

Assessment of
Suspect Asbestos-Containing Building Materials

Buckley Air Force Base Annex, Colorado

Clayton Project No. 90-04152.00
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ENCLOSURES

Bldg 407
 Bldg 409
 Bldg 444
 Bldg 445
 Bldg 446
 Bldg 667

TABS PROVIDED PER ENCLOSURE

Tab 1 Summary of Asbestos Sample Analysis Results
Tab 2 Grade 1 and 2 for Asbestos-Containing Materials
Tab 3 Sample Location Diagrams
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EXECUTIVE SUMMARY

The 460th Civil Engineering Squadron / Environmental Flight (460 CES/CEV) retained Clayton Group Services, Inc. (Clayton) to conduct an assessment and inspection of suspect asbestos-containing building materials (ACBM) in Buildings 407, 409, 444, 445 446, and 667 (hereafter, known as the “facilities”) located on the Buckley Air Force Base (AFB) Annex, Colorado. This work was performed through the General Services Administration (GSA) under contract no. GS-10F-0307K.

It is Clayton’s understanding that the purpose for this assessment was to identify and assess suspect ACBM within the facility in preparation for the development of a written Operations and Maintenance (O&M) Program for the Buckley Air Force Base Annex. The development of the O&M Program is included within the scope of work for this project. Mr. C. Bryan Pickle, Colorado-certified Building Inspector #11121, conducted the assessment in May 2004.

In addition to the identification of ACBM within the facilities, and the development of the afore-mentioned plan, Clayton would also assess applicable ACBM within the facilities as specified in the U.S. Air Force Occupational and Environmental Health Laboratories (USAFOEHL) Report 86-072EH0021HGA, “Air Force Asbestos Guidance for Rating and Assessing Damage and Exposure (GRADE) System,” dated August 1986. The GRADE System provides a scoring and rating procedure for assessing damage and potential for damage and resultant potential exposure conditions associated with the presence of sprayed-on, trowelled-on, or damaged friable asbestos-containing material (ACM), and is intended to be used as an Air Force-wide asbestos abatement prioritization tool. Additionally, the GRADE System identifies specific activities that should coincide with specific priorities. At the time of this survey, no confirmed ACBM required the application of the GRADE criteria. Although some materials were noted during the course of this survey as “friable,” no damage was observed.

Clayton collected bulk samples as necessary to determine the asbestos content of suspect materials. All samples were analyzed at a qualified laboratory by polarized light microscopy (PLM).

A total of 223 samples of various building materials were collected from various locations within five of the facilities. No suspect ACBM was observed in Bldg 445, therefore no samples were collected. As outlined in EPA asbestos sampling protocols, a minimum of five percent (5%) of the total number of samples collected were analyzed for quality control (QC) by an independent accredited laboratory. Analytical results of eleven (11) samples using PLM indicated the presence of asbestos in drywall/joint compound, vinyl floor tile, window caulking, mastic, and thermal system insulation (TSI) at varying locations within the five facilities where suspect materials were observed.

If the confirmed ACBM is to be disturbed or damaged during routine operations, an abatement contractor licensed by the State of Colorado should remove/repair them. Refer

to Section 4 of this report (Applicable Regulations and Guidelines) for specific information regarding asbestos abatement requirements. The Occupational Safety and Health Administration (OSHA) requires that employees, such as maintenance personnel, who may encounter the identified ACBM during their work activities be informed of the presence and location of ACBM and/or presumed asbestos-containing materials (PACM) in the facility.

The results of the inspection and assessment of each building is provided as an enclosure to this report. As appropriate, the following six tabs are provided for each building:

- Tab 1 presents a facility summary of asbestos sample analysis results, including detailed information regarding suspect ACBM.
- Tab 2 presents a summary of ACM assigned an AF Priority of 1 or 2, based on the calculations presented in the afore-mentioned USAFOEHL Report.
- Tab 3 provides facility diagrams showing sampling locations of all samples.
- Tab 4 presents photo documentation by facility of the homogenous areas of confirmed ACBM that were identified during this survey.
- Tab 5 presents the analytical results for each facility from which the samples were collected during this survey.
- Tab 6 presents the Chain of Custody/Sample Submission Forms used for each facility during this survey.

1. INTRODUCTION

The 460th Civil Engineering Squadron / Environmental Flight (460 CES/CEV) retained Clayton Group Services, Inc. (Clayton) to conduct an assessment and inspection of suspect asbestos-containing building materials (ACBM) in Buildings 407, 409, 444, 445, 446, and 667 (hereafter, known as the “facilities”) located on the Buckley Air Force Base (AFB) Annex, Colorado. This work was performed through the General Services Administration (GSA) under contract no. GS-10F-0307K.

2. DESCRIPTION OF ASSESSMENT

2.1. PURPOSE OF ASSESSMENT

It is Clayton’s understanding that the purpose for this assessment was to identify and assess suspect ACBM within the facility in preparation for the development of a written Operations and Maintenance (O&M) Program for the Buckley Air Force Base Annex. The development of the O&M Program is included within the scope of work for this project. Mr. C. Bryan Pickle, Colorado-certified Building Inspector #11121, conducted the assessment in May 2004.

2.2. FACILITY DESCRIPTION

The facilities were constructed from the 1950’s to the 1970’s. The facilities are used by the Defense Finance and Accounting Service (DFAS) and Air Force Reserve Center for administration purposes.

2.3. BUILDING INSPECTION, SAMPLING, AND ANALYSIS

All accessible areas within the facility were inspected for suspect ACBM including thermal systems insulation, surfacing materials, and miscellaneous materials (e.g., floor coverings, mastics, and gasket material). When materials suspected of containing asbestos were located, representative samples were collected from each homogeneous material.

If hidden suspect building materials are encountered during routine operations, renovations or other activities in the facilities, sampling and analysis of these materials for the presence of asbestos should be done prior to disturbing suspect materials.

Clayton’s assessors utilized hand-held core borers, utility knives, hammers and chisels, and other such hand tools to collect samples. Suspect material was wetted before sampling occurred. When necessary, suspect friable material was sampled while wetting the material. Damaged sampling areas were patched with tape, or filled with caulking. Unique identification numbers were applied on suspect materials that were sampled.

Areas with similar-appearing materials were identified and recorded. Homogeneous areas (to the extent possible) were identified and recorded within each facility. Homogeneous materials are based upon the functional space and similarity of materials. The Clayton inspector took photos of suspect materials that were sampled. Photos of those materials that were confirmed to be ACBM are located in Tab 4 for each building. Each photo includes a sample number, which can be correlated with: (1) the detailed information found in Tab 1, and (2) the sample location diagrams found in Tab 3 for each building.

The inspector recorded information regarding the condition and location of each sampled material on various field forms. In accordance with inspection protocols, if any one sample within one homogeneous area was confirmed as positive, the homogeneous area was considered positive in its entirety.

Samples were analyzed for asbestos content using polarized light microscopy (PLM) following the US EPA Method EPA-600/M4-82-020, for determining asbestos fibers in bulk materials. Clayton's laboratories are accredited for asbestos analysis by the National Voluntary Laboratory Accreditation Program (NVLAP) of the National Institute of Standards and Technology (NIST).

3. RESULTS

3.1. SAMPLES COLLECTED

A total of 223 samples of various building materials were collected from various locations within five of the facilities. No suspect ACBM was observed in Bldg 445, therefore no samples were collected. As outlined in EPA asbestos sampling protocols, a minimum of five percent (5%) of the total number of samples collected were analyzed for quality control (QC) by an independent accredited laboratory. Analytical results of eleven (11) samples using PLM indicated the presence of asbestos in drywall/joint compound, vinyl floor tile, window caulking, mastic, and thermal system insulation (TSI) at varying locations within the five facilities where suspect materials were observed.

3.2. INSPECTION RESULTS

The results of the inspection and assessment of each building is provided as an enclosure to this report. As appropriate, the following six tabs are provided for each building:

- Tab 1 presents a facility summary of asbestos sample analysis results, including detailed information regarding suspect ACBM.
- Tab 2 presents a summary of ACM assigned an AF Priority of 1 or 2, based on the calculations presented in the afore-mentioned USAFOEHL Report.
- Tab 3 provides facility diagrams showing sampling locations of all samples.

- Tab 4 presents photo documentation by facility of the homogenous areas of confirmed ACBM that were identified during this survey.
- Tab 5 presents the analytical results for each facility from which the samples were collected during this survey.
- Tab 6 presents the Chain of Custody/Sample Submission Forms used for each facility during this survey.

As indicated in each enclosure (Tab 1), suspect ACBM were found at various locations throughout the assessed areas of these facilities. In following with USEPA asbestos bulk sampling protocols, a minimum of five percent of the suspect asbestos bulk samples collected was submitted as Quality Control (QC) samples. These suspect bulk samples were submitted to a second laboratory independent of Clayton's Seattle laboratory and also with NVLAP/NIST accreditations.

3.3. GRADE RESULTS

At the time of this survey, no confirmed ACBM required the application of the GRADE criteria.

4. APPLICABLE REGULATIONS AND GUIDELINES

As indicated in Section 3, asbestos was identified in some of the samples collected during this survey. The following regulations and guidelines are applicable to ACBM.

4.1. USEPA NATIONAL EMISSIONS STANDARD FOR HAZARDOUS AIR POLLUTANTS (NESHAP) – 40 CFR 61 (SUBPARTS A & M)

The USEPA asbestos NESHAP regulations apply to certain demolition and renovation projects in facilities containing ACBM. The NESHAP rule requires that all friable ACBM and some categories of non-friable ACBM be removed before a building is demolished, and may require localized removal before or as part of a renovation. For renovation projects where friable ACBM will be disturbed, the NESHAP rule require appropriate work practices or procedures for the control of emissions. The following USEPA NESHAP definitions of ACBM are important in interpreting which NESHAP requirements may apply to your building:

- *Asbestos-containing material (ACM):* any material that contains greater than one percent asbestos as determined using PLM analysis.
- *Friable asbestos-containing material:* any material containing greater than one percent asbestos, determined using PLM analysis, that when dry, can be crumbled, pulverized, or reduced to powder by hand pressure.

- *Category I nonfriable asbestos-containing material:* asbestos-containing packing material, gaskets, resilient floor covering, and asphalt roofing products containing greater than one percent asbestos as determined using PLM.
- *Category II nonfriable asbestos-containing material:* any material excluding Category I nonfriable ACM, containing greater than 1 percent asbestos as determined using PLM that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- *Regulated asbestos-containing material: (RACM):* (1) friable ACM, (2) Category I non-friable ACM that has become friable, (3) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (4) Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the materials in the course of demolition or renovation operations regulated by NESHAP.

Asbestos-containing materials need not be removed before demolition if:

- It is Category I non-friable ACM that is not in poor condition and is not friable.
- It is on a facility component that is enclosed in concrete or other similarly hard material and is adequately wet whenever exposed during demolition.
- It was discovered after demolition began, and as a result, cannot be safely removed. If not removed, the material must be kept wet until disposal.
- It is Category II non-friable ACM and the probability is low that the material will become crumbled, pulverized, or reduced to powder during demolition.
- Its is determined that the facility in question is structurally sound prior to demolition and any friable ACM cannot safely be removed from the facility.

NESHAP also requires that the USEPA or the state (if the state has been delegated authority under NESHAP) be notified before a building is demolished, and/or before renovations impacting RACM begin.

4.2. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) – 29 CFR 1910.1001 & 29 CFR 1926.1101

OSHA regulates employee exposure to asbestos. The OSHA asbestos standards for general industry and for construction mandate a permissible exposure limit (PEL) of 0.1 fibers (equal to or longer than 5 micrometers) per cubic centimeter of air (fibers/cc) determined as an 8-hour, time-weighted average (TWA) and an excursion limit of 1 fiber/cc as a 30 minute TWA.

For asbestos removal or renovation involving ACM, the construction asbestos standard (29 CFR 1926.1101) requires that specific procedures be followed, including enclosure of the work area, to control asbestos exposure of building occupants, as well as employees involved in abatement or renovation activities.

If ACM is managed in place, the OSHA general industry asbestos standard (29 CFR 1910.1001) applies to employees who may contact or disturb ACM during their work shift. In accordance with this standard, employees such as maintenance and custodial workers must be informed of the presence and location of ACM and/or PACM. Warning signs or labels must be used to identify ACM and/or PACM in the facility.

4.3. COLORADO DEPARTMENT OF HEALTH AND THE ENVIRONMENT (CDPHE) – COLORADO REGULATION 8, PART B

The Colorado Air Quality Control Commission has promulgated regulations pertaining to asbestos activities as outlined in Colorado Regulation 8, Part B. Colorado Regulation 8, Part B generally provides protection to Colorado citizens from exposure to asbestos, a Class A carcinogen, caused by improper abatements due to inadequate training of asbestos workers, supervisors, inspectors, management planners and project designers.

4.4. AIR FORCE ASBESTOS GUIDANCE FOR RATING AND ASSESSING DAMAGE AND EXPOSURE (GRADE) SYSTEM – USAFOEHL REPORT 86-072EH0021HGA

The GRADE System provides a scoring and rating procedure for assessing damage and potential for damage and resultant potential exposure conditions associated with the presence of sprayed-on, trowelled-on, or damaged friable asbestos-containing material (ACM), and is intended to be used as an Air Force-wide asbestos abatement prioritization tool.

At the time of this survey, no confirmed ACBM required the application of the GRADE criteria. Although some materials were noted during the course of this survey as “friable,” no damage was observed.

5. CONCLUSIONS AND RECOMMENDATIONS

Any ACBM that is in poor condition should be repaired or removed such that the potential for an accidental release is minimized. All such activities should be performed by a general abatement contractor licensed in the State of Colorado.

The Occupational Safety and Health Administration (OSHA) requires that employees, such as maintenance personnel, who may encounter the identified ACBM during their work activities be informed of the presence and location of ACBM and/or presumed asbestos-containing materials (PACM) in the facility.

If additional suspect ACBM is discovered during renovation and demolition activities, sampling and analysis should be performed to determine if the materials contain asbestos.

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This report reviewed by: _____
T. Mark Suggs, REM, OHST
Senior Project Manager

4 October 2004

ENCLOSURE

— BLDG 407 —

BUCKLEY AIR FORCE BASE ANNEX, COLORADO

Deleted: ¶
NOTE: (1) indicates fungi not identified
in other samples

ENCLOSURE

— BLDG 409 —

BUCKLEY AIR FORCE BASE ANNEX, COLORADO

ENCLOSURE

— BLDG 444 —

BUCKLEY AIR FORCE BASE ANNEX, COLORADO

ENCLOSURE

— BLDG 445 —

BUCKLEY AIR FORCE BASE ANNEX, COLORADO

(Building 445 did not contain any suspect asbestos-containing building materials, therefore sample were collected.)

ENCLOSURE

— BLDG 446 —

BUCKLEY AIR FORCE BASE ANNEX, COLORADO

ENCLOSURE

— BLDG 667 —

BUCKLEY AIR FORCE BASE ANNEX, COLORADO