September 10, 1993

REPORT: Complete Building Survey

TO: Roger Wegner, 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 - Food Stores
EH&S Project No: 113-93-116
Client Project No: 113-92-1462

Scope of Work: The survey’s scope of work includes the complete building survey of suspect asbestos-containing materials in the Food Stores facility. The scope of this report is limited to the scope of work as defined in the work request dated July 22, 1993.

Summary: A complete building asbestos material survey was conducted August 4 through August 30, 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, and to provide approximate cost estimates for the removal of identified ACM prior to renovation of the above mentioned section of the Food Stores facility.

Project Description: One hundred fifty (157) bulk samples of suspect ACM were collected on-site and one hundred seven (116) analyzed via polarized light microscopy (PLM) by Twin City Testing Inc. 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 are 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:

- <4" white fibrous (WF) pipe insulation (PI) (1)
- <4" pipe fitting insulation (PFI) on WF PI (2)
- <4" PFI on fiberglass (FG) PI (3)
- <4" PFI on FG w/tar (5)
- <4" PFI on felt w/tar PI (7)
• 4-8" PFI on FG PI (52)
• 4-8" WF PI (10)
• 4-8" PFI on WF PI (11)
• 4-8" PFI on FG w/tar PI (13)
• 4-8" PFI on cream cork w/tar PI (15)
• 4-8" PFI on black cork w/tar PI (15.5)
• 4-8" PFI on orange cork w/tar PI (17)
• 9-14" WF PI (20)
• 9-14" PFI on WF PI (21)
• >14" WF PI (22)
• >14" PFI on WF PI (23)
• WF debris (R.10, R.24)
• tank insulation, WF (26)
• duct insulation, WF (30)
• boiler, gasket (32)
• boiler, door packing (33)
• 9x9" FT, grey w/white (38)
• transite pipe jackets (45)
• PI putty <4" tin PI (46)
• ceiling plaster, smooth (49)

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

• <4" FG w/tar PI (4)
• <4" felt w/tar PI (6)
• <4" cream cork w/tar PI (8)
• <4" PFI on cream cork w/tar PI (9)
• 4-8" FG w/tar PI (12)
• 4-8" cream cork w/tar PI (14)
• 4-8" black cork w/tar PI (14.5)
• 4-8" green cork w/tar PI (18)
• 4-8" PFI on green cork w/tar PI (19)
• tank insulation, WF w/metal jacket (25)
• cold water pipe fittings at water meter (28)
• duct insulation, FG (29)
• boiler, mineral wool jacket (31)
• boiler, fire brick (34)
• 12 x12" ceiling tiles (CT), pinholes and craters (35)
• CT adhesive, brown (pinholes and craters CT) (35.5)
• 12x12" CT, white w/irregular holes (36)
• CT adhesive, brown (white w/irregular holes CT) (36.5)
• 2x2 CT, fissures and pinholes (37)
• 12x12" FT, tan w/cranberry (39)
• vibration joint (40)
• concrete block mortar (CBM) (41)
• clay tile mortar (42)
• baseboard adhesive, brown (BBA) (43)
• wall sheetrock and taping compound (cmpd.) (44)
• patching cmpd. w/tar (47)
• cork wall (48)
• ceiling plaster (50)
• wall plaster (51)
• black mastic on styrofoam (53)
• black mastic on wall (54)
• boiler ash (55)
• black mastic on styrofoam (56)

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

• 4-8" orange cork w/tar PI (16)
• tank insulation, cork w/tar (24)
• floor tile adhesive, black (9x9" grey w/white FT) (38.5)
• floor tile adhesive, black (9x9" tan w/cranberry FT) (39.5)

Observations and Recommendations: A general floor plan outlining room designations and sample locations is included in this report.

The reference sample numbers are listed at the far right of the materials listing section in the text listed above.

The cold water lines were visually surveyed to contain fiberglass (FG) pipe insulation with tar. This material was sampled and analyzed to be none detected for asbestos-containing materials.

The descriptions on the cork w/tar pipe insulation and pipe fitting insulation refer to the color coating on the outside of the materials. The cork materials were separated for sampling purposes.

The following rooms were visually surveyed to contain white fibrous debris (referenced from similar materials in the rooms) scattered throughout the dirt floor areas: Crawlspace, and Room 15A. In addition, the Catwalk area, Hatch under South Stairs, and Unfinished Area I were noted to contain limited amounts of white fibrous debris on the floor areas (refer to Table II for approximate square footage of debris). These materials should be isolated as Controlled Access spaces or asbestos-containing materials should be abated. Coordination of this work should be done through the Facilities Management Support Staff asbestos team (Tim Nelson and John Sundsmo).

Damaged material was noted in the following rooms: gasket material and door packing in Room 5, pipe fitting insulation and white fibrous duct insulation in the Unfinished Area I, pipe insulation and pipe fitting insulation in the Catwalk area, and pipe fitting insulation in Room 119. This material should either be patched and repaired or removed. Coordination of this work should be done through the Facilities Management Support Staff asbestos team (Tim Nelson and John Sundsmo).

The following Rooms were noted to be inaccessible at the time of the survey: Electrical vault, West Loading Dock Cooler, and Room 150 B-1 Closet. Rooms noted as inaccessible above the ceiling plaster are as follows: Room 116, Room 116A, Room 116C, Room 116D, Room 150A, and the North Hallway. Room 130B was visually surveyed to be inaccessible above the metal ceiling (cooler area). It is assumed that positive ACM plaster is present above the metal ceiling.

The cooler Rooms: 105C, 105D, 107, 109, 115, and 130B have ACM ceiling plaster. Beneath the ACM plaster, there is a layer of white styrofoam insulation. The styrofoam insulation is adhered to a rough plaster ceiling material which was visually surveyed from the catwalk area to be homogenous and none detected for asbestos-containing materials. The layers between the positive and none detected plasters could contain adhesives that should be analyzed for ACM if the plaster ceiling is impacted. Any estimate for asbestos abatement should include the potential removal of the mastic material.
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.

<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>$165,256</td>
<td>$215,371</td>
</tr>
<tr>
<td>• WF debris</td>
<td>$50,940</td>
<td>$67,920</td>
</tr>
<tr>
<td>• ceiling plaster</td>
<td>$37,395</td>
<td>$58,170</td>
</tr>
<tr>
<td>• floor tile</td>
<td>$6,186</td>
<td>$12,372</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>$259,777</strong></td>
<td><strong>$353,833</strong></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.

Environmental Health and Safety (EH&S) recommends that air quality monitoring be conducted throughout the duration of the project. The estimated cost for EH&S to complete air monitoring requirements for the project is approximately $26,000-$36,000. The cost of air monitoring is a function of contractor on-site days and may vary greatly from the above figures as a result. 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 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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cc: Fay Choban