McGinley & Associates
Environmental Engineering and Science

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June 30, 2015
MGA Final Report
Via electronic mail

Bureau of Corrective Actions
Nevada Division of Environmental Protection
901 S. Stewart Street, Suite 4001
Carson City, Nevada 89701-5249

On behalf of: Town of McGill and White Pine County

ATTN: David Friedman

RE: ABATEMENT OVERSIGHT AND MONITORING ACTIVITIES REPORT, MCGILL LIBRARY, 4 NORTH FOURTH STREET, MCGILL, WHITE PINE COUNTY, NEVADA

Dear Mr. Friedman:

McGinley & Associates Inc. (MGA) is pleased to submit this final report outlining the abatement oversight activities and clearance results for the asbestos and lead based paint (LBP) abatement work conducted by A&B Environmental, LLC between June 1, 2015 and June 4, 2015 at the McGill Library located at 4 North Fourth Street in McGill Nevada. Jason McAllister of Macrotec, a State of Nevada Asbestos Abatement Consultant (License #IPM0901) and an EPA Lead Inspector (Certification #NV-R-125427-1) provided oversight and clearance activities for this project. The location of the Subject Property in relation to the Town of McGill is provided in Figure 1.

1. BACKGROUND

In May of 2014, utilizing funds provided by the Rural Desert Southwest Brownfields Coalition, a U.S Environmental Protection Agency (EPA) Region IX Coalition Assessment Grant Awardee, the above referenced property was assessed for asbestos and lead based paint containing materials due to the age of the building and its proposed renovations. Conclusions from that assessment are provided in the following sections.

1.1 Asbestos Assessment

In accordance with OSHA 29 CFR 1926.1101 and NESHAPS 40 CFR 61.141, the definition of an asbestos containing material is “any material which contains more than one percent asbestos by weight”. For the assessment, twenty-nine samples from twenty-two suspect building materials were collected. Of those twenty-nine samples, seven were identified to contain greater than 1% chrysotile asbestos. In addition, one of those samples, known as thermal system insulation (TSI) was found in a friable condition and was classified as a regulated asbestos containing material (RACM). As such, this material is subject to NAC 618.850 – 618.986, which sets forth provisions for the abatement of asbestos. EPA and the Nevada Department of Industrial Relations regulations require the removal of all RACM prior to any

renovation or demolition that could impact or disturb the RACM. Therefore, prior to the disturbance of these materials, it was recommended that the following procedures were acknowledged in order to maintain EPA, State of Nevada OSHA, and federal OSHA regulatory compliance, and reduce liability and health concerns:

- All materials which were identified to contain greater than 1% asbestos be removed from the McGill Library facility prior to the commencement of any renovation projects which would disturb these materials.
- A certified asbestos abatement consultant licensed in the State of Nevada be contracted to develop abatement specifications based on this investigation and any other additional findings.
- A certified asbestos abatement contractor licensed in the State of Nevada be contracted to perform all activities involving the removal or disturbance of materials which contain greater than one percent asbestos. All abatement work should be performed in strict accordance with applicable Federal, State and local regulations.
- Notification to the EPA and State of Nevada OSHA, which regulate the removal of asbestos, be performed by an asbestos abatement contractor (if required).
- A certified asbestos consultant licensed in the State of Nevada be contracted to conduct project oversight during the removal of all ACM, perimeter air monitoring, and final clearance air sampling assessments after the asbestos abatement is complete.

Although the floor tile, base cove, roof mastic, and wall mastic found to contain asbestos greater than 1% was considered to be non-friable and in good condition, it was required for the material to be abated as if it was RACM due to a high probability that the material would become pulverized or reduced to a friable state by forces expected to act on the material in the course of renovation. Therefore, it was recommended that removal of all ACM occurs in the manner described above.

1.2 Lead Based Paint Assessment

The sampling assessment consisted of collecting 122 x-ray fluorescence (XRF) paint readings and five bulk confirmation samples. Sampling results from the assessment indicated that multiple locations having five distinct paint types/colors contained lead in paint at levels above 0.8 mg/cm^2. Based on the XRF screening assessment, five bulk samples were collected. All five of the confirmation bulk samples were reported to contain lead concentrations that corresponded with the XRF screening results.

US EPA and OSHA regulations require the implementation of worker protection if there is a potential that paint containing lead will be disturbed during renovation activities. Therefore, in accordance with these regulations, the following was recommended:

- A certified lead consultant be contracted to develop a project specification based on this investigation and any other additional findings.
- A licensed Lead Abatement contractor licensed in the State of Nevada be contracted to stabilize and or remove all regulated lead-painted materials.

2. ABATEMENT ACTIVITIES

A&B Environmental, LLC, a State of Nevada Licensed Abatement Contractor (License # 53859) was contracted by MGA to conduct abatement activities related to asbestos and lead based paint impacted building materials at the subject property. A&B provided abatement services between June 1, 2015 and June 4, 2015. Abatement activities associated with this project included the removal and disposal of approximately 60 linear feet of TSI on copper plumbing lines which were located in the basement and crawl space of the structure. Additional TSI debris, found on the floor of the basement and crawl

space was also removed. Further, due to the friable state of the TSI, A&B conducted abatement of approximately 700 square feet of basement and crawl space which had been contaminated by the TSI material. Other materials removed during abatement activities included the following:

- 150 square feet of black mastic material on basement and crawl space walls;
- 2,000 square feet of 9”x9” vinyl composite tile (VCT) throughout the building;
- 110 square feet of base cove on the perimeter walls of each interior room;
- 20 square feet of window putty around the exterior perimeter of the glass block windows; and
- 35 square feet of roof mastic on three vents and two pipe penetrations existing on the flat roll roof.

Lead based paint abatement was conducted on two radiators and the solder on the metal flashing of gutters around the perimeter of the roof. Lead based paint remediation also consisted of stabilizing loose and flaking paint via scraping with subsequent lock down by application of Lead Barrier Compound (LBC), a two-stage product consisting of a lock down layer followed by a layer of primer.

3. MONITORING AND INSPECTIONS

A State of Nevada certified asbestos consultant and EPA lead inspector is required to provide oversight during asbestos and lead-based paint abatement activities performed by a licensed State of Nevada Asbestos Contractor.

For this project, Macrotec was contracted to conduct project monitoring to ensure that the contractor conducted abatement procedures in compliance with Macrotec’s original Asbestos and Lead Abatement Plan, general industry standards, and applicable federal, state, and local regulations.

A final visual inspection of each work area was conducted by Macrotec to determine if the abatement was conducted in accordance with generally accepted industry standards. The visual inspection of the work area was performed to detect residual or overlooked asbestos and lead debris on adjacent surfaces, pursuant to Nevada Administration Code (NAC) 618.960. During the final inspection, Macrotec determined that all work areas were visually cleared. Notes related to the final visual inspection are provided in Macrotec’s report found in Attachment A.

4. FINAL CLEARANCE

In addition to visual clearance inspections, Macrotec conducted asbestos air sampling within the interior containment and following the completion of abatement activities. Air samples were collected within the basement, crawl space, main room, men’s room, and the kitchen. None of the samples collected were found to be above the laboratory detection limit of 0.005 fibers per cc. This detection limit is below the clearance level of 0.01 fibers per cc, pursuant to the requirements of NAC 618.956. Based on these results, no clearance standards were exceeded during the project and it appears that the abatement activities were successfully completed. A full copy of the Macrotec report can be found in Attachment A.

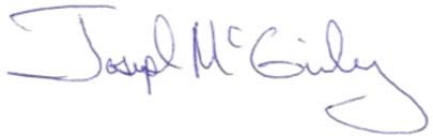
5. CLOSING

MGA appreciates the opportunity to submit this report. Should you have any questions, please contact me at (702) 260-4961 or email to bbottenberg@mcgin.com.

Respectfully submitted,
McGinley and Associates, Inc.

Brett Bottenberg, C.E.M. #1690, Exp. 10/7/15
Project Manager

Reviewed by:
I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession, and to the best of my knowledge, comply with all applicable federal, state and local statutes, regulations and ordinances.



Joseph M. McGinley, P.E., C.E.M. #1036, Exp. 11/14
Principal

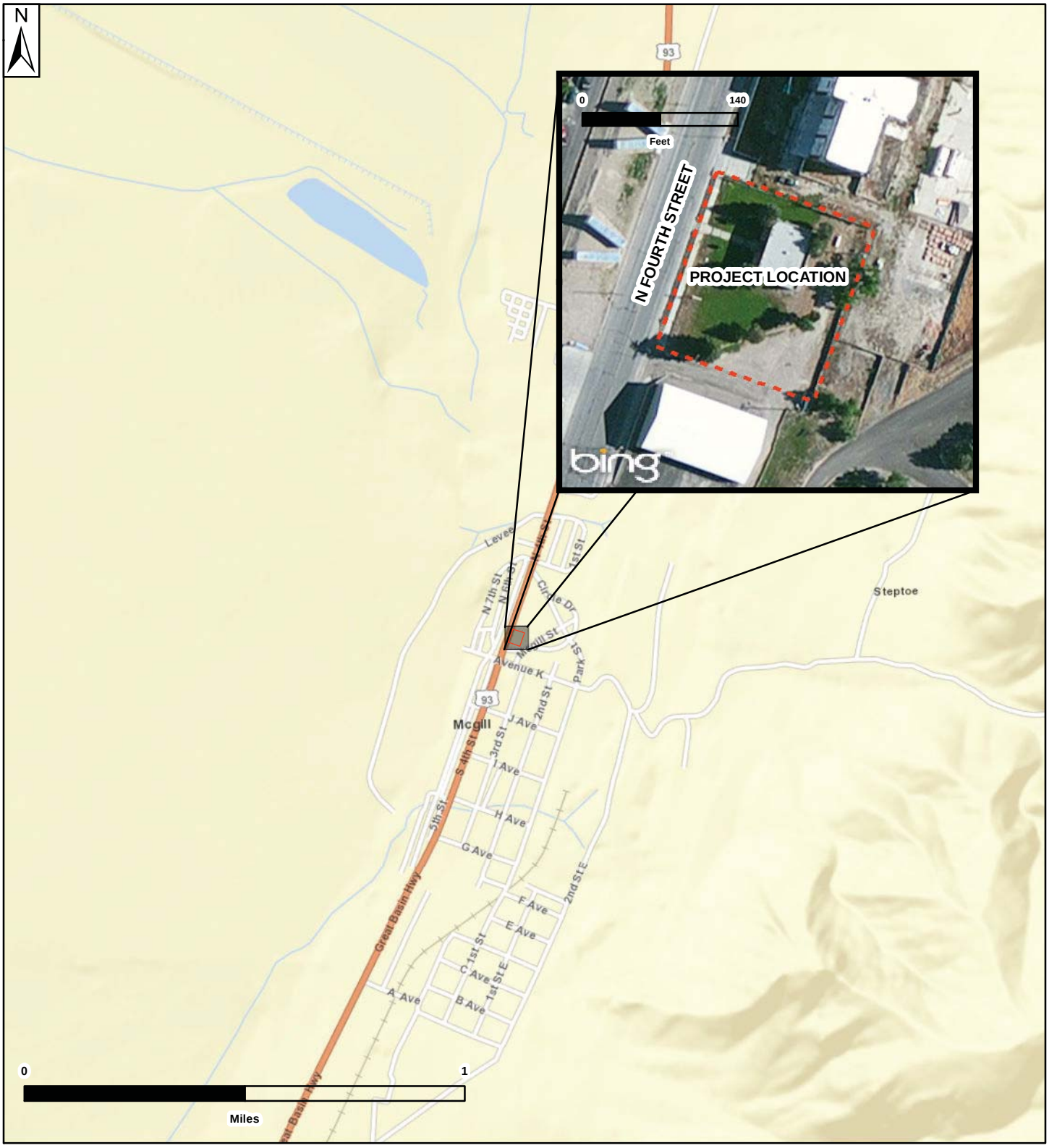


FIGURE 1

TITLE:

PROJECT LOCATION MAP

-SHOWING-

APN: 004-071-02
4 N FOURTH STREET
MCGILL, NEVADA

McGinley & Associates
Environmental Engineering and Science

FILE:

COORDINATE SYSTEM:
NAD 1983 UTM Zone 11N US Feet

JOB NO.:	DATE:
BRN030	3/28/2013

REF.					REVISION:
	DESIGNED	MSP	CHECKED	MSP	-
	DRAWN	MSP	APPROVED	BB	

ATTACHMENT A

MACROTEC FINAL CLEARANCE REPORT

Macrotec
Consulting, LLC.

Project Monitoring and Final Clearance Report

Asbestos and Lead Based Paint Abatement

Project Information:

McGill Library
4 North Fourth Street
McGill, Nevada

Report Info:

Macrotec Project # 15181
June 13, 2015

Prepared For:

Brett Bottenberg
McGinley & Associates
1915 N. Green Valley Pkwy.
Suite 300
Henderson, NV 89074

Prepared By:

Jason McAllister - **Macrotec Consulting, LLC.**

Table of Contents:

INTRODUCTION

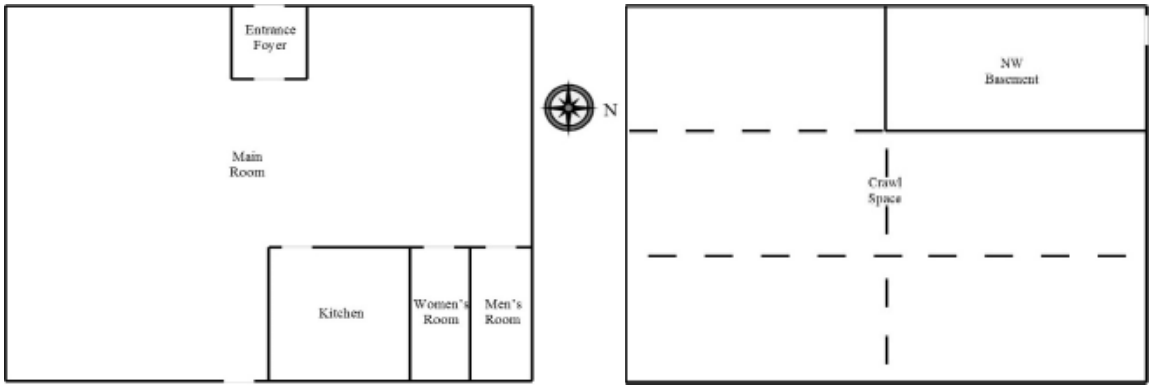
Between June 1, 2015 and June 4, 2015, Macrotec Consulting conducted project monitoring and clearance inspections during and upon completion of the removal of asbestos containing materials and lead based paint from the building located at 4 North Fourth Street, in McGill, Nevada.

Jason McAllister, a Nevada Asbestos Abatement Consultant, License #IPM0901, and an EPA Lead Risk Assessor, Certification # NV-R-125427-1conducted these services for Macrotec Consulting.

A&B Environmental, Inc. (A&B) of Las Vegas, Nevada conducted asbestos abatement and lead based paint abatement and stabilization activities.

SITE DESCRIPTION

The subject site is a one-story brick building with a flat roof and concrete foundation. The interior of the building consists of a large open room, two restrooms and a kitchen. A standing height basement is located beneath the northwest corner of the building, and a crawl space is beneath the remainder of the building. An attic space is located between the hard deck ceiling (which is above a drop ceiling in the main room) and the flat roof above.



The exterior walls of the building are brick. There are no windows or doors on the north and south walls. The east (back) wall has a single-hung door, and eight windows (made of 1'x1' glass blocks). The west (front) wall has a main entrance door (single hung) with a glass block perimeter, and a small overhang. On each side of the front door is a sliding aluminum window and two glass block windows, with a metal awning.

The roof of the building is a flat roof, pitched from the west side of the building to the east side. There is a copper gutter running across the east side of the roof, and copper flashing around the perimeter of the other three sides.

The standing height basement is in the northwest corner of the building (~28' x 11'), and there is a crawl space beneath the rest of the building. There is duct work running through the crawl spaces. This subject portions of the basement and crawl spaces for this project included the standing height basement, the North-Center portion of the crawl space (north of the metal duct running along the south side of this space), and the northwest corner of the South-West portion of the crawl space.

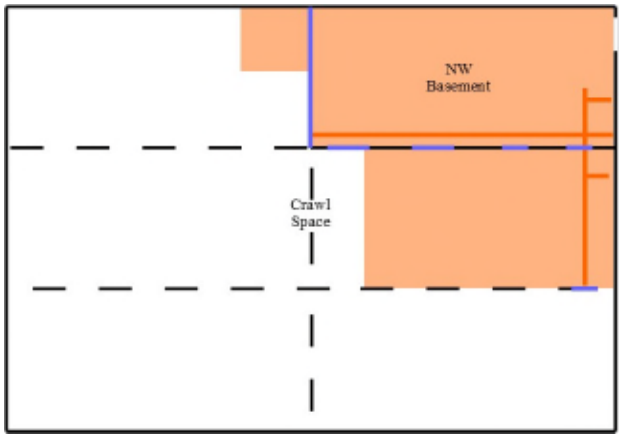
The interior of the building is comprised of a main room, entrance foyer, kitchen and two restrooms. The walls in each of these rooms are made with a compressed fiber-board material. There is a drop ceiling in the main room, and a hard deck ceiling (fiber-board) throughout the building, including above the drop ceiling. All of the floors have a layer of VCT, and there is carpet atop the VCT in the main room and kitchen. Note: Based on the discussion with officials from White Pine County prior to developing the scope of work for this project, the cabinets in the kitchen were to remain in place, and therefore the flooring beneath these cabinets was not included in the subject site.

SCOPE OF WORK

The scope of work for this asbestos and lead based paint abatement project was originally identified in an Asbestos and Lead Abatement Plan created by Macrotec Consulting, LLC. on April 20, 2015.

Asbestos Abatement:

- Approximately 60 Linear Feet of Thermal System Insulation (TSI) on copper plumbing lines in the basement and crawl space. Also, there is approximately 700 square feet of space in the basement and crawl space that has been contaminated with the TSI material in poor condition. Note: Due to the poor condition of this material, the basement / crawl space shall not be entered without workers first donning personal protective equipment (PPE) and proper respiratory protection.



-Orange lines indicate the approximate locations of the TSI on pipes.
-Orange shaded area represents the area that has TSI debris.
-Purple lines indicate the approximate locations of the black wall mastic material.

- Approximately 150 Square Feet of Black Mastic Material on the walls in the basement and crawl space.
- Approximately 2,000 Square Feet of 9”x9” Vinyl Composite Tile (VCT) throughout the interior of the building. This material is on the floors in each of the rooms, including beneath a layer of carpet in the main room and kitchen. Note: Removing the carpet did not disturb the VCT and therefore the carpet was removed and discarded as general waste.
- Approximately 110 Square Feet (330 Linear Feet) of Base Cove on the perimeter walls of each of the interior rooms.
- Approximately 20 Square Feet (240 Linear Feet) of Window Putty around the exterior perimeter of the glass block windows on the west and east sides of the building.
- Approximately 35 Square Feet of Roof Mastic on three vents, and two pipe penetrations on the flat roll roof. This material is also on some of the seams on the metal flashing and gutters around the perimeter of the roof (Approximately 250 square feet of metal).

Lead Based Paint Abatement:

- Two Large (32”x62”x14”) Blue Metal Radiators located along the north and south walls inside the main room.
- Solder on the metal flashing and gutters around the perimeter of the roof. There is approximately 250 square feet of this metal material on the roof.

Lead Paint Stabilization and Prep:

Preparation consists of scraping loose and flaking paint, followed by applying Lead Barrier Compound (LBC). The LBC is a two-stage product where a lock down layer is first applied followed by a layer of primer. The following painted materials are not to be abated, but rather prepped for future painting. Please note that only the deteriorated and/or damaged areas of the painted surfaces were prepped.

- Gray Wood Trim on the perimeter of the two windows on the west side of the building.
- Interior Surfaces including fiber-board walls, window sills, window frames, window casings, doors, door frames, door casings, and crown molding. (Note: Not including above the drop ceiling in the main room.)

WORK AREAS

Several types of work area containments were utilized for this project.

For the friable TSI removal and clean-up in the basement / crawl space, a full containment with a three stage decontamination unit was used. The space was

put under negative pressure, and critical barriers (using polyethylene sheeting) sealed off from the work space from the remainder of the crawl space. Glove bags were used to remove the TSI that was still on the pipes. Note: Due to the poor condition of the TSI in the area, the decontamination unit was constructed and the workers suited up and donned respirators prior to entering the area.

For the non-friable VCT and base cove removal on the interior of the building, a two-stage decontamination unit, critical barriers and negative pressure were used to conduct the abatement.

For the exterior window putty abatement and for the paint stabilization and prep, barrier tape was placed around the perimeter of each area, and drop cloths were placed within those perimeters.

For all of the abatement and prep activities for this project, workers wore personal protective equipment (PPE), which included disposable suits, boots, gloves, safety goggles, and appropriate respirators.

WORK AREA INSPECTIONS

Macrotec conducted project monitoring for this job to ensure that A&B conducted abatement procedures in compliance with state and local laws, as well as Macrotec's original Asbestos and Lead Abatement Plan.

Prior to the commencement of abatement in each of the work areas, an inspection was conducted to determine whether the work area containments were properly constructed and set-up. These inspections checked to insure:

- That all of the critical barriers were in place and sealed.
- That the decontamination chamber was properly constructed and that the shower (when necessary) was functioning.
- That the work area had enough negative air machines to create 4 air changes per hour.
- That proper signage was posted at the entrance to the work area.
- That workers had properly donned their PPE and fit tests were performed on their respirators.

During abatement, Macrotec's technician conducted periodic inspections of the asbestos abatement work areas and observed the contractor's work procedures. These inspections checked to insure:

- Materials were being properly wetted prior to and during removal.
- Debris was being promptly bagged and that materials were adequately wet in the bags.
- PPE continued to be properly worn by workers.
- Proper negative pressure was maintained throughout the abatement.
- Critical barriers remained in place.
- The decontamination unit remained clean.

If any problems were observed during these inspections, the contractor was immediately instructed to correct the problem. Macrotec determined that A&B effectively conducted the work of this project to the specifications of federal, state and local laws and the project abatement plan. Please reference Appendix C for the daily notes taken by Macrotec's on-site technician.

Macrotec determined that area/perimeter air samples were not necessary or prudent for this project for two reasons. First, the remote location of the job site did not allow for analysis of the samples in a time frame that would reveal possible problems with engineering controls before they could be corrected. Second, there were no unprotected workers, personnel or citizens in the vicinity of the job site.

POST ABATEMENT CLEARANCES

Scope of Services

Macrotec's inspection services were conducted to confirm the removal of the materials containing asbestos pursuant to the requirements of NAC 618.850 – 618.986 and in accordance with the inspection requirements of the EPA's: 40 CFR Part 61 National Emission Standard for Hazardous Air Pollutants (NESHAP). These regulations outline inspection and abatement requirements for materials containing asbestos, prior to renovation and/or demolition activities.

Macrotec's lead inspection services were conducted to confirm the removal and/or preparation of materials containing lead pursuant to the requirements of 1995 Revised HUD Guidelines and OSHA Lead in Construction Standards 29 CFR 1926.62.

Visual Inspections

Macrotec conducted a visual inspection of each work area to determine if A&B completed the defined scope of work in accordance with generally accepted industry standards.

During the visual inspections, the surfaces within the work areas (as defined above) were examined for any visible asbestos or lead debris.

Macrotec's visual inspections found each of the work areas to have been acceptably completed. The following list indicates the time when each area was visually cleared:

- June 1 @ 10:30am – Radiators removed from the main room. The radiators were able to be removed without impacting the paint on them, and the paint was in good / stable condition.
- June 2 @ 1:45pm – Interior VCT and base cove abatement.

- Between June 2 @ 6:00pm and June 4 @ 8:15am - Window putty abatement, individually cleared for each set of windows.
- June 3 @ 8:05am – Basement / crawl space TSI abatement and clean-up.
- June 4 @ 10:10am – Roof mastic and lead solder abatement. Note: Macrotec collected samples of the black tar that was found behind the roof flashing on June 3, which laboratory results (Appendix D) indicated was not asbestos containing.
- June 4 @ 2:40pm – All of the areas where paint stabilization and prep was conducted.

Please reference Appendix C for the individual daily notes completed by Macrotec's technician, which included documentation of the instances when each of the areas were visually cleared.

Asbestos Air Sample Collection

On June 2, 2015, Macrotec conducted air sampling within the interior containment following the completion of the VCT and base cove abatement. On June 3, 2015, Macrotec conducted air sampling in the subject area of the basement and crawl space following the completion of the TSI abatement and clean-up. Note: Clearance air sampling was not conducted for the exterior work areas.

The air samples for this project were collected using Phase Contrast Microscopy (PCM) sample cassettes and high volume sampling pumps. The pumps flow rates were calibrated before and after each use. The samples were collected using aggressive methods.

Air samples for this project were submitted for analysis to Triangle Environmental Service Center, Inc. (TESC), a certified asbestos laboratory, located in Moseley, Virginia.

Air Sample Analysis

PCM samples are analyzed in accordance with NIOSH Method 7400. Samples are cleared with acetone vapor and mounted with triacetin. Samples are analyzed using phase contrast optics at a magnification of 400x.

Air Sample Results

The following tables list the sample number, sample location and the laboratory result for the air sampling within each interior work area.

Sample Number	Sample Date	Sample Location	Result (Fibers per cc)
AC1	6/2/2015	IWA – South end of the main room.	<0.005
AC2	6/2/2015	IWA – Doorway between the main room and the foyer.	<0.005
AC3	6/2/2015	IWA – North end of the main room.	<0.005
AC4	6/2/2015	IWA – Center of the men's room.	<0.005
AC5	6/2/2015	IWA – Center of the kitchen.	<0.005

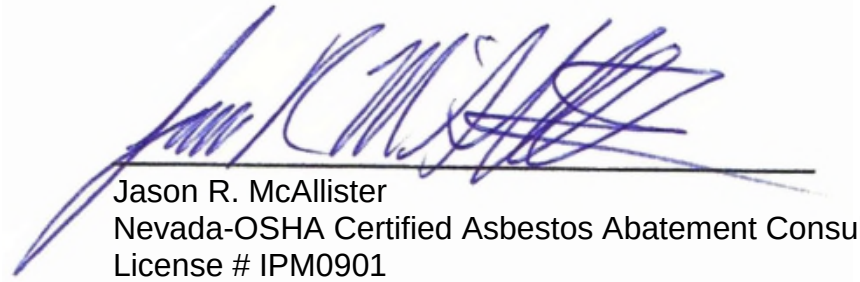
Sample Number	Sample Date	Sample Location	Result (Fibers per cc)
AC6	6/3/2015	IWA – South end of the North-Center crawl space.	<0.005
AC7	6/3/2015	IWA – Southeast corner of the basement.	<0.005
AC8	6/3/2015	IWA – Center of the basement.	<0.005
AC9	6/3/2015	IWA – Northwest corner of the basement.	<0.005
AC10	6/3/2015	IWA – North end of the North-Center crawl space.	<0.005

The average of the samples collected within each work area was <0.005 fibers per cubic centimeter. The average of the samples for each work areas were found to be at or below the clearance level of 0.01 f/cc pursuant to the requirements of NAC 618.956.

FINAL EVALUATION

The scope of work for the abatement and stabilization of asbestos and lead based paint at the subject site was properly conducted by A&B Environmental. Clearances, consisting of visual inspections and air sampling confirm that the project was successfully completed.

Thank you for allowing Macrotec Consulting to assist you with your environmental consulting needs. Please contact me with any questions regarding this report at (702) 949-6225.



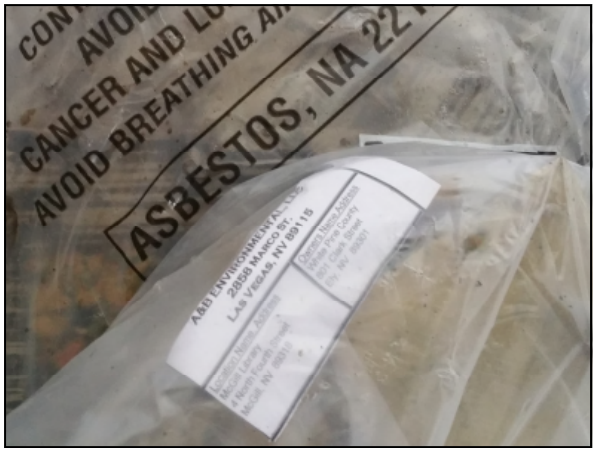
Jason R. McAllister
Nevada-OSHA Certified Asbestos Abatement Consultant
License # IPM0901
US EPA Lead Risk Assessor
Certificate # NV-R-125427-1

Appendix A

Picture 1—Interior of the building following carpet removal, prior to commencing VCT and base cove abatement.

Picture 2—Outer, “clean room” stage of the decontamination chamber to the interior abatement.

Picture 3—Bags of VCT and base cove debris.



Picture 4—Labeled bags.

Picture 5—Worker conducting detail cleaning of the floor and lower walls in the interior of the building.

Picture 6—Interior of the containment, during VCT and base cove abatement. Negative air machine and worker using HEPA vacuum.

Picture 7—3-Stage decontamination chamber with shower, outside of the entrance to the basement.

Picture 8—Basement following clean-up and bagging of contaminated contents.

Picture 9—Worker cleaning the North-Center crawl space.

Picture 10—TSI and black mastic removed and cleaned in the north end of the North-Center crawl space.

Picture 11—TSI removed and debris cleaned up in the basement.

Picture 12—Cleaned basement following all abatement and cleaning activities.

Picture 13—Worker removing window putty on the east side of the building.

Picture 14—Window on the east side of the building following visual clearance.

Picture 15—Workers removing window putty from the windows on the west side of the building.

Picture 16—Window on the west side of the building following visual clearance.

Picture 17—Workers removing the metal flashing that contains roof mastic and lead solder. Note: The black material remaining on the brick wall is non-asbestos containing tar.

Picture 18—Workers removing the metal flashing that contains roof mastic and lead solder.

Picture 19—East side of the roof following the removal of the gutter. Note that there was no plywood or other barrier beneath the gutter.

Picture 20—A&B constructed a temporary water barrier where the gutter had been, draining toward the downspout.

Picture 21—Worker scraping loose and flaking paint on the window trim on the west side of the building.

Picture 22—Wall inside the main room following prep of the fiber-board walls including application of two stage lock down and primer.

Picture 23—Crown molding in the men's room following prep ,including application of two stage lock down and primer.

Picture 24—Door frame and casing between the kitchen and living room following prep ,including application of two stage lock down and primer.

Picture 25—Window trim on the west side of the building following prep ,including application of two stage lock down and primer.

Picture 26—Project completed. East side of the building prior to leaving the site.

Picture 27—Project completed. West (front) side of the building prior to leaving the site.

Appendix B

TRIANGLE ENVIRONMENTAL SERVICE CENTER, INC.

13509 East Boundary Road, Suite B, Midlothian, VA 23112 • 804-739-1751 • fax: 804-739-1753

FIBER COUNT ANALYSIS SUMMARY

NIOSH 7400A (4TH Edition, #2, 08/15/94)

CLIENT: Macrotec Consulting
9724 Mild Weather Ct.
Las Vegas, NV 89148

TESC LOGIN #: 150604J

DATE OF RECEIPT: 6/4/2015
DATE OF ANALYSIS: 6/4/2015
DATE OF REPORT: 6/4/2015

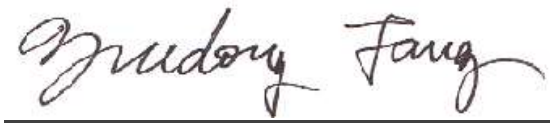
CLIENT JOB #: **15181**

JOBSITE: 4 N. Fourth St.

ANALYST: Y. Fang

TESC SAMPLE #	CLIENT SAMPLE #	DATE COLLECTED	VOLUME (Liter)	FIBERS/FIELDS	FIBERS/CC	COMMENT
1	AC1	6/2/2015	1220	2/100	< **0.005**	
2	AC2	6/2/2015	1220	1/100	< **0.005**	
3	AC3	6/2/2015	1210	2/100	< **0.005**	
4	AC4	6/2/2015	1220	2/100	< **0.005**	
5	AC5	6/2/2015	1210	2/100	< **0.005**	
6	AC6	6/3/2015	1220	1/100	< **0.005**	
7	AC7	6/3/2015	1220	1/100	< **0.005**	
8	AC8	6/3/2015	1230	1/100	< **0.005**	
9	AC9	6/3/2015	1220	4/100	< **0.005**	
10	AC10	6/3/2015	1220	2/100	< **0.005**	

Reviewed By Authorized Signatory:



Feng Jiang, MS Senior Geologist, Laboratory Director
Yuedong Fang, Senior Geologist

Method Level of detection: Estimated at 7 fibers/mm2. Intralaboratory Sr = 0.205, Interlaboratroy Sr = 0.4050.

Legend: fibers/mm2 = fibers per square millimeter; fibers/cc = fibers per cubic centimeter.

TRIANGLE ENVIRONMENTAL SERVICE CENTER, INC.

13509 East Boundary Road, Suite B, Midlothian, VA 23112 • 804-739-1751 • fax: 804-739-1753

FIBER COUNT ANALYSIS SUMMARY

NIOSH 7400A (4TH Edition, #2, 08/15/94)

CLIENT: Macrotec Consulting
9724 Mild Weather Ct.
Las Vegas, NV 89148

TESC LOGIN #: 150604J

DATE OF RECEIPT: 6/4/2015
DATE OF ANALYSIS: 6/4/2015
DATE OF REPORT: 6/4/2015

CLIENT JOB #: **15181**

JOBSITE: 4 N. Fourth St.

ANALYST: Y. Fang

TESC SAMPLE #	CLIENT SAMPLE #	DATE COLLECTED	VOLUME (Liter)	FIBERS/FIELDS	FIBERS/CC	COMMENT

Total Sample(s) Analyzed: 10

Reviewed By Authorized Signatory:

Feng Jiang, MS Senior Geologist, Laboratory Director
Yuedong Fang, Senior Geologist

Method Level of detection: Estimated at 7 fibers/mm2. Intralaboratory Sr = 0.205, Interlaboratroy Sr = 0.4050.

Legend: fibers/mm2 = fibers per square millimeter; fibers/cc = fibers per cubic centimeter.

Macrotec
Consulting, LLC
Office@MacrotecConsulting.com
Phone: (702) 949-6225
Fax: (702) 629-5677

150604J

Air Sampling Chain of Custody Form

Client Name: McGinley | Project Number: 15181

Project Name: McGill Library | Collection Date: 6/2/15

Project Location: 4 N. Fourth St. | PO Number:

Laboratory: TESC | Technician: JRM | Rotometer #: 3

Cassette: (0.8µm 25mm) - 0.45µm 25mm - 0.8µm 37mm | Turn Around Time: RUSH

Analysis: TEM AHERA - (PCM NIOSH 7400) - AA NIOSH 7082 - Other

Sample #	Sample Location	Time On	Time Off	Total Min.	LPM Start	LPM Stop	LPM Avg.	Volume (L)
AC1	IWA - S End of Main Room	2:38	4:40	122	10.0	10.0	10.0	1220
AC2	" - Doorway Between Main Room and Foyer	2:38	4:40	122	"	"	"	1220
AC3	" - N End of Main Room	2:39	4:40	121	"	"	"	1210
AC4	" - Center of Men's Room	2:39	4:41	122	"	"	"	1220
AC5	" - Center of Kitchen	2:40	4:41	121	"	"	"	1210

Relinquished By: [signature] Date: 6/2/15 Received By: [signature] Date: 6/4/15 10:4

Relinquished By: Date: Received By: Date:

Macrotec
Consulting, LLC
Office@MacrotecConsulting.com
Phone: (702) 949-6225
Fax: (702) 629-5677

150604J

Air Sampling Chain of Custody Form

Client Name: McGinley | Project Number: 15181

Project Name: McGill Library | Collection Date: 4/3/15

Project Location: 4 N. Fourth St. | PO Number:

Laboratory: TRS | Technician: JAM | Rotometer #: 3

Cassette: (0.8µm 25mm) - 0.45µm 25mm - 0.8µm 37mm | Turn Around Time: RUSH

Analysis: TEM AHERA - (PCM NIOSH 7400) - AA NIOSH 7082 - Other

Sample #	Sample Location	Time On	Time Off	Total Min.	LPM Start	LPM Stop	LPM Avg.	Volume (L)
AC6	IWA - S END OF CRAWL SPACE	8:16	10:18	122	10.0	10.0	10.0	1220
AC7	" - SE CORNER OF BASEMENT	8:17	10:19	122	"	"	"	1220
AC8	" - CENTER OF BASEMENT	8:17	10:20	123	"	"	"	1230
AC9	" - NW CORNER OF BASEMENT	8:18	10:20	122	"	"	"	1220
AC10	" - N END OF CRAWL SPACE	8:19	10:21	122	"	"	"	1220

Relinquished By: [signature] Date: 4/3/15 Received By: Elaine Chen Date: 04/04/15 10:4

Relinquished By: Date: Received By: Date:

Appendix C

Macrotec
Consulting, LLC

Project Monitoring - Daily Form

Client Name: McGinley Ent. | Project Number: 15181
Project Name: McGill Library | Date: 6/1/15
Project Location: 4 N. Fourth St. McGill, NV | Technician: JRM
Contractor: A+B | Supervisor: ~~[illegible]~~ DAN | # of Workers: 4

Containment Details: 2 STAGE DECON, NEG AIR MACHINE; CRITICALS
4S FOR INTERIOR VCT REMOVAL

Worker Protection Details: SUITS, BOOTS, GLOVES, ½ FACE RESPIRATORS

Time	Notes
9:00	MACLOSKEY ON SITE. MET WITH BILL FROM WHITE PINE COUNTY. FOUND LOCATION OF WATER SOURCE. REVIEWED PLAN OF ACTION FOR THE PROJECT.
9:30	- A+B ARRIVES ON SITE. MACLOSKEY SHOWS THE SUPERVISOR THE SITE AND THE MATERIALS TO BE ABATED. - WORKERS BEGIN PULLING UP THE CARPET... THE VCT IS NOT COMING UP WITH THE CARPET, SO MACLOSKEY INSTRUCTS A+B TO ROLL UP THE CARPET AND PILE IT UP OUTSIDE, WHICH WILL BE DISCARDED AS NON-ASBESTOS, GENERAL WASTE.
10:15	WORKERS ARE BEGINNING TO SET UP THE INTERIOR CONTAINMENT, AND PUT UP CRITICALS

(cont. on back)

Macrotec Signature: [signature] Date: 6/1/15

Time	Notes
10:30	MACROTEC WORKING WITH DAN (SUPERVISOR) TO DISMANTLE AND REMOVE THE TWO LARGE RADIATORS. THE LEAD PAINT ON THEM IS IN GOOD/STABLE CONDITION.
10:45	AN ELECTRICAL OUTLET BROKE WHEN A POWER TOOL WAS BEING UNPLUGGED FROM THE WALL. MACROTEC FOUND CIRCUIT BREAKER AND THE LINES WERE CAPPED WITH WIRE NUTS. MACROTEC COLLECTED A BULK SAMPLE OF THE WIRE JACKET, WHICH MACROTEC DID ~~NOT~~ ORIGINALLY SAMPLE DUE TO ELECTROCUSION CONCERNS.
12:00	WORKERS ARE FINISHING THE INTERIOR CONTAINMENT.
12:15	MACROTEC APPROVES THE CONTAINMENT. ATB TAKES LUNCH AND WILL BEGIN ABATEMENT AFTER.
1:15	WORKERS SUITING UP
1:30	ABATEMENT BEGINS. VCT COMING UP FAIRLY EASILY
2:00	ABATEMENT CONTINUES BULK REMOVAL IS GOING VERY QUICKLY.
2:55	BULK REMOVAL AND SINGLE BAGGING IS COMPLETE. 1 WORKER HAS DOFFED PPE AND WILL LOAD BAGGED MATERIAL ABOVE W/ SUPERVISOR. EACH BAG SHALL BE DOUBLED, TAPED AND LABELED.
4:00	BAG OUT IS COMPLETED. WORKERS TAKING SHORT BREAK BEFORE CONTINUING WITH DETAIL REMOVAL AND CLEAN.
5:00	DETAIL REMOVAL AND CLEANING CONTINUES.
6:00	CREW IS EXITING THE INTERIOR CONTAINMENT. MACROTEC INSPECTED TO MAKE SURE ALL GROSS DEBRIS WAS CLEANED UP AND THAT THE NEG AIRS WERE RUNNING FOR THE NIGHT, ALSO THAT ALL CRITICALS WERE STILL IN PLACE.
6:15	MACROTEC AND ATB LEAVING SITE.

Macrotec
Consulting, LLC

Project Monitoring - Daily Form

Client Name McGINLEY | Project Number 15181

Project Name McGILL LIBRARY | Date 6/2/15

Project Location 4 N. FOREST ST. | Technician JRM

Contractor A+B | Supervisor DAN | # of Workers 4

Containment Details: - 2 STAGE DECON, 1 NEG AIR, CRITICAL BARRIERS = INTERIOR

- 3 STAGE DECON W/ SHOWER, FULL CONTAINMENT, NEG AIR, GLOVE BAGS

Worker Protection Details: SUITS, BOOTS, GLOVES, 1/2 FACE RESPIRATORS

Time	Notes
7:00	A+B + MACROTEC ARIVE ON SITE. PLAN IS FOR 2 WORKERS TO CONDUCT FINAL CLEANING OF THE INTERIOR WORK AREA. 2 WORKERS BEGINNING TO BUILD 3 STAGE DECON. WORKERS WILL DON PPE AND RESPIRATORS PRIOR TO ENTERING THE BASEMENT.
8:00	MACROTEC INSPECTED INSIDE INTERIOR CONTAINMENT. NOTED THAT THERE WERE SOME REMNANTS OF THE BASE COVE STILL ON THE WALL... INSTRUCTED A+B TO REMOVE. FINAL CLEANING CONTINUING. 3 STAGE DECON FOR BASEMENT CONTINUING TO BE BUILT.
8:45	3 STAGE DECON IS COMPLETE. MACROTEC INSPECTED AND APPROVED WORKERS TO SUIT UP AND ENTER THE BASEMENT.
9:00	2 WORKERS ENTERING BASEMENT. WORK WILL BEGIN WITH BAGGING ALL OF THE REMOVED CONTAMINATED CONTENTS IN THE BASEMENT. (cont. on back)

Macrotec Signature: [signature] Date: 6/2/15

Time	Notes
10:00	WORKERS IN BASEMENT ARE BEGINNING TO GLOVE BAG THE TSI ON PIPES. WORKERS IN INTERIOR CONTINUING TO REMOVE REMNANTS OF MARE BOARD AND CONDUCT FINAL CLEAN.
11:00	BAGS OF CONTAMINATED CONTENTS AND TSI BEING REMOVED FROM THE BASEMENT (DOUBLE-BAGGED, GOOSE NECKED)
12 - 1	LUNCH
1:00	WORKERS IN THE BASEMENT ARE BEGINNING TO REMOVE BLACK MASTIC ON THE WALLS. WORKER IN INTERIOR ARE COMPLETING FINISHING TOUCHES.
1:45	MACROTEC INTERIOR CONTAINMENT AND FOUND IT READY FOR FINAL CLEARANCE.. WILL WAIT TILL FLOORS ARE DRY BEFORE AIR SAMPLING.
2:30	WORKERS CONTINUE TO REMOVE MASTIC IN THE BASEMENT.
2:45	MACROTEC BEGINS RUNNING AIR CLEARANCE SAMPLES IN INTERIOR. 1 ~~more~~ WORKER HAS GONE INTO BASEMENT, (HAS BEGUN, SETTING UP A DROP CLOTH AND BARRIER AROUND THE FOUR SE WINDOWS AND BEGUN REMOVING WINDOW PUTTY.
4:00	WORKERS HAVE FINISHED REMOVING MASTIC IN THE BASEMENT (STANDARD HEIGHT).. 1 WORKER NOW REMOVING MASTIC IN THE NORTH CRAWL SPACE. (ON THE E END) 2 WORKERS BEGINNING TO CLEAN. OTHER WORKER CONTINUES WINDOW PUTTY REMOVAL.
4:50	ALL MASTIC REMOVAL COMPLETE IN BASEMENT. WORKERS STARTING FINAL CLEAN. WORKERS WANT TO PUT IN 2 MORE HOURS.. WILL WORK TIL 7. TOOLS ARE STARTING IN THE CRAWL SPACE AND MOVING OUT TOWARD THE DOOR.
6:00	THE 1 WORKER HAS FINISHED WINDOW PUTTY REMOVAL AND IS CLEANING UP. VISUALLY PASSED. WORKERS IN BASEMENT CONTINUE FINAL CLEAN. PROBABLY WON'T FINISH TONIGHT.
7:00	WORK FOR THE DAY IS COMPLETE. PROBABLY NEED ~2 MORE HOURS IN THE MORNING TO COMPLETE CLEANING IN BASEMENT.

Macrotec
Consulting, LLC

Project Monitoring - Daily Form

Client Name McGinley | Project Number 15181

Project Name McGill Library | Date 6/3/15

Project Location 4 N Fourth St. | Technician JRM

Contractor A+B | Supervisor Dan | # of Workers 4

Containment Details: 3 stage decon with shower, full containment, neg air in basements.
- Boarded tape and drop cloths for exterior window putty and paint prep.

Worker Protection Details: Suits, Boots, Gloves, 1/2 face respirators.

Time	Notes
6:00 am	A+B + Macrotec on-site. 2 workers entering basement containment to finish final clean. Other 2 workers are setting up to remove window putty around the black windows on the front (west) side of the bldg. They will also scrape loose + flaking paint on the window trim on those windows.
7:00	2 workers removing window putty on the front (SW) windows. Final clean almost complete in basement.
7:50	Macrotec inspected and passed one of the windows.
8:05	Macrotec conducted visual inspection of the basement and crawl space, which passed and was ready for final air clearance.
8:30	2 workers up on roof, suited up, and beginning to remove roof mastic on the perimeter flashing.

(cont. on back)

Macrotec Signature: [signature] Date: 6/3/15

Time	Notes
8:50	Inspected second window, which passes. Workers now scraping/prepping window trim.
9:15	ATB concerned that there is additional mastic behind flashing. Macrotec looked at it and suspects that the material is roof tar and not mastic. Bulk samples collected to confirm.
10:00	2 workers removing flashing on roof. 2 workers removing window putty. 3 windows complete now today.
10:45	Work continues. ATB will take lunch between 11-12. Macrotec is leaving the site to take the sample cassettes to a shipping store location in Ely.
12:00	Macrotec back on site and ATB finishing lunch.
12:45	Macrotec inspected 1 of the windows which required additional removal. Windows around the door also need additional cleanup.
1:00	Workers continue to remove the flashing on the roof.
1:30	All of the windows on the front side of the building are visually clear.
2:00	2 workers now working on the windows on the back side, N end.
3:30	Workers are finishing up for the day. 2 more windows are visually passed. Flashing on 3 sides of the roof is removed; gutter will be removed tomorrow.
3:50	Macrotec and ATB leaving site for the day.

Macrotec
Consulting, LLC

Project Monitoring - Daily Form

Client Name McGinley | Project Number 15181

Project Name McGill Library | Date 6/4/15

Project Location 4 N. Fourth St., McGill, NV | Technician JRM

Contractor A+B | Supervisor DAN | # of Workers 4

Containment Details: Drop Cloth + Barrier Tape for window putty removal

Worker Protection Details: Suits, Boots, Gloves, ½ face respirators.

Time	Notes
6:00 am	Macrotec + A+B on site. 3 workers heading up onto the roof. 1 worker finishing up the last two windows.
6:45	Macrotec inspected and visually cleared the second to last window.
7:30	Workers are removing the gutter. There is no support framing or wood sheeting beneath the gutter. Once removed, there is a 1 foot gap between the roof and the brick wall. Macrotec should inform Bill Candlewood of the issue so that they can prepare their roofer for the situation.
8:15	Macrotec inspected final window, all windows are now visually clear. The 4th worker has joined the rest on the roof.
9:00	The gutter is removed and all of the metal flashing and gutters are being bagged/barcoded.

(cont. on back)

Macrotec Signature: [signature] Date: 6/4/15

Time	Notes
9:30	Workers have begun lowering down the waste. / Worker is working on removing the mastic around the 3 vents.
10:00	Mycologic points out additional mastic that needs to be removed on the brick wall above where the gutter had been. Lab results indicate that air samples passed.
10:10	The roof is visually cleared. Workers begin to apply tape and poly to roof perimeter as a temporary water barrier. This barrier will have limited success, especially over the gap where the gutter had been.
11-12	Lunch. Lab results indicate that the tar behind the flashing does not contain asbestos.
12:00	Workers are done with roof. A maintenance man from White Pine County stopped by to look at the gap in the roof so he could describe it to the roofer.
12:15	3 workers are scraping loose and flaking paint on the front window trim as well as the interior walls and trim. / Worker is deconstructing the decon to the basement.
1:00	All 4 workers now working on paint prep. A+B is using a two-stage lock down and primer material after removing loose and flaking paint. Lock down is applied first and primer follows.
2:15	Paint prep continues. Work is complete on the front window trim
2:40	Interior paint scrape, lock down and primer is complete and passed visual inspection. A+B is loading materials and gear.
3:15	Final check of the grounds found all equipment, materials and debris picked/cleaned up. Project is complete

Appendix D

TRIANGLE ENVIRONMENTAL SERVICE CENTER, INC.

13509 East Boundary Road, Suite B, Midlothian, VA 23112
804-739-1751 • fax: 804-739-1753

BULK ASBESTOS SAMPLE ANALYSIS SUMMARY

CLIENT: Macrotec Consulting
9724 Mild Weather Ct.
Las Vegas, NV 89148

TESC LOGIN #: 150604K

DATE OF RECEIPT: 6/4/2015
DATE OF ANALYSIS: 6/4/2015
DATE OF REPORT: 6/4/2015

CLIENT JOB/ #: **15181**

JOB SITE: 4 N. Fourth St.

ANALYST: F. Jiang

TESC SAMPLE #	CLIENT SAMPLE ID & GROSS DESCRIPTION	ESTIMATED % ASBESTOS	NON ASBESTOS % FIBERS	NON FIBROUS % MATERIALS
1	AB1 / Brown fibers	**NAD**	98% Cellulose	2%
2	AB2 / Black tar	**NAD**	2% Cellulose	98%
3	AB3 / Black tar	**NAD**	2% Cellulose	98%

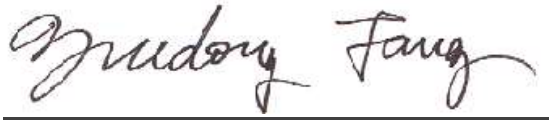
Total Samples/Layers Analyzed: 3

Samples are analyzed in accordance with “Interim Method for the Determination of Asbestos in Bulk Insulation Samples”, EPA 600/M4-82-020, Dec. 1982 and "Method for the Determination of Asbestos in Bulk Building Materials", EPA 600/R-93/116, July 1993. None Detected: not detected at/or below the detected limit of method (Reporting limit: 1% Asbestos). Glass fiber is analyzed for quality control blank. TESC recommends by point count or Transmission Electron Microscopy (TEM), for materials regulated by the EPA NESHAP (National Emission Standards for Hazardous Air Pollutants) and found to contain less than ten percent (<10%) asbestos by Polarized Light Microscopy (PLM). Both services are available for an additional fee. This report shall not be reproduced, except in full written approval of Triangle Environmental Service Center, Inc. This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government. This test report relates only to the item(s) tested.

NVLAP Lab Code: 200794-0

[**LEGEND** NAD=No Asbestos Detected, Lino.=Linoleum, JC=Joint Compound]

Reviewed By Authorized Signatory:



Feng Jiang, MS Senior Geologist, Laboratory Director
Yuedong Fang, Senior Geologist

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Phone: (702)949-6225
Fax: (702) 629-5677

150604K

Bulk Sampling Chain of Custody Form

Client Name: McGinley
Project Number: 15181
Project Name: McGill Library
Collection Date: 6/1/15 - 6/3/15
Project Location: 4 N. Fourth St., McGill, NV
PO Number:
Technician: JRM
Turn Around Time: RUSH
Laboratory: TESC
Method of Analysis: PLM
Stop at 1st Positive?: Y / N
Composite Sheet Rock?: Y / N
Matrix: Bulk

Sample # H#	Sample # Count	Sample Description (Material Type : Description : Color)	Sample Location (General : Room : Specific)
1	AB1	Electrical Wire Jacket	Interior - Main Room - NW Corner
2	AB2	Black Tar on Brick Pony Wall	Exterior - Roof - S side
2	AB3	↓	" - " - N side

Relinquished By: [signature] Date: 6/3/15 Received By: Elaine Chen Date: 06/04/15 10:45

Relinquished By: Date: Received By: Date:

Appendix E

United States Environmental Protection Agency

This is to certify that

Jason Robert McAllister

has fulfilled the requirements of the Toxics Substance Control Act (TSCA) Section 402(a)(1) and has received certification to conduct lead–based paint activities pursuant to 40 CFR Part 745.226 as a:

Risk Assessor

In the Jurisdiction of:

Nevada

This certification is valid from the date of issuance and expires March 27, 2017

NV-R-125427-1
Certification #

MARCH 13, 2014
Issued On

Adrienne Priselac, Manager, Toxics Office

Communities and Ecosystems Division

STATE OF NEVADA
DEPARTMENT OF BUSINESS AND INDUSTRY
DIVISION OF INDUSTRIAL RELATIONS
Occupational Safety and Health Administration
Asbestos Control Program

Certifies That Jason McAllister
Macrotec Consulting
is Licensed As Asbestos Abatement Consultant

License No. IPM901 Expiration Date 02/13/2016

Signature Of Licensee

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200794-0

Triangle Environmental Service Center, Inc.

Midlothian, VA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2015-04-01 through 2016-03-31

Effective dates

DEPARTMENT OF COMMERCE * UNITED STATES OF AMERICA *

For the National Institute of Standards and Technology

NVLAP-01C (REV. 2009-01-28)

AIHA PAT PROGRAMS

AIHA Proficiency Analytical Testing Programs
2700 Prosperity Avenue, Suite 250, Fairfax, VA 22031 USA
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email info.patllc@aiha.org *web* www.aihapat.org

Report Issue Date: 02/17/2012

Feng Jiang
Triangle Environmental Service Center, Inc.
13509 East Boundary Road, Suite B

Midlothian, VA 23112 Participant ID# 191460

Dear Feng Jiang,

Please find your laboratory's final Industrial Hygiene Proficiency Analytical Testing (IHPAT) results for **Round 188**. It is the participant's responsibility to thoroughly review results and to immediately contact the AIHA Proficiency Analytical Testing Programs in writing, if any errors are found in your report.

The proficiency demonstrated by the results of this IHPAT round is valid until the close of the retest round on April 13, 2012, if the participant chooses to enroll in the retest round, or the posting of the results of the next IHPAT round on May 15, 2012. Unacceptable performance may be improved by correctly analyzing a set of retest samples. Retest Order Forms and the PAT Programs Schedule are available online at **www.aihapat.org**. The deadline to order a retest is February 29, 2012.

Participants shall not describe their proficiency status in a manner that implies accreditation, certification or variations thereof. PAT results pertain only to the participant organization at the location listed on this results report. Round results are only released to the participant and those entities requiring this information for accreditation and contract purposes. New participants are made aware of the arrangement in advance of participation and consent is sought prior to the release of records for participants. PAT reports may not be reproduced or distributed unless copied in its entirety.

IHPAT **Round 189** sample kits will be mailed to participants around April 1, 2012. An email will be sent out upon shipment of round 189 samples. If you do not receive samples within fifteen (15) days please contact the AIHA PAT Programs. Participant data will be due by 11:59pm ET on May 1, 2012. The analytes for round 189 are:

- **Metals – cadmium, lead, nickel**
- **Asbestos – chrysotile**
- **Silica – calcite**
- **Organics – n-butyl acetate(BAC), ethyl acetate(EAC), 2-propanol(IPA)**

Samples are generated, characterized, packaged, and shipped by SRI International, Menlo Park, CA 94025 under contract with AIHA Proficiency Analytical Testing Programs. Unless otherwise noted, sample homogeneity and stability criteria were satisfied for all samples.

I encourage you to contact me with any feedback, questions or if you wish to contest your results at nmugambwa@aiha.org.

Sincerely,

Natasha Mugambwa, MS
Manager, AIHA PAT Programs

Industrial Hygiene Proficiency Analytical Testing Results

This document contains three sub-reports relating to IHPAT Round 188. The first report contains your laboratory's results listed per contaminant, per sample. The second report contains your current and 2 previous test round performance respectively (where applicable), and the final report contains summary results for all laboratories for IHPAT round 188.

Testing Results for IHPAT Round 188

This part of the report contains your laboratory's results listed per contaminant, per sample.

Contaminant	Units	#	Result	Ref. Value	Lower Limit	Upper Limit	z-Score	Rating
Asbestos / Fibers (ASB)	f/mm2	1	248	180	89	302	1.8	A
	f/mm2	2	610	496	319	712	1.7	A
	f/mm2	3	373	320	178	503	0.9	A
	f/mm2	4	76	106	52	179	-1.5	A

Please note:
Reference value is the mean of the reference laboratories
*Lower limit = reference value - 3 standard deviations and Upper limit = reference value +3 standard deviations
*Z-score = (reported result - reference value)/standard deviation
*Asbestos is the exception because data are positively skewed therefore transformations are used to obtain approximately normal distributions.
A: Acceptable Analysis; U: Unacceptable Analysis
The acceptability of reported results is based on upper and lower performance limits. This is why a reported result may appear unacceptable according to z-score, but be identified as acceptable.

Overall Performance Summary Concluding with 188

The following table contains your laboratory's current and 2 previous test rounds performance respectively (where applicable). For more information in regard to the determination of proficiency, please visit: http://www.aihapat.org/ProficiencyTestingPrograms/ihpat/Pages/default.aspx

Sample	Round	Round Performance	Round Score	Proficiency Status -Three Round Score
Asbestos	186	4/4	Pass	
	187	3/4	Pass	
	188	4/4	Pass	P

Please note:
The denominators represent the total number of samples analyzed.
The numerators represent the number of acceptable results.
Pass: Round Score ≥ 75% Fail: Round Score < 75%
P – Proficient; NP – Non-proficient; I – Indeterminate.

A participant is rated proficient (P) for the associated FoT/Method(s), if the participant has a passing score for the applicable PT analyte class in two (2) of the last three (3) consecutive PT rounds. A participant is rated non-proficient (NP) for the applicable FoT/Method if the participant has failing scores for the associated PT analyte class in two (2) of the last three (3) consecutive PT rounds.
If a participant receives samples and does not report the data, the results will be treated as outliers.

Performance of all Labs for IHPAT Round 188

The following table contains aggregate results for all laboratories participating in IHPAT round 188.

Contaminant	#	Ref. Value	Std Dev	RSD (%)	Total Labs	Total Acceptable	Low Outlier	High Outlier
Manganese	1	0.1043	0.0042	4.0	147	139	3	5
	2	0.0824	0.0036	4.4	147	140	4	3
	3	0.1377	0.0058	4.2	147	138	4	5
	4	0.0624	0.0025	4.0	147	136	6	5
Cadmium (CAD)	1	0.01687	0.00068	4.0	150	142	5	3
	2	0.00573	0.00032	5.5	150	147	1	2
	3	0.01064	0.00046	4.3	150	142	4	4
	4	0.02246	0.00101	4.5	150	142	6	2
Lead (LEA)	1	0.0549	0.0022	4.0	151	139	5	7
	2	0.1738	0.0070	4.0	151	140	6	5
	3	0.1143	0.0049	4.3	151	144	2	5
	4	0.0805	0.0035	4.4	151	140	5	6
Silica (SIL)	1	0.1210	0.0110	9.1	51	44	3	4
	2	0.1766	0.0227	12.9	51	49	0	2
	3	0.1386	0.0166	12.0	51	48	1	2
	4	0.0810	0.0091	11.2	51	45	1	5
Asbestos / Fibers (ASB)	1	180	36	19.8	726	675	5	46
	2	496	65	13.2	726	662	25	39
	3	320	54	17.0	726	675	11	40
	4	106	21	20.0	726	681	14	31
Chloroform (CFM)	1	1.4800	0.0592	4.0	128	114	6	8
	2	0.3027	0.0158	5.2	128	118	3	7
	3	1.0135	0.0405	4.0	128	117	6	5
	4	0.7617	0.0305	4.0	128	116	6	6
1,2-Dichloroethane (DCE)	1	0.7710	0.0380	4.9	128	116	5	7
	2	0.4222	0.0169	4.0	128	113	7	8
	3	1.2642	0.0564	4.5	128	117	7	4
	4	0.8250	0.0405	4.9	128	118	4	6
1,1,1-Trichloroethane (MCM)	1	0.5823	0.0253	4.4	127	111	6	10
	2	0.2633	0.0105	4.0	127	107	6	14
	3	0.9569	0.0383	4.0	127	113	6	8
	4	1.4155	0.0638	4.5	127	114	5	8