February 29, 1996

REPORT: Full Building Survey

TO: John King, Facilities Management, 241 Darland Administration Building, 10 University Drive, Duluth, MN 55811

FROM: John Allen, Asbestos Group, Environmental Health and Safety, W140 Boynton Health Services, 410 Church St. S.E., Minneapolis, MN 55455

SUBJECT: Asbestos Material Survey - Chemistry Building - Duluth
EH&S Project No: 520-96-012
Client Project No: not available

Scope of Work: A full building asbestos material survey was conducted on February 6 through February 8, 1996. The purpose of the survey was to identify asbestos-containing materials (ACM) as defined by the Environmental Protection Agency (EPA). Any material that is greater than 1% asbestos is considered to be ACM. The intent of the survey was to identify both friable and nonfriable suspect ACM, to identify nonfriable ACM that may become friable under demolition or renovation conditions, and to provide approximate cost estimates for the removal of identified ACM prior to renovation of the Chemistry Building.

Project Description: Bulk samples of suspect ACM were collected on-site and analyzed via polarized light microscopy (PLM) for asbestos content. Results of analyses are listed in Appendix I of this report. Appendix I is formatted to provide a room by room inventory of suspect ACM, the asbestos content of each material listed, and friability. An explanation of the tables and abbreviations used in the tables is included with Appendix I. Appendix II is a room by room listing of only those suspect materials that tested >1% asbestos. Minnesota Department of Health (MDH) Asbestos Rules regulate only friable ACM (material may be reduced to powder or dust under hand pressure) while the EPA regulates ACM that may become friable under demolition or renovation conditions.

The following friable or potentially friable materials tested positive as ACM:

• <4" white fibrous pipe insulation and associated pipe fitting insulation
• <4" aircell pipe insulation and associated pipe fitting insulation
• <4" fibrous pipe fitting insulation on fiberglass with tar
• <4" fibrous pipe fitting insulation on fiberglass
• 4"-8" white fibrous pipe insulation and associated pipe fitting insulation
• 4"-8" aircell pipe insulation and associated pipe fitting insulation
• 4"-8" fibrous pipe fitting insulation on fiberglass with tar
• 4"-8" fibrous pipe fitting insulation on fiberglass
• white fibrous lab supplies
• white fibrous duct insulation
• white fibrous tank insulation
• textured ceiling plaster
• 9"x9" floor tile, off-white with brown
• 9"x9" floor tile, grey with black and white
• 9"x9" floor tile, black with white streaks
• 9"x9" floor tile, light green
• 9"x9" floor tile, off-white with grey
• 9"x9" floor tile, white with red and black
• 9"x9" floor tile, white with olive
• 9"x9" floor tile, light green with green and white
• 9"x9" floor tile, white with cranberry
• 12"x12" floor tile, white with beige and olive
• 12"x12" floor tile, white with olive
• transite
• grey and white fibrous wall patch
• white duct putty on fiberglass

The following suspect materials tested none detected (ND) as ACM:

• <4" fiberglass pipe insulation
• <4" fiberglass with tar pipe insulation
• 4"-8" fiberglass pipe insulation
• fiberglass with tar insulation
• fiberglass duct insulation
• ceiling plaster
• wall plaster
• red brick mortar
• concrete block mortar
• spray-on fireproofing
• sheetrock and taping compound
• baseboard adhesive
• red and white linoleum
• 12"x12" floor tile, tan with salmon and grey
• 12"x12" floor tile, white with grey and charcoal
• 12"x12" floor tile, white with grey
• 12"x12" ceiling tile, pegboard
• 12"x12" ceiling tile, fissured
• 12"x12" wall tile, acoustical
• 2'x2' ceiling tile, textured
• 2'x2' ceiling tile, fiberglass
• 2'x2' ceiling tile, pinhole crater
• 2'x4' ceiling tile, pinhole crater
• canvass vibration joint
• pyrobar and mortar
• brown pipe putty
• styrofoam ceiling tile adhesive
• troweled-on plaster on ducts
• white pipe putty
• wall plaster patching

The following nonfriable with low potential to become friable materials tested positive as ACM:

• 4"-8" fiberglass with tar pipe insulation
• black tape with tar
• black & grey lab tops
• galbestos duct
• floor tile adhesive
- ceiling tile adhesive

For room locations of above noted materials, refer to Appendices.

**Observations and Recommendations:** In the Appendices, material descriptions followed by a date refer to samples referenced from previous surveys conducted by the Department of Environmental Health & Safety. The date refers to the original sampling date.

Although no roof sampling was done, complete roof sampling is recommended at a time when a qualified roofing contractor is on-site to patch core sample holes in roofing.

In some rooms throughout the building carpeting is covering the asbestos containing floor tile. This should be noted in case the carpeting is removed during the proposed renovation project. If the floor tile comes up with the carpet, the carpet should then be removed by the Facilities Management Asbestos Abatement Unit or a Minnesota Licensed asbestos abatement contractor.

Samples taken of 4"-8" fiberglass with tar lines produced mixed results. This material is listed as positive in the appendices. Project specific sampling is recommended to reduce abatement costs.

Due to limited access points in the ceilings and walls, some pipe chases were completely inaccessible or only slightly visible. As a result, the quantities listed reflect the visibility available at the time of the survey.

Due to the difficulty associated with identifying or sampling, fire doors and fire hoses were not included in the scope of the survey. Please note that these items frequently contain asbestos.

According to records from Braun Intertec. (6/3/90), the Crawl Space has been completely abated of all asbestos-containing materials and the area cleared through final air clearance sampling.

**Cost Information:** The approximate cost for the removal of all ACM is itemized below. These figures are based on the assumption that all friable and potentially friable ACM are going to be removed. For project specific removal costs, contact this office with your project requirements and unit costs can be calculated for the impacted areas.

<table>
<thead>
<tr>
<th>MATERIAL TYPE</th>
<th>LOW RANGE</th>
<th>HIGH RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• thermal insulation</td>
<td>$90,077</td>
<td>$126,542</td>
</tr>
<tr>
<td>• floor tile &amp; adhesive</td>
<td>46,572</td>
<td>93,144</td>
</tr>
<tr>
<td>• transite/lab tops</td>
<td>32,445</td>
<td>48,668</td>
</tr>
<tr>
<td>• linoleum adhesive</td>
<td>1,040</td>
<td>2,080</td>
</tr>
<tr>
<td>• ceiling tile adhesive</td>
<td>240</td>
<td>480</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$170,374</strong></td>
<td><strong>$270,914</strong></td>
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</tbody>
</table>

All ACM removal must be performed by a Minnesota licensed asbestos abatement contractor. All asbestos removal shall be performed within the specified procedures as outlined in the University of Minnesota Technical Specification for Asbestos Abatement. Please note that removal costs are highly variable and dependent on such factors as contractor availability, accessibility of work areas and site specific work plans.
Air monitoring is required for many asbestos-related projects. Environmental Health and Safety (EH&S) is available to provide this service. The estimated cost for EH&S to complete air monitoring requirements for specific projects will be made available upon request. The cost of air monitoring is a function of contractor on-site days and may vary dependent upon project specific scope of work. EH&S will provide labor, equipment and project oversight as necessary. Project management and contract administration will be provided by the Facilities Management Project Development Group.

EH&S also recommends that throughout the general renovation activities associated with this building, precautions and work practices should be implemented to minimize nuisance dust levels. Dust suppression techniques (misting the air with water and keeping materials wet) should be required of the general contractor.

If there is any further information required, or other questions arise regarding this request, please contact John Allen at (612) 626-2199.

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