March 28, 1995

REPORT: Full Building Survey

TO: Linda McCracken-Hunt, Project Development, 400 Shops Building
Tim Nelson, Facilities Management Asbestos Coordinator
Fay Thompson, Department of Environmental Health and Safety, Director

FROM: John Allen, Asbestos Group, Environmental Health and Safety, Suite 153 U-Tech East Building, 2331 University Ave. S.E., Minneapolis, MN 55414

SUBJECT: Asbestos Material Survey - Research Laboratory, Duluth
EH&S Project No: 502-95-018
Client Project No: For Data Base

Scope of Work: A full building asbestos material survey was conducted on February 16 and 17, 1995. 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, 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 Research Laboratory.

Project Description: Fifty-eight (58) bulk samples of suspect ACM were collected on-site and fifty-one (51) 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" felt with tar insulation and associated pipe fitting insulation
- <4" fiberglass pipe insulation (paint layer) and associated pipe fitting insulation
- 4"-8" white fibrous pipe insulation and associated pipe fitting insulation
- 4"-8" aircell pipe insulation and associated pipe fitting insulation
- 4"-8" felt with tar insulation and associated pipe fitting insulation
- 9"-14" white fibrous pipe insulation and associated pipe fitting insulation
- 9"-14" aircell pipe insulation and associated pipe fitting insulation
- white fibrous tank insulation
• 12"x12" floor tile, white with charcoal
• white fibrous packing material
• transite panels

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

• <4" fiberglass pipe insulation
• 4"-8" fiberglass pipe insulation and associated pipe fitting insulation
• wall plaster
• ceiling plaster
• 12"x12" ceiling tile, random hole
• 12"x12" ceiling tile, computer board
• 2'x2' ceiling tile, textured
• 12"x12" floor tile, cream with beige
• 12"x12" floor tile, cream with grey and beige
• pebbled linoleum
• red flooring
• baseboard adhesive, brown
• sheetrock and taping compound
• concrete block mortar
• red brick mortar
• canvass vibration joint
• clay tile mortar
• ceiling tile adhesive

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

• floor tile adhesive
• black lab tops

The following nonfriable with low potential to become friable materials tested less than 1% asbestos:

• 2'x4' ceiling tile, pinhole worm

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

Observations and Recommendations:

1. Department of Environmental Health & Safety (DEHS);
   Please refer to condition assessments for specific damaged areas. In general, materials were found
to be in good to excellent shape and do not pose significant health concerns to the building
occupants.

2. Facilities Management;
   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.

Materials listed in the Sub-basement mechanical rooms are referenced from a limited building
survey conducted on January 22, 1993. Some abatement has occurred in these areas. Therefore,
actual quantities may differ from listed quantities.
Samples taken of the fiberglass pipe insulation produced mixed results. More extensive sampling was conducted. As a result, it was determined that only painted paper fiberglass lines are asbestos containing.

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

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.

Hatches in Rooms 201D, 202, and 214A were inaccessible at the time of the survey.

**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.

**Estimate of all ACM removal:**

<table>
<thead>
<tr>
<th>MATERIAL TYPE</th>
<th>LOW RANGE</th>
<th>HIGH RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• thermal system insulation</td>
<td>$56,728</td>
<td>$71,508</td>
</tr>
<tr>
<td>• floor tile &amp; adhesive</td>
<td>3,008</td>
<td>6,016</td>
</tr>
<tr>
<td>• wall transite/black lab tops</td>
<td>2,960</td>
<td>4,440</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$62,696</strong></td>
<td><strong>$81,964</strong></td>
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</tbody>
</table>

**Estimate of ACM removal for domestic water replacement:**

<table>
<thead>
<tr>
<th>MATERIAL TYPE</th>
<th>LOW RANGE</th>
<th>HIGH RANGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• thermal system insulation</td>
<td>$10,830</td>
<td>$13,962</td>
</tr>
<tr>
<td>• floor tile &amp; adhesive</td>
<td>3,008</td>
<td>6,016</td>
</tr>
<tr>
<td>• wall transite/black lab tops</td>
<td>2,820</td>
<td>4,230</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$16,658</strong></td>
<td><strong>$24,208</strong></td>
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</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 627-4861.

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cc: Mark Liske