

Montana Tech Library

**Digital Commons @ Montana Tech**

---

Silver Bow Creek/Butte Area Superfund Site

Montana Superfund

---

Spring 3-22-2022

## **2022 Residential Metals Abatement Program (RMAP) Field Sampling Plan (FSP) Butte High School – Indoor Soil**

Elsie King

Christopher Berg

Thomas J. Beckman

Follow this and additional works at: [https://digitalcommons.mtech.edu/superfund\\_silverbowbutte](https://digitalcommons.mtech.edu/superfund_silverbowbutte)



Part of the [Environmental Health and Protection Commons](#), [Environmental Indicators and Impact Assessment Commons](#), and the [Environmental Monitoring Commons](#)

---

# Atlantic Richfield Company

317 Anaconda Road  
Butte MT 59701

## Mike McAnulty

Line Manager

Direct (406) 782-9964

Fax (406) 782-9980

April 7, 2022

Nikia Greene  
Remedial Project Manager  
US EPA – Montana Office  
Baucus Federal Building  
10 West 15th Street, Suite 3200  
Helena, Montana 59626

Erin Agee  
Senior Assistant Regional Counsel  
US EPA Region 8 Office of Regional Counsel  
CERCLA Enforcement Section  
1595 Wynkoop Street  
Denver, CO 80202  
Mail Code: 8ORC-C

Daryl Reed  
DEQ Project Officer  
P.O. Box 200901  
Helena, Montana 59620-0901

Jonathan Morgan, Esq.  
DEQ, Legal Counsel  
P.O. Box 200901  
Helena, Montana 59620-0901

**RE: Residential Metals Abatement Program Field Sampling Plan Butte High School – Indoor Soil**

Agency Representatives:

I am writing to you on behalf of Atlantic Richfield Company to submit the Approved Final Residential Metals Abatement Program Field Sampling Plan Butte High School – Indoor Soil. The plan may be downloaded at the following link:

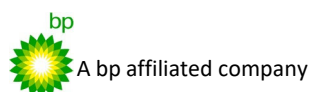
[https://theermgroup-my.sharepoint.com/:f:/g/personal/thomas\\_beckman\\_erm\\_com/Em8tQj1c5NxCuNix6EIPYkABFbAtNxYtbHVYeI05GNJmLA?e=2QHijP](https://theermgroup-my.sharepoint.com/:f:/g/personal/thomas_beckman_erm_com/Em8tQj1c5NxCuNix6EIPYkABFbAtNxYtbHVYeI05GNJmLA?e=2QHijP)

If you have any questions or comments, please call me at (907) 355-3914.

Sincerely,

*Mike McAnulty*

Mike McAnulty  
Liability Manager  
Remediation Management Services Company  
An Affiliate of **Atlantic Richfield Company**





**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 8, MONTANA OFFICE**

FEDERAL BUILDING, 10 West 15<sup>TH</sup> Street, Suite 3200  
Helena, MT 59626-0096  
Phone 866-457-2690  
www.epa.gov/region8

Ref: 8MO

April 6, 2022

Mr. Mike McAnulty  
Liability Manager  
Atlantic Richfield Company  
317 Anaconda Road  
Butte, Montana 59701

**Re: Approval letter for the Butte Priority Soils Operable Unit (BPSOU) Draft 2022 Residential Metals Abatement Program (RMAP) Field Sampling Plan (FSP) Butte High School – Indoor Soil (dated March 25, 2022)**

Dear Mike:

The U. S. Environmental Protection Agency (EPA), in consultation with the Montana Department of Environmental Quality (DEQ), is approving the *Draft 2022 Residential Metals Abatement Program (RMAP) Field Sampling Plan (FSP) Butte High School – Indoor Soil (dated March 25, 2022)*. Please attach the signature page and the approved Non-Residential Parcels – Indoor Dust quality assurance project plan to this FSP and distribute this FSP submittal as final.

If you have any questions or concerns, please call me at (406) 457-5019.

Sincerely,

**NIKIA  
GREENE** Digitally signed  
by NIKIA GREENE  
Date: 2022.04.06  
07:05:46 -06'00'

Nikia Greene  
Remedial Project Manager

Attachment: EPA and DEQ signature page

cc: (email only)  
Butte File  
Jenny Chambers; DEQ

Matt Dorrington, DEQ  
Daryl Reed; DEQ  
Will George; DEQ  
Jon Morgan; DEQ counsel  
Carolina Balliew; DEQ  
Harley Harris; NRDP  
Katherine Hausrath; NRDP  
Jim Ford; NRDP  
Pat Cunneen; NRDP  
John Gallagher; BSBC  
Sean Peterson; BSBC  
Eileen Joyce; BSBC  
Eric Hassler; BSBC  
Brandon Warner; BSBC  
Chad Anderson; BSBC  
Karen Maloughney; BSBC  
Julia Crain; BSBC  
Abby Peltomaa; BSBC  
Jeremy Grotbo; BSBC  
Anne Walsh; UP  
Robert Bylsma; UP counsel  
Leo Berry; BNSF and UP counsel  
Doug Brannan; Kennedy Jenks for BNSF and UP  
Brooke Kuhl; BNSF counsel  
Mark Engdahl; for BNSF  
Annika Silverman; Kennedy Jenks for BNSF and UP  
Bob Andreoli; Patroit/RARUS  
Becky Summerville; counsel for Inland Properties Inc.  
Robert Lowry, BNSF counsel  
Loren Burmeister; AR  
Josh Bryson; AR  
Mike Mcanulty; AR  
Dave Griffis; AR  
Jean Martin; Counsel AR  
Mave Gasaway; attorney for AR  
Adam Cohen; Counsel for AR  
Pat Sampson; Pioneer for AR  
Scott Sampson; Pioneer for AR  
Scott Bradshaw; TREC  
Karen Helfrich; Pioneer for AR  
Andy Dare; Pioneer for AR  
Scott Sampson; Pioneer for AR  
Brad Archibald; Pioneer for AR  
Andy Dare; Pioneer for AR  
Tina Donovan; Woodardcurran for AR  
Ted Duaine; MBMG  
Gary Icopini; MBMG

David Shanight, CDM Smith  
Curt Coover, CDM Smith  
Chapin Storrar; CDM Smith  
Erin Agee, EPA  
Joe Vranka; EPA  
Chris Wardell; EPA  
Dana Barnicoat; EPA  
Charlie Partridge; EPA  
Jean Belille; EPA  
Ian Magruder; CTEC (Tech Advisor)  
Janice Hogan; CTEC  
Kristi Carroll; Montana Tech Library



# **2022 Residential Metals Abatement Program (RMAP) Field Sampling Plan (FSP) Butte High School – Indoor Soil**

Atlantic Richfield Company and Butte-Silver  
Bow County

22 March 2022

Project No.: 0612471

---

Signature Page

22 March 2022


# 2022 Residential Metals Abatement Program (RMAP) Field Sampling Plan (FSP) Butte High School – Indoor Soil

Atlantic Richfield Company and Butte-Silver Bow County



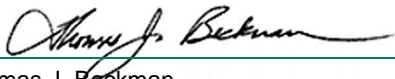
---

Elsie King  
Senior Consultant



---

Christopher Berg  
Project Manager



---

Thomas J. Beckman  
Partner

ERM-West, Inc.  
1 Ninth Street Island Drive  
Livingston, MT 59047

T: +1 406 222 7600

F: +1 406 222 7677

## CONTENTS

APPROVAL PAGE .....	I
DISTRIBUTION LIST .....	II
1. INTRODUCTION .....	1
2. SCHOOL INDOOR SOIL SAMPLING SCOPE .....	1
3. SCHOOL INDOOR SOIL SAMPLING SCHEDULE .....	1
4. FIELD SAMPLING PLAN .....	1
4.1 Sampling Delineation .....	1
4.2 Soil Sampling Procedures .....	1
4.3 Deviations .....	2
5. LABORATORY METHODS .....	2
5.1 Indoor Soil Metals Analyses Methods .....	2
6. QUALITY CONTROL .....	2
6.1 Field Quality Control Samples .....	2
7. REFERENCES .....	3

### List of Tables (Attached)

Table 1	School Property List
Table 2	Sample Task and Location Summary

### List of Figures

Figure 1	Indoor Soil Sample Location Map - Butte High School / Annex
----------	---

### Acronyms and Abbreviations


Name	Description
Agencies	U.S. Environmental Protection Agency and Montana Department of Environmental Quality
BPSOU	Butte Priority Soils Operable Unit
DEQ	Montana Department of Environmental Quality
FSP	Field Sampling Plan
ICP-MS	inductively coupled plasma mass spectrometry
QC	quality control
QAPP	Quality Assurance Project Plan
RL	reporting limit
RMAP	Residential Metals Abatement Program
SOP	standard operating procedure
USEPA	U.S. Environmental Protection Agency





## APPROVAL PAGE

### Butte Priority Soils Operable Unit Residential Metals Abatement Program Field Sampling Plan Butte High School – Indoor Soil

Approved: NIKIA GREENE Digitally signed by NIKIA GREENE  
Date: 2022.04.06 07:00:58 -06'00' Date: \_\_\_\_\_  
Nikia Greene, Remedial Project Manager  
U.S. Environmental Protection Agency, Region 8  
Quality Assurance Approval Official

Approved:  Date: 4/5/2022  
Daryl Reed, Project Officer  
Montana Department of Environmental Quality

Approved:  Date: 3/25/2022  
Eric Hassler, Director  
Department of Reclamation and Environmental Services  
Butte-Silver Bow County

Approved:  Date: 03/24/2022  
Mike Mc Anulty, Liability Manager  
Atlantic Richfield Company

The Field Sampling Plan is effective on date of approval.

## DISTRIBUTION LIST

### Butte Priority Soils Operable Unit Residential Metals Abatement Program Field Sampling Plan Butte High School – Indoor Soil

QAPP Recipients	Title	Organization	Telephone Number	E-mail Address
Nikia Greene	Remedial Project Manager	U. S. Environmental Protection Agency	(406) 457-5019	Greene.Nikia@epa.gov
Daryl Reed	State Project Officer	Montana Department of Environmental Quality	(406) 444-6433	dreed@mt.gov
Eric Hassler	Director	Montana Department of Environmental Quality	(406) 497-5042	ehassler@bsb.mt.gov
Julia Crain	Assistant Director	Butte-Silver Bow County (Department of Reclamation and Environmental Services)	(406) 497-6264	crain@bsb.mt.gov
Chad Anderson	Manager of Human Health/RMAP Division	Butte-Silver Bow County (Department of Reclamation and Environmental Services)	(406) 497-6278	canderson@bsb.mt.gov
Abigail Peltoma	Manager of Data Management Division/Quality Assurance Manager	Butte-Silver Bow County (Department of Reclamation and Environmental Services)		apeltomaa@bsb.mt.gov
Mike McAnulty	Liability Manager	Atlantic Richfield Company	(406) 723-1822	mcanumc@bp.com
Christopher Berg	Project Manager	ERM for Atlantic Richfield Company	(612) 347-7169	Christopher.Berg@erm.com
Jennifer Anderson	Analytical Laboratory Project Manager	Pace Analytical Services for Atlantic Richfield Company	(612) 607-6436	Jennifer.Anderson@pacelabs.com
Kenneth Miller	Field Team Leader	ERM for Atlantic Richfield Company	(907) 250-4475	Kenneth.Miller@erm.com
Lester Dupes	Data Quality Assurance Manager	Environmental Standards, Inc. for Atlantic Richfield Company	(610) 935-5577 Ext.416	ldupes@envstd.com
Thomas Beckman	Project Oversight	ERM for Atlantic Richfield Company	(925) 482-8202	thomas.beckman@erm.com

A complete list of personnel to receive this document is provided on the associated cover letter distribution list. Atlantic Richfield Company will distribute the original Agency approved document.

## 1. INTRODUCTION

This Field Sampling Plan (FSP) was developed to outline a portion of the 2022 Butte Priority Soils Operable Unit (BPSOU) Residential Metals Abatement Program (RMAP) earthen basement and crawlspace area soil sampling plan for a single Butte, Montana area school. Indoor soil sampling procedures, data quality objectives (DQOs), standard operating procedures (SOPs), sampling analytical methods, sampling equipment, quality control (QC) samples, and data validation and assessment will be in accordance with the RMAP Quality Assurance Project Plan (QAPP) (Non-Residential Parcels – Indoor dust) (Atlantic Richfield Company, 2022).

## 2. SCHOOL INDOOR SOIL SAMPLING SCOPE

The scope of work covered by this FSP includes the Butte High School.

The earthen basement and crawlspace areas to be sampled for the school are shown in Figure 1. Table 1 lists the school property (along with Resident ID's, geocode, ownership information, and age of school), and Table 2 shows the anticipated sampling quantities covered by this FSP.

## 3. SCHOOL INDOOR SOIL SAMPLING SCHEDULE

Sampling schedules will be finalized through ongoing conversations with U.S. Environmental Protection Agency (USEPA), Montana Department of Environmental Quality (DEQ) (the Agencies), and the appropriate school representatives. Sampling efforts will occur during the week of spring break, beginning 11 April 2022.

## 4. FIELD SAMPLING PLAN

Indoor soil sampling will be performed in earthen basement and crawlspaces areas to delineate impacts in accordance with the sampling procedures discussed below.

### 4.1 Sampling Delineation

Representatives from Atlantic Richfield, USEPA, Butte Silver Bow County, and the Butte School District conducted inspections of the buildings on 23 November and 8 December 2021. The inspections and ensuing discussions among the field personnel led to the selection of location of the soil samples, as discussed below. The planned number, type, and location of samples to be collected at the school are shown in Table 2. The steps for collecting soil samples are provided in Section 5.5 of the QAPP (Atlantic Richfield Company, 2022.). Opportunistic sampling or deviations from the sampling plan will be confirmed with USEPA in advance.

### 4.2 Soil Sampling Procedures

Soil sampling density, location, and compositing decisions will be made according to the information provided in Section 3.3 of the QAPP (Atlantic Richfield Company, 2022).

Soil samples will be collected from four earthen basement or crawlspace area locations in the Butte High School, as shown on Figure 1. One soil composite will be collected from Area 1 (comprised of 2 sampling points in the crawlspace); one soil composite will be collected from Area 2 (comprised of 5 sampling points from the earthen basement); and one soil composite will be collected from Area 3 (comprised of 2 sampling points from the earthen basement/crawlspace). One grab sample will be collected from crawlspace Area 4. The locations of the composites were selected based on readily available access to the earthen basement and crawlspace areas. ERM field team members will collect soil samples from

accessible areas not defined as confined spaces under United States Occupational Health and Safety Administration regulations.

### 4.3 Deviations

This section addresses any deviations to the Agencies-approved QAPP (Atlantic Richfield Company, 2022) pertaining to 2022 BPSOU RMAP school indoor soil sampling defined in this FSP. Deviations include the following:

- No known deviations at this time
- Any future deviations will be discussed with the Agencies' field representative, documented in the field notes, and the associated Investigation and Data Summary Reports

## 5. LABORATORY METHODS

### 5.1 Indoor Soil Metals Analyses Methods

Soil samples will be sieved to 250 micrometers prior to digestion. The soil samples will be digested according to USEPA Method 3050B, and arsenic and lead concentrations will be determined per USEPA Method 6020B (inductively coupled plasma mass spectrometry [ICP-MS]). Mercury concentrations will be determined per USEPA Method 7471B (Manual Cold-Vapor Technique).

## 6. QUALITY CONTROL

### 6.1 Field Quality Control Samples

A soil field duplicate sample will be prepared from a split sample at one location. Additional sample mass will be collected for matrix spike/matrix spike duplicate analysis at one location. Equipment blanks will not be required for soil samples since disposable sampling equipment will be used.

## 7. REFERENCES

Atlantic Richfield Company, 2022. Residential Metals Abatement Program Quality Assurance Project Plan (Non-Residential Parcels – Indoor Dust). February 2022.

---

## TABLES

**Table 1**  
**School Property List**  
**Butte RMAP School Indoor Soil Sampling**  
**Butte, Montana**

Count	Res-ID	Geocode	Name	Physical Address	Owner	Construction Date
1	S-0009	01119713454100000	Butte High School / Annex	401 S Wyoming Street, Butte, MT 59701	School District #1	1937/1968

**Table 2**  
**Sample Task and Location Summary**  
**Butte High School / Annex**  
**Butte RMAP School Indoor Soil Sampling**  
**Butte, Montana**

Task	Time Frame	Locations	Subsamples	Number of Composite Samples
Indoor Soil Sampling	Day 1	Area 1 Crawlspace	2	1
		Area 2 Earthen Basement	5	1
		Area 3 Earthen Basement (North) /Crawlspace (South)	2	1
		Area 4 Crawlspace	1	1
	Total		10	4



---

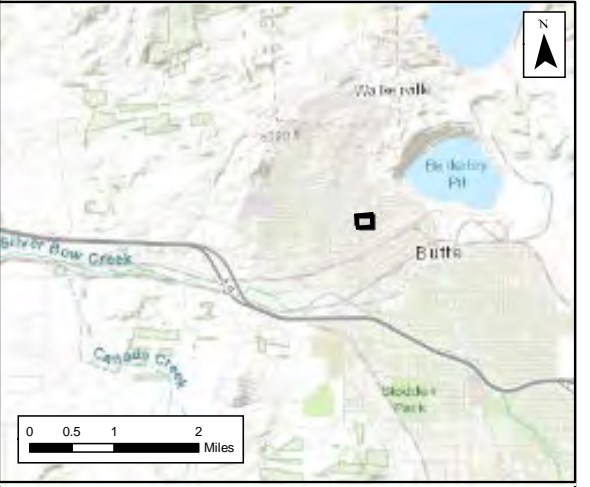
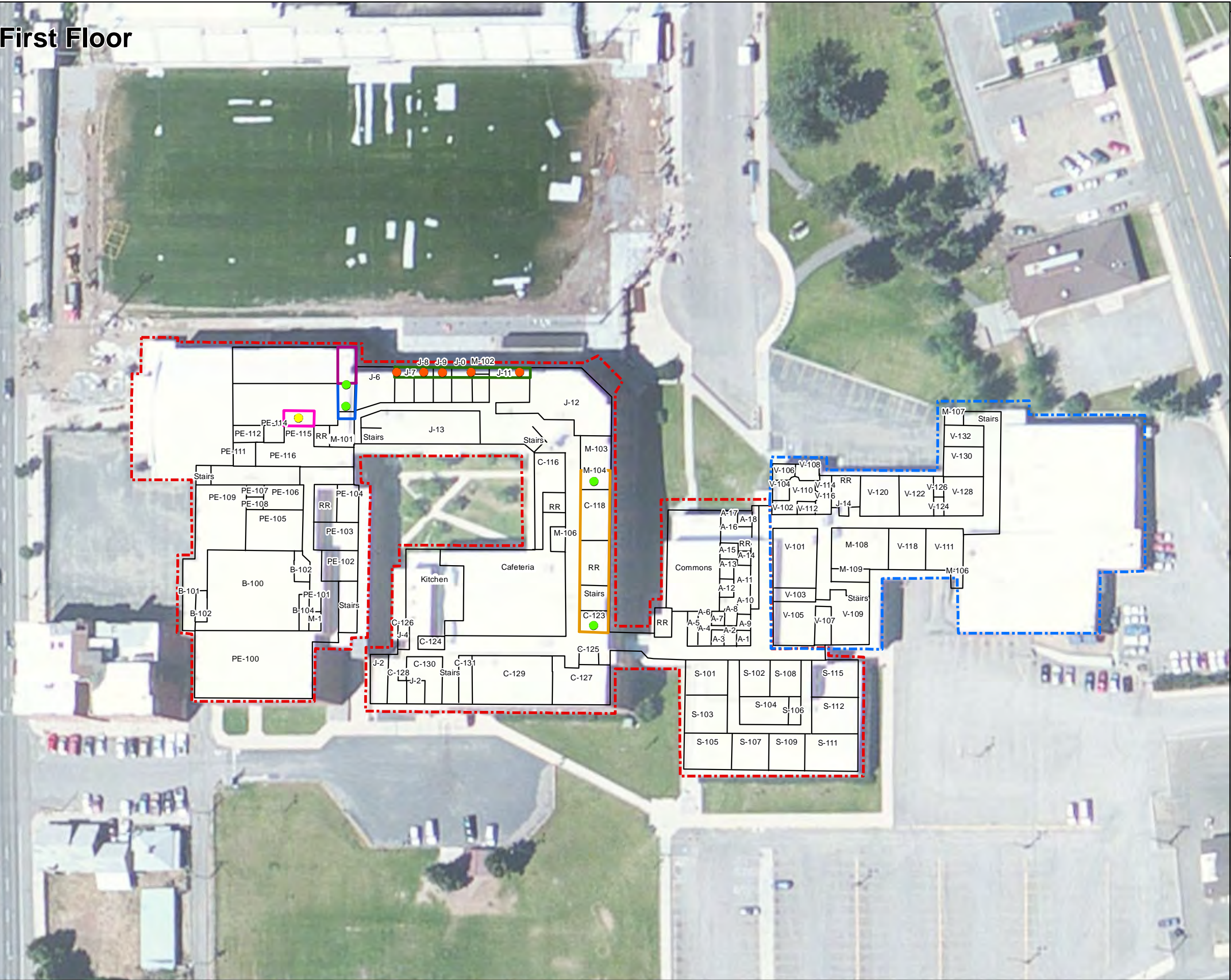
## FIGURES

DRAWN BY: CRT

FILE: M:\Projects\0612471 - BP Butte\Maps\Butte High School - Annex\_Soil.mxd . REVISED: 03/23/2022 . SCALE: 1:900 when printed at 11x17

Source: Esri - USGS Topo Webservice; NAD 1983 StatePlane Montana FIPS 2500 Feet

# First Floor

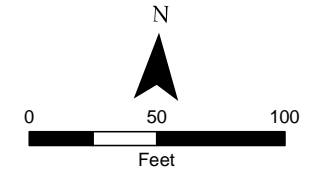


### Legend

- Grab Soil Sampling Point
- 2 Point Composite Soil Sampling Point
- 5 Point Composite Soil Sampling Point
- Earthen Basement (589.83 sq ft)
- Earthen Basement (314.08 sq ft)
- Crawl Space (314.08 sq ft)
- Crawl Space (2824.12 sq ft)
- Crawl Space (214.90 sq ft)
- High School
- Annex

Notes:  
Room ID's reflect verbiage used on site maps provided by Butte School District

- Key:
- A Administrative
  - B Band
  - C Classroom
  - H Halls
  - PE Physical Education
  - J Janitorial/Maintenance
  - RR Restroom
  - S Science
  - V Annex
  - N Nurse
  - M Mechanical/Electrical
  - L Library



**Figure 1**  
**Butte High School / Annex**  
401 S Wyoming Street  
Butte, MT 59701

---

**ERM has over 160 offices across the following countries and territories worldwide**

Argentina	The Netherlands
Australia	New Zealand
Belgium	Norway
Brazil	Panama
Canada	Peru
Chile	Poland
China	Portugal
Colombia	Puerto Rico
France	Romania
Germany	Russia
Ghana	Senegal
Guyana	Singapore
Hong Kong	South Africa
India	South Korea
Indonesia	Spain
Ireland	Sweden
Italy	Switzerland
Japan	Taiwan
Kazakhstan	Tanzania
Kenya	Thailand
Malaysia	UAE
Mexico	UK
Mozambique	US
Myanmar	Vietnam

**ERM's Livingston Office**

1 Ninth Street Island Drive  
Livingston, MT 59047

T: +1 406 222 7600

F: +1 406 222 7677

[www.erm.com](http://www.erm.com)



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 8, MONTANA OFFICE**

FEDERAL BUILDING, 10 West 15<sup>TH</sup> Street, Suite 3200  
Helena, MT 59626-0096  
Phone 866-457-2690  
www.epa.gov/region8

Ref: 8MO

April 6, 2022

Mr. Mike McAnulty  
Liability Manager  
Atlantic Richfield Company  
317 Anaconda Road  
Butte, Montana 59701

**Re: Approval letter for the Butte Priority Soils Operable Unit (BPSOU) Draft 2022 Residential Metals Abatement Program (RMAP) Field Sampling Plan (FSP) Butte High School – Indoor Soil (dated March 25, 2022)**

Dear Mike:

The U. S. Environmental Protection Agency (EPA), in consultation with the Montana Department of Environmental Quality (DEQ), is approving the *Draft 2022 Residential Metals Abatement Program (RMAP) Field Sampling Plan (FSP) Butte High School – Indoor Soil (dated March 25, 2022)*. Please attach the signature page and the approved Non-Residential Parcels – Indoor Dust quality assurance project plan to this FSP and distribute this FSP submittal as final.

If you have any questions or concerns, please call me at (406) 457-5019.

Sincerely,

**NIKIA  
GREENE** Digitally signed  
by NIKIA GREENE  
Date: 2022.04.06  
07:05:46 -06'00'

Nikia Greene  
Remedial Project Manager

Attachment: EPA and DEQ signature page

cc: (email only)  
Butte File  
Jenny Chambers; DEQ

Matt Dorrington; DEQ  
Daryl Reed; DEQ  
Will George; DEQ  
Jon Morgan; DEQ counsel  
Carolina Balliew; DEQ  
Harley Harris; NRDP  
Katherine Hausrath; NRDP  
Jim Ford; NRDP  
Pat Cunneen; NRDP  
John Gallagher; BSBC  
Sean Peterson; BSBC  
Eileen Joyce; BSBC  
Eric Hassler; BSBC  
Brandon Warner; BSBC  
Chad Anderson; BSBC  
Karen Maloughney; BSBC  
Julia Crain; BSBC  
Abby Peltomaa; BSBC  
Jeremy Grotbo; BSBC  
Anne Walsh; UP  
Robert Bylsma; UP counsel  
Leo Berry; BNSF and UP counsel  
Doug Brannan; Kennedy Jenks for BNSF and UP  
Brooke Kuhl; BNSF counsel  
Mark Engdahl; for BNSF  
Annika Silverman; Kennedy Jenks for BNSF and UP  
Bob Andreoli; Patroit/RARUS  
Becky Summerville; counsel for Inland Properties Inc.  
Robert Lowry; BNSF counsel  
Loren Burmeister; AR  
Josh Bryson; AR  
Mike Mcanulty; AR  
Dave Griffis; AR  
Jean Martin; Counsel AR  
Mave Gasaway; attorney for AR  
Adam Cohen; Counsel for AR  
Pat Sampson; Pioneer for AR  
Scott Sampson; Pioneer for AR  
Scott Bradshaw; TREC  
Karen Helfrich; Pioneer for AR  
Andy Dare; Pioneer for AR  
Scott Sampson; Pioneer for AR  
Brad Archibald; Pioneer for AR  
Andy Dare; Pioneer for AR  
Tina Donovan; Woodardcurran for AR  
Ted Duaine; MBMG  
Gary Icopini; MBMG

David Shanight, CDM Smith  
Curt Coover, CDM Smith  
Chapin Storrar; CDM Smith  
Erin Agee, EPA  
Joe Vranka; EPA  
Chris Wardell; EPA  
Dana Barnicoat; EPA  
Charlie Partridge; EPA  
Jean Belille; EPA  
Ian Magruder; CTEC (Tech Advisor)  
Janice Hogan; CTEC  
Kristi Carroll; Montana Tech Library



# **2022 Residential Metals Abatement Program (RMAP) Field Sampling Plan (FSP) Butte High School – Indoor Soil**

Atlantic Richfield Company and Butte-Silver  
Bow County

22 March 2022

Project No.: 0612471

---

Signature Page

22 March 2022

# 2022 Residential Metals Abatement Program (RMAP) Field Sampling Plan (FSP) Butte High School – Indoor Soil

Atlantic Richfield Company and Butte-Silver Bow County



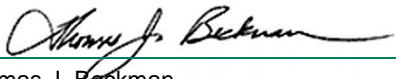
---

Elsie King  
Senior Consultant



---

Christopher Berg  
Project Manager



---

Thomas J. Beckman  
Partner

ERM-West, Inc.  
1 Ninth Street Island Drive  
Livingston, MT 59047

T: +1 406 222 7600

F: +1 406 222 7677



## CONTENTS

APPROVAL PAGE .....	I
DISTRIBUTION LIST .....	II
1. INTRODUCTION .....	1
2. SCHOOL INDOOR SOIL SAMPLING SCOPE .....	1
3. SCHOOL INDOOR SOIL SAMPLING SCHEDULE .....	1
4. FIELD SAMPLING PLAN .....	1
4.1 Sampling Delineation .....	1
4.2 Soil Sampling Procedures .....	1
4.3 Deviations .....	2
5. LABORATORY METHODS .....	2
5.1 Indoor Soil Metals Analyses Methods .....	2
6. QUALITY CONTROL .....	2
6.1 Field Quality Control Samples .....	2
7. REFERENCES .....	3

### List of Tables (Attached)

Table 1	School Property List
Table 2	Sample Task and Location Summary

### List of Figures

Figure 1	Indoor Soil Sample Location Map - Butte High School / Annex
----------	---


### Acronyms and Abbreviations


Name	Description
Agencies	U.S. Environmental Protection Agency and Montana Department of Environmental Quality
BPSOU	Butte Priority Soils Operable Unit
DEQ	Montana Department of Environmental Quality
FSP	Field Sampling Plan
ICP-MS	inductively coupled plasma mass spectrometry
QC	quality control
QAPP	Quality Assurance Project Plan
RL	reporting limit
RMAP	Residential Metals Abatement Program
SOP	standard operating procedure
USEPA	U.S. Environmental Protection Agency

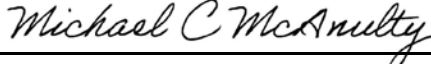
## APPROVAL PAGE

### Butte Priority Soils Operable Unit Residential Metals Abatement Program Field Sampling Plan Butte High School – Indoor Soil

Approved: NIKIA GREENE Digitally signed by NIKIA GREENE  
Date: 2022.04.06 07:00:58 -06'00' Date: \_\_\_\_\_  
Nikia Greene, Remedial Project Manager  
U.S. Environmental Protection Agency, Region 8  
Quality Assurance Approval Official

Approved:  Date: 4/5/2022  
Daryl Reed, Project Officer  
Montana Department of Environmental Quality

Approved:  Date: 3/25/2022  
Eric Hassler, Director  
Department of Reclamation and Environmental Services  
Butte-Silver Bow County

Approved:  Date: 03/24/2022  
Mike Mc Anulty, Liability Manager  
Atlantic Richfield Company

The Field Sampling Plan is effective on date of approval.

## DISTRIBUTION LIST

### Butte Priority Soils Operable Unit Residential Metals Abatement Program Field Sampling Plan Butte High School – Indoor Soil

QAPP Recipients	Title	Organization	Telephone Number	E-mail Address
Nikia Greene	Remedial Project Manager	U. S. Environmental Protection Agency	(406) 457-5019	Greene.Nikia@epa.gov
Daryl Reed	State Project Officer	Montana Department of Environmental Quality	(406) 444-6433	dreed@mt.gov
Eric Hassler	Director	Montana Department of Environmental Quality	(406) 497-5042	ehassler@bsb.mt.gov
Julia Crain	Assistant Director	Butte-Silver Bow County (Department of Reclamation and Environmental Services)	(406) 497-6264	crain@bsb.mt.gov
Chad Anderson	Manager of Human Health/RMAP Division	Butte-Silver Bow County (Department of Reclamation and Environmental Services)	(406) 497-6278	canderson@bsb.mt.gov
Abigail Peltoma	Manager of Data Management Division/Quality Assurance Manager	Butte-Silver Bow County (Department of Reclamation and Environmental Services)		apeltomaa@bsb.mt.gov
Mike McAnulty	Liability Manager	Atlantic Richfield Company	(406) 723-1822	mcanumc@bp.com
Christopher Berg	Project Manager	ERM for Atlantic Richfield Company	(612) 347-7169	Christopher.Berg@erm.com
Jennifer Anderson	Analytical Laboratory Project Manager	Pace Analytical Services for Atlantic Richfield Company	(612) 607-6436	Jennifer.Anderson@pacelabs.com
Kenneth Miller	Field Team Leader	ERM for Atlantic Richfield Company	(907) 250-4475	Kenneth.Miller@erm.com
Lester Dupes	Data Quality Assurance Manager	Environmental Standards, Inc. for Atlantic Richfield Company	(610) 935-5577 Ext.416	ldupes@envstd.com
Thomas Beckman	Project Oversight	ERM for Atlantic Richfield Company	(925) 482-8202	thomas.beckman@erm.com

A complete list of personnel to receive this document is provided on the associated cover letter distribution list. Atlantic Richfield Company will distribute the original Agency approved document.

## 1. INTRODUCTION

This Field Sampling Plan (FSP) was developed to outline a portion of the 2022 Butte Priority Soils Operable Unit (BPSOU) Residential Metals Abatement Program (RMAP) earthen basement and crawlspace area soil sampling plan for a single Butte, Montana area school. Indoor soil sampling procedures, data quality objectives (DQOs), standard operating procedures (SOPs), sampling analytical methods, sampling equipment, quality control (QC) samples, and data validation and assessment will be in accordance with the RMAP Quality Assurance Project Plan (QAPP) (Non-Residential Parcels – Indoor dust) (Atlantic Richfield Company, 2022).

## 2. SCHOOL INDOOR SOIL SAMPLING SCOPE

The scope of work covered by this FSP includes the Butte High School.

The earthen basement and crawlspace areas to be sampled for the school are shown in Figure 1. Table 1 lists the school property (along with Resident ID's, geocode, ownership information, and age of school), and Table 2 shows the anticipated sampling quantities covered by this FSP.

## 3. SCHOOL INDOOR SOIL SAMPLING SCHEDULE

Sampling schedules will be finalized through ongoing conversations with U.S. Environmental Protection Agency (USEPA), Montana Department of Environmental Quality (DEQ) (the Agencies), and the appropriate school representatives. Sampling efforts will occur during the week of spring break, beginning 11 April 2022.

## 4. FIELD SAMPLING PLAN

Indoor soil sampling will be performed in earthen basement and crawlspaces areas to delineate impacts in accordance with the sampling procedures discussed below.

### 4.1 Sampling Delineation

Representatives from Atlantic Richfield, USEPA, Butte Silver Bow County, and the Butte School District conducted inspections of the buildings on 23 November and 8 December 2021. The inspections and ensuing discussions among the field personnel led to the selection of location of the soil samples, as discussed below. The planned number, type, and location of samples to be collected at the school are shown in Table 2. The steps for collecting soil samples are provided in Section 5.5 of the QAPP (Atlantic Richfield Company, 2022.). Opportunistic sampling or deviations from the sampling plan will be confirmed with USEPA in advance.

### 4.2 Soil Sampling Procedures

Soil sampling density, location, and compositing decisions will be made according to the information provided in Section 3.3 of the QAPP (Atlantic Richfield Company, 2022).

Soil samples will be collected from four earthen basement or crawlspace area locations in the Butte High School, as shown on Figure 1. One soil composite will be collected from Area 1 (comprised of 2 sampling points in the crawlspace); one soil composite will be collected from Area 2 (comprised of 5 sampling points from the earthen basement); and one soil composite will be collected from Area 3 (comprised of 2 sampling points from the earthen basement/crawlspace). One grab sample will be collected from crawlspace Area 4. The locations of the composites were selected based on readily available access to the earthen basement and crawlspace areas. ERM field team members will collect soil samples from

accessible areas not defined as confined spaces under United States Occupational Health and Safety Administration regulations.

### 4.3 Deviations

This section addresses any deviations to the Agencies-approved QAPP (Atlantic Richfield Company, 2022) pertaining to 2022 BPSOU RMAP school indoor soil sampling defined in this FSP. Deviations include the following:

- No known deviations at this time
- Any future deviations will be discussed with the Agencies' field representative, documented in the field notes, and the associated Investigation and Data Summary Reports

## 5. LABORATORY METHODS

### 5.1 Indoor Soil Metals Analyses Methods

Soil samples will be sieved to 250 micrometers prior to digestion. The soil samples will be digested according to USEPA Method 3050B, and arsenic and lead concentrations will be determined per USEPA Method 6020B (inductively coupled plasma mass spectrometry [ICP-MS]). Mercury concentrations will be determined per USEPA Method 7471B (Manual Cold-Vapor Technique).

## 6. QUALITY CONTROL

### 6.1 Field Quality Control Samples

A soil field duplicate sample will be prepared from a split sample at one location. Additional sample mass will be collected for matrix spike/matrix spike duplicate analysis at one location. Equipment blanks will not be required for soil samples since disposable sampling equipment will be used.

## 7. REFERENCES

Atlantic Richfield Company, 2022. Residential Metals Abatement Program Quality Assurance Project Plan (Non-Residential Parcels – Indoor Dust). February 2022.

---

## TABLES

**Table 1**  
**School Property List**  
**Butte RMAP School Indoor Soil Sampling**  
**Butte, Montana**

Count	Res-ID	Geocode	Name	Physical Address	Owner	Construction Date
1	S-0009	01119713454100000	Butte High School / Annex	401 S Wyoming Street, Butte, MT 59701	School District #1	1937/1968



**Table 2**  
**Sample Task and Location Summary**  
**Butte High School / Annex**  
**Butte RMAP School Indoor Soil Sampling**  
**Butte, Montana**

Task	Time Frame	Locations	Subsamples	Number of Composite Samples
Indoor Soil Sampling	Day 1	Area 1 Crawlspace	2	1
		Area 2 Earthen Basement	5	1
		Area 3 Earthen Basement (North) /Crawlspace (South)	2	1
		Area 4 Crawlspace	1	1
		Total	10	4

---

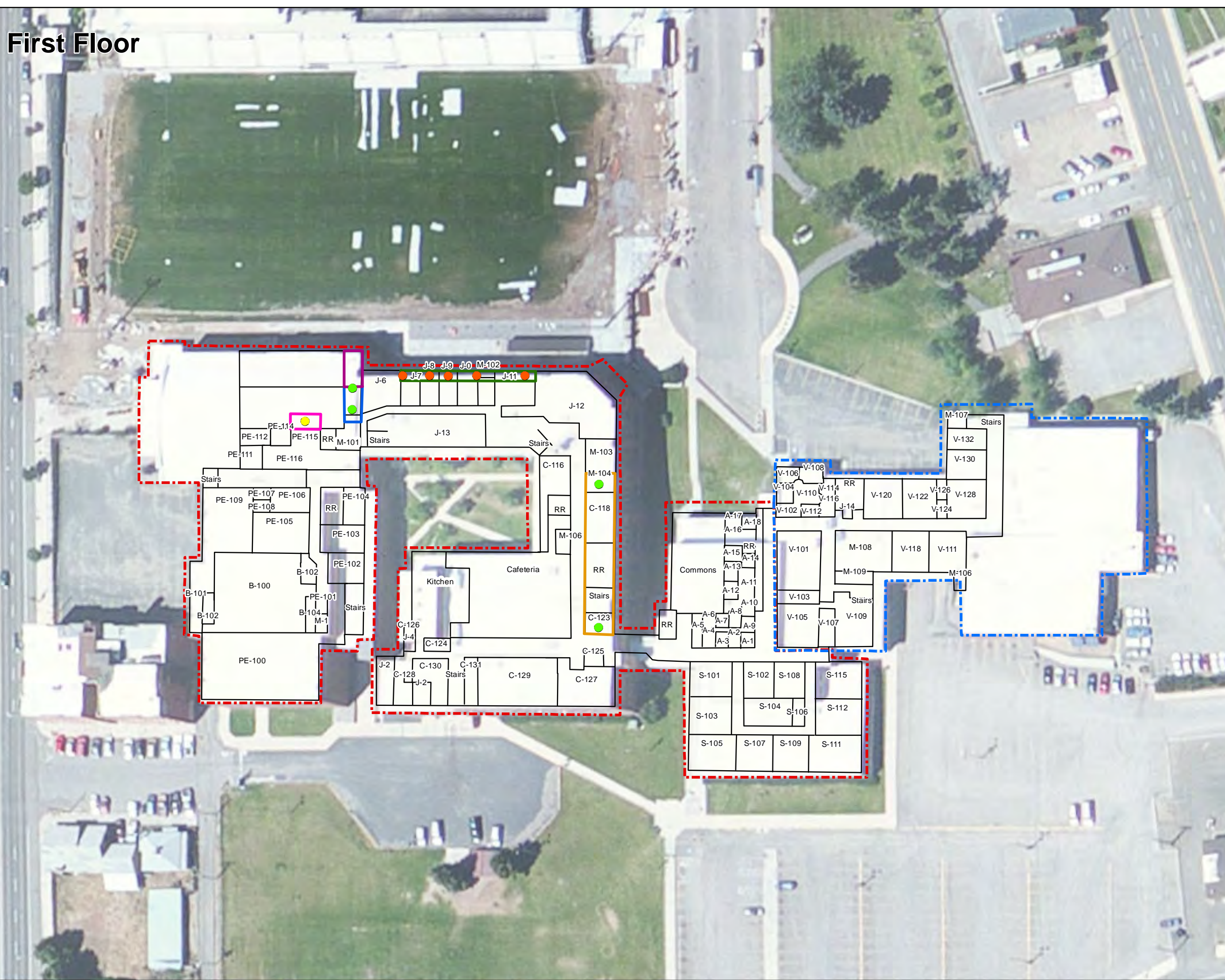
## FIGURES

DRAWN BY: CRT

FILE: M:\Projects\0612471 - BP Butte\Maps\Butte High School - Annex\_Soil.mxd . REVISED: 03/23/2022 . SCALE: 1:900 when printed at 11x17

Source: Esri - USGS Topo Webservice; NAD 1983 StatePlane Montana FIPS 2500 Feet

# First Floor

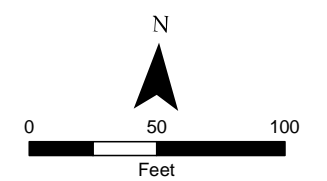


### Legend

- Grab Soil Sampling Point
- 2 Point Composite Soil Sampling Point
- 5 Point Composite Soil Sampling Point
- Earthen Basement (589.83 sq ft)
- Earthen Basement (314.08 sq ft)
- Crawl Space (314.08 sq ft)
- Crawl Space (2824.12 sq ft)
- Crawl Space (214.90 sq ft)
- High School
- Annex

Notes:  
Room ID's reflect verbiage used on site maps provided by Butte School District

- Key:
- A Administrative
  - B Band
  - C Classroom
  - H Halls
  - PE Physical Education
  - J Janitorial/Maintenance
  - RR Restroom
  - S Science
  - V Annex
  - N Nurse
  - M Mechanical/Electrical
  - L Library



**Figure 1**  
**Butte High School / Annex**  
401 S Wyoming Street  
Butte, MT 59701

---

**ERM has over 160 offices across the following countries and territories worldwide**

Argentina	The Netherlands
Australia	New Zealand
Belgium	Norway
Brazil	Panama
Canada	Peru
Chile	Poland
China	Portugal
Colombia	Puerto Rico
France	Romania
Germany	Russia
Ghana	Senegal
Guyana	Singapore
Hong Kong	South Africa
India	South Korea
Indonesia	Spain
Ireland	Sweden
Italy	Switzerland
Japan	Taiwan
Kazakhstan	Tanzania
Kenya	Thailand
Malaysia	UAE
Mexico	UK
Mozambique	US
Myanmar	Vietnam

**ERM's Livingston Office**

1 Ninth Street Island Drive  
Livingston, MT 59047

T: +1 406 222 7600

F: +1 406 222 7677

[www.erm.com](http://www.erm.com)