2~~8). Verify that section titles cross referenced in this Section correspond to this Project's specifications; Section titles may have changed.

SECTION 13288 - ASBESTOS TESTING AND~~ABATEMENT~~ MONITORING

SPECIFIER'S NOTE: This guide specification covers the requirements to be followed by the Contractor for testing and air monitoring on the asbestos abatement portion of a project.

PART 1 - GENERAL

1.01 SECTION INCLUDES

SPECIFIER'S NOTE: Project testing and air monitoring are basically inspection processes that are normally delegated to a consultant hired by the State and specified under a standard scope of work.~~ Under certain conditions and for certain projects this work may be performed by a consultant to the Contractor and be made a part of the construction contract.~~ Under certain conditions and for certain projects this work may be performed by a consultant to the Contractor and be made a part of the construction contract. This section lists two scopes of work:

1. ***Contractor's requirements for abatement work~~;~~ and,***
2. ***Scope and requirements for Asbestos ~~Inspection and~~ Testing and Monitoring.***

~~Delete item B above if testing and monitoring services are not required by the Project Coordinator~~

A. Abatement Contractor's Responsibilities for personnel monitoring and record keeping.

B. Project air monitoring and inspectional services for the purposes of:
   1. Verifying compliance with the specifications listed in Section 13281 – REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIALS (ACM).~~.~~
   2. Ensuring that the State's legally required documentation is collected.~~;~~
   3. Providing engineering control during the project.~~.~~

1.02 DEFINITIONS: Unless otherwise clear from the context, as used in this contract:

A. "ACM": asbestos containing materials.

B. "Air M~~m~~onitoring S~~s~~pecialist": A ~~member of the construction management team~~ qualified person who enters the work area to set up the air monitoring device and then collects the various air samples to be sent to the laboratory for analysis.

C. "Building R~~r~~epresentative(s)": The person or persons designated by the users of the building to act on their behalf.

D. "Contractor": The construction firm engaged to remove, encapsulate and/or dispose of the ACM.

~~E. "Construction Manager": The consultant's employee or his consulting subcontractor responsible for ensuring that the work of the contractor is conducted according to the contract documents and in compliance with applicable laws, regulations, ordinances, etc.~~

~~F. "Construction management team": The consultant's personnel or his consulting subcontractor who are involved in inspecting the work of the contractor and in air monitoring, sampling, testing before, during and after the asbestos abatement project.~~

E~~G~~. "Consultant": The firm contracted by the ~~[ ]~~ State to inspect the work of the C~~c~~ontractor during the removal, encapsulation and disposal of the ACM and is capable or has a subcontractor to perform air monitoring, sampling and testing before, during and after the asbestos removal and/or encapsulation~~. The consultant may be the construction manager or said construction manager may be a subcontractor to the consultant~~.

F. "Engineering Controls": Eliminate or reduce exposure to asbestos through the use or substitution of engineered machinery or equipment.

GFH. "Industrial hygienist": A Certified Industrial Hygienist (CIH) certified by the American Board of Industrial Hygiene who shall direct all air monitoring and project supervision.

I. "Project Ddesigner": The person orf firm who prepared the plans and specifications to remove, encapsulate and dispose of the ACM. The Project Designer shall be certified by the State of Hawaii Department of Health as an Asbestos Project Designer.

HIJ."Project manager": The State employee responsible for administering the construction contract and ensuring that the work of the contractor is conducted according to the contract documents and in compliance with applicable laws, regulations, ordinance, etc.

JK. "Consulting subcontractor": A firm acting in cooperation with the "consultant" to perform air monitoring and testing work during and after the asbestos removal and/or encapsulation work; or construction manager for the consultant.

GK. "Project Monitor": A person hired by the [ ]State that is certified by the State of Hawaii Department of Health as an Asbestos Project Monitor. The Project Monitor may be the Consulting subcontractor or Construction Manager and be part of the Construction Management Team.

1.03 COORDINATION

SPECIFIER'S NOTE: Since the Contractor must coordinate his efforts with the Inspector, the requirements of Section 13281 should provide work specifications that will assure performance within the limitations to be verified by the Inspector.

A. Coordinate with the State's Inspector for the testing/air monitoring requirements included in Section 13281 – REMOVAL AND DISPOSAL OF ASBESTOS CONTAINING MATERIAL for testing/ air monitoring consultants or inspectors, and all applicable Federal, State and local regulations.

1.04 PRE-CONSTRUCTION CONFERENCE

A. Hold conference prior to construction and shall be conducted by the State Project Manager Contracting Officer assisted by the consultant's construction manager Project Designer.

1. Attendance: Present also shall be the cContractor, pProject Ddesigner and/or the Project Monitor, user agency and/or bBuilding Rrepresentative(s)), and industrial hygienist, and air monitoring personnelProject Monitor. When the abatement Contractor is a subcontractor to a General Contractor, a representative of the General Contractor shall also attend.

2. Agenda:
   a. Review final schedule for project.
   b. Verify legal requirements and special conditions.
   c. Verify compliance with pre-construction requirement.
   d. Obtain copies of all mandatory notifications.
   e. Inspect sample respiratory equipment and other abatement equipment.
   f. Review procedures and responsibilities.

g. Clarify the scope of work and its best impact on the users of the building.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.01 STATE'S RESPONSIBILITIES

A. Testing and air monitoring will be supplied by the Contracting Officer.

3.02 CONTRACTOR'S RESPONSIBILITIES

SPECIFIER'S NOTE: There have been instances (which we want to avoid) where the Contractor has mistakenly assumed that the Contracting Officer would supply the Contractor's ~~his~~ legally required records long after the project was completed.

A. The Contractor shall be responsible for providing the daily personal air monitoring and necessary records for all of the Contractor's employees for the duration of the project as required by OSHA (29 CFR 1926.~~58~~1101), ~~Hawaii State Law (12-145)~~ and all other applicable laws.

B. The Contractor shall obtain the OSHA~~legally~~ required reports for personnel air monitoring as part of the contract.

C. The Contractor shall be responsible for daily personal air samples that shall be collected on at least 25% of the personnel performing removal work on similar tasks and for the duration of the project. Submit within 1 working day to the Contracting Officer.

D. The Contractor is solely responsible for protecting his workers, other~~City~~ personnel, and the ~~general~~ public from any of his work activities at the work site and on State~~City~~ property regardless of the testing and monitoring conducted by the State~~City~~.

SPECIFIER'S NOTE: Instances have occurred where Contractors have been offered monitoring information, declined it, and then requested it later, when it was no longer available.

~~C~~E. Monitoring information developed by the State's Project Monitor~~Inspector~~'s activities shall be for the use of the Contracting Officer. The information will be available and offered to the Contractor when developed, but not thereafter, and shall not waive the Contractor's obligations stated elsewhere in this section.

SPECIFIER'S NOTE: Testing and monitoring are expensive. When it is involved with rechecking defective work the cost burden should be borne by the Contractor.

~~D~~F. Air monitoring and testing ~~which~~ becomes necessary ~~in order~~ to follow up on work by the Contractor which is rejected as not conforming to the requirements will be supplied by the Contracting Officer. However, the full cost of such additional monitoring and testing shall be borne by the Contractor~~,~~ and shall be deducted from the final contract payment.

SPECIFIER'S NOTE: The Contractor~~inspector~~ will always~~normally~~ do personal monitoring as part of his overall scope of work~~, but it should be the responsibility of the Contractor to obtain and retain the Contractor's information~~. ~~The inspector will normally do personal monitoring as part of his overall scope of work, but it should be the responsibility of the Contractor to obtain and retain the Contractor's information.~~

~~E~~G. Personal air monitoring that becomes ~~is~~ part of the Consultant~~Inspector~~'s scope of work shall be accommodated by the Contractor.

3.03 AIR MONITORING AND INSPECTIONAL SERVICES

A. Duties of the ~~Construction Manager~~ Consultant:

1. Photographic Record of Project: Record the asbestos abatement project with representative photos. All photos shall become the property of the State and are to be accompanied by a detailed log.

2. Project Log: Maintain daily field reports detailing all key activities during abatement and make a summary of project activities to the project designer and the State project coordinator. Incorporate the contents of the daily field reports with other project data into a final project report. ~~(See Section 4.4).~~

3. Visual Inspection of all Containment Areas: Perform regular inspection of all containment areas. Conduct inspections during the actual work performance of the Cc~~o~~ntractor to document the work practices employed by the Cc~~o~~ntractor and prior to air testing in each area to verify that all materials scheduled for abatement were removed and the area was properly cleaned.

~~4. Issuance of Change Order: If changes are necessary once construction begins, review request for change and make a recommendation for approval. Issue any appropriate change order subject to and after approval by the State.~~

B. Air Monitoring: The State~~consultant~~'s on-site ~~air monitoring specialists and industrial hygienists~~Project Monitor shall perform the following activities associated with this portion of the project:

1. On-site environmental and personnel air monitoring as required by EPA, HDOH, OSHA, HIOSH, and the project specifications (See methodology below).

SPECIFIER'S NOTE: For AHERA projects, TEM analysis will be required for final clearance. It is highly recommended that TEM analysis is used for clearing non AHERA projects. Design environmental consultant should determine applicability for project (example: public library).

2. Laboratory analysis by PCM analysis using NIOSH 7400 method.

~~NOTE: For AHERA projects, TEM analysis will be required for final clearance.~~

3. Monitoring of decontamination procedures at site entry/exit.

4. Monitoring of containment maintenance by visual and instrumental inspection.

5. Interface with project inspectors, building representatives, representatives of regulatory agencies, and project designers during site visits.

6. Ensure that proper respiratory protection is utilized by all persons at the project site.

7. Relay to the Contracting Officer~~State project coordinator~~ any discrepancies in contractor's action with provisions of project specifications.

8. Act quickly in case of emergencies with appropriate response.

3.04 SAMPLING DESIGN

A. The following is a typical sampling design per containment area during the actual construction. The number of samples and volume quantities may vary, depending on each project's specifications.

1. Background Samples: Background baseline samples shall be taken prior to abatement to establish pre-abatement airborne fiber concentration levels. Three high volume continuous flow samples shall be taken per estimated containment area. All work area samples shall be analyzed by the NIOSH 7400 method. All personal

samples shall be analyzed in accordance with OSHA 29 CFR 1926.~~58~~1101. The reference TWA (time weighted average) shall be established one day prior to the masking and sealing operations.

2. Work Area Samples: Low volume samples of 480 liters each shall be taken in the work area. Ambient air samples shall be taken in the work area for comparison to barrier samples in an ~~effort~~ to ensure that containment systems are secure and that the persons entering the work area are wearing proper respiratory protection. If monitoring inside and outside the asbestos abatement work area shows airborne concentrations have reached the predetermined specified TWA, the consultant shall stop all work, notify the State immediately, have the contractor correct the condition(s) causing the increase and ensure that the contractor obtains the State's approval prior to restarting the removal work.

3. Barrier Samples: Monitoring outside the temporary barriers determines if leakage is occurring outside the work area due to loss of negative pressure or faulty seals. Two high volume samples shall be taken per eight-hour day per barrier.

4. Outside Environmental Samples: Each removal area shall be sealed so that airborne fibers cannot escape into occupied areas. Air is forcibly drawn from the removal area by a negative air machine, filtered and exhausted to the outside environment. High volume samples shall be taken at the negative air unit exhaust to ensure compliance with the levels required by the project specifications and/or any applicable regulations. One sample per eight-hour day per containment area shall be taken.

SPECIFIER'S NOTE: *TEM ANALYSIS - Samples requiring TEM analysis shall be sent to an approved and certified laboratory which shall be qualified to provide this type of analysis. A short turnaround time is required for receipt of the results. This will affect the project's cost because the shorter the turnaround time imposed on the laboratory, the greater the charge for the analysis. The consultant's TEM lab shall be fully equipped and qualified to complete TEM analysis by the AHERA method. The AHERA method is intended to test an area for clearance. This method requires a minimum air volume of 1,199 liters. A sufficient filter area must be analyzed to achieve a limit of detection of 0.0050 structures per mL. Asbestos structures, (fiber, bu~~y~~ndle, cluster, matrix), are counted rather than individual fibers. The fibers making up the structures must be >0.5 micrometers long (no minimum width). This method would give you the concentration of asbestos fiber structures <5 micrometers long. Non-asbestos fibers that are detected are noted but are not counted.*

5. Final Clearance Samples: After air in containment has been exchanged by High Efficiency Particulate Absolute (HEPA) filtration at least 72 times, (air clearance) samples shall be taken to determine if air is cleaned below the specified rate. If not, the area must be cleaned again, and a second set of clearance samples run. When the fiber count is below the specified level, a final set of samples shall be collected for analysis by transmission electron microscopy or phase contrast microscopy depending on the size of the abatement area. If these tests reveal that the air has been cleaned to the acceptable standards, the area may be opened for re-occupancy.

3.05 LABORATORY ANALYSIS~~:~~

A. ~~The consultant's industrial hygienist shall maintain a testing facilities in the vicinity of the project site. An industrial hygiene monitoring setup with high-volume and low-volume pumps, calibrators and all filtering needs, in addition to a fully-equipped laboratory for rapid sample analyses to the field, shall be included in this facility. This is vital because it increases the efficiency of the contractor and allows immediate readings of air samples, rather than mailing them to a laboratory, which sometimes delays the release of containment area.~~All air samples collected by the State's Project Monitor ~~and the~~

~~Contractor~~ shall be analyzed by an AIHA certified laboratory for the analysis being requested. All laboratories shall be registered with the Hawaii Department of Health.

~~3.06 TEM ANALYSIS:~~

~~A. Samples requiring TEM analysis shall be sent to an approved and certified laboratory which shall be qualified to provide this type of analysis. A short turnaround time is required for receipt of the results. This will affect the project's cost because the shorter the turnaround time imposed on the laboratory, the greater the charge for the analysis. The consultant's TEM lab shall be fully equipped and qualified to complete TEM analysis on all three levels of protocols and shall utilize the level directly related to the information sought;~~

~~***SPECIFIER'S NOTE: Of the three levels, use Level II. It analyses the samples of specifications desired for regulatory action.***~~

~~1. Level I: The most rapid procedure for screening many samples. However, results should not be used in legal proceedings.~~

~~2. Level II: Elemental analysis for regulatory action in addition to all Level I specifications.~~

~~3. Level III: Confirmation analysis of controversial samples, required for most legal proceedings.~~

3.0~~6~~7 DAILY TESTING RECORDS

A. At the conclusion of every day's testing, the State's~~consultant's~~ ~~industrial hygienist~~Project Monitor shall provide copies of all air monitoring records of each containment area to the State within 5 working days of collection~~, the contractor, and the consultant's project manager~~.

END OF SECTION ~~13288~~