PHASE II ACM SURVEY

FORMER PEREGRINE COLDWATER ROAD FACILITY
COLDWATER ROAD, FLINT, MICHIGAN

APRIL 2000
REF. NO. 12636 (12)

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1.0 INTRODUCTION

Conestoga-Rovers & Associates (CRA) was retained by General Motors Corporation (GM) to conduct a comprehensive Phase II Asbestos Containing Material (ACM) survey at the Former Peregrine Inc. (Peregrine) Flint Plant (Site) (formerly GM Coldwater Rd. Delphi I Plant). The original ACM survey (CRA, 1997) was conducted while the plant was being operated by Peregrine and portions of the site could not be accessed. During the Phase II ACM removal, additional ACM was identified prompting the need for this Phase II ACM survey.

This survey characterized and quantified the following suspect ACM present on-site:

- The galbestos siding;
- asbestos-containing roofing materials; and
- and asbestos-containing window caulking.

Additionally, samples of suspect miscellaneous ACM inaccessible during the February-March 1997 sampling period were collected.

This report provides summaries of the following information:

- Sample locations, and analytical results for potential ACM; and
- A quantity estimate of all confirmed ACM.

1.1 DEFINITIONS

For the purposes of this Limited ACM Survey Report (Report) the following definitions apply:

Accessible – when referring to ACM means that the material is subject to disturbance by building occupants or custodial or maintenance personnel in the course of their normal activities.

Asbestos - the asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite, anthophyllite, and actinolite-tremolite.

Asbestos-containing material (ACM) – any material or product that contains more than 1percent (>1%) asbestos.

Asbestos-containing building material (ACBM) – surfacing ACM, thermal system insulation ACM, or miscellaneous ACM that is found in or on interior structural members or other parts of the building.

Category I non-friable ACM – asbestos containing packings, gaskets, resilient floor covering, and asphalt roofing products.

Category II non-friable ACM – any material excluding Category I non-friable ACM.

Damaged friable miscellaneous ACM – friable miscellaneous ACM which has deteriorated or sustained physical injury such that the internal structure (cohesion) of the material is inadequate or, if applicable, which has delaminated such that its bond to the substrate (adhesion) is inadequate or for which any other reason lacks fiber cohesion or adhesion qualities. Such damage or deterioration may be illustrated by the separation of ACM into layers; separation from the substrate; flaking, blistering, or crumbling of the ACM surface; water damage; significant or repeated water stains, scrapes, gouges, mars or other signs of physical injury on the ACM.

Damaged friable surfacing ACM – friable surfacing material which has deteriorated or sustained physical injury such that the internal structure (cohesion) of the material is inadequate or, if applicable, which has delaminated such that its bond to the substrate (adhesion) is inadequate or for which any other reason lacks fiber cohesion or adhesion qualities. Such damage or deterioration may be illustrated by the separation of ACM into layers; separation from the substrate; flaking, blistering, or crumbling of the ACM surface; water damage; significant or repeated water stains, scrapes, gouges, mars or other signs of physical injury on the ACM.

Damaged or significantly damaged thermal system insulation ACM – thermal system insulation ACM on pipes, boilers, tanks, ducts, and other thermal system insulation equipment where the insulation has lost its structural integrity, or its covering, in whole or in part, is crushed, water-stained, gouged, punctured, missing, or not intact such that it is not able to contain fibers. Damage may be further illustrated by occasional punctures, gouges or other signs of physical injury to ACM; occasional water damage on the protective coverings/jackets; or exposed ACM ends or joints.

Encapsulation – an airtight, impermeable, permanent barrier around ACBM to prevent the release of asbestos fibers into the air.

Exposed - when referring to ACM means that the material is subject to disturbance by building occupants or custodial or maintenance personnel in the course of their normal activities and does not require demolition activities to access.

Friable - when referring to asbestos means material, that when dry, may be crumbled, pulverized, or reduced to powder by hand pressure, and includes previously non-friable material after such previously non-friable material becomes damaged to the extent that when dry it may be crumbled, pulverized, or reduced to powder by hand pressure.

Functional Space – a room, group of rooms, or homogeneous area (including crawl spaces or the space between a dropped ceiling and the floor or roof deck above), designated by a person accredited to prepare management plans, design abatement projects, or conduct response actions.

Homogeneous area – an area of surfacing material, thermal system insulation material or miscellaneous that is uniform in color and texture.

Miscellaneous ACM – means asbestos building materials that is on structural components, structural members or fixtures, such as floor or ceiling tiles, and does not include surfacing material or thermal system insulation.

Non-friable - when referring to asbestos means material, that when dry, may not be crumbled, pulverized, or reduced to powder by hand pressure.

Potential damage – circumstances in which: friable ACBM is in an area regularly used by building occupants, including maintenance personnel, in the course of their normal activities; there are indications that there is a reasonable likelihood that the material or its covering will become damaged, deteriorated, or delaminated due to factors such as changes in building use, changes in operations and maintenance practices, changes in occupancy, or recurrent damage.

Potential significant damage – circumstances in which: friable ACBM is in an area regularly used by building occupants, including maintenance personnel, in the course of their normal activities; there are indications that there is a reasonable likelihood that the material or its covering will become significantly damaged, deteriorated, or delaminated due to factors such as changes in building use, changes in operations and maintenance practices, changes in occupancy, or recurrent damage; the material is subject to major or continuing disturbance, due to factors including, but not limited to, accessibility or, under certain circumstances, vibration or air erosion.

Regulated ACM (RACM) – friable asbestos material; Category I non-friable ACM that has become friable; Category I non-friable ACM that will be subjected to sanding, grinding, cutting, or abrading; or Category II non-friable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.

Significantly damaged friable miscellaneous ACM – damaged friable miscellaneous ACM where the damage is extensive and severe.

Significantly damaged friable surfacing ACM – damaged friable surfacing ACM in a functional space where the damage is extensive and severe.

Surfacing ACM – asbestos material that is sprayed-on, troweled-on, or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes.

Thermal system insulation ACM – asbestos material that is applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat loss or gain, water condensation, or for other purposes.

1.2 METHODOLOGY

The survey and associated sampling activities were conducted in accordance with the protocols established by the United Sates Environmental Protection Agency (USEPA) Asbestos Hazard Emergency Response Act (AHERA) Standard, Title 40 Code of Federal Regulations (CFR) Part 763. The following field tasks were conducted as part of the survey:

- Reviewed previous surveys and documentation of previous abatement activities;
- Reviewed all available plant utility drawings (mechanical, water, steam, electrical;
- Identified potential ACM;
- Sampled potential ACM to determine asbestos content;
- Determined friability of ACM;
- Assessed condition (i.e. degree of damage of ACM);
- Estimated quantities of ACM; and
- Determined removal activities that would be required prior to demolition.

CRA retained an AHERA accredited building inspector from BDN to collect any additional suspect ACM in areas that were inaccessible during the February-March 1997 sampling period.

2.0 FACILITY BACKGROUND

The Site is located at 1245 Coldwater Road in Flint, Michigan as shown in Figure 2.1. The focus areas of the ACM Survey were the Main Manufacturing Building, the Powerhouse, and Building 63.

All operations at the facility have been shut down and preparations are being made to demolish the facility.

2.1 FUNCTIONAL SPACES

The manufacturing building is a two-story building with approximately 1.75 million square feet (s.f.) of floor space. The building includes a two-story office area in the front (south) section of the building that is not included as part of the survey.

The powerhouse is a two-story structure with approximately 33,000 s.f. of floor space. The powerhouse is a separate building located in the northeast section of the facility.

The storage building (Building 63) is a single-story frame structure with approximately 69,000 s.f. of floor space. Building 63 is a separate building located directly east of the main manufacturing building.

The layout of the Site is presented on Figure 2.2.

2.2 PREVIOUS ACM INVESTIGATIONS AND ABATEMENT PROGRAMS

CRA produced a Summary ACM Survey Report (April 1997). The purpose of the Summary ACM Survey Report was to identify and inventory all exposed and accessible ACM at the Site. The survey was conducted as part of the sales agreement between GM and Peregrine, Inc.

3.0 SAMPLING PROCEDURES

3.1 SAMPLE COLLECTION, HANDLING AND PREPARATION

The sampling data from the Summary ACM Survey Report was accepted and no samples of the galbestos siding or the window caulking were collected from any of the buildings. Previous sampling data from the Summary ACM Survey Report identified all siding and window caulking as ACM. Previous sampling data also identified the roofing materials on Building 63 as ACM and the roofing materials on the powerhouse as non ACM.

A total of four (4) bulk samples of roofing materials were collected from the main manufacturing building in order to determine the specific locations and quantities of ACM. The samples were collected and details regarding friability, color, size, surface location, and material purpose (e.g., insulation, fire barrier, or mastic) were noted.

A total of 125 additional suspect ACM samples were collected in the previously inaccessible areas of the main plant, Building 63, the powerhouse, the adhesive room, the main substation, and the cooling towers.

When bulk sampling miscellaneous materials, which are not assumed to be ACM, samples were collected in a manner sufficient to determine whether the material is or is not ACM.

Where possible, a 1-inch square of material was collected to the maximum depth possible. Once collected, samples were immediately placed in sample bags, sealed and labeled. Each sample was labeled specifying the sample location, date, sampler's name and request for analysis. This information was also recorded on the field sample data sheets. After each sample was collected, the sample location was repaired with high temperature caulk and/or duct tape.

3.2 SAMPLE LABELING AND CONTROL

A unique sample numbering system was used to identify each sample that was collected. This system provided a tracking number to allow for the retrieval and cross-referencing of sample information. The sample number system used is described as follows:

Example: A-12636-020400-ML-001

A-12636	-	designates suspect material from CRA Job Number 12636
020400	-	designates the calendar date (month/day/year) the sample was collected
ML	-	designates the sampler's initials
001	-	designates sample number

Samples were delivered to EMSL Laboratories (EMSL) in Ann Arbor, Michigan, under chain-of-custody control, as described in Section 3.3.

3.3 CHAIN-OF-CUSTODY RECORDS

Chain-of-custody (COC) records were used to track the arrival of all samples to the laboratory. The chain-of-custody record accompanied the sample shipment to the laboratory and was signed by the receiving laboratory's sample custodian. COCs are included with the analytical data presented in Appendix A.

3.4 SAMPLE ANALYSIS

Identification and quantification of asbestos material in bulk samples was performed by EMSL in accordance with the U.S. EPA's "Interim Method for the Determination of Asbestos in Bulk Insulation Samples", 40 CFR Part 763, Subpart F, Appendix A, 1987, using polarized light microscopy. Laboratory analytical reports are presented in Appendix A.

4.0 ANALYTICAL RESULTS

4.1 OVERVIEW

Asbestos results are reported as a percentage of asbestos-form and non-asbestos-form material. The categories are further subdivided as follows:

Asbestos-form material
- chrysotile
- crocidolite
- amosite
- tremolite

Non-asbestos-form material
- cellulose
- fibrous glass
- hair
- other fibers

4.2 EVALUATION OF RESULTS

Table 4.1 summarizes the sample identification, location, material type, and percent asbestos for each for each sample taken. Samples were divided into layers at the laboratory if it was determined that the material contained distinct, separate layers (i.e., floor tile and mastic). The summary of confirmed ACM sample results are presented in Table 4.2.

Based on analytical data, the following samples and associated materials are ACM:

- Three (3) out of the four (4) samples (ML-001-ML-004) collected on the roof were found to contain asbestos at concentrations greater than 1 percent. Therefore, the roof and all flashing on the main manufacturing building (Building 44) will be considered as a Category I non-friable ACM.

- Sample ID number 69, representing all pipe insulation behind cinder blocks on the second floor, was found to be 10% Chrysotile. The pipe insulation is friable and therefore considered to be a regulated asbestos containing material (RACM).

- The sample ID numbers 84, 100, and 102, representing boilers 2, 3, and 4 in the powerhouse, all contained 15% Chrysotile. The boilers contain friable ACM and are therefore considered RACM.

- Sample ID number 109 was taken to represent the materials on the cooling tower of the Building 44 roof. This sample contained 20% Chrysotile and 3% Amosite and this material is considered to be a Category I non-friable ACM.

- Both Sample ID numbers 112 and 113, representing the lead cables found in the main substations, contained 4% Chrysotile. This material is considered to be friable and therefore a RACM.

- Sample ID number 114 represented caulking from inner office walls and contained 20% Chrysotile. This material is considered to be friable and therefore a RACM.

- Sample ID numbers 35, 37-38, 4, and 71 represented the floor tiles in offices in the main manufacturing building, and contained 5-7% Chrysotile. This material is considered to be a Category I non-friable ACM.

- Sample ID numbers 39, 72, 81 and 82 represented window caulking in the main manufacturing building, and contained 5% Chrysotile. The window caulking was in poor condition and is therefore considered to be friable and a RACM.

- The Sample ID numbers 64 and 73 represented the paper layer of the fire doors in the main manufacturing building and contained 45-70% Chrysotile. This material is considered to be friable and a RACM.

- Sample ID number 49 contained 50% Chrysotile and represented all elevator gasket doors in the main manufacturing building. This material is considered to be a Category I non-friable ACM.

- Sample ID numbers 43-45, represented the gaskets on all ovens in laboratory and dip tank area of the main manufacturing building, and contained Chrysotile in amounts ranging from 70-80%. This material is considered to be a Category I non-friable ACM.

- Sample ID numbers 52, 52B, 54, 56,57, and 59 representing the piping found in building 63 all contained 2-60% Chrysotile. The pipe insulation is friable and is considered to be a RACM.

- Sample ID numbers 126-134 represented the exposed area of the cable wraps and were found to contain chrysotile in the range of 2-7%. This material is considered to be friable and a RACM.

5.0 SUMMARY

5.1 ACM QUANTITY ESTIMATE FOR GALBESTOS SIDING, WINDOW CAULKING, AND ROOFING MATERIALS

Based on the significant number of positive analytical results in the Summary ACM Survey Report (CRA, 1997), all siding was assumed to be Galbestos. For the purposes of quantification the galbestos siding was estimated in-place. The ripple effect, the overlap of each panel, and the actual size of each panel were not factored into the quantity measurements. The following quantities of galbestos siding were identified on-Site during this survey:

- 285,000 s.f. of galbestos siding.

To contain the ACM, the Galbestos siding was encapsulated during 1998 and 1999.

Based on the significant number of positive analytical results in the Summary ACM Survey Report (CRA, 1997) and the impracticality of sampling all material, all window caulking was assumed to contain asbestos. For the purposes of quantification window caulking was estimated using the actual size of the windows. The following quantities of exterior window caulking and interior caulking were identified on-Site during this survey:

- 225,000 s.f. of window caulking.

During this Phase II Survey, CRA could only take a limited number of samples because of the amount of snow on the roof. The analytical results indicate that approximately 75% of the roof contain ACM. For this survey, CRA will assume that all roofing materials on the main manufacturing building including the flashing are ACM. The roofing materials on Building 63 were also confirmed to be ACM. The roofing materials on the powerhouse were confirmed to be non ACM during the 1997 Summary ACM Survey. The following quantities of asbestos-containing roofing materials were identified on-Site during this survey:

- 1,298,916 s.f. of roofing materials.

Quantities of ACM for each functional space are summarized in Table 5.1

5.2 MISCELLANEOUS MATERIALS

Quantity estimates are provided for the following asbestos containing miscellaneous materials found in the various buildings on-site:

Main manufacturing Building

- *Fire Doors*-There are ninety four fire doors in the main manufacturing building which contain an asbestos paper layer surrounded by a wood and an outer metal sheeting. The ninety four fire doors represent an approximate area of 1600 s.f.

- *Elevator Gaskets*-There are twenty four elevator gaskets in the main manufacturing building which contain asbestos. The approximate area of each elevator gasket is , and the approximate area of all elevator gaskets is 200 s.f.

- *Hoods for Lab*-There are thirteen lab hoods on the second floor of the main manufacturing building that contain asbestos, representing an approximate area of 530 s.f.

- *Gaskets on all Ovens*-There are fourteen gaskets in the lab and dip tank area of the main manufacturing building representing an approximate area of 20 s.f.

Powerhouse

- *Lab Table*-The surface of one lab table in the powerhouse contains asbestos representing an approximate area of 18 s.f.

Adhesive Building

- *Pipe jackets*-The asbestos containing pipe jackets in the adhesive building represent an approximate area 1600 s.f.

Main Substation, Roof Substations, Cable Vaults, Powerhouse Substation

- *Cables*- All exposed cables in the substations have an outer paint coating which contains asbestos. The exposed cables are a category 2 non-friable ACM but have a high probability of becoming friable due to years of weather degradation. Therefore, the exposed cables are also considered to be a RACM. Approximately 7,170 linear feet of exposed RACM cable exists at the site.

There is approximately 52,000 linear feet of inaccessible underground cable that could not be fully evaluated for ACMs. The underground cable should be evaluated for ACM content either before or after demolition when all cables have been completely de-energized.

5.3 ADDITIONAL PIPE

During the aggressive investigation activities involving sampling of miscellaneous suspect ACM, additional asbestos containing piping was found by destruction of the cinder block walls and radiator heaters. This piping was sampled for asbestos and was identified as an ACM. It is estimated that 8820 linear feet of the 2- to 12- inch OD pipe was within cinder block and required partial wall demolition for removal. A summary of the additional pipe found is provided in Table 5.2.

5.4 ADDITIONAL ACM MATERIALS IDENTIFIED THAT HAVE ALREADY BEEN ABATED

To conduct work in an efficient manner asbestos workers were instructed to remove all ACM in their designated area of work. Therefore, if abatement work was being conducted in areas where the ACM identified in this report was located, those materials were also removed. The following ACM materials identified in this report have been removed:

- All asbestos-containing piping located behind cinder block;
- All ACM on the boilers in the Powerhouse;
- The floor tiles in the offices in the main manufacturing building; and
- All asbestos containing piping in Building 63.

6.0 RECOMMENDATIONS

For demolition/renovation operations, the Federal EPA National Emission Standard for Hazardous Air Pollutants (NESHAP) regulations state that the owner of a facility must comply with the following procedures; remove all RACM from a facility being demolished or renovated before any activity begins that would break up, dislodge, or similarly disturb the material or preclude access to the material for subsequent removal.

RACM need not be removed before renovation if: it is Category I non-friable ACM that is not in poor condition and is not friable; it is on a facility component that is encased in concrete or other similarly hard material and is adequately wet whenever exposed during renovation; it was not accessible for testing and was, therefore, not discovered until after renovation began and, as a result of the renovation, the material cannot be safely removed; or it is Category II non-friable ACM and the probability is low that the materials will become crumbled, pulverized or reduced to powder during renovation activities.

TABLE 4.1

POTENTIAL ACM SAMPLE SUMMARY FORMER PEREGRINE COLDWATER ROAD FACILITY FLINT, MICHIGAN

Asbestos Sampling Location	*Sample ID* [1]	*Location*	*Column*	*Surface*	*Material*	*Chrysotile*	*Amosite*	*Transite*	*Total Asbestos*
Main Plant									
ML001	ML-001	northwest Roof	F-16	floor	roofing materials				ND
ML002	ML-002	northeast Roof	L-16	floor	roofing materials	20%			20%
ML003	ML-003	southeast Roof	M-11	floor	roofing materials	25%			25%
ML004	ML-004	southwest Roof	G-10	floor	roofing materials	35%			35%
1	34	office (main floor)	B3-6	floor	tile 12x12	<1%			<1%
2	35	office (main floor)	B3-6	floor	tile 12x12	5%(red tile)			5%
						<1% (grey tile)			<1%
3	36	office (main floor)	B3-6	floor	tile 12x12				ND
4	37	office (main floor)	B3-6	floor	tile 12x12	5%(tile)			5%
5	38	office (main floor)	E-15	floor	tile 9x9	7% (tile)			7%
6	39	office (main floor)	E-15	window	caulking	5%			5%
7	40	office (main floor)	F-17	floor	tile 12x12				ND
8	41	office (main floor)	F-17	floor	tile 9x9 grey	7% (tile)			7%
9	42	dip tank area (main floor)	E-20	Ajax Tank #2	cement lid				ND
10	43	dip tank area (main floor)	E-20	Ajax Tank #3	cement lid	70%			70%
11	44	dip tank area (main floor)	E-20	Unit 9 Lindberg	gasket	70%			70%
12	45	dip tank area (main floor)	E-20	Unit 9 Lindberg	gasket	80%			80%
13	46	dip tank area (main floor)	E-20	Unit 9 Lindberg	brick cover				ND
14	47	dip tank area (main floor)	E-20	Unit 9 Lindberg	insulation				ND
15	48	office (main floor)	D-27	floor	tile 12x12				ND
16	49	elevator (main floor)	N-37	door	gasket	60%			60%
28	60	main floor	T-15	vertical column	corrugated material				ND
29	61	2nd floor	S-16	ceiling	skin coat of ceiling material				ND
30	62	2nd floor	S-16	ceiling	skin coat of ceiling material				ND
31	63	2nd floor	K-15	vertical column	cinderblock cardboard				ND
32	64	2nd floor	N-16	blue door	metal wrapped around wood-paper	70%			70%
33	65	2nd floor, union work center	L-M16	floor	floor tiles				ND
34	66	2nd floor, union work center	L-M16	floor	floor tiles				ND
35	67	2nd floor, union work center	L-M16	floor	floor tiles				ND
36	68	2nd floor	L-15	ceiling	insulating board adhesive				ND
37	69	2nd floor East Hallway	L-15	pipe insulation	pipe insulation behind cinder block	10%	45%		55%
38	70	2nd floor East Hallway	J-15	ceiling	paper layer on fiberglass tiles 1x1				ND
39	71	2nd floor green frame office	E-2	floor	tile 9x9	10%(tile)			10%

TABLE 4.1

POTENTIAL ACM SAMPLE SUMMARY FORMER PEREGRINE COLDWATER ROAD FACILITY
FLINT, MICHIGAN

Asbestos Sampling Location	Sample ID [1]	Location	Column	Surface	Material	Chrysotile	Amosite	Transite	Total Asbestos
Main Plant (cont'd)									
40	72	2nd floor green frame office	E-2	window	caulking	5%			5%
41	73	2nd floor	J-7	door	fire door surface	45%			45%
42	74	2nd floor fan room #4	L-8	gasket	gasket				ND
43	75	2nd floor	J-10	inner wall	metal sound insulation				ND
44	76	2nd floor	D-15	ceiling	metal tile 1x1				ND
45	77	2nd floor fan room #6	L-13	gasket	gasket				ND
46	78	2nd floor Woman's rest room	H-16	floor	tile 9x9	7% (tile)			7%
47	79	2nd floor Woman's rest room	H-16	ceiling	tile 1x1				ND
48	80	Pinkerton Security room	G-17	floor	yellow orange tile	10 % (tile)			10%
49	81	2nd floor green wall	G-17	wall	window caulking	5%			5%
50	82	2nd floor green wall	G-17	wall	divider caulking	5%			5%
53	85	2nd floor	J-14	wall	cork wall insulation				ND
54	86	2nd floor	J-14	Lindberg Brick Oven	brick				ND
55	87	2nd floor	J-14	Lindberg Oven	hotplate				ND
56	88	2nd floor	J-14	blue machine	gasket	70%			70%
57	89	2nd floor	J-14	wall	inner wall of hood in Lab	25%			25%
58	90	2nd floor	J-14	wall	outerwall of hood in Lab	25%			25%
59	91	2nd floor	J-14	lab table	Lab table top				ND
60	92	2nd floor	J-14	wall	back wall of hood in lab	30%			30%
61	93	2nd floor	J-14	wall	outside walls of lab				ND
62	94	2nd floor	H-12	floor tile	tile in lab and cafeteria				ND
63	95	2nd floor	G-11	floor tile	tile in lab and cafeteria	10%			10%
64	96	2nd floor	J-14	wall	outer walls				ND
82	114	first floor		wall	inner office walls	20%	3%		23%
Building 63									
17	50		D-3	pipe elbow	pipe insulation	60%	7%		67%
18	51		D-3	pipe run	pipe insulation	2% (brown) 45% (black)			47%
19	52	womens bathroom	F-2	ceiling	board material				ND
20	52B		A-2	pipe	pipe insulation	10%	20%		30%
Building 63 (cont'd)									
21	53		F-5	ceiling	milborn material	40% (black)			40%

TABLE 4.1

POTENTIAL ACM SAMPLE SUMMARY FORMER PEREGRINE COLDWATER ROAD FACILITY FLINT, MICHIGAN

Asbestos Sampling Location	*Sample ID* [1]	*Location*	*Column*	*Surface*	*Material*	*Chrysotile*	*Amosite*	*Transite*	*Total Asbestos*
22	54		F-17	pipe run	pipe insulation	45%			45%
23	55	north of F-20 office	F-20	floor	tile (two layers)				ND
24	56		F-37	pipe run	pipe insulation	40% (black)			40%
25	57		F-40	pipe run	fill cap insulator	10%			10%
26	58		A-2	vertical column	cardboard layer (between cement and steel high beam)				ND
27	59	diesel pump room	F-2	pipe run	pipe insulation	65%(grey) 10% (netting)			75%
Powerhouse									
51	83		C-1 1/2	boiler #4	cement top				ND
52	84		C-1 1/2	boiler #4	bottom insulation		15%		15%
65	97		CD-2	boiler #1	boiler top				ND
66	98		CD-2	boiler #1	insulation layer of boiler #1				ND
67	99		C-4	boiler #2	boiler top		<1%		<1%
68	100		C-4	boiler #2	boiler insulation		15%		15%
69	101		C-5	boiler #3	top brick layer				ND
70	102		C-5	boiler #3	insulation layer of boiler #3		15%		15%
83	115			roof	red brick mortar				ND
84	116			roof	yellow brick mortar				ND
85	117			roof	yellow brick				ND
86	118			roof	red brick				ND
87	119			roof	cement inside metal breech				ND
88	120	north side		roof	flat part of roof				ND
89	121			roof	flashing bottom layer				ND
90	122	north side		roof	drain roofing with tar	4%			4%
91	123	roof catwalk		pipe	white insulation	3%	20%		23%
92	124			roof	caulk from breech	10%			10%
93	125	roof catwalk		pipe	outer layer pipe insulation	45%			45%

TABLE 4.1

POTENTIAL ACM SAMPLE SUMMARY FORMER PEREGRINE COLDWATER ROAD FACILITY FLINT, MICHIGAN

Asbestos Sampling Location	Sample ID (1)	Location	Column	Surface	Material	Chrysotile	Amosite	Transite	Total Asbestos
Adhesive Room									
71	103		T-19	# 8 elbow	outer elbow layer				ND
72	104		T-19	# 8 elbow	inner layer of elbow				ND
73	105		T-17	tank # 5	outer layer				ND
74	106		T-17	tank # 5	inner layer				ND
75	107		T-17	tank # 5	mud from tank				ND
76	108		T-18	overhead piping	pipe jacket	75%			75%
Miscellaneous									
	109	cooling tower	H-27	cooling tower	roofing materials on cooling tower	20%	3%		23%
	110	main substation		cable vault	internal layer				ND
	111	main substation		cable vault	brown layer inside cables				ND
	112	main substation		cable vault	outside wrap of lead cables	4%			4%
	113	main substation		cable vault	white layer of lead cables	4%			4%
	126	substation 4		cable wrap	painted wrap	2%			
	127	substation 2		cable wrap	painted wrap	3%			
	128	substation 5		cable wrap	painted wrap	3%			
	129	main substation		cable wrap	painted wrap	3%			
	130	main substation		cable wrap	painted wrap	5%			
	131	main substation		cable wrap	painted wrap	3%			
	132	main substation		cable wrap	painted wrap	4%			
	133	main substation		cable wrap	painted wrap	6%			
	134	main substation		cable wrap	painted wrap	7%			

Notes:

(1) The last two digits of the full sample identification are provided in this column.

TABLE 4.2

SUMMARY OF CONFIRMED ACM SAMPLE RESULTS
FORMER PEREGRINE COLDWATER ROAD FACILITY
FLINT, MICHIGAN

Sample ID	*Building/Location*		*Material*	*Percent Asbestos*			
				Chrysotile	*Amosite*	*Tremolite*	*Crocidolite*
A-12636-020400-ML-002	Main Manufacturing Facility	Northeast Roof	Roofing Materials	20			
A-12636-020400-ML-003	Main Manufacturing Facility	Southeast Roof	Roofing Materials	25			
A-12636-020400-ML-004	Main Manufacturing Facility	Southwest Roof	Roofing Materials	35			
S-12636-011900-BDN-35	Main Manufacturing Facility	Office Located at B3-6	Floor Tile	5			
S-12636-011900-BDN-37	Main Manufacturing Facility	Office Located at B3-6	Floor Tile	5			
S-12636-011900-BDN-38	Main Manufacturing Facility	Office Located at B3-6	Floor Tile	7			
S-12636-011900-BDN-39	Main Manufacturing Facility	Window	Caulking	5			
S-12636-011900-BDN-41	Main Manufacturing Facility	Office Located at F-17	Floor Tile	5			
S-12636-011900-BDN-43	Main Manufacturing Facility	Ajax Tank #3	Cement Lid	70			
S-12636-011900-BDN-44	Main Manufacturing Facility	Unit # 9 Lindberg	Cement Lid	70			
S-12636-011900-BDN-45	Main Manufacturing Facility	Unit # 9 Lindberg	Cement Lid	80			
S-12636-011900-BDN-49	Main Manufacturing Facility	elevator at N-37	Gasket	60			
S-12636-011900-BDN-64	Main Manufacturing Facility	Blue Fire Door at N-16	wood paper	70			
S-12636-011900-BDN-69	Main Manufacturing Facility	piping behind cinder block at L-15	Pipe Insulation	10	45		
S-12636-011900-BDN-71	Main Manufacturing Facility	Floor Tile at E-2	Pipe Insulation	10			
S-12636-011900-BDN-72	Main Manufacturing Facility	Window	Caulking	5			

TABLE 4.2

SUMMARY OF CONFIRMED ACM SAMPLE RESULTS
FORMER PEREGRINE COLDWATER ROAD FACILITY
FLINT, MICHIGAN

Sample ID	*Building/Location*		*Material*	*Percent Asbestos*			
				Chrysotile	*Amosite*	*Tremolite*	*Crocidolite*
S-12636-011900-BDN-73	Main Manufacturing Facility	Fire Door at J-7	Fire Door Surface	45			
S-12636-011900-BDN-78	Main Manufacturing Facility	Floor at G-17	Floor Tile	7			
S-12636-011900-BDN-80	Main Manufacturing Facility	Floor at G-17	Floor Tile	10			
S-12636-011900-BDN-81	Main Manufacturing Facility	Wall at G-17	Floor Tile	5			
S-12636-011900-BDN-82	Main Manufacturing Facility	Wall at G-17	Floor Tile	5			
12636-012500-BDN-88	Main Manufacturing Facility	Blue Machine	Gasket	70			
12636-012500-BDN-89	Main Manufacturing Facility	Wall	Inner Wall of Hood in Lab	25			
12636-012500-BDN-90	Main Manufacturing Facility	Wall	OuterWall of Hood in Lab	25			
12636-012500-BDN-92	Main Manufacturing Facility	Wall	Back Wall of Hood in Lab	30			
12636-012500-BDN-95	Main Manufacturing Facility	Laboratory and Cafeteria Floor	Floor Tile	10			
12636-011900-BDN-114	Main Manufacturing Facility	Wall	Inner Office Walls	20	3		
S-12636-011900-BDN-50	Building 63	Pipe	Pipe Insulation	60	7	7	
S-12636-011900-BDN-51	Building 63	Pipe	Pipe Insulation	47			
S-12636-011900-BDN-52B	Building 63	Pipe	Pipe Insulation	10	20		
S-12636-011900-BDN-53	Building 63	Ceiling	Board Material	40			

TABLE 4.2

SUMMARY OF CONFIRMED ACM SAMPLE RESULTS
FORMER PEREGRINE COLDWATER ROAD FACILITY
FLINT, MICHIGAN

Sample ID	*Building/Location*		*Material*	*Percent Asbestos*			
				Chrysotile	*Amosite*	*Tremolite*	*Crocidolite*
S-12636-011900-BDN-54	Building 63	Pipe	Pipe Insulation	45			
S-12636-011900-BDN-56	Building 63	Pipe	Pipe Insulation	40			
S-12636-011900-BDN-57	Building 63	Pipe	Pipe Insulation	10			
S-12636-011900-BDN-59	Building 63	Pipe	Pipe Insulation	75			
12636-012500-BDN-84	Adhesive Room	Boiler #4	Bottom Insulation	15			
12636-012500-BDN-100	Adhesive Room	Boiler #2	Boiler Insulation	15			
12636-012500-BDN-102	Adhesive Room	Boiler #3	Boiler Insulation	15			
12636-012500-BDN-108	Adhesive Room	Overhead Piping	Pipe Jacket	75			
12636-012500-BDN-109	Cooling Tower	Roof	Roofing Materials	20	3		
12636-012500-BDN-112	Main Substation	Cable Vault	Outside Wrap	4			
12636-012500-BDN-113	Main Substation	Cable Vault	White Layer	4			
12636-030800-BDN-122	Powerhouse	North Side		4			
12636-030800-BDN-123	Powerhouse	Roof Catwalk		20	3		
12636-030800-BDN-124	Powerhouse	Roof		10			
12636-03080-BDN-125	Powerhouse	Roof Catwalk		45			
12636-032100-BDN-126	Substation 4	Roof	Cable Wrap	2			

SUMMARY OF CONFIRMED ACM SAMPLE RESULTS
FORMER PEREGRINE COLDWATER ROAD FACILITY
FLINT, MICHIGAN

Sample ID	*Building/Location*		*Material*	*Percent Asbestos*			
				Chrysotile	*Amosite*	*Tremolite*	*Crocidolite*
12636-032100-BDN-127	Substation 2	Roof	Cable Wrap	3			
12636-032100-BDN-128	Substation 5	Roof	Cable Wrap	3			
12636-032100-BDN-129	Substation 1	Roof	Cable Wrap	3			
12636-032100-BDN-130	Main Substation	Cable Vault	Cable Wrap	5			
12636-032100-BDN-131	Main Substation	Cable Vault	Cable Wrap	3			
12636-032100-BDN-132	Main Substation	Cable Vault	Cable Wrap	4			
12636-032100-BDN-133	Main Substation	Cable Vault	Cable Wrap	6			
12636-032100-BDN-134	Main Substation	Cable Vault	Cable Wrap	7			

TABLE 5.1

SUMMARY OF CONFIRMED ACM QUANTITIES
FORMER PEREGRINE COLDWATER ROAD FACILITY
FLINT, MICHIGAN

Description	*Quantity*
Galbestos Siding	
Main Manufacturing Building	275,000 s.f.
Building 63	10,000 s.f.
Roofing Materials	
Main Manufacturing Building	1,225,916 s.f
Cooling Tower (2nd story roof)	3,000 s.f.
Building 63	70,000 s.f.
Window Caulking	
Main Manufacturing Building	200,020 s.f.
Powerhouse	7,750 s.f.
Building 63	16,750 s.f.
Master Substation	480 s.f.
Miscellaneous Materials	
Main Manufacturing Building	
Fire Doors	4,700 s.f.
Door Gaskets	2,400 s.f.
Hoods for Lab	750 s.f.
Gaskets on all Ovens	60 s.f.
Caulking throughout Offices	2,500 s.f.
Powerhouse	
Lab Table	18 s.f.
Adhesive Building	
Pipe jackets	1,600 s.f.

TABLE 5.2

SUMMARY OF UNEXPECTED PIPE BEHIND CINDER BLOCK
FORMER PEREGRINE COLDWATER ROAD FACILITY
FLINT, MICHIGAN

Size of Pipe	*Building*	*Location*	*Amount of Pipe (feet)*
2 inch white	Main Manufacturing Facility	L.R. Halls Regist. Miscellaneous	4,600
2 inch white	Main Manufacturing Facility	Above laboratory and cafeteria	1,600
		Total 2 inch pipe:	6,200
4 inch white	Main Manufacturing Facility	Fan Room 12	20
4 inch white	Main Manufacturing Facility	3rd floor catwalk	120
		Total 4 inch pipe:	140
8 inch white	Main Manufacturing Facility	3rd floor catwalk	80
12 inch white	Main Manufacturing Facility	Fan Room 12	140
12 inch white	Main Manufacturing Facility	Above laboratory and cafeteria	2200
12 inch white	Main Manufacturing Facility	Fan Room 10	60
		Total 8-12 inch pipe:	2480
		Total all pipe:	8820