NARRATIVE REPORT

1.0 **BUILDING INFORMATION**

Sudro Hall was originally constructed in 1959; a 1968 addition extended the building to the east, a 1998 addition extended the northeast entryway, and a 2002 addition extended the building to the northeast. The building has had several renovations; notably, a 2002 renovation to the throughout the 1959 and 1968 buildings.

Sudro Hall is a three-story, 62,725 ft² building which primarily serves as office areas and classroom areas for science personnel.

The interior floor finishes included terrazzo, ceramic tile, floor tile, concrete, and carpet; the interior ceiling finishes included plaster, metal, ceiling tile, and gypsum wallboard; and the interior wall finishes included plaster, concrete, gypsum wallboard, concrete block, brick, ceramic block, and ceramic tile. The roofing system is a flat rubber-membrane roof and the exterior of the structure is brick.

The piping systems were insulated; fiberglass insulation (with and without hard fittings), millboard insulation (with hard fittings), and mag block insulation (with hard fittings) are located in the building. Steam and domestic water enter the building via a tunnel into room 31. HVAC systems located in the building consisted of steam radiators and forced air furnaces equipped with heating/cooling coils.

2.0 ASBESTOS SURVEY INFORMATION

Sudro Hall was surveyed as part of a larger project on NDSU's Fargo, ND Campus. This report is part of "Volume 5" of a nine volume series. This report includes building specific information only; please refer to the opening section of "Volume 5" for methodologies, definitions, and other pertinent supporting information.

A total of 146 samples were collected from suspect asbestos-containing materials (ACM) from Sudro Hall on June 27, 2007 and an additional 13 samples were collected on April 17, 2008. Laboratory analysis results indicate **23 of these samples tested positive for asbestos**.

2.1 Suspect Materials Identified and Sampled

- Joint Compound (4 types) Floor Tile (7 types) Stair Tread Mastic Baseboard Adhesive (2 types) Hard Plaster-Basecoat (3 types) Ceiling Tile (4 types) Sink Undercoating (3 types) Wall Texture (2 types) Black Lab Countertop (2 types) Acoustic Ceiling Plaster Mag Block Pipe Insulation Hard Fitting on Fiberglass Insulation (2 types) Millboard Pipe Insulation Air Vent Caulk
- Gypsum Wallboard (4 types) Floor Tile Mastic (7 types) Carpet Mastic Hard Plaster-Skimcoat (3 types) Rough Ceiling Texture Pyrobar Floor Filler Material Green HVAC Canvas Connector Hard Plaster-Monocoat Rainleader Bowl Insulation Hard Fitting on Mag Block Insulation Hard Fitting on Millboard Insulation Encapsulant on Fiberglass Insulation Penetration Putty (2 types)

Building Seam Caulk (2 types) Window Caulk Fume Hood Foundation Coating Window Sill Material

The Asbestos Bulk Sample Results Table includes asbestos sampling data.

2.2 Asbestos Containing Materials

Rough Ceiling Texture Mastic for 12" Tan Floor Tile with Brown Marks Black Sink Undercoating Unknown Floor Tile and Mastic Acoustic Ceiling Plaster Hard Fitting on Fiberglass Insulation (1 type) Mag Block Pipe Insulation Millboard Pipe Insulation Hard Fittings on Millboard Insulation Air Vent Caulk Fume Hood

The ACM Locations/ Friable Materials Assessments Table include ACM locations data.

2.3 Cost Estimates

Legend Technical Services Inc. estimates abatement costs (removal & disposal) of ACM for Sudro Hall as follows:

ACM	QUANTITY	UNIT COST	TOTAL COST
Asbestos Hard Fittings on Fiberglass Insulation	84 ea	\$60.00/ea	\$5 <i>,</i> 040.00
Asbestos Sink Undercoating (all types)	1 ea	\$150.00/ea	\$150.00
Asbestos Floor Tile and/or Mastic (all types)	7,226 ft ²	\$4.00/ft ²	\$28,904.00
Asbestos Ceiling Texture	836 ft ²	\$7.50/ft ²	\$6,270.00
Asbestos Acoustic Ceiling Plaster	2,615 ft	\$7.50/ft ²	\$19,612.50
Asbestos Fume Hood	9 ea	\$350.00/ea	\$3,150.00
Asbestos Mag Block Pipe Insulation	98 ft	\$25.00/ft	\$2,450.00
Asbestos Millboard Pipe Insulation	121 ft	\$25.00/ft	\$3,025.00
Asbestos Hard Fitting on Millboard Insulation	1 ea	\$60.00/ea	\$60.00
Asbestos Air Vent Caulk	2 ea	\$125.00/ea	\$250.00
Total Estimated Abater	nent Costs:		\$68,911.50

2.4 Survey Notes

LEGEND identified and sampled hard fittings on fiberglass insulation throughout the 1959 and 1968 buildings. The hard fittings on fiberglass insulation in the 1959 building are ACM and the hard fittings on fiberglass insulation in the 1968 building are non-ACM.

LEGEND sampled an unknown floor tile and mastic below the carpet in rooms 123, 123D, 123E, 123F, 123G, and 123H (samples #102-105); the unknown floor tile and mastic tested positive for asbestos.

LEGEND sampled hard plaster- skimcoat from the west wall in hallway 88 by room 5 (sample #40) and the north wall in room 102 (sample #54); the samples were collected above the ceiling tile at the damaged areas where the ceiling plaster had been removed. Both samples tested positive for asbestos. Available architectural drawings (1959) indicate an acoustic ceiling plaster was used in both locations and available NDSU records indicate an asbestos abatement project had been conducted to remove the acoustic ceiling plaster from both locations; the acoustic ceiling plaster was identified and sampled by LEGEND elsewhere in the building (samples #112 and 113), testing positive for asbestos. LEGEND resampled the hard plaster- skimcoats from the west wall in hallway 88 by room 5 (sample #148), farther down the wall under a circular access panel, and from the north wall in room 102 (sample #152), farther down the wall under an electric outlet cover. Both additional samples tested negative for asbestos. LEGEND considers samples #40 and #54 to be false positives caused by contamination from a residual ACM acoustic ceiling plaster originally used as the ceiling systems in hallway 88 and room 102 in 1959.

LEGEND No. 0700048 (NDSU) SUDRO HALL (BUILDING A052)

ROOM/ ACM	ASBESTOS TYPE	EST. QUANTITY	ACM TYPE	MATERIAL CONDITION	DAMAGE 등 종 표 POTENTIAL 응 양 유	ASSESS. CAT. ¹	NOTES				
Room 1 9" Floor Tile and Assumed 36 ft ² Non-Friable N/A* N/A* N/A* The 9"floor tile and mastic are assumed ACMs.											
9" Floor Tile and Mastic	Assumed	36 ft ²	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	The 9"floor tile and mastic are assumed ACMs.				
Room 5 Abated D	December 2009										

9" Floor Tile and Mastic	Assumed	988 ft ²	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	The 9"floor tile and mastic are assumed ACMs.
Fume Hood	15% Chrysotile	3 еа	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	The asbestos fume hoods are along the east wall.

Room 10

Room 10A

Air Vent Caulk	3% Chrysotile	1 ea.	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	The asbestos caulk is around an air vent along the north wall.

Room 11B

Hard F	itting on	0-8% Chrysotile	2 fittings	Friable	Good	Physical	7	The asbestos hard fittings on fiberglass are
Fiberg	lass Insulation	0-2% Amosite		TSI		Air Erosion		above ceiling tile on the east end of the room.
						Vibration		

Room 17

Fume Hood	15% Chrysotile	1 ea	Non-Friable	N/A*	N/A*	N/A*	The asbestos fume hood is along the south wall.
			Miscellaneous				

LEGEND No. 0700048 (NDSU) SUDRO HALL (BUILDING A052)

ROOM/ ACM	ASBESTOS TYPE	EST. QUANTITY	ACM TYPE	MATERIAL CONDITION	DAMAGE 등 록 표 POTENTIAL ^동 응 닦	ASSESS. CAT. ¹	NOTES
Room 26A							
Mastic for 12" Tan Floor Tile with Brown Streaks	10% Chrysotile	87 ft ²	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	The mastic contains asbestos; the floor tile is negative.

Room 31

Mag Block Pipe	25% Amosite	49 ft	Friable	Good	Physical	6	The asbestos mag block pipe insulation is along
Insulation			TSI		Air Erosion		the west wall.
					Vibration		

Room 36 Abated February 2020

Hard Fitting on	0-8% Chrysotile 6	fittings	Friable	Good	Physical	7	The asbestos hard fittings on fiberglass are
Fiberglass Insulation	0-2% Amosite		TSI		Air Erosion		above ceiling tile.
					Vibration		

Hallway 88 (includes all hallways in basement and the janitor's closet across from room 35A)

Hard Fitting on	0-8% Chrysotile	15 fittings	Friable	Good	Physical	7	The asbestos hard fittings on fiberglass are
Fiberglass Insulation	0-2% Amosite		TSI		Air Erosion		above ceiling tile throughout the hallway that
					Vibration		runs from room 35D to room 10.
Millboard Pipe	20% Chrysotile	12 ft	Friable	Significantly	Physical	1	The asbestos millboard pipe insulation is in a
Insulation			TSI	Damaged	Air Erosion		pipe chase across from room 16.
					Vibration		

Room 102

9" Floor Tile and	Assumed	138 ft ²	Non-Friable	N/A*	N/A*	N/A*	The 9"floor tile and mastic are assumed ACMs.
Mastic			Miscellaneous				

Room 102A

9" Floor Tile and	Assumed	152 ft ²	Non-Friable	N/A*	N/A*	N/A*	The 9"floor tile and mastic are assumed ACMs.
Mastic			Miscellaneous				

LEGEND No. 0700048 (NDSU) SUDRO HALL (BUILDING A052)

ROOM/ ACM	ASBESTOS TYPE	EST. QUANTITY	ACM TYPE	MATERIAL CONDITION	DAMAGE 등 록 표 POTENTIAL 운영 및	ASSESS. CAT. ¹	NOTES
Room 102A1 9" Floor Tile and Mastic	Assumed	156 ft ²	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	The 9"floor tile and mastic are assumed ACMs.

Room 103

9" Floor Tile and	Assumed	145 ft ²	Non-Friable	N/A*	N/A*	N/A*	The 9"floor tile and mastic are assumed ACMs.
Mastic			Miscellaneous				

Room 107

9" Floor Tile and Mastic	Assumed	1,021 ft ²	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	The 9"floor tile and mastic are assumed ACMs.
Fume Hood	15% Chrysotile	2 ea	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	The asbestos fume hoods are along the east wall.

Room 108

Millboard Pipe	20% Chrysotile	12 ft	Friable	Significantly	Physical	1	The asbestos millboard pipe insulation is in a
Insulation			TSI	Damaged	Air Erosion		pipe chase to the north of the main entry to the
					Vibration		room from hallway 188.

Rom 113

Hard Fitting on	0-8% Chrysotile	5 fittings	Friable	Good	Physical	7	The asbestos hard fittings on fiberglass are
Fiberglass Insulation	0-2% Amosite		TSI		Air Erosion		above the hard plaster ceiling.
					Vibration		

Room 114 (pipe chase)

Hard Fitting on 0-8% Chrysotile 2 fittings Friable Good	Physical \Box \Box \Box \Box 7 The asbestos hard fittings on fiberglass are al
Fiberglass Insulation 0-2% Amosite TSI	Air Erosion ■□□ the east wall.
	Vibration ■□□

* = Non-Friable materials were not assessed

LEGEND No. 0700048 (NDSU) SUDRO HALL (BUILDING A052)

ROOM/ ACM	ASBESTOS TYPE	EST. QUANTITY	АСМ ТҮРЕ	MATERIAL CONDITION	DAMAGE 등 종 표 POTENTIAL ^등 용 표	ASSESS. CAT. ¹	NOTES
Room 116							
9" Floor Tile and Mastic	Assumed	836 ft ²	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	The 9"floor tile and mastic are assumed ACMs.
Acoustic Ceiling plaster (with Rough Ceiling Texture)	3-10% Chrysotile	836 ft²	Friable Surfacing	Good	Physical □□■ Air Erosion □■□ Vibration ■□□	6	The rough ceiling texture has been applied to an acoustic ceiling plaster above it; they are both ACM.
Hard Fitting on Fiberglass Insulation	0-8% Chrysotile 0-2% Amosite	6 fittings	Friable TSI	Good	Physical ■□□ Air Erosion ■□□ Vibration ■□□	7	The asbestos hard fittings on fiberglass are above the acoustic ceiling plaster ceiling.
Fume Hood	15% Chrysotile	2 ea	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	The asbestos fume hoods are in the center of the room.

Room 120 Abated Oct 2015

Mastic for 12" Tan	10% Chrysotile	110 ft ²	Non-Friable	N/A*	N/A*	N/A*	The mastic contains asbestos; the floor tile is
Floor Tile with Brown			Miscellaneous				negative.
Streaks							

Room 121

Mag Block Pipe	25% Amosite	49 ft	Friable	Good	Physical	6	The asbestos mag block pipe insulation is
Insulation			TSI		Air Erosion		throughout the room.
~10 ft abated on	west air handler s	steam line (coil replaced)	January 200	9 ration		-

Room 123 Abated	February 2011: 7						
Unknown Floor Tile and Mastic	2-5% Chrysotile	647 ft ²	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	The unknown floor tile and mastic contain asbestos; they are under the carpet.

LEGEND No. 0700048 (NDSU) SUDRO HALL (BUILDING A052)

ROOM/ ACM	ASBESTOS TYPE	EST. QUANTITY	ACM TYPE	MATERIAL CONDITION	DAMAGE 다 종 프 POTENTIAL 영 위	ASSESS. CAT. ¹	NOTES
Room 123A Room Mastic for 12" Tan Floor Tile with Brown Streaks	10% Chrysotile	y 2009 A	bated Februa Non-Friable Miscellaneous	ry 2011 N/A*	N/A*	N/A*	The mastic contains asbestos; the floor tile is negative (under carpet).

Room 123B

Mastic for 12" Tan Floor Tile with Brown Streaks	10% Chrysotile	93 ft ²	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	The mastic contains asbestos; the floor tile is negative.
Black Sink Undercoating	10% Chrysotile	1 sink	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	The asbestos undercoating is on a sink along the northwest corner of room 123B.

Room 123C

Mastic for 12" Tan	10% Chrysotile	143 ft ²	Non-Friable	N/A*	N/A*	N/A*	The mastic contains asbestos; the floor tile is
Floor Tile with Brown			Miscellaneous				negative.
Streaks							

Room 123D Abated February 2011

Unknown Floor Tile 2-5% Chrysotile	260 ft ²	Non-Friable	N/A*	N/A*	N/A*	The unknown floor tile and mastic contain
and Mastic		Miscellaneous				asbestos; they are under the carpet.

Room 123E Abated February 2011

Unknown Floor Tile	2-5% Chrysotile	254 ft ²	Non-Friable	N/A*	N/A*	N/A*	The unknown floor tile and mastic contain
and Mastic			Miscellaneous				asbestos; they are under the carpet.

Room 123F Abated February 2011

Unknown Floor Tile	2-5% Chrysotile	345 ft ²	Non-Friable	N/A*	N/A*	N/A*	The unknown floor tile and mastic contain
and Mastic			Miscellaneous				asbestos; they are under the carpet.

* = Non-Friable materials were not assessed

LEGEND No. 0700048 (NDSU) SUDRO HALL (BUILDING A052)

ACM QUANTITY ACMITTE CONDITION POTENTIAL ≥ 5 ± CAT. ¹ NOTES
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Room 123G Abated February 2011

Unknown Floor Tile	2-5% Chrysotile	324 ft ²	Non-Friable	N/A*	N/A*	N/A*	The unknown floor tile and mastic contain
and Mastic			Miscellaneous				asbestos; they are under the carpet.

Room 123H Abated February 2011

Unknown Floor Tile	2-5% Chrysotile	194 ft ²	Non-Friable	N/A*	N/A*	N/A*	The unknown floor tile and mastic contain
and Mastic			Miscellaneous				asbestos; they are under the carpet.

Room 128

Mastic for 12" Tan	10% Chrysotile	110 ft ²	Non-Friable	N/A*	N/A*	N/A*	The mastic contains asbestos; the floor tile is
Floor Tile with Brown			Miscellaneous				negative.
Streaks							

Room 129

Mastic for 12" Tan	10% Chrysotile	109 ft ²	Non-Friable	N/A*	N/A*	N/A*	The mastic contains asbestos; the floor tile is
Floor Tile with Brown			Miscellaneous				negative.
Streaks							

Room 130

Mastic for 12" Tan	10% Chrysotile	109 ft ²	Non-Friable	N/A*	N/A*	N/A*	The mastic contains asbestos; the floor tile is
Floor Tile with Brown			Miscellaneous				negative.
Streaks							

Room 135 And now incl. room 133 Abated February 2020

Hard Fitting on	0-8% Chrysotile	21 fittings	Friable	Good	Physical	7	The asbestos hard fittings on fiberglass are
Fiberglass Insulation	0-2% Amosite		TSI		Air Erosion		above ceiling tile in the east end of the room.
					Vibration		

LEGEND No. 0700048 (NDSU) SUDRO HALL (BUILDING A052)

ROOM/ ACM	ASBESTOS TYPE	EST. QUANTITY	ACM TYPE	MATERIAL CONDITION	DAMAGE POTENTIAL	LOM MOD HIGH	ASSESS. CAT. ¹	NOTES
Millboard Pipe Insulation	20% Chrysotile	52 ft	Friable TSI	Good	Physical Air Erosion Vibration		7	The asbestos millboard pipe insulation is above ceiling tile in the east end of the room.
Hard Fittings on Millboard Insulation	10% Amosite	6 fittings	Friable TSI	Good	Physical Air Erosion Vibration		7	None

Room 136

Hard Fitting on	0-8% Chrysotile	10 fittings	Friable	Good	Physical	7	The asbestos hard fittings on fiberglass are
Fiberglass Insulation	0-2% Amosite		TSI		Air Erosion		above ceiling tile in the middle of the room.
					Vibration		

Room 136A Now with Room 136

Hard Fitting on	0-8% Chrysotile	9 fittings	Friable	Good	Physical	7	The asbestos hard fittings on fiberglass are
Fiberglass Insulation	0-2% Amosite		TSI		Air Erosion		above ceiling tile in the east end of the room.
					Vibration		

Room 136B

Hard Fitting on	0-8% Chrysotile	2 fittings	Friable	Good	Physical	7	The asbestos hard fittings on fiberglass are
Fiberglass Insulation	0-2% Amosite		TSI		Air Erosion		above ceiling tile in southwest corner of the
					Vibration		room.

Room 136D Abated June 2014

9" Floor Tile a	nd Assumed	12 ft ²	Non-Friable	N/A*	N/A*	N/A*	The 9" floor tile and mastic are assumed ACMs.
Mastic			Miscellaneous				

Hallway 188 (includes all hallways on 1st floor)

Millboard Pipe	20% Chrysotile	12 ft	Friable	Significantly	Physical	1	The asbestos millboard pipe insulation is in a
Insulation			TSI	Damaged	Air Erosion		pipe chase across from room 116.
					Vibration		

LEGEND No. 0700048 (NDSU) SUDRO HALL (BUILDING A052)

QUANTITY CONDITION POTENTIAL 2 5 1 CAT. 1 CONDITION

Hallway 207A

Millboard Pipe Insulation	20% Chrysotile	23 ft	Friable TSI	Significantly Damaged	Physical Air Erosion Vibration	1	Refer to the ACM Locations Map for further information.
Hard Fitting on Millboard Insulation	10% Amosite	1 fitting	Friable TSI	Good	Physical Air Erosion Vibration	7	None

Room 218

Fume Hood	15% Chrysotile	1 ea	Non-Friable	N/A*	N/A*	N/A*	The asbestos fume hood is along the south wall.
			Miscellaneous				

Room 222

Acoustic Ceiling	3-10% Chrysotile	229 ft ²	Friable	Good	Physical	7	The asbestos acoustic ceiling plaster is above
Plaster			Surfacing		Air Erosion		ceiling tile and only on the west end of the room.
					Vibration		

Room 222H

Vibration ■□□		Acoustic Ceiling Plaster	3-10% Chrysotile	135 ft²	Friable Surfacing	Good	Physical Air Erosion		7	The asbestos acoustic ceiling plaster is above the ceiling tile.
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Room 222J

Acoustic Ceiling	3-10% Chrysotile	173 ft ²	Friable	Good	Physical	7	The asbestos acoustic ceiling plaster is above the
Plaster			Surfacing		Air Erosion		ceiling tile.
					Vibration		

Room 222K

Acoustic Ceiling Plaster	3-10% Chrysotile	122 ft²	Friable Surfacing	Good	Physical Air Erosion	7	The asbestos acoustic ceiling plaster is above the ceiling tile.
					Vibration		

* = Non-Friable materials were not assessed

LEGEND No. 0700048 (NDSU) SUDRO HALL (BUILDING A052)

ROOM/ ACM	ASBESTOS TYPE	EST. QUANTITY	ACM TYPE		DAMAGE	ASSESS. CAT. ¹	NOTES
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Room 222L

Acoustic Ceiling	3-10% Chrysotile	173 ft ²	Friable	Good	Physical	6	The asbestos acoustic ceiling plaster is above the
Plaster			Surfacing		Air Erosion		ceiling tile.
					Vibration		

Room 222M

Acoustic Ceiling	3-10% Chrysotile	148 ft ²	Friable	Good	Physical	6	The asbestos acoustic ceiling plaster is above the
Plaster			Surfacing		Air Erosion		ceiling tile.
					Vibration		

West Stairway (basement-2nd floor)

9" Floor Tile and Mastic	Assumed	777 ft ²	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	The 9"floor tile and mastic are assumed ACMs.
Acoustic Ceiling Plaster	3-10% Chrysotile	537 ft²	Friable Surfacing	Good	Physical■□□Air Erosion■□□Vibration■□□	6	The asbestos acoustic ceiling plaster is on the 2 nd floor level and between the basement and 1 st floor levels.

Northeast Stairway (basement-2nd floor)

9" Floor Tile and Mastic	Assumed	165 ft ²	Non-Friable Miscellaneous	N/A*	N/A*	N/A*	The 9"floor tile and mastic are assumed ACMs.
Acoustic Ceiling Plaster	3-10% Chrysotile	262 ft ²	Friable Surfacing	Good	PhysicalAir ErosionVibration	6	The asbestos acoustic ceiling plaster is on the 2nd floor level.

Exterior

Air Vent Caulk	3% Chrysotile	1 ea.	Non-Friable	N/A*	N/A*	N/A*	The asbestos air vent caulk is along the north
			Miscellaneous				exterior wall by room 10A.

LEGEND No. 0700048 (NDSU) SUDRO HALL (BUILDING A052)

ROOM/ ACM	ASBESTOS TYPE	EST. QUANTITY	ACM TYPE	MATERIAL CONDITION	DAMAGE 등 록 표 POTENTIAL ^동 응 단	ASSESS. CAT. ¹	NOTES
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¹Assessment Categories:

1) Damaged or Significantly Damaged TSI ACM

2) Damaged Friable Surfacing ACM

3) Significantly Damaged Friable Surfacing ACM

4) Damaged or Significantly Damaged Friable Miscellaneous ACM

End

5) ACM with Potential for Damage

6) ACM with Potential for Significant Damage

7) Any Remaining Friable ACM or Friable Suspected ACM