



County Environmental Engineering, Inc.

November 15, 2022

Penny Thompson
City of Caribou
25 High Street
Caribou, Maine 04736

Re: Draft Analysis of Brownfields Cleanup Alternatives
Caribou Diesel Electric Power Plant and Associated Outbuildings
142 Lower Lyndon Street, Caribou, Maine

Dear Penny:

This draft analysis of Brownfields cleanup alternatives (ABCA) was prepared for the Caribou Diesel Electric Power Plant and Associated Outbuildings (Site) located at 142 Lower Lyndon Street in Caribou, Maine. The purpose of this ABCA is to evaluate remedial alternatives for waste oil, hazardous substances, asbestos-containing materials (ACM), lead-based paint (LBP), universal and hazardous waste at the Site. Remedial alternatives evaluated for waste oil and hazardous substances include No Action and Removal. Remedial alternatives evaluated for ACM, LBP, universal and hazardous waste include No Action and Abatement.

Site Location and History

As shown on the attached Location Map (Figure 1), the Site is located on the west side of the Aroostook River near the historic Caribou dam (circa 1889). As shown on the attached Site Map (Figure 2), the Site (3.2 acres) is developed with a 12,200-square foot diesel plant, diesel pump house, oil tank building, north storage building, oil storage building, pump station, and south storage building. The total building footprint at the Site is approximately 17,300 square feet. The surrounding area consists of an abandoned steam electric power plant, abandoned bulk plant, active electrical switch station, inactive hydroelectric plant, and former municipal water filter plant.

The diesel plant was constructed in 1949 and operated by Maine Public Service (1943 – 1999) and PDI New England (1999 – 2013). The diesel plant was deactivated in 2012 and the Site was acquired by Merlin One in 2013. The Site has been vacant for several years and the buildings are in poor repair. The City of Caribou acquired the Site in 2019 through automatic lien foreclosure. City efforts to secure the Site and repeated patrols have not deterred trespassers from vandalism and other criminal activities.

Previous Environmental Investigations

A Phase I Environmental Site Assessment (ESA) was completed at the Site on August 5, 2021. Recognized environmental conditions identified in the Phase I ESA include: fossil fuel electric power generation; bulk plant; polychlorinated biphenyls; significant diesel releases; discharge outfalls; underground storage tanks; tanks, drums and oil-filled operational equipment; pesticide release; and railroad tracks. A Phase II ESA was completed at the Site on May 14, 2022. Sixteen soil samples, six groundwater samples and three porewater samples were collected at the Site and surrounding area for the Phase II ESA. Petroleum and hazardous substances were detected in site soils, but below regulatory guidelines.

A hazardous building materials survey was completed at the Site on May 8, 2022. As summarized on the tables below, approximately 11,320 gallons of waste oil and hazardous substances were inventoried at the Site, including stored diesel, lube oil, waste oil, waste oil-contaminated water, sludge, antifreeze, degreaser/solvent, and water treatment chemicals.

| Diesel Plant Tanks, Drums and Containers | | | |
|---|--------------------------|-------------|-----------------|
| Description | Contents | Size | Quantity |
| Diesel Plant Used Oil Tank | waste oil | 275 gal | 275 gal |
| Diesel Plant Unit #2 Day Tank | diesel | 320 gal | 320 gal |
| Diesel Plant Unit #3 Day Tank | diesel | 320 gal | 320 gal |
| Diesel Plant Unit #4 Day Tank | diesel | 230 gal | 230 gal |
| Diesel Plant Unit #5 Day Tank | diesel | 320 gal | 320 gal |
| Engine Lube Oil System Unit #2 | lube oil | 1,375 gal | 1,375 gal |
| Engine Lube Oil System Unit #3 | lube oil | 1,375 gal | 1,375 gal |
| Engine Lube Oil System Unit #4 | lube oil | 550 gal | 550 gal |
| Engine Lube Oil System Unit #5 | lube oil | 550 gal | 550 gal |
| Oil/Water Separator | waste oil/water/sludge | unknown | ~100 gal |
| Dirty Oil Tank | waste oil | 1,000 gal | 1,000 gal |
| Clean Oil Tank | waste oil | 1,800 gal | 1,800 gal |
| Waste Oil Drums (6) and pails | waste oil | 55 gal | ~350 gal |
| Chemical Drums (6) | water treatment | 55 gal | ~350 gal |
| Miscellaneous Drums (3) | antifreeze, lube oil | 55 gal | ~100 gal |
| Empty Drums (5) | transformer oil, unknown | 55 gal | residual |

| Oil Storage Building Drums | | | |
|-----------------------------------|-------------------|-------------|-----------------|
| Description | Contents | Size | Contents |
| Waste Oil Drums (19) | waste oil | 55 gal | ~1,000 gal |
| Anti-Freeze Drums (18) | antifreeze | 55 gal | ~1,000 gal |
| Miscellaneous Drum (1) | degreaser/solvent | 55 gal | 55 gal |
| Empty Drums (31) | unknown | 55 gal | residual |

| Oil Tank Building Tank | | | |
|-------------------------------|-----------------|-------------|-----------------|
| Description | Contents | Size | Quantity |
| Tank #4, ~6 inches of product | diesel | 15,000 gal | ~250 gal |

As summarized on the tables below, ACM ($\geq 1\%$ asbestos) was identified at the Site in roofing (12,500 square feet), window glaze (1,600 square feet), floor tile and mastic (600 square feet), and stored material (white board insulation). Electrical wire coating and gaskets were presumed positive for asbestos.

| Diesel Plant Asbestos-Containing Building Materials | | | |
|--|----------------------|---|------------------|
| Description | Est. Quantity | Location | Sample ID |
| ACM black roof material | 12,200 square feet | Roof (tar and gravel) | TGR29, TGR30 |
| ACM window glazing | 1,400 square feet | Exterior windows | WG26 |
| ACM black floor tile with ACM black mastic | 600 square feet | Second floor lab, file room and hallway | FT24A |
| ACM gaskets | not quantified | Piping connections, stored material | presume positive |
| ACM electrical wire coating | not quantified | Electrical wiring | presume positive |

| Diesel Pump House Asbestos-Containing Building Materials | | | |
|---|----------------------|-----------------------|------------------|
| Description | Est. Quantity | Location | Sample ID |
| ACM black roof material | 270 square feet | Roof (tar and gravel) | TGR19B |

| South Storage Building Asbestos-Containing Materials | | | |
|---|----------------------|-----------------|------------------|
| Description | Est. Quantity | Location | Sample ID |
| ACM white board insulation | not quantified | Stored material | WBI16 |

| Pump Station, Oil Storage Building and North Storage Building Asbestos-Containing Building Materials | | | |
|---|----------------------|------------------|------------------|
| Description | Est. Quantity | Location | Sample ID |
| ACM window glazing* | 200 square feet | Exterior windows | WG21A |

*Trace asbestos ($< 1\%$ asbestos) was detected in window caulk at the pump station.

Limited areas with lead-based paint (LBP) were identified at the diesel plant (black/yellow pipe, gray window frame and yellow exterior strip), oil storage building (MSDS box) and north storage building (gray door). Universal and hazardous waste was identified at the Site, including mercury-containing fixtures and components, UPS batteries (75) at the diesel plant, potential lead-containing glass block windows at the diesel plant (500 square feet) and diesel pump house (75 square feet), potential PCB-containing ballasts, and e-waste. Waste oil, hazardous substances, ACM, universal and hazardous waste at the Site represent a material threat of a future release and pose a substantial risk to human health and the environment due to vandalism and proximity to the Aroostook River.

Evaluation of Remedial Alternatives for Waste Oil and Hazardous Substances

The cleanup goal for the Site in regards to waste oil and hazardous substances is to eliminate the risk of a release to the environment. The primary routes of contaminant migration include surface flow and floor drains in the diesel plant with discharge outfalls at the Aroostook River. Potential exposure routes include dermal contact and inhalation of vapors. Potential receptors include future site workers and the Aroostook River. The resilience to address potential adverse impacts caused by extreme weather events

No Action Alternative

The Site would remain unchanged with the No Action alternative. The No Action alternative is not protective of human health or the environment. The potential for a release to the environment would continue to exist at the Site and the resilience to address potential adverse impacts caused by extreme weather events would remain unchanged. The No Action alternative is not consistent with the cleanup goal for waste oil and hazardous substances at the Site.

Removal Alternative

All waste oil and hazardous substances at the Site would be removed for off-site disposal by a Maine licensed Hazardous Waste Transporter under the Removal alternative. Waste oil will require field testing and possibly further analysis for hazardous waste characteristics. All waste oil and hazardous substances will be properly removed, transported and disposed in accordance with state and federal regulations, including OSHA Hazardous Waste Operations and Emergency Management Standards and Maine Waste Oil Management Rules.

Cleanup planning and on-site oversight will be provided by a Qualified Environmental Professional (QEP). The Removal alternative provides adequate protection of human health and the environment. The resilience to address potential adverse impacts caused by extreme weather events would be greatly improved. The Removal alternative would meet the cleanup goal for waste oil and hazardous substances at the Site. The cost for the Removal alternative is \$70,000 if waste oil meets state specifications or \$120,000 if waste oil is contaminated with solvents.

Evaluation of Remedial Alternatives for ACM, LBP, Universal and Hazardous Waste

The cleanup goal for the Site in regards to ACM, LBP, universal and hazardous waste is to eliminate the risk of human contact to asbestos, mercury, lead, PCBs and other hazardous materials. The primary route of contaminant migration is release into the air, buildings or environment by disturbance of ACM, LBP, universal and hazardous waste. Potential exposure routes include direct contact, ingestion and inhalation of vapors and asbestos fibers. Potential receptors include future site workers and the Aroostook River.

No Action Alternative

The Site would remain unchanged with the No Action alternative. The No Action alternative is not protective of human health or the environment. The potential for exposure to asbestos mercury, lead, PCBs and other hazardous materials would continue to exist at the Site and the resilience to address potential adverse impacts caused by extreme weather events would remain unchanged.

The No Action alternative is not consistent with the cleanup goal for ACM, LBP, universal and hazardous waste at the Site.

Abatement Alternative

All ACM, LBP, universal and hazardous waste at the site will be removed for off-site disposal by a Maine licensed Asbestos Abatement Contractor, Hazardous Waste Transporter and/or demolition contractor, as necessary, under the Abatement alternative. Removal of the asbestos roofing at the diesel plant and diesel pump house requires demolition of these structures due to the poor condition of the buildings, quantity (12,500 square feet) and type of roofing system (flat tar and gravel roof).

Encapsulation (covering) or removal and replacement (patching) of asbestos roofing at the diesel plant and diesel pump house are not feasible options due to the existing structural damage of the roofing systems at these structures. All ACM, LBP, universal waste, hazardous waste, and demolition debris will be properly removed, transported and disposed in accordance with OSHA General and Construction Standards, Maine Asbestos Management Regulations, Universal Waste and Solid Waste Management Rules.

Cleanup planning and on-site oversight will be provided by a QEP. Impacts to the adjacent electrical switch station owned by Versant Power may be necessary to conduct cleanup at the diesel plant and diesel pump house. The QEP will coordinate all cleanup planning and remedial activities with adjacent property owners and secure all necessary permits, permissions and approvals to work near the electrical switch station. The Abatement alternative provides adequate protection of human health and the environment. The resilience to address potential adverse impacts caused by extreme weather events would be greatly improved.

The Abatement alternative would meet the cleanup goal for identified ACM, LBP, universal and hazardous waste at the Site. The cost for the Abatement alternative is \$685,000 to remove the ACM roofing (\$145,000), window glaze (\$55,000), floor tile/mastic (\$25,000), stored material, electrical wire coating and gaskets (\$35,000), LBP, universal and hazardous waste (\$25,000), and demolish the diesel plant and diesel pump house (\$400,000).

Conclusion and Recommendations

Remedial alternatives evaluated for waste oil and hazardous substances at the Site include No Action and Removal. The Removal alternative would address the current risk of a release to the environment. The No Action alternative does not meet the cleanup goal for the Site in regards to waste oil and hazardous substances. We recommend the Removal alternative for waste oil and hazardous substances at the Site.

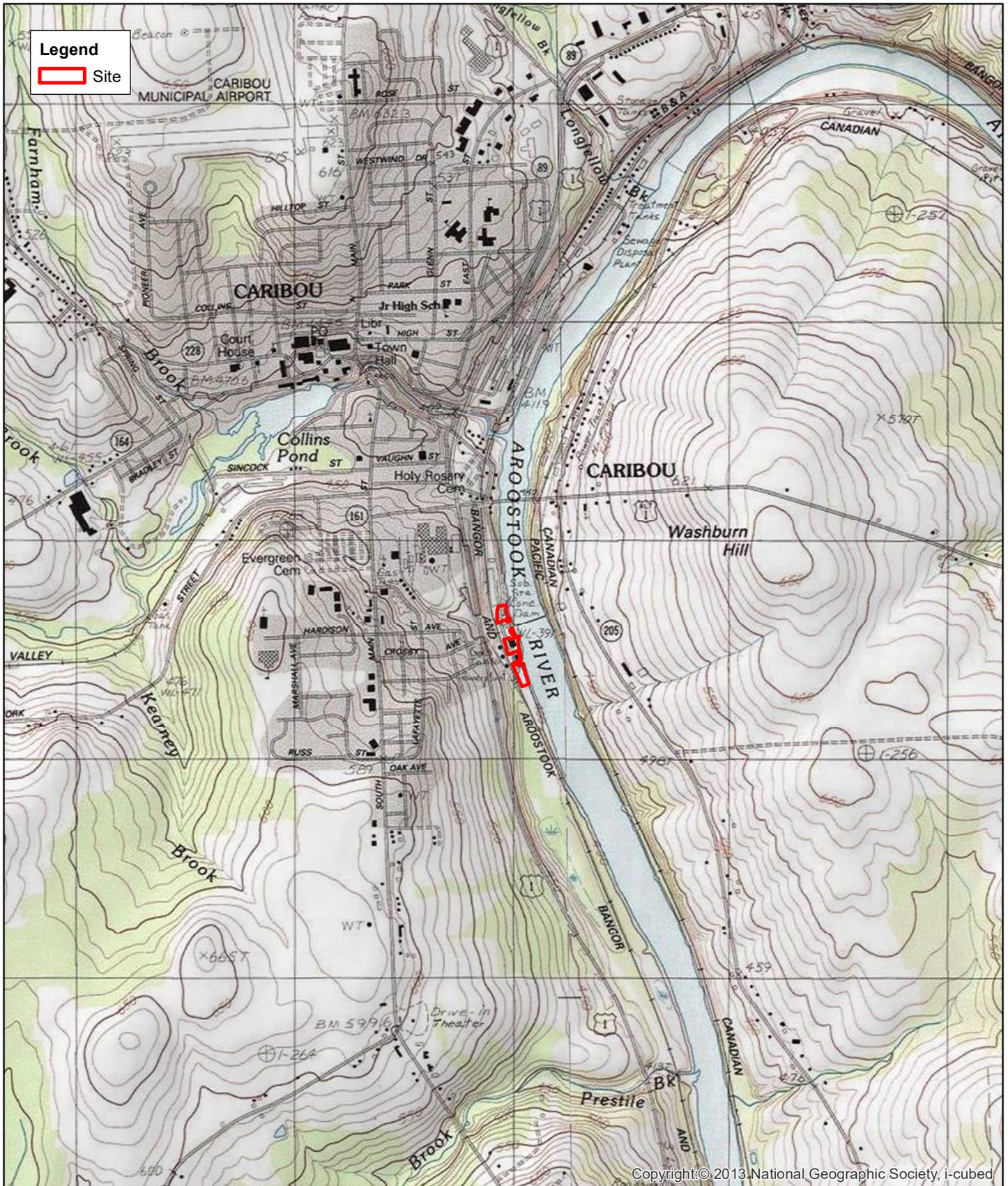
Remedial alternatives evaluated for ACM, LBP, universal and hazardous waste at the Site include No Action and Abatement. The Abatement alternative would address the current risk of exposure to asbestos, mercury, lead, PCBs and other hazardous materials. The No Action alternative does not meet the cleanup goal for the Site in regards to identified ACM, LBP, universal and hazardous waste. We recommend the Abatement alternative for ACM, LBP, universal and hazardous waste at the Site.

*Draft Analysis of Brownfields Cleanup Alternatives
Caribou Diesel Electric Power Plant and Associated Outbuildings, 142 Lower Lyndon Street, Caribou, Maine*

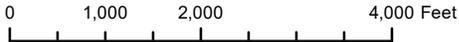
Thank you for the opportunity to offer our services on this project and please don't hesitate to contact us if you have any questions, comments or concerns.

Respectfully Submitted,
County Environmental Engineering, Inc.


Michelle Hersey, PE, LG
President



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|---|--|---|--|
|  | Location Map |  | |
| | Analysis of Brownfields Cleanup Alternatives Diesel Electric Power Plant and Associated Outbuildings 142 Lower Lyndon Street, Caribou Aroostook County, Maine | Figure 1 Scale: 1:24,000 | Project: 227-07 Drawn By: MDH Date: 11/12/2022 |



Site Map

Analysis of Brownfields Cleanup Alternatives
 Diesel Electric Power Plant and Associated Outbuildings
 142 Lower Lyndon Street, Caribou
 Aroostook County, Maine

0 50 100 200 Feet

Figure 2

Scale: 1:1,800

Project: 227-07

Drawn By: MDH
 Date: 11/12/2022

