

**Draft Analysis of Brownfields Cleanup Alternatives
Durango District 9-R Administrative Property
and Smiley Arts & Science Building
Durango, Colorado**

Prepared for

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Introduction

This Analysis of Brownfield Cleanup Alternative (ABCA) was completed by SME Environmental, Inc. (SME) for the City of Durango (City). The City is seeking funding for remodels of two buildings, the Durango District 9-R administrative property and Durango District 9R Smiley Arts & Science building (Property), located at 201 and 215 East 12th Street in Durango, Colorado. The ABCA presents cleanup standards and alternatives for proposed cleanup and abatement of regulated building materials. The following environmental information comes from environmental assessments completed by SME for the Durango District 9-R School District in 2021 prior to the real estate transaction with the City of Durango. SME completed a Phase I Environmental Site Assessment (ESA), asbestos assessments, and lead paint assessments (subcontracted to Burnside Enterprises, LLC) (SME 2021a, 2021b, 2021c).

Location

The Property measures approximately 4.3 acres in size and is located at a latitude, longitude of 37.276781°, -108.878199° respectively, within La Plata County, Colorado. (Figure 1). The elevation ranges from 6,544 to 6,580 feet above mean sea level. There are three, discrete buildings on the Property collectively referred to as the Durango 9-R administrative complex, including: the Durango High School (High School) building, the Smiley Arts and Science (Arts and Sciences) building and the Heating Plant building. The original High School and associated Heating Plant buildings were constructed in 1916. The High School building was added onto (to the north) in 1927. The Arts and Sciences building was constructed in 1957 (USDA, NPS, 2001). All three of these buildings and associated parking lots are located on the eastern two thirds of the Property. The western third of the Property is open space and is comprised of Buckley Park – a park currently maintained by the City of Durango.

Site Contamination

Phase 1 Environmental Site Assessment

SME completed the Phase I Environmental Site Assessment in January 2021 and identified 23 findings: 12 findings on the target property and 11 findings on adjoining/nearby properties, as defined by ASTM Standard 1527-13 as known or suspected recognized environmental conditions (RECs). After an evaluation of these findings for this Phase I ESA, it is the opinion of SME, as environmental professional, that four of the findings constitute RECs. The RECs consist of a heating plant coal storage room, the superintendent storeroom coal storage, the high school building elevator hydraulic fluid storage closet, and the Arts & Science building shop.

Heating Plant Coal Storage Room.

During the site visit, SME observed a coal storage room in the south end of the Heating Plant building. According to Ron Reed (Supervisor of Facilities, Durango School District 9-R): coal that was burned in the large boilers in the building was stored in this location. The boilers were used between 1916, when the high school was constructed, up through the 1970s (exact date not known) when the coal powered system was replaced with a natural gas-powered heating system; he was not aware of the coal storage room ever being cleaned up after it stopped being used; he was not aware of any spills or releases ever occurring in the heating plant building (Reed, 2021). Coal dust particulates (tiny pieces of coal) are of particular concern because they contain heavy metals which are toxic at low concentrations, including lead, mercury, nickel, tin, cadmium, mercury, antimony, and arsenic, as well as radio isotopes of thorium and strontium. Coal dust, especially fine coal dust, has been identified by health professionals around the world as causing a range of diseases and health problems (Mackey, 2021). Since there was a long period of storage and use of coal that was prior to current knowledge/regulations of this substance, it is likely that an accumulation of this dust may be present in this area that may contain the contaminants. Additionally, there is no known cleanup of coal remnants in this location. Therefore, this *finding* is considered a *recognized environmental condition*.

Superintendent Storeroom Coal Storage.

During the site visit, SME observed an abandoned coal-powered boiler in the superintendent storeroom within the high school building. According to Mr. Reed, it was abandoned in the 1970s. He is not aware of where coal that was burned in this boiler may have been stored, or if any coal dust cleanup was done in this location since the system was abandoned. He was not aware of any spills or releases of any other toxic substances in this location (Reed, 2021) Based upon health concerns related to coal dust discussed in *Finding 7* above and since there was a long period of storage and use of coal that was prior to current knowledge/regulations of this substance, it is likely that an accumulation of this dust may be present in this area that may contain the aforementioned contaminants. Additionally, there was no known cleanup of coal remnants in this location. Therefore, this *finding* is considered a *recognized environmental condition*.

High School Building Elevator Hydraulic Fluid Storage Closet.

During the site visit, Mr. Reed showed SME personnel the room where hydraulic fluid for the elevator is stored. According to Mr. Reed, there has been a series of spills of hydraulic fluid over time that are associated with this elevator; the most recent spill was eight years ago and it occurred in the elevator room; the fluid was cleaned up from this spill and the flooring and drywall in the closet was replaced; and he had no other knowledge of the details of the spill or the cleanup effort (Reed, 2021). It is important to note that there was no record of this spill or any previous spills in the EDR Radius Report or in the ECHO database. SME also contacted Mr.

Bill Kopp the regional manager for Thyssenkrupp who is the vendor that services the elevator for the school district. Mr. Kopp indicated that this elevator uses an inverted oil hydraulic system; such systems aren't very common on elevators; and that type of system is prone to leaks. Mr. Kopp had no knowledge of the spill described by Mr. Reed; and he indicated the spill most likely involved ISO 32 hydraulic fluid (non-toxic), but he could not be certain (Kopp, 2021). Prior to 1979, PCBs were used in some hydraulic fluids and human exposure to PCBs can cause long term negative health effects (US EPA, 2021). Since the history and extent of spills, leaks and cleanup efforts associated with this hydraulic system is not fully known and since the exact type of hydraulic fluid that has been spilled in this location is unknown, this *finding* is considered a *recognized environmental condition*.

Arts & Science Building Shop.

During the site visit, SME observed a shop area in the arts & science building. This shop is used by district maintenance staff to complete small projects related to the district's facilities. Located in the shop are various power tools, non-power tools and various materials storage, including paint and cleaners. There is *de minimis* staining on the floors in several locations in the shop. Mr. Reed indicated that this shop was historically used as a small engine shop for high school and middle school students dating back into the 1960s; this shop was then the small engine repair shop for the district from 2012 until 2019; he was not aware of any spills occurring in the shop. SME also checked in with Mr. Bill Wilson (Director of Maintenance for the district) who indicated that he was not aware of any spills or releases of toxic materials in this shop. SME was unable to confirm how waste materials (e.g., waste motor oil, etc.) was handled/disposed of dating back to the 1960s. Due to the long time period mechanical work and contaminant storage occurred at this location that was prior to current knowledge/regulations of associated substances, it is likely that remnant contaminants may be present in this area associated with previous spills and/or bad practices. Therefore, this *finding* is considered a *recognized environmental condition*.

Asbestos

SME also completed asbestos assessments for each building in January 2021. In the Durango 9-R Administrative Building, out of the 178 total samples collected at the subject property, 20 of the homogeneous materials identified throughout the building were determined to contain more than 1% asbestos by Polarized Light Microscopy and point count analysis or were assumed as asbestos-containing materials (Table 1). All regulated asbestos-containing materials (RACMs) are required by regulation to be properly removed and disposed of, prior to demolition activities.

Table 1. 9R Administration Building Asbestos Inspection Homogeneous Materials

Description	Material	Friable	Non Friable	Size (ft ²)	ACM
(1) Moisture Barrier Paper	misc		x	na	assumed
(2) Sink Mastic	misc		x	na	assumed
(3) Chalkboards	misc		x	na	assumed
(4) Mounting Mastic	misc		x	na	assumed
(5) 9x9 Flooring Tile, gray	misc		x	na	assumed
(6) Mastic	misc		x	na	assumed
(7) Fire Rated Doors	misc		x	na	assumed
(8) Exterior Window Putty	misc		x	na	assumed
(9) Window Frame Caulk	misc		x	na	assumed
(10) Hard Pack Pipe Fittings	TSI	x		na	assumed
(11) Linoleum, green pebble pattern	misc		x	na	assumed
(12) Linoleum Adhesive, green pebble pattern	surf		x	na	assumed
(13) Baseboard Adhesive, brown/gray	misc		x	na	assumed
(14) Window Glaze, old windows	surf		x	na	assumed
(15) 12x12 Tile, tan	misc		x	na	assumed
(16) Mastic, black	surf		x	na	assumed
(18) Patio Mud Fabric, gray	surf	x		<1000	10%
(25) Thin Linoleum, tan	misc		x	na	2-8%
(61) Window Glaze, gray	surf		x	<1000	2%
(68) Green Insulation Foam	TSI		x	<6	40%
(69) Open Cell Pipe Wrap, gray	TSI		x	<1000	assumed
(78) Pipe Dope, tan	surf	x		<1000	1-4%

In the District 9-R Arts and Sciences building, out of the 249 total samples collected at the subject property, 13 of the homogeneous materials identified throughout the building were determined to contain more than 1% asbestos by Polarized Light Microscopy and point count analysis (Table 2). All regulated asbestos-containing materials (RACMs) are required by regulation to be properly removed and disposed of, prior to demolition activities.

Table 2. Big Picture Asbestos Inspection Homogeneous Materials

Description	Material	Friable	Non Friable	Size (ft ²)	ACM
(1) 9x9 Floor Tile, brown/tan/blue/black/pink/green	misc		X		3-7%
(2) Mastic, black	surf		X	>5000	3-8%
(21) 12x12 Floor Tile, multicolored, mottled	misc		X		5%
(30) Carpet Glue, tan	surf	X		<1000	4%
(47) 6" Paper Pipe Insulation	surf	X		<1000	75-80%
(50) Insulation Felt, off white	misc	X		<1000	<1%

Description	Material	Friable	Non Friable	Size (ft ²)	ACM
(51) Pipe Elbow Insulation	TSI	X		<1000	15%
(82) Outdoor Caulk, brown	surf		X	>5000	3%
(83) Window Glaze, outdoor	surf		X	>5000	3-5%
(88) 1" Ceramic Tile and Grout	misc/surf		X		assumed
(91) Fire Doors	misc		X		assumed
(92) Boiler Gaskets and old Insulation	TSI	X		50	assumed
(93) Transite Sink	misc		X	10	assumed
(96) Door Caulk	surf		X	<1000	2%

Lead-Based Paint

Burnside Enterprises, LLC, subcontracted by SME, performed lead-based paint assessments for each building in December 2020. Testing was performed using a NITON XLp-300 X-Ray Fluorescence Spectrometer (XRF), serial number 94979. The inspection of the District 9-R Smiley High School building indicated that based upon the current HUD guideline levels, the following areas were found to contain lead-based paint above or equal to 1.0 mg/cm² (Table 3).

Table 3. Lead- Based Paint Inspection Report Summary for the Smiley High School Building.

Item	Locations	Quantity	Unit of Measure
Chalkboard frames	1 large and 1 smaller chalkboard frame in each classroom	28	Each
Cabinets	Room 201 classroom	160	SF
Door/Closet jambs & casings	Wood door jambs and frames throughout the building except for the Phoenix area. Metal door frames are excluded.	51	Each
Bookcases	Rooms 102 & 104 Storage	400	SF
Ceiling beam	Exposed structural beam in Toilet 2 and Hall 8	60	SF
Overhead door	North end of Shops area	1	Each
Porch column & railings	South main entrance	120	LF
Wall shelf	Room 121	80	SF
Wall corner protection	Exterior north side	6	LF

The inspection of the District 9-R Administrative building indicated that based upon the current HUD guideline levels, the following areas were found to contain lead-based paint above or equal to 1.0 mg/cm² (Table 4).

Table 4. Lead- Based Paint Inspection Report Summary for the Durango 9R Administration Building.

Item	Locations	Quantity	Unit of Measure
Bookcase	Room 131	100	SF

Item	Locations	Quantity	Unit of Measure
Cabinets	Room 121	110	SF
Cased Doorways	Various	6	Each
Ceilings - plaster	Assumed all	Not Quantified	
Ceiling - wood	Room 13 under balcony	600	SF
Ceiling ductwork	Room 10	80	SF
Ceiling beams	Rooms 232 & 326	2000	SF
Door casings & jamb	Assumed all	Not Quantified	
Doors	Assumed all	Not Quantified	
Safe door	Room 207	48	SF
Stair risers	Rooms 324 & 326	1100	SF
Toilet partitions	Room 11	150	SF
Wall baseboards	Rooms 125, 227, 229, 326 and 224 hallway	1000	LF
Wall chair rails	Rooms 227, 229, and 326	300	LF
Columns	Room 108	120	SF
Wall register, metal	Room 324	5	Each
Plaster walls	Assumed all	Not Quantified	
Window casings and sills	Assumed all	Not Quantified	
Window sashes - original	Rooms 125, 129 & 228	3	Each

Cleanup Standards

Colorado Department of Public Health and Environment (CDPHE) is responsible for overseeing cleanup and abatement of regulated building materials. Cleanup and abatement should follow applicable laws and regulations discussed below.

Applicable Laws

Environmental cleanup and abatement in Colorado must comply with the following laws and regulations:

- U.S. Environmental Protection Agency
- Federal Small Business Liability Relief and Brownfields Revitalization Act
- National Emission Standard for Hazardous Air Pollutants (NESHAP)
- Toxic Substances Control Act (TSCA)
- Clean Air Act (CAA)
- U.S. Department of Housing and Urban Development (HUD)
- CPDHE Hazardous Waste Regulations
- CDPHE Colorado Air Quality Control Commission
- OSHA regulations

Cleanup Alternatives

The goal of cleanup and abatement is to remove hazardous materials without causing harm to the environment and health of local communities. The Phase I ESA identified *recognized environmental conditions (REC)s* or the presence or likely presence of any hazardous substances or petroleum products in, on, or at the Property. Potential contaminants in the RECs include coal dust, hydraulic fluid with potential for PCBs, and possible shop toxins (waste motor oil, etc.). In addition, asbestos and lead-based paint occurs at the Property and requires cleanup and abatement. In accordance with EPA requirements, the effectiveness, implementability, and cost of each alternative must be considered. To address contamination at the Property, the following alternatives were evaluated.

Alternative 1 – Demolition

Effectiveness – Complete demolition would be an effective way to remove contaminated materials if all state and federal regulations are met.

Implementability – Demolition is relatively easy to implement. A Colorado-certified Abatement Contractor is required to remove friable asbestos-containing materials.

Cost – The cost to demolish and remove contaminants is considerable.

Alternative 2 –Renovation

Effectiveness – Renovation would require meeting state and federal abatement protocols and altering the contaminated components of the buildings.

Implementability – Renovation is moderately difficult to implement. A Colorado-certified Abatement Contractor is required to remove friable asbestos-containing materials.

Cost – The costs of renovation is considerable.

Alternative 3 – No Action

Effectiveness – The no action alternative is not an effective measure for cleanup or abatement as neither action would occur under this alternative.

Implementability – This alternative is easy to implement as no action is required.

Cost – This alternative is the most affordable, at no cost.

Recommended Cleanup

References Cited

SME 2021a Phase I Environmental Site Assessment. Prepared for Durango School District 9-R by SME Environmental, Inc.

SME 2021b 9R Administration Building 201 East 12th Street, Durango, Colorado Asbestos Inspection. Prepared for Durango School District 9-R by SME Environmental, Inc.

SME 2021c Smiley Arts and Sciences Building, 215 East 12th Street, Durango, Colorado Asbestos Inspection. Prepared for Durango School District 9-R by SME Environmental, Inc.