Analysis of Brownfields Cleanup Alternatives – Preliminary Evaluation
Roundup Musselshell Properties, Roundup, MT
Prepared by WWC Engineering

I. Introduction & Background

a. Site Location

The project encompasses multiple sites in industrial or residential areas of Roundup, MT. The following table summarizes Site IDs, addresses, and Montana Geocode. The Sites are in Musselshell County, MT, USA. The Sites are herein referred to as "Site 'Respective Number.'"

Site ID	Address	Montana Geocode
7	Mine Avenue	23-1717-23-2-05-08-0000
30	Meathouse Road	23-1717-24-2-02-02-0000
31	Meathouse Road	23-1717-24-2-02-03-0000
33	218 1st Avenue West	23-1717-13-3-02-09-0000
36	224 1st Avenue West	23-1717-13-3-01-13-0000
38	Railroad Avenue	23-1717-13-3-01-01-0000

a.1 Forecasted Climate Conditions

According to the US Global Change Research Program (USGCRP) through NOAA National Centers for Environmental Information, Montana's average annual temperature has increased approximately 2°F since the early 20th century. This increase is most evident in winter warming, which has been characterized by fewer very cold days since 1990. Under a higher emissions pathway, historically unprecedented warming is projected by the end of the 21st century.

Montana's mountains and river systems provide critical water resources not only for Montana but also for other downstream states. Projected increases in spring precipitation may have both beneficial (increased water supplies) and negative (increased flooding) impacts.

Higher temperatures will increase the rate of soil moisture loss during dry spells, leading to an increase in the intensity of naturally occurring future droughts and an increased demand for irrigation water. The frequency of wildfire occurrence and severity is projected to increase in Montana.

According to FEMA Flood Zone Map 3001740014A, the Site is located within a Zone A, and is in a special flood hazard area.

Based on the nature of the Site and its proposed removal of facilities to prohibit future flooding of properties, forecasted climate conditions are not likely to significantly affect the Site.

b. Previous Site Use(s) and any previous cleanup/remediation

The sites are located in industrial or residential areas of Roundup, MT. The areas are

referred to as the Riverside, Mine Avenue, and Meathouse Sites (Weston 2019). Site 30 was a sawmill. Site 31 was a slaughterhouse. Site 36 consisted of 6 apartment type units. Site 33 and 38 are residencies. Construction dates of the buildings are unknown, but the majority of the buildings are assumed to have been constructed prior to 1980. Most of the sites are vacant. The sites are located within the Musselshell River floodplain. Musselshell County intends to demolish the structures and remove an upstream dike to allow the Musselshell River to return to its natural flow regime (Weston 2019).

Phase I and II Environmental Site Assessments (ESAs) were performed to acquire and evaluate sufficient information to determine the location and concentration of potential environmental contamination at the sites, if present, including asbestos-containing material (ACM), lead-based paint (LBP), polychlorinated biphenyl (PCB)-containing equipment, mercury-containing equipment, and mold.

c. Site Assessment Findings

The Phase II assessment fieldwork was conducted between November 26 and 30, 2018. Results of the Phase II ESA have confirmed the presence of contaminants of concern (COCs) at the sites. As of the writing of this document, a Phase II ESA has not been performed for Site 7. For Site 7 to be included in the cleanup of the other five sites, a limited-scope Phase II is planned. Results of this Phase II for Site 7 will be included in an addendum to the SAP. The following list is a summary of the results and conclusions regarding COCs determined to be present and associated media identified by Weston Solutions Superfund Technical Assessment and Response Team (START) at the sites:

Asbestos-Containing Material (ACM): Of the 783 bulk samples submitted for laboratory analysis, 85 samples were determined to be "positive" (>1% asbestos) for asbestos from the various sites. Table 1 indicate the locations and estimated extent of ACM identified at each site as part of the Phase II ESA. Based on the results of the ACM survey, asbestos is present in the following buildings. ACM is considered a COC in relation to the sites (Weston 2019).

Table 1. Summary of ACM at Sites from Phase II ESA Sampling

ACM	Location	Estimated Volume/Extent
Site 30		
Ceramic Tile Compound	Office Bathroom	60 sq. ft.
Floor Tile	Office Kitchen and Garage	190 sq. ft.
Linoleum	Maintenance Shop Loft	200 sq. ft.
Roofing Material/Sealant	Trailer Roof	720 sq. ft.
Window Glazing	Exterior	25 LF
Site 31		
Ceiling Drywall	Office and Shed	480 sq. ft.
Paneling Mastic	Central Fridge Room	200 sq. ft.
Roofing Material	Main Building	1,550 sq. ft.
Vermiculite	Central Fridge Room	100 sq. ft.
Site 33		
Floor Tile	Basement	190 sq. ft.
Site 36		
Carpet Backing	Units 1 and 3	400 sq. ft.
Drywall	Interiors	160 sq. ft.
Plaster Compound	On Chimneys	80 sq. ft.
Roof Sealant	Around Chimney on Roof	60 LF
Site 38		
Linoleum	Kitchen	130 sq. ft.

Lead-Based Paint (LBP): Based on the X-ray fluorescence (XRF) and laboratory analysis results, LBP is present on and in buildings at Sites 30 ,33, and 36. Table 2 lists the location, current surface paint color, and estimated extent of LBP present at the sites. LBP is considered a COC at the following sites (Weston 2019).

Table 2. Summary of LBP at Sites from Phase II ESA Sampling

Location	Current Surface Paint Color	Estimated Extent
Site 30 Exterior		
Door	White	1 Door
Window Frame	White	1 Window
Site 33 Garage Exterior		
Door	Light Gray	1 Door
Trim	Cream	40 LF
Wall	Light Gray	630 sq. ft.
Window Sash	Cream	3 Windows
Site 33 Garage Interior		
Door	Brown	1 Door
Site 33 House Interior		
Door	White	1 Door
Wall	Brown	200 sq. ft.
	Green	230 sq. ft.
	Light Gray	220 sq. ft.
	White	60 sq. ft.
Window Sash	Light Gray	3 Windows
Site 36 Interior		
Door	Brown	5 Doors
Window Frame	Brown	5 Windows
Site 36 Exterior		
Trim	Brown	44 Windows
Window Frame	Brown	

Lead-in-Soils: Based on the Phase II ESA results, LBP was identified on exterior surfaces at Sites 30, 33, and 36. Although there were positive readings on the exterior of buildings at Sites 30, 33, and 36, lead impacts to surface soils were not evaluated. Lead-impacted soils are potential COCs at these sites due to the potential of lead having been released from exterior paint. Soil sampling should be conducted near the exterior of buildings with LBP to confirm whether or not lead has impacted soils.

Polychlorinated biphenyls (PCBs), Mercury, and Mold: A summary of the observations regarding the visual inspections conducted are presented below (Weston 2019):

- Potential PCB-containing ballasts were observed at Site 30. PCBs are considered a COC at Site 30.
- Mercury thermostat switches were observed at Sites 30 and 33. Mercury is considered a COC at Sites 30 and 33.
- Mold was encountered at several sites. Mold is considered a COC at the sites.

Summary of Hazardous Building Materials at Each Site: A summary of all building/inspection screening results for ACM, LBP, PCBs, and mercury at each site are provided in Table 3. A "Yes" indicates the hazard was found at the site or is considered a potential COC in the case of lead-in-soils.

Table 3. Summary of Hazardous Building Materials at Respective Sites

Site	ACM	LBP	Potential Lead in Soils	PCB Ballasts	Mercury-Containing Devices
30	Yes	Yes	Yes	Yes	Yes
31	Yes	No	No	No	No
33	Yes	Yes	Yes	No	Yes
36	Yes	Yes	Yes	No	No
38	Yes	No	No	No	No

d. Project Goal

The planned reuse and redevelopment of the sites is for Musselshell County to return the Musselshell River to its natural flow regime. Following demolition of the buildings, Musselshell County will remove an upstream dike to accomplish reestablishment of the flow regime.

II. Applicable Regulations and Cleanup Standards

a. Cleanup Oversight Responsibility

The Montana DEQ Asbestos Control Program will be the regulating entity providing all appropriate permits and approvals of the asbestos abatement work performed at these sites. The certified asbestos abatement contractor will submit all asbestos abatement plans to the Asbestos Control Program prior to commencing work. Upon review and approval, the Asbestos Control Program will then issue the asbestos abatement permit authorizing the asbestos abatement plan. This plan will include all necessary third-party clearance sampling confirming the abatement is complete. Once the abatement contractor has submitted their final abatement report, an audit will be performed by the Asbestos Control Program. The Asbestos Control Program will then review the final abatement report and confirm that the work plan was completed appropriately.

Abatement notifications will be required to be submitted to EPA for LBP, PCB-containing equipment, mercury-containing equipment.

b. Cleanup Standards for Major Contaminants

All the state cleanup standards for proper remediation and removal of ACM, LBP, PCB-containing equipment, mercury-containing equipment, mold, and any other hazardous material found on the Site will be followed and adhered to.

c. Laws & Regulations Applicable to the Cleanup

Laws and regulations that are applicable to this cleanup include the Federal Small Business Liability Relief and Brownfields Revitalization Act, the Federal Davis-Bacon Act, state environmental law, and town by-laws. Federal, state, and local laws regarding procurement of contractors to conduct the cleanup will be followed.

In addition, all appropriate permits (*e.g.*, notify before you dig, soil transport/disposal manifests) will be obtained prior to the work commencing.

III. Evaluation of Cleanup Alternatives

a. Cleanup Alternatives Considered

To address contamination at the Site there are three different alternatives considered: Alternative #1: No Action; Alternative #2: Abatement and Open Burning of Buildings; and Alternative #3: Abatement and Conventional Demolition of All Buildings.

b. Evaluation of Cleanup Alternatives

To satisfy EPA requirements, the effectiveness, implementability, and cost of each alternative must be considered prior to selecting a recommended cleanup alternative.

Effectiveness – Including Climate Change Considerations

- Alternative #1: No Action is not effective in preventing the release or decay of COCs and hazardous building materials at the sites. The sites are in industrial or residential areas near a floodplain and existing residential areas. No Action may result in the COCs releasing from the site during flood events and being spread down stream. The hazardous building materials need to be remediated.
- Alternative #2: Abatement and Open Burning of Buildings would remove the COCs from the buildings through abatement and proper disposal of hazardous building materials such as ACM, LBP, PCB-containing devices, and mercury-containing devices. Following removal of the hazardous building materials, buildings would be burned for firefighter training purposes.
- Alternative #3: Abatement and Conventional Demolition of All Buildings would be as effective as Alternative #2 but would have increased costs for conventional demolition of all structures.

Implementability

- Alternative #1: No Action is simple to implement since no actions will be conducted.
- Alternative #2: Abatement and Open Burning of Buildings
  Based on the results of the Phase II ESA, the following recommendations were and are made by START and WWC Engineering:
  - START recommended contracting an accredited asbestos remediation company to determine appropriate remedial actions to address ACM at the Sites during the cleanup phase of demolition. ACM must be removed before any demolition activities begin that may impact and render ACM friable. A landfill permitted to accept ACM should be contacted prior to abatement for proper disposal requirements of construction debris. Though certain nonfriable ACM may be able to be disposed of as construction waste, construction workers must be made aware of the ACM present. Appropriate protective measures must be implemented (Weston 2019).
  - START recommended contracting an accredited lead remediation company to assess disposal requirements for LBP at the Sites if the buildings are demolished. Dust control methods should be implemented

for the debris. Work should be performed by an EPA Lead-Safe certified firm. The disposal facility should be contacted ahead of time to determine if Toxicity Characteristic Leaching Procedure (TCLP) samples will be required (Weston 2019).

- The mercury ampules and PCB ballasts should be removed and properly disposed prior to demolition activities (Weston 2019).
- Mold should be controlled during demolition (e.g., dust control, ventilation, etc.) (Weston 2019).
- Lead-in-soils should be evaluated at Sites 30 and 36 where LBP was found on the exterior of buildings. If soil sampling detected lead concentrations above cleanup standards, soils should be scraped and disposed of accordingly (WWC Engineering 2019).
- ACM and LBP clearance sampling should be completed in accordance with the Sampling and Analysis Plan (WWC Engineering 2019).
- Following clearance of the sites of ACM and LBP, buildings will be demolished using open burning for firefighter training. Any accelerants or enclosed containers with chemicals that could cause an explosion during a fire should be removed prior to open burning. Buildings too close to other structures for open burning will be conventionally demolished (WWC Engineering 2019).

- Alternative #3: Abatement and Conventional Demolition of All Buildings would require the same ACM and LBP abatement that Alternative #2 would require. Instead of open burning allowable buildings, all buildings would be conventionally demolished.

Cost

- Alternative #1: No Action and no cost.
- Alternative #2: The total cost estimate for this alternative is $66,562.50
  - The cost estimate of Alternative #2 is expected to be limited to hazardous building materials abatement, as the buildings would be demolished using open burning for firefighter training.
- Alternative #3: The total cost estimate for this alternative is $66,562.50 plus the cost of conventional demolition.

c. Recommended Cleanup Alternative

The recommended cleanup alternative is Alternative #3: Abatement and Conventional Demolition of All Buildings for the purpose of redevelopment and due to the proximity of buildings to other structures. All hazardous materials need to be removed from the sites to protect the nearby residences that could be exposed to hazardous materials and the floodplain when the Musselshell River is returned to its natural flow regime. Conventional demolition following abatement will be employed due to proximity to other structures. The expense of conventional demolition has been opened for bid by Musselshell County separate from the task of abatement. Therefore, the Alternative #3 will be the expense of abatement plus the cost of conventional demolition by Musselshell County's contractor. Alternative #1: No Action does not provide any health protections or remove the hazardous building materials from the floodplain. Alternative #2: Abatement and Open Burning of Buildings will not be used by Musselshell County due to the proximity to existing structures.

Green and Sustainable Remediation Measures for Selected Alternative

To make the selected alternative greener, or more sustainable, several techniques are planned. The most recent Best Management Practices (BMPs) issued under ASTM Standard E-2893: Standard Guide for Greener Cleanups will be used as a reference in this effort. The County will require the cleanup contractor to follow an idle-reduction policy and use heavy equipment with advanced emissions controls operated using ultra-low sulfur diesel. Any excavation work would be conducted during the dry-weather months in order to minimize groundwater infiltration into the excavation area, in turn reducing dewatering needs and the amount of dewatering liquids requiring disposal/treatment. The number of mobilizations to the Site would be minimized and erosion control measures would be used to minimize runoff into environmentally sensitive areas.