



Analysis of Brownfields Cleanup Alternatives

Old Agency Water Treatment Plant
103 Agency Main Street
Harlem, MT 59526

Prepared for:

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1.0 INTRODUCTION AND SITE BACKGROUND

This document is an Analysis of Brownfields Cleanup Alternatives (ABCA) for the Old Agency Water Treatment Plant in Fort Belknap Agency, Montana (The Plant). Asbestos-containing building materials (ACBM) and universal wastes are present in the on-site building (Weston, 2020). This ABCA is required as a condition of cleanup using U.S. Environmental Protection Agency (EPA) Brownfields Revolving Loan Funds (RLF). This document has been prepared using Fort Belknap Community Economic Development Corporation (FBCDEC) Brownfields Assessment Grant Funds awarded by the EPA.

1.1 SITE LOCATION AND DESCRIPTION AND PREVIOUS USES

The target property is located at 103 Agency Street in Harlem, Montana. The Plant was originally commissioned in 1973 to provide domestic drinking water to Fort Belknap Agency (Weston, 2020). The Plant was abandoned in 2010. The building has remained unchanged and unoccupied since that time.

1.2 CONTAMINATION SUMMARY

As described in the Phase II ESA report (Weston, 2020) and shown in **Table 1**, the Plant has one asbestos-containing building material (ACBM), which is defined as a building material having an asbestos content greater than 1% asbestos by weight).

Table 1. Water Treatment Plant - Asbestos Results

Material Description	Location	Qty	Regulatory Category
Drywall Joint Compound	Offices	1500 sq ft	RACM

Description of Regulatory Categories:

1. RACM = Regulated Asbestos-Containing Material including Friable ACBM; Category I material that has become friable; Category I material subject to sanding, grinding, cutting, or abrading; or Category II material that has a high probability of becoming friable.

Based on analytical results for the asbestos inspection, the drywall joint compound is considered a regulated asbestos-containing material and will require abatement by trained professionals.

Other wastes associated with the Plant includes:

- **PCBs:** Light fixtures and unlabeled ballasts are present.
- **Pigeon guano:** The Plant has extensive pigeon feces and remains; depths range from less than one inch to two feet.
- **Drums:** various drums are present within the interior and outside the Plant building.
- **Tanks:** currently there are four tanks whose contents have not been determined.

1.3 THREATS TO PUBLIC HEALTH AND/OR THE ENVIRONMENT

When left intact and undisturbed, ACBM does not pose a significant health risk to people working or living in buildings or homes. However, if ACBM deteriorates or is disturbed by renovation or demolition activities, asbestos fibers may be released into the air and cause significant health concerns for building occupants by inhalation of asbestos fibers. Inhaled fibers can become entrapped in the lungs and cause diseases such as asbestosis, lung cancer, and mesothelioma.



Exposure to bat or bird guano has been linked to the human diseases cryptococcosis and histoplasmosis. According to the CDC, bird roosts accumulating for three or more years should be suspected to contain fungus. Therefore, the guano at the Plant is considered a biological hazard and must be disposed of at a Class II landfill.

Drums and containers shall be assumed to contain hazardous substances and handled accordingly until the contents are positively identified (OSHA, 2012).

PCB-containing ballasts become a concern if they are leaking and should be disposed of as universal hazardous waste when removed from the onsite structure.

1.4 PROJECT GOAL

The owner of the property, Fort Belknap Indian Community (FBIC), would like to renovate the current building for use as a disaster response headquarters. The wastes described above will require abatement prior to building renovation or demolition.



2.0 CLEANUP REQUIREMENTS

2.1 CLEANUP OBJECTIVE

The objective of abatement/cleanup is to safely remove and properly dispose of the ACBMs, pigeon guano, chemical containers, and PCBs associated with the buildings without unacceptable risk of exposure to abatement workers and the public.

2.2 APPLICABLE CLEANUP STANDARDS

The cleanup of the Plant property will comply with applicable federal and Montana laws. These include EPA and Montana DEQ guidance and regulations, OSHA regulations, and, federal and state prevailing wage rates. Abatement of asbestos will be completed in accordance with the Environmental Protection Agency (EPA) Asbestos National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 Code of Federal Regulations (CFR) 61. Asbestos abatement oversight and final clearance air sampling services on this project will comply with EPA regulations for clearing asbestos abatement work areas. Consistent with EPA regulations, the cleanup standards for asbestos abatement on the project will be:

- 1% asbestos by weight. Materials containing a concentration above this standard will need to be abated from any buildings that are demolished.
- 0.01 fibers per cubic centimeter of air (<0.01 f/cc). Indoor air of the Plant will need to be cleaned and cleared prior to occupancy. In accordance with regulations, this is accomplished when five Phase Contrast Microscopy (PCM) air samples are collected, analyzed, and pass the asbestos final clearance criteria.

Visible inspections will be used to determine whether the pigeon guano has been abated. There is no established cleanup level for animal wastes on a building surface.

Drum and tank removal/disposal will be completed following OSHA Hazardous Waste Operations and Emergency Response (OSHA 1910.120).

2.3 ENFORCEMENT ACTIVITIES

No environmental enforcement activities have been initiated on the property, and the proposed abatement of hazardous building materials and cleanup of biological hazards is a voluntary action to support reuse of the site.

2.4 NEED FOR CLEANUP

2.4.1 Asbestos

If ACBM is not abated before the planned renovations, workers may inhale asbestos fibers and asbestos could be released into the building and inhaled by future occupants. Asbestos abatement can remove this concern and the general threat to public health and/or the environment.

2.4.2 Pigeon Guano

The building has an infestation of pigeons that have created hazardous conditions throughout the structure. Left unabated, the pigeon guano is a biological hazard. Removal of these animal wastes will eliminate the biological hazard.



2.4.3 Chemical Containers

Drums containing various compounds are present inside and outside of the building. The drums within the building consist of three diallyl dimethylammonium chloride drums, one corrosive coagulant, and one drum of unknown contents labeled as “mix-up”. The drum on the exterior was unlabeled. Drums that are unlabeled must be treated and disposed of as hazardous substances.. The drum outside was labeled by Weston as “overpacked” and shall be opened to relieve pressure to safely remove and transport for the container for disposal. The Plant also has four tanks used for water treatment and/or chemical storage. These tanks would need to be removed prior to planned renovations.

2.4.4 Universal Wastes

Exposures to PCBs can cause cancer. For this reason, the fluorescent light ballasts suspected to contain PCBs should be removed and properly disposed of to avoid exposure.



3.0 EVALUATION OF CLEANUP ALTERNATIVES

Through consultation with the client, the site owner (FBIC), and EPA, NewFields identified three cleanup alternatives to address contamination at the Plant. These are listed below and discussed in more detail in the following sections. Per EPA guidance, each alternative was evaluated based on its comparative effectiveness with respect to risk reduction, implementability, and cost.

- **Alternative 1:** No action.
- **Alternative 2:** Abatement of all ACBM; removal of all PCB light ballasts; removal of all drums and tanks; abatement of pigeon guano; and renovation of the building.
- **Alternative 3:** Abatement of all ACBM; removal of all PCB light ballasts; removal of all drums and tanks; abatement of some pigeon guano; and demolition of the building.

3.1 ALTERNATIVE 1: NO ACTION

Under Alternative 1, no actions would be taken to address hazardous materials associated with the Plant. While there would be no cost associated with this alternative, the owner would not be able to move forward with their redevelopment plans for the site. Therefore, the risk of exposure to hazardous materials in the building would remain. The No Action Alternative is cost-effective and implementable but results in no environmental benefit and no reduction of human health risks.

- **Effectiveness:** Not effective - ACBM, pigeon guano, drums, tanks, and PCB ballasts remain.
- **Implementability:** Implementable - Requires no effort or planning.
- **Cost:** \$0.

3.2 ALTERNATIVE 2

Alternative 2 assumes the building will be left intact and renovated. Alternative 2 addresses each of the hazardous substances associated with the property in the following way:

- **ACBM:** ACBM in the Plant (**Table 1**) would be abated with the building intact. The drywall in the offices and storage room is regulated and will need to be abated in accordance with 40 CFR Part 61, subpart M.
- **Pigeon guano:** Pigeon guano would be removed and disposed of at the Class II landfill using wet methods to control dust generation. All guano would need to be wrapped with 6-mil plastic before transport to the landfill.
- **Drums and tanks:** All existing drums would be removed prior to building renovation. The unlabeled drums will need to be identified and labeled. The drum that is under pressure and “overpacked” will need to be relieved of pressure prior to being identified and labeled. The tanks and piping inside of the Plant will need to be emptied and removed.
- **Universal waste:** PCB light ballasts in the building would be removed and disposed of in accordance with solid waste regulations.

Overall, Alternative 2 is labor intensive but poses limited risks to workers. This alternative is effective as it would remove environmental concerns and eliminate human health risks associated with asbestos,



PCBs, and animal wastes. An evaluation summary based on the primary criteria for Alternative 2 is shown below.

- **Effectiveness:** (Effective). Protective of environment and human health and prepares the site for redevelopment.
- **Implementability:** (Moderate).
- **Cost:** \$121,520 (See **Appendix A**).

3.3 ALTERNATIVE 3

Alternative 3 assumes the building will be demolished. Alternative 3 addresses each of the hazardous substances associated with the property in the following way:

- **ACBM:** Under this alternative, the ACBM would be addressed in the same manner as described in Alternative 2.
- **Pigeon guano:** In this alternative, pigeon guano present on the drywall would be removed during the drywall abatement. All other pigeon guano will be left and combined with the demolition waste stream.
- **Drums and tanks:** Under this alternative, all onsite drums or tanks will be addressed in the same manner as described in Alternative 2. The tanks will remain inside while the building is demolished and will be disposed of after the building is removed.
- **Universal waste:** PCB light ballasts would be removed and disposed of in accordance with solid waste regulations.

The primary benefit of Alternative 3 compared to Alternative 2 is the building demolition would give FBIC bare ground to construct a new disaster response center. Building demolition would require a less labor-intensive cleanup of biological hazards. The cost of abatement for hazards inside of the building plus the tank removal would be lower than Alternative 2, but Alternative 3 also includes the additional cost of the building demolition. An evaluation summary based on the primary criteria for Alternative 3 is shown below.

- **Effectiveness:** (Effective). Protective of environment and human health and removes all hazards.
- **Implementability:** (Moderate).
- **Cost:** \$138,420 (See **Appendix A**).

3.4 CLIMATE CHANGE AND CLEAN REMEDIATION

The EPA requires a discussion of whether the alternatives might adversely impact the frequency and intensity of flooding, extreme weather events, and the degree to which the alternatives decrease greenhouse gas discharges, energy use, and wastes disposal. They also require a discussion of how the alternatives vary in their employ of recycling and reuse. Each of these is described below.

3.4.1 Frequency and Intensity of Extreme Weather

None of the alternatives considered for this project is expected to adversely impact the frequency and intensity of flooding or extreme weather events.



3.4.2 Waste Disposal and Recycling

Under Alternative 1 (No Action), no waste is created, and no materials are recycled. Alternative 2 would generate less waste and dispose of less waste in the local landfill compared to Alternative 3, because the building would not be demolished. Fluorescent light tubes would be recycled under all the alternatives except the no-action alternative. Chemicals in drums and tanks will be re-used or disposed of properly at a Class II landfill.

3.4.3 Greenhouse Gas Discharges, Energy Use, and Climate Change

According to the NOAA National Centers for Environmental Information, climate changes predicted for Montana include:

- Continued increases in mean annual air temperatures;
- Increased soil moisture loss during dry periods;
- Increased intensity of droughts;
- Fewer very cold days in the winter;
- Increased springtime precipitation that could result in severe flooding and
- Increased frequency of wildfire occurrence and severity.

If the No Action alternative were selected, there would be no energy used and no discharge of greenhouse gases, primarily realized on this project through the burning of fossil fuels. When comparing the other alternatives, Alternative 2 would use less energy than Alternative 3 with respect to greenhouse gas discharge or energy use. The proposed cleanup project would not significantly impact of the climatic changes described above. In accordance with EPA's Clean Remediation Best Management Practices: Clean Fuel & Emission Technologies for Site Cleanup (EPA, 2010), the alternatives presented above can incorporate best practices in reducing fuel emissions. This may include reduction of idling of construction vehicles while onsite and ensuring equipment is well maintained to minimize excess fuel use and discharge of un-combusted fuel products. Landfills will be selected as close to the site as possible. Loads will be covered to prevent disposition of waste (EPA, 2019).



4.0 PREFERRED ACTION

The preferred action for the Water Treatment Plant Project is Alternative 2. This alternative poses minimally higher risks to workers due to the excessive amount of pigeon guano cleanup required. Alternative 2 satisfies the owner's desire to redevelop the site. Alternative 2 is slightly less expensive than Alternative 3, and it allows the building to be reused. Both alternatives 2 and 3 are protective of human health and the environment, but Alternative 2 best fits the needs of the landowner.

FBIC would seek cost estimates from abatement contractors capable of completing the work described under Alternative 2. A copy of the final clearance air sampling report and abatement report describing all abatement completed on the project would be transmitted to FBCEDC, FBIC, and the U.S. EPA.



5.0 ADMINISTRATIVE RECORD

For questions or administrative record regarding the proposed project, please contact:

Ms. Ina Nez Perce, Environmental Manager
Fort Belknap Environmental Office
656 Agency Main Street
Harlem, MT 59526
(406) 353-8429
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6.0 REFERENCES

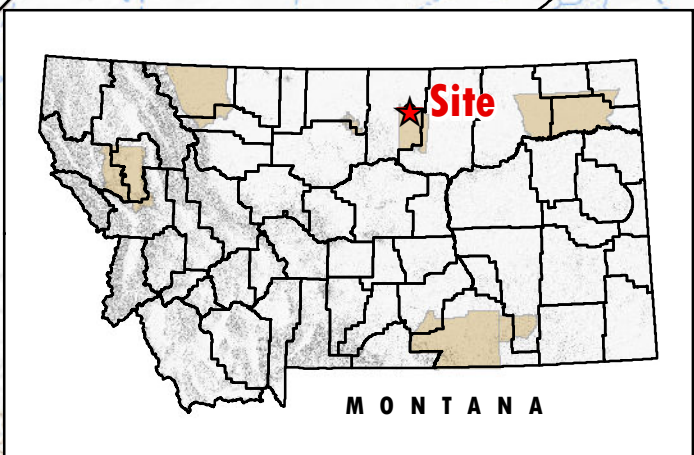
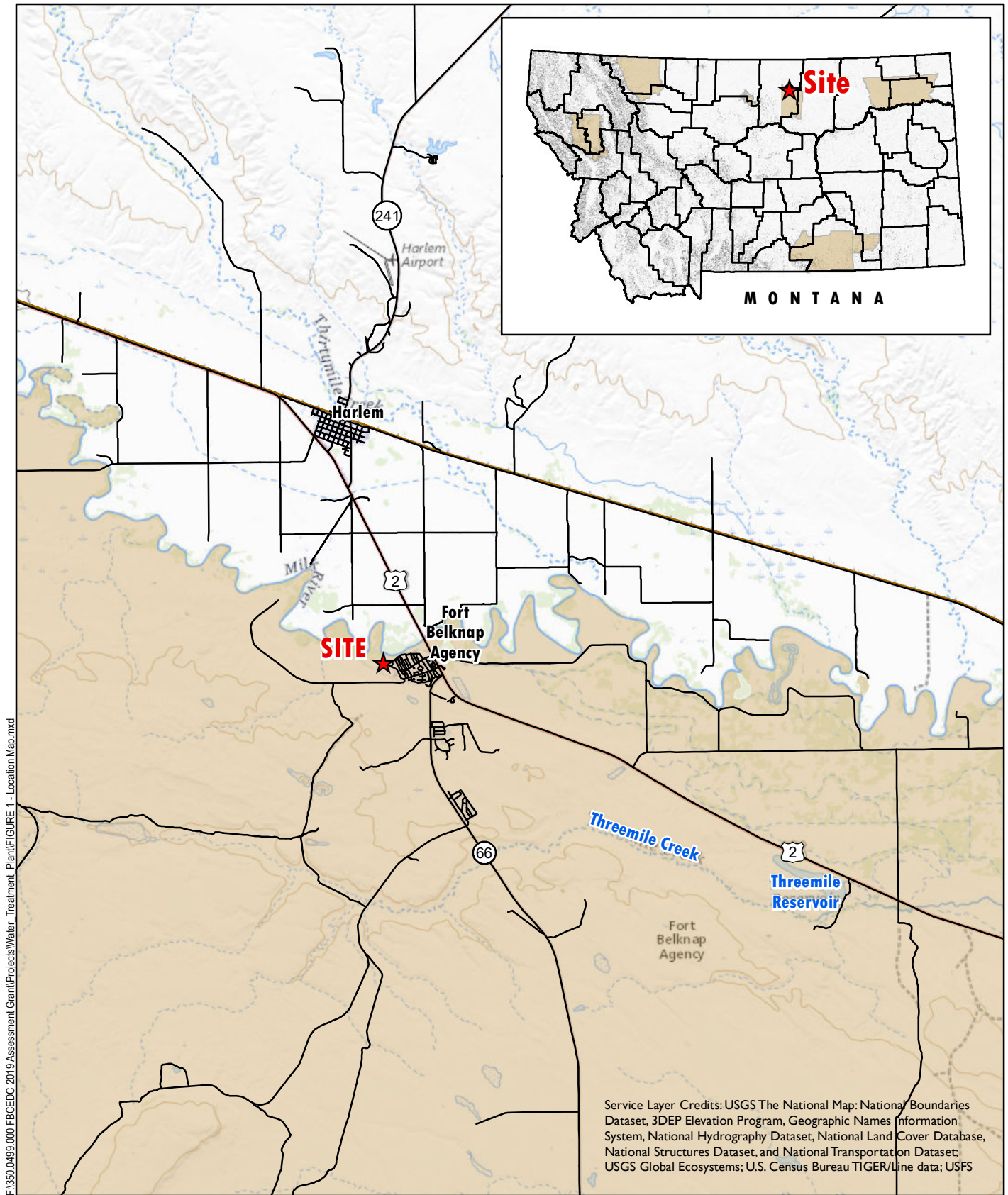
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FIGURES



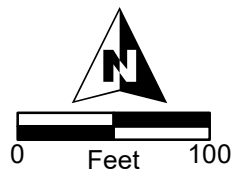
- ★ Property Location
- Roads
- Fort Belknap Reservation

Location Map
Water Treatment Plant
103 Agency Main Street
Harlem, MT
FIGURE 1

F:\350.0499.000\FBCEDC 2019 Assessment Grant\Projects\Water Treatment Plant\FIGURE 1 - Location Map.mxd



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



 Water Treatment Plant

Site Map
Water Treatment Plant
103 Agency Main Street
Harlem, Montana
FIGURE 2

APPENDIX A

COST ESTIMATES FOR ALTERNATIVES

Abatement Cost Estimate (Building Remains)
Water Treatment Plant
Harlem, MT

Item No.	Bid Item	Location	Qty	Unit	Rate	Bid
Mobilization, Site Preparation, and Permit¹						
1	Mobilization/Site Preparation	Harlem, MT	1	LS	\$ 9,000.00	\$ 9,000.00
2	Pigeon Guano Cleanup	Water Treatment Plant	1	LS	\$ 15,000.00	\$ 15,000.00
3	Asbestos Transport and Disposal Permit	Water Treatment Plant	1	LS	\$ 100.00	\$ 100.00
Subtotal (Mobilization and Site Preparation)						\$ 9,100.00
Asbestos Abatement²						
4	Abate drywall and joint compound	Offices and Storage	1,500	SF	\$ 3.50	\$ 5,250.00
Subtotal (Asbestos Abatement)						\$ 5,250.00
Universal Waste Removal, Containerization, and Transport and Disposal³						
5	Remove and dispose of Fluorescent Light Tubes	Throughout Building	50	EA	\$ 10.00	\$ 500.00
6	Remove and dispose of PCB-Containing Light Ballasts	Throughout Building	25	EA	\$ 22.00	\$ 550.00
Subtotal (Universal Waste Removal)						\$ 1,050.00
Tank and Drum Removal⁴						
7	Remove and dispose of Drums	Throughout Building	8	LS	\$ 250.00	\$ 2,000.00
8	Remove and dispose of Tanks	Throughout Building	1	LS	\$ 75,000.00	\$ 75,000.00
Subtotal (Tank and Drum Removal)						\$ 77,000.00
Abatement Contingency						
9	Contingency	Water Treatment Plant	1	LS	25%	\$ 23,100.00
TERO Fees						
10	Business License Fee		2	EA	\$ 200.00	\$ 400.00
11	Individual Worker Fee		5	EA	\$ 200.00	\$ 1,000.00
12	Percentage Fee		1	LS	4%	\$ 4,620.00
Subtotal (TERO Fees)						\$ 6,020.00
TOTAL PROJECT COST						\$ 121,520.00

Notes and Assumptions:

¹ Based on the anticipated phasing of the abatement project multiple mobilizations may be required over the course of the project. Mobilization costs should cover all phases of the project. Site preparation will include abatement of all pigeon guano. Engineers estimate is excluded from this estimate.

²Work areas where asbestos abatement is located will require cleanup of pigeon guano comingled with asbestos flooring, sheetrock, plaster, and roofing materials.

³Universal waste includes fluorescent light fixture (mercury) and PCBs in light ballasts, and mercury-containing thermostats. The abatement contractor will be required to schedule removal, containerization, transport, and disposals of all waste.

⁴Cost of tank removal is assuming all tanks are empty and no additional testing or disposal of materials is necessary. It also assumes pipes will be cut and capped without further removal.

Abatement Cost Estimate (Building is Demolished)
Water Treatment Plant
Harlem, MT

Item No.	Bid Item	Location	Qty	Unit	Rate	Bid
Mobilization, Site Preparation, and Permit¹						
1	Mobilization/Site Preparation	Harlem, MT	1	LS	\$ 9,000.00	\$ 9,000.00
2	Pigeon Guano Cleanup (to abate asbestos in drywall)	Water Treatment Plant	1	LS	\$ 5,000.00	\$ 5,000.00
3	Asbestos Transport and Disposal Permit	Water Treatment Plant	1	LS	\$ 100.00	\$ 100.00
Subtotal (Mobilization and Site Preparation)						\$ 9,100.00
Asbestos Abatement²						
4	Abate drywall and joint compound	Offices and Storage	1,500	SF	\$ 3.50	\$ 5,250.00
Subtotal (Asbestos Abatement)						\$ 5,250.00
Universal Waste Removal, Containerization, and Transport and Disposal³						
5	Remove and dispose of Fluorescent Light Tubes	Throughout Building	50	EA	\$ 10.00	\$ 500.00
6	Remove and dispose of PCB-Containing Light Ballasts	Throughout Building	25	EA	\$ 22.00	\$ 550.00
Subtotal (Universal Waste Removal)						\$ 1,050.00
Tank and Drum Removal⁴						
7	Remove and dispose of Drums	Throughout Building	8	EA	\$ 250.00	\$ 2,000.00
8	Remove and dispose of Tanks	Throughout Building	1	LS	\$ 48,000.00	\$ 48,000.00
Subtotal (Tank and Drum Removal)						\$ 50,000.00
Demolition⁵						
9	Demolition of Building	Building	1	LS	\$ 40,000.00	\$ 40,000.00
Subtotal (Demolition)						\$ 40,000.00
Abatement Contingency						
10	Contingency	Water Treatment Plant	1	LS	25%	\$ 26,350.00
TERO Fees						
11	Business License Fee		2	EA	\$ 200.00	\$ 400.00
12	Individual Worker Fee		5	EA	\$ 200.00	\$ 1,000.00
13	Percentage Fee		1	LS	4%	\$ 5,270.00
Subtotal (TERO Fees)						\$ 6,670.00
TOTAL PROJECT COST						\$ 138,420.00

Notes and Assumptions:

¹ Based on the anticipated phasing of the abatement project multiple mobilizations may be required over the course of the project. Mobilization costs should cover all phases of the project. Engineers estimate is excluded from this estimate.

² Work areas where asbestos abatement is located will require cleanup of pigeon guano comingled with asbestos flooring, sheetrock, plaster, and roofing materials.

³ Universal waste includes fluorescent light fixture (mercury) and PCBs in light ballasts, and mercury-containing thermostats. The abatement contractor will be required to schedule removal, containerization, transport, and disposals of all waste.

⁴ Cost of tank removal is assuming all tanks are empty and no additional testing or disposal of materials is necessary. It also assumes pipes will be cut and capped without further removal.

⁵ Concrete will not be removed through demolition.