July 13, 1993

REPORT: Complete Building Asbestos Survey

TO: Don Hau, Project Development, 100 Shops Building, 319 15th Avenue SE, Minneapolis, MN 55414

FROM: Michael Buck, Asbestos Group, Environmental Health and Safety (EH&S), B-7 U-Tech Building, 1313 5th St. SE, Minneapolis, MN 55414

SUBJECT: Asbestos Material Survey - Blegan Hall
Client Project No: 203-92-1663

Scope of Work: The survey's scope of work includes the complete building survey of suspect asbestos-containing materials in Blegan Hall. The scope of this report is limited to the scope of work as defined in the work request dated March 8, 1993.

Summary: A complete building asbestos material survey was conducted October 8 through October 31, 1991; also May 10 through May 12, 1993. 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 scope of the survey was to identify both friable and nonfriable suspect ACM, identify nonfriable ACM that may become friable under demolition or renovation conditions in Blegan Hall.

Project Description: Three hundred seventy-four (374) bulk samples of suspect ACM were collected on-site and two hundred forty-nine (249) analyzed via polarized light microscopy (PLM) by Analytica Environmental, Delta Environmental, and Nova Environmental for asbestos content. Results of analyses are listed in Appendix I of this report. Appendix I is formatted to provide an 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 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: (reference sample numbers are shown in brackets)

- <4" grey fibrous (GF) pipe fitting insulation on fiberglass with tar PI (80)
- <4" grey fibrous pipe fitting insulation (PFI) on fiberglass PI (81)
- <4" grey fibrous pipe fitting insulation on fiberglass (FG) PI (82)
- <4" grey fibrous pipe fitting insulation on white fibrous PI (86)
• <4" white fibrous pipe fitting insulation on white/beige powder with tar PI (88)
• <4" white fibrous (WF) pipe insulation (PI) (89)
• <4" grey fibrous pipe fitting insulation on white fibrous PI (90)
• 4-8" grey fibrous pipe fitting insulation on beige/white powder PI (92)
• 4-8" white fibrous (WF) pipe insulation (PI) (93)
• 4-8" grey fibrous pipe fitting insulation on white fibrous PI (94)
• 4-8" grey powder pipe fitting insulation on fiberglass PI (95)
• 4-8" grey fibrous pipe fitting insulation on fiberglass with tar PI (97)
• 4-8" white fibrous (WF) pipe insulation (PI) (98)
• 4-8" grey fibrous pipe fitting insulation on white fibrous PI (99)
• 4-8" grey fibrous pipe fitting insulation on fiberglass PI (110)
• 9-14" grey fibrous pipe fitting insulation on white fibrous PI (100)
• 9-14" white fibrous pipe insulation (101)
• 9-14" grey fibrous pipe fitting insulation on white fibrous PI (102)
• 9-14" pink fibrous (PF) pipe insulation (PI) (111)
• 9-14" white fibrous pipe fitting insulation on pink fibrous PI (112)
• tank insulation, white fibrous (104)
• duct insulation, grey fibrous (GF) (106)
• air handler insulation, white fibrous (108)
• air handler insulation, white fibrous with tar (109)
• textured ceiling spray-on (77)
• 9 x9" floor tile (FT), grey with navy and white specks (1)
• 9 x9" floor tile, white with grey streaks (3)
• 9 x 9" floor tile, grey with white specks (5)
• 9 x9" floor tile, grey with cream specks (7)
• 12 x12" floor tile, grey with white and black specks (9)
• 6 x6" floor tile, blue textured (17)
• 12 x6" floor tile, blue textured (19)
• 12 x12" floor tile, blue textured (21)
• 6 x6" floor tile, black textured (23)
• 12 x6" floor tile, black textured (25)
• 12 x12" floor tile, black textured (27)
• 6 x6" floor tile, grey textured (29)
• 12 x6" floor tile, grey textured (31)
• 12 x12" floor tile, grey textured (33)
• 9 x9" floor tile, white with grey and brown streaks (115)

The following suspect friable or potentially friable materials tested none detected (ND) as ACM: (reference sample numbers are shown in brackets).

• <4" fibreglass with tar (FG w/ tar) pipe insulation (PI) (79)
• <4" white fibrous (WF) pipe insulation (PI) (85)
• 4-8" fibreglass with tar pipe insulation (60)
• 4-8" beige/white powder (vermiculite) pipe insulation (91)
• 4-8" fibreglass with tar (FG w/ tar) pipe insulation (PI) (96)
• textured ceiling plaster (73)
• textured ceiling plaster (74)
• rough textured plaster (76)
• sheetrock taping compound (78)
• floor tile adhesive, black (2)
• floor tile adhesive, black (8)
• 12x12" floor tile (FT), light salmon with brown and white streaks (11)
• floor tile adhesive, yellow (12)
• 12x12" floor tile, dark salmon with brown streaks (13)
• floor tile adhesive, yellow (14)
• 12x12" floor tile, tan with brown & white streaks (15)
• floor tile adhesive (16)
• 9x9" floor tile, brown with cream streaks (113)
• carpet adhesive, gold (52)
• carpet adhesive, green (53)
• carpet adhesive, brown (54)
• 2" black baseboard (35)
• baseboard adhesive, brown (36)
• 4" black baseboard (37)
• baseboard adhesive, yellow (38)
• 6" brown baseboard (41)
• baseboard adhesive, brown (42)
• baseboard adhesive, brown (40)
• 6" grey baseboard (43)
• baseboard adhesive, brown (44)
• 6" pewter baseboard (45)
• 6" black baseboard (47)
• baseboard adhesive, brown (48)
• 6" light grey baseboard (49)
• 12x12" ceiling tile (CT), white with deep fissures (57)
• 12x12" ceiling tile (CT), white with dense fissures (58)
• 12x12" ceiling tile (CT), cream with small pinholes (59)
• acoustical ceiling tile (CT) adhesive, brown (60)
• 12x12" ceiling tile (CT), yellow with dense fissures (61)
• 12x12" ceiling tile, white with deep fissures (62)
• 12x12" ceiling tile, white with dense fissures (63)
• 1x2' ceiling tile, yellow with deep fissures (64)
• 1x2' ceiling tile, yellow with dense fissures (65)
• 1x2' ceiling tile, white with varying fissures (66)
• 1x2' ceiling tile, white with dense fissures (67)
• 1x2' ceiling tile, white with small pinholes (68)
• 1x2' ceiling tile, white with lengthwise fissures (69)
• 2x2' ceiling tile, white with fissures and pinholes (71)
• 2x2' ceiling tile, beige with diagonal pattern (72)
• 2x2' ceiling tile, white with medium pinholes (73)

The following nonfriable with low potential to become friable materials tested positive as ACM: (reference sample numbers are shown in brackets)

• duct insulation, fiberglass with tar (FG w/tar) (105)
• air handler insulation, fiberglass with tar (107)
• floor tile adhesive, black (6)
• floor tile adhesive, black (10)
• floor tile adhesive, black (26)
• floor tile adhesive, black (113.5)
• carpet adhesive, yellow (51)
• grey putty (56)
Observations and Recommendations: The materials that were observed to be in damaged condition are as follows: Room 7 - air handling unit insulation (30 SF), Room 13B - <4" white fibrous pipe insulation (71 LF), <4" grey fibrous pipe fitting insulation (29 EA), Room 13C - 4-8" white fibrous pipe insulation (12 LF), Room 15 - 4-8" white fibrous pipe insulation (12 LF), Room 52/S52 4-8" grey fibrous pipe fitting insulation (35 EA), Room 264 - <4" white fibrous pipe insulation (15 LF), Room 364 - <4" white fibrous pipe insulation (25 LF). These materials should be patched and repaired or removed by the Asbestos Staff in the Facilities Support Group; Tim Nelson and John Sundsmo.

Cost Information: The approximate cost for the removal of all friable and potentially friable ACM is itemized below. These figures are based on the assumption that all friable and potentially friable ACM are going to be removed.

<table>
<thead>
<tr>
<th>MATERIAL TYPE</th>
<th>LOW RANGE</th>
<th>HIGH RANGE</th>
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<tbody>
<tr>
<td>• thermal system insulation</td>
<td>$132,133.00</td>
<td>$164,554.00</td>
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<tr>
<td>• textured ceiling spray-on</td>
<td>$49,545.00</td>
<td>$77,070.00</td>
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<tr>
<td>• floor tile</td>
<td>$23,450.00</td>
<td>$46,900.00</td>
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<tr>
<td>TOTAL</td>
<td>$205,128.00</td>
<td>$288,524.00</td>
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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.

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 report, please contact Michael Buck at 627-4911.

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