

Anderson Environmental Services

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Mr. John Scheetz
Environmental Manager
Sanford Underground Research Facility
630 Summit Street
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Mr. Scheetz:

ELLISON COMPLEX PHASE II

Enclosed with this report are the laboratory analysis for asbestos, lead paint, mold and PCBs.

The attachments list individual areas that were inspected and quantified as part of the scope of work.

Also included is an estimate of the abatement costs for the asbestos containing materials and the lead paint.

Thank you for the opportunity to provide this service for your organization.

If you have any questions, or if you need more information, please contact me at the numbers listed above.

Sincerely,

Dave Anderson

attachments

Anderson Environmental Services is a Service Connected-Disabled Veteran Owned Business

SANFORD UNDERGROUND RESEARCH FACILITY PHASE II ENVIRONMENTAL STUDY

The Phase II Environmental Study (sampling) was completed for the following areas of the Ellison complex that were inspected for asbestos, mold, lead, and PCBs.

Old High Compressor Building

Drill Steel Shop

P&H Crane Storage

Ellison Boiler House

Rope House

Ellison Substation

Paint Shop

City Shop

Ellison Hoist Room

Magazine/Bunker

#2 Air Raise

Steam tunnels/pipelines

Retaining wall to Ellison Boiler & Crane Storage

Crane Storage to Drill & Steel Shop

Drill & Steel Shop to Old High

Rope House to Old High

Exterior line from Ellison Boiler to Iron House

Underground from Old High to Ellison Hoist Room

Underground from Ellison Hoist Room to Paint Shop

The inspection was limited to the areas that could be accessed safely to complete the scope of work listed in the contract.

SUMMARY – Asbestos

The Ellison Boiler House should be considered off-limits to any individual that is not equipped with the proper respiratory protective equipment due to the condition of the pipe insulation and possible asbestos contamination in the air.

The Rope House has some obvious structural issues that would require any personnel working in the building to exercise caution. The tank insulation and pipe insulation in the tunnels are all in fair condition.

The Magazine/Bunker has a significant amount of asbestos containing debris laying on the floor. Any abatement of this debris will also include the removal of several inches of soil to ensure decontamination. The upper levels of this building were not inspected because of safety concerns.

In the tunnel/crawl space of the Old High Compressor building there appears to be soil contamination that will require remediation along with the existing pipe and tank insulation.

The underground tunnel from Old High to the Ellison Hoist Room and continuing to the Paint Shop was not safely accessible and is assumed to contain asbestos pipe insulation of questionable condition.

The Paint Shop contains a small amount of asbestos rope around the boiler.

The Drill Steel Shop has pipe insulation in fair condition.

The pipe insulation in the P&H Crane Storage building is in fair condition.

The exterior pipe insulation from the Drill Steel Shop to the P&H Crane Storage to the Ellison Boiler to the Iron House is in fair condition and for the most part has a metal cover.

There are several underground tunnels that contain asbestos pipe insulation assumed to be in poor condition and having limited access without removing the concrete or soil covering the tunnel.

The Ellison Hoist Room, #2 Air Raise, and the Ellison Substation buildings did not contain any suspect asbestos containing materials.

SUMMARY – Lead Paint

The Old High Compressor building has two colors of paint that tested very high for lead content. Both the blue and white paints should be considered in poor condition and should be abated before being re-populated with staff.

The Ellison Substation contains white paint very high in Lead content that will have to be addressed before demolition, either by abatement or TCLP testing of the debris.

The Paint Shop has a significant number of surfaces covered with Lead paint. These different colors of paint range in condition from good to poor.

The brown and dark brown paints in the Ellison Hoist Room contain regulated amounts of Lead. Conditions range from good to poor.

SUMMARY – Mold

Mold samples were taken in the City Shop, Old High Compressor building and the Drill Steel Shop and an outside sample taken as a control or background sample for comparison.

The American Council of Industrial Hygienists recommends mold exposures no higher than 1,000 spores per cubic meter of air.

All of the samples taken inside these 3 buildings were below the ACGIH recommendation. The Drill Steel Shop had the highest spore count at 830 spores per cubic meter of air.

SUMMARY – PCBs

The laboratory results for the PCB testing were not available to be included in this report. The lab has given a verbal result stating that all samples were less than the EPA reporting limit for PCBs.

Ellison Complex Asbestos Quantities

Old High Compressor

Asbestos

377 feet of 2" pipe insulation

4'x6' tank

4x6.5' tank

120 square feet of vinyl flooring

This building contains 35 tall and 8 short Nitrogen bottles that are un-secured.

There are 2 – 5 gallon pails of Sodium Hydroxide in the service bay.

There are several mercury vapor light fixtures.

Paint

The blue and the white paints in this building contain high amounts of Lead (160,000 parts per million)

Drill Steel Shop (Tamrock Warehouse)

Asbestos

253 feet 12" pipe insulation

253 feet 5" pipe insulation

16 feet of 1" pipe insulation

This building contains mercury vapor lights

P&H Crane Garage

24 feet of 12" pipe insulation

24 feet of 5" pipe insulation

Ellison Boiler House

195 feet of 12" pipe insulation

175 feet of 5" pipe insulation

30 feet of 1.5" pipe insulation

3 boilers 7.5'x13.5' with 8'x10' end piece
and 10'x10'x3' pedestal

1 boiler 4'x5'x6' with 8' of 6" pipe insulation

Rope House

170 feet of 3" pipe insulation
In the tunnel on North side
1- Hot water tank 3'x5'

Ellison Substation

No asbestos in this building

The white paint contains 160,000 parts per million lead

Steam tunnels/pipelines

Retaining wall to Ellison boiler & Crane garage

87 feet of 12" pipe insulation
87 feet of 5" pipe insulation
41 feet of 2" pipe insulation

Crane garage to drill & steel shop

26 feet of 12" pipe insulation
26 feet of 5" pipe insulation

Drill & steel shop to Old High compressor

180 feet of 12" pipe insulation
180 feet of 5" pipe insulation
40 feet of 2" pipe insulation

Rope house to old high tunnel

275 feet of 3" pipe insulation
Underground tunnel

Exterior line from Ellison Boiler wall to Iron House area

650 feet of 12" pipe insulation
650 feet of 5" pipe insulation

Underground from Old High to Ellison Hoist Room

130 feet of pipe tunnel with unknown quantities of pipe
insulation

Underground from Ellison Hoist Room to Paint Shop

290 feet of pipe tunnel with unknown quantities of pipe insulation

Paint Shop

Asbestos rope around the fire box and burner

The light gray paint contains 130,000 ppm lead

The gray paint contains 65,000 ppm lead

The white paint contains 23,000 ppm lead

The green paint on the floor on the 2nd level contains 43,000 ppm lead

The light green paint on the 2nd floor wall contains 8,300 ppm lead

There is a mercury switch on the boiler.

City Shop

No suspect materials in this building

Ellison Hoist Room

No suspect materials in this building

No oil contamination observed in this building

The brown and dark brown paint contain 24,000 and 30,000 ppm lead

Magazine/Bunker

A significant quantity of broken transite on the floor

#2 Air Raise

No suspect asbestos materials in this building

No oil stains in this building

No paint to sample for lead content in this building

PCB sampling was conducted in buildings with obvious oil staining. The laboratory results are included with this report.

Abatement Costs

The following are estimates for the asbestos abatement costs per building:

Old High	\$ 9,300.00
Construction & Bit Shop	\$ 9,400.00
P&H Crane Storage	\$ 1,800.00
Ellison Boiler House	\$55,000.00
Rope House	\$ 5,000.00
Paint Shop	\$ 500.00
Magazine/Bunker	\$ 3,000.00

Steam Tunnels/Pipelines

Retaining wall to boiler & crane	\$ 4,700.00
Crane storage to const/bit shop	\$ 1,800.00
Const/Bit shop to Old High	\$ 8,200.00
Rope house to Old High	\$ 6,900.00
Iron house to Ellison Boiler	\$26,000.00
Old High to Ellison Hoist	\$ 5,200.00
Ellison Hoist to Paint Shop	\$11,600.00

<u>Total</u>	<u>\$158,400.00</u>
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In addition, there would be costs for air monitoring, project design and project management.

Estimated	\$35,000.00
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The following are cost estimates for the lead paint abatement:

Old High	\$25,000.00
Ellison Substation	\$ 1,000.00
Paint Shop	\$25,000.00
Ellison Hoist Room	\$ 5,000.00
Total	\$56,000.00

** These prices are based on optimal timing for the abatement to occur (early fall) and the availability of several contractors for competitive bidding.

There may be differences based on scheduling of several areas/buildings at the same time or scheduling one area/building at a time.

There may be variations in the bid prices due to access issues with the asbestos materials in some areas.

The lead based paint abatement costs are based on using pressure washing or bead blasting to remove the paint in the buildings that may be re-occupied.

The demolition of the buildings with lead based paint could have the possibility of leaving the paint in place and conducting TCLP testing of the debris to determine waste disposal disposition.