



WSP
4600 West 60th Avenue
Arvada CO, 80003

Project: Ma State Tank Battery
Project Number: 050120002 Task 002
Project Manager: Ryan Dial

Reported:
04/22/21 17:43

SS11
2104209-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/13/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0319	04/19/21	04/19/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/13/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		84.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		85.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		90.4 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/13/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0320	04/19/21	04/19/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/13/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		128 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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PAH by EPA Method 8270D SIM

Date Sampled: **04/13/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BED0347	04/20/21	04/22/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **04/13/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		66.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		52.7 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/13/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.116	0.0100	mg/L	1	BED0314	04/19/21	04/19/21	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **04/13/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	2.94	0.231	mg/kg dry	1	BED0315	04/19/21	04/19/21	EPA 6020B	
Barium	109	0.463	"	"	"	"	"	"	
Cadmium	0.261	0.231	"	"	"	"	"	"	
Copper	10.3	0.463	"	"	"	"	"	"	
Lead	10.3	0.231	"	"	"	"	"	"	
Nickel	9.46	0.463	"	"	"	"	"	"	
Selenium	1.02	0.301	"	"	"	"	"	"	
Silver	0.0474	0.0231	"	"	"	"	"	"	
Zinc	46.9	0.463	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **04/13/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BED0273	04/15/21	04/16/21	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **04/13/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	29.5	0.0578	mg/L dry	1	BED0337	04/20/21	04/22/21	EPA 6020B	
Magnesium	8.90	0.0578	"	"	"	"	"	"	
Sodium	8.91	0.0578	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/13/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.369	0.00100	units	1	BED0387	04/22/21	04/22/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/13/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Physical Parameters by APHA/ASTM/EPA Methods

% Solids	86.5	%	1	BED0297	04/16/21	04/19/21	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/13/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.375	0.0100	mmhos/cm	1	BED0370	04/21/21	04/21/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **04/13/21 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.15		pH Units	1	BED0371	04/21/21	04/21/21	EPA 9045D	

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SS12
2104209-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/13/21 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0319	04/19/21	04/20/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/13/21 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		83.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		93.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		89.0 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/13/21 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0320	04/19/21	04/19/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/13/21 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		125 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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PAH by EPA Method 8270D SIM

Date Sampled: **04/13/21 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BED0347	04/20/21	04/22/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **04/13/21 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		59.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		49.2 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/13/21 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.0803	0.0100	mg/L	1	BED0314	04/19/21	04/19/21	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **04/13/21 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	2.14	0.226	mg/kg dry	1	BED0315	04/19/21	04/19/21	EPA 6020B	
Barium	83.1	0.451	"	"	"	"	"	"	
Cadmium	ND	0.226	"	"	"	"	"	"	
Copper	8.27	0.451	"	"	"	"	"	"	
Lead	6.85	0.226	"	"	"	"	"	"	
Nickel	7.19	0.451	"	"	"	"	"	"	
Selenium	0.663	0.293	"	"	"	"	"	"	
Silver	0.0342	0.0226	"	"	"	"	"	"	
Zinc	32.5	0.451	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **04/13/21 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BED0273	04/15/21	04/16/21	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **04/13/21 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	140	0.0564	mg/L dry	1	BED0337	04/20/21	04/22/21	EPA 6020B	
Magnesium	39.5	0.0564	"	"	"	"	"	"	
Sodium	75.3	0.0564	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/13/21 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	1.45	0.00100	units	1	BED0387	04/22/21	04/22/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/13/21 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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2104209-02 (Soil)

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Physical Parameters by APHA/ASTM/EPA Methods

% Solids	88.6	%	1	BED0297	04/16/21	04/19/21	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/13/21 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.95	0.0100	mmhos/cm	1	BED0370	04/21/21	04/21/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **04/13/21 10:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.84		pH Units	1	BED0371	04/21/21	04/21/21	EPA 9045D	

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Reported:
04/22/21 17:43

BG03
2104209-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **04/13/21 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BED0319	04/19/21	04/20/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/13/21 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		94.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		47.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		85.4 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/13/21 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BED0320	04/19/21	04/20/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **04/13/21 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		128 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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PAH by EPA Method 8270D SIM

Date Sampled: **04/13/21 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BED0347	04/20/21	04/22/21	EPA 8270D SIM	
Anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **04/13/21 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		57.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		43.8 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **04/13/21 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.217	0.0100	mg/L	1	BED0314	04/19/21	04/19/21	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **04/13/21 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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BG03
2104209-03 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Arsenic	2.88	0.217	mg/kg dry	1	BED0315	04/19/21	04/19/21	EPA 6020B	
Barium	110	0.435	"	"	"	"	"	"	
Cadmium	0.309	0.217	"	"	"	"	"	"	
Copper	11.1	0.435	"	"	"	"	"	"	
Lead	11.6	0.217	"	"	"	"	"	"	
Nickel	8.99	0.435	"	"	"	"	"	"	
Selenium	1.09	0.283	"	"	"	"	"	"	
Silver	0.0444	0.0217	"	"	"	"	"	"	
Zinc	49.7	0.435	"	"	"	"	"	"	

Hexavalent Chromium by EPA Method 7196

Date Sampled: **04/13/21 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BED0273	04/15/21	04/16/21	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **04/13/21 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	72.6	0.0544	mg/L dry	1	BED0337	04/20/21	04/22/21	EPA 6020B	
Magnesium	25.3	0.0544	"	"	"	"	"	"	
Sodium	4.71	0.0544	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **04/13/21 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	0.121	0.00100	units	1	BED0387	04/22/21	04/22/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **04/13/21 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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WSP
4600 West 60th Avenue
Arvada CO, 80003

Project: Ma State Tank Battery
Project Number: 050120002 Task 002
Project Manager: Ryan Dial

Reported:
04/22/21 17:43

BG03
2104209-03 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	92.0	%	1	BED0297	04/16/21	04/19/21	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **04/13/21 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.06	0.0100	mmhos/cm	1	BED0370	04/21/21	04/21/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **04/13/21 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.22		pH Units	1	BED0371	04/21/21	04/21/21	EPA 9045D	

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4600 West 60th Avenue
Arvada CO, 80003

Project: Ma State Tank Battery
Project Number: 050120002 Task 002
Project Manager: Ryan Dial

Reported:
04/22/21 17:43

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch BED0319 - EPA 5030 Soil MS

Blank (BED0319-BLK1)

Prepared & Analyzed: 04/19/21

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0317		"	0.0400		79.2	23-173			
<i>Surrogate: Toluene-d8</i>	0.0374		"	0.0400		93.6	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0347		"	0.0400		86.7	21-167			

LCS (BED0319-BS1)

Prepared & Analyzed: 04/19/21

Benzene	0.0667	0.0020	mg/kg	0.0750		88.9	70-130			
Toluene	0.0813	0.0050	"	0.0750		108	70-130			
Ethylbenzene	0.0885	0.0050	"	0.0750		118	70-130			
m,p-Xylene	0.173	0.010	"	0.150		115	70-130			
o-Xylene	0.0844	0.0050	"	0.0750		113	70-130			
1,2,4-Trimethylbenzene	0.0915	0.0050	"	0.0750		122	70-130			
1,3,5-Trimethylbenzene	0.0883	0.0050	"	0.0750		118	70-130			
Naphthalene	0.0828	0.0038	"	0.0750		110	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0212		"	0.0400		53.0	23-173			
<i>Surrogate: Toluene-d8</i>	0.0384		"	0.0400		95.9	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0364		"	0.0400		91.1	21-167			

Matrix Spike (BED0319-MS1)

Source: 2104209-01

Prepared & Analyzed: 04/19/21

Benzene	0.0741	0.0020	mg/kg	0.0750	ND	98.8	70-130			
Toluene	0.0775	0.0050	"	0.0750	ND	103	70-130			
Ethylbenzene	0.0834	0.0050	"	0.0750	ND	111	70-130			
m,p-Xylene	0.162	0.010	"	0.150	ND	108	70-130			
o-Xylene	0.0818	0.0050	"	0.0750	ND	109	70-130			
1,2,4-Trimethylbenzene	0.0867	0.0050	"	0.0750	ND	116	70-130			
1,3,5-Trimethylbenzene	0.0815	0.0050	"	0.0750	ND	109	70-130			
Naphthalene	0.0856	0.0038	"	0.0750	ND	114	70-130			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	0.0293		"	0.0400		73.2	23-173			
<i>Surrogate: Toluene-d8</i>	0.0361		"	0.0400		90.2	20-170			
<i>Surrogate: 4-Bromofluorobenzene</i>	0.0353		"	0.0400		88.2	21-167			

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WSP
4600 West 60th Avenue
Arvada CO, 80003

Project: Ma State Tank Battery
Project Number: 050120002 Task 002
Project Manager: Ryan Dial

Reported:
04/22/21 17:43

Volatile Organic Compounds by EPA Method 8260B - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

Batch BED0319 - EPA 5030 Soil MS

Matrix Spike Dup (BED0319-MSD1)	Source: 2104209-01			Prepared & Analyzed: 04/19/21							
Benzene	0.0850	0.0020	mg/kg	0.0750	ND	113	70-130	13.7	30		
Toluene	0.0740	0.0050	"	0.0750	ND	98.6	70-130	4.63	30		
Ethylbenzene	0.0834	0.0050	"	0.0750	ND	111	70-130	0.00	30		
m,p-Xylene	0.160	0.010	"	0.150	ND	107	70-130	1.47	30		
o-Xylene	0.0807	0.0050	"	0.0750	ND	108	70-130	1.33	30		
1,2,4-Trimethylbenzene	0.0824	0.0050	"	0.0750	ND	110	70-130	5.11	30		
1,3,5-Trimethylbenzene	0.0779	0.0050	"	0.0750	ND	104	70-130	4.55	30		
Naphthalene	0.0823	0.0038	"	0.0750	ND	110	70-130	4.04	30		
Surrogate: 1,2-Dichloroethane-d4	0.0282		"	0.0400		70.6	23-173				
Surrogate: Toluene-d8	0.0341		"	0.0400		85.4	20-170				
Surrogate: 4-Bromofluorobenzene	0.0327		"	0.0400		81.7	21-167				

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WSP
4600 West 60th Avenue
Arvada CO, 80003

Project: Ma State Tank Battery
Project Number: 050120002 Task 002
Project Manager: Ryan Dial

Reported:
04/22/21 17:43

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

Batch BED0320 - EPA 3550A

Blank (BED0320-BLK1)

Prepared & Analyzed: 04/19/21

C10-C28 (DRO)	ND	50	mg/kg							
C28-C36 (ORO)	ND	50	"							

LCS (BED0320-BS1)

Prepared & Analyzed: 04/19/21

C10-C28 (DRO)	532	50	mg/kg	500	106	70-130				
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Matrix Spike (BED0320-MS1)

Source: 2104209-01

Prepared & Analyzed: 04/19/21

C10-C28 (DRO)	560	50	mg/kg	500	41.8	104	70-130			
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Matrix Spike Dup (BED0320-MSD1)

Source: 2104209-01

Prepared & Analyzed: 04/19/21

C10-C28 (DRO)	572	50	mg/kg	500	41.8	106	70-130	2.11	20	
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WSP
4600 West 60th Avenue
Arvada CO, 80003

Project: Ma State Tank Battery
Project Number: 050120002 Task 002
Project Manager: Ryan Dial

Reported:
04/22/21 17:43

PAH by EPA Method 8270D SIM - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike	Source	%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch BED0347 - EPA 5030 Soil MS

Blank (BED0347-BLK1)

Prepared: 04/20/21 Analyzed: 04/22/21

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0223</i>		"	<i>0.0333</i>		<i>67.0</i>		<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0187</i>		"	<i>0.0333</i>		<i>56.1</i>		<i>40-150</i>		

LCS (BED0347-BS1)

Prepared: 04/20/21 Analyzed: 04/22/21

Acenaphthene	0.0332	0.00500	mg/kg	0.0333		99.6		31-137		
Anthracene	0.0334	0.00500	"	0.0333		100		30-120		
Benzo (a) anthracene	0.0321	0.00500	"	0.0333		96.2		30-120		
Benzo (a) pyrene	0.0322	0.00500	"	0.0333		96.5		30-120		
Benzo (b) fluoranthene	0.0343	0.00500	"	0.0333		103		30-120		
Benzo (k) fluoranthene	0.0333	0.00500	"	0.0333		99.9		30-120		
Chrysene	0.0328	0.00500	"	0.0333		98.5		30-120		
Dibenz (a,h) anthracene	0.0329	0.00500	"	0.0333		98.8		30-120		
Fluoranthene	0.0275	0.00500	"	0.0333		82.5		30-120		
Fluorene	0.0196	0.00500	"	0.0333		58.9		30-120		
Indeno (1,2,3-cd) pyrene	0.0318	0.00500	"	0.0333		95.4		30-120		
Pyrene	0.0295	0.00500	"	0.0333		88.6		35-142		
1-Methylnaphthalene	0.0314	0.00500	"	0.0333		94.3		35-142		
2-Methylnaphthalene	0.0333	0.00500	"	0.0333		99.8		35-142		
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0234</i>		"	<i>0.0333</i>		<i>70.2</i>		<i>40-150</i>		
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0198</i>		"	<i>0.0333</i>		<i>59.5</i>		<i>40-150</i>		

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WSP
4600 West 60th Avenue
Arvada CO, 80003

Project: Ma State Tank Battery
Project Number: 050120002 Task 002
Project Manager: Ryan Dial

Reported:
04/22/21 17:43

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch BED0347 - EPA 5030 Soil MS

Matrix Spike (BED0347-MS1)	Source: 2104209-01			Prepared: 04/20/21		Analyzed: 04/22/21				
Acenaphthene	0.0344	0.00500	mg/kg	0.0333	ND	103	31-137			
Anthracene	0.0351	0.00500	"	0.0333	ND	105	30-120			
Benzo (a) anthracene	0.0331	0.00500	"	0.0333	ND	99.3	30-120			
Benzo (a) pyrene	0.0336	0.00500	"	0.0333	ND	101	30-120			
Benzo (b) fluoranthene	0.0358	0.00500	"	0.0333	ND	107	30-120			
Benzo (k) fluoranthene	0.0350	0.00500	"	0.0333	ND	105	30-120			
Chrysene	0.0342	0.00500	"	0.0333	ND	103	30-120			
Dibenz (a,h) anthracene	0.0356	0.00500	"	0.0333	ND	107	30-120			
Fluoranthene	0.0289	0.00500	"	0.0333	ND	86.6	30-120			
Fluorene	0.0220	0.00500	"	0.0333	ND	66.0	30-120			
Indeno (1,2,3-cd) pyrene	0.0340	0.00500	"	0.0333	ND	102	30-120			
Pyrene	0.0313	0.00500	"	0.0333	ND	93.9	35-142			
1-Methylnaphthalene	0.0308	0.00500	"	0.0333	ND	92.5	15-130			
2-Methylnaphthalene	0.0350	0.00500	"	0.0333	ND	105	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0263</i>	<i>"</i>	<i>"</i>	<i>0.0333</i>	<i>"</i>	<i>79.0</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0226</i>	<i>"</i>	<i>"</i>	<i>0.0333</i>	<i>"</i>	<i>67.9</i>	<i>40-150</i>			

Matrix Spike Dup (BED0347-MSD1)	Source: 2104209-01			Prepared: 04/20/21		Analyzed: 04/22/21				
Acenaphthene	0.0304	0.00500	mg/kg	0.0333	ND	91.2	31-137	12.3	30	
Anthracene	0.0300	0.00500	"	0.0333	ND	90.1	30-120	15.7	30	
Benzo (a) anthracene	0.0284	0.00500	"	0.0333	ND	85.1	30-120	15.3	30	
Benzo (a) pyrene	0.0286	0.00500	"	0.0333	ND	85.9	30-120	15.8	30	
Benzo (b) fluoranthene	0.0307	0.00500	"	0.0333	ND	92.2	30-120	15.2	30	
Benzo (k) fluoranthene	0.0301	0.00500	"	0.0333	ND	90.4	30-120	14.9	30	
Chrysene	0.0292	0.00500	"	0.0333	ND	87.7	30-120	15.7	30	
Dibenz (a,h) anthracene	0.0295	0.00500	"	0.0333	ND	88.5	30-120	18.9	30	
Fluoranthene	0.0251	0.00500	"	0.0333	ND	75.4	30-120	13.7	30	
Fluorene	0.0207	0.00500	"	0.0333	ND	62.1	30-120	6.04	30	
Indeno (1,2,3-cd) pyrene	0.0283	0.00500	"	0.0333	ND	85.0	30-120	18.3	30	
Pyrene	0.0259	0.00500	"	0.0333	ND	77.8	35-142	18.7	30	
1-Methylnaphthalene	0.0298	0.00500	"	0.0333	ND	89.3	15-130	3.58	50	
2-Methylnaphthalene	0.0315	0.00500	"	0.0333	ND	94.4	15-130	10.6	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0213</i>	<i>"</i>	<i>"</i>	<i>0.0333</i>	<i>"</i>	<i>63.8</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0175</i>	<i>"</i>	<i>"</i>	<i>0.0333</i>	<i>"</i>	<i>52.5</i>	<i>40-150</i>			

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WSP
4600 West 60th Avenue
Arvada CO, 80003

Project: Ma State Tank Battery
Project Number: 050120002 Task 002
Project Manager: Ryan Dial

Reported:
04/22/21 17:43

Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike Level	Source		%REC		RPD		Notes
		Limit	Units		Result	%REC	Limits	RPD	Limit		

Batch BED0314 - EPA 3050B

Blank (BED0314-BLK1)

Prepared & Analyzed: 04/19/21

Boron ND 0.0100 mg/L

LCS (BED0314-BS1)

Prepared & Analyzed: 04/19/21

Boron 5.45 0.0100 mg/L 5.00 109 80-120

Duplicate (BED0314-DUP1)

Source: 2104173-01

Prepared & Analyzed: 04/19/21

Boron 0.166 0.0100 mg/L 0.136 19.6 20

Matrix Spike (BED0314-MS1)

Source: 2104173-01

Prepared & Analyzed: 04/19/21

Boron 5.40 0.0100 mg/L 5.00 0.136 105 75-125

Matrix Spike Dup (BED0314-MSD1)

Source: 2104173-01

Prepared & Analyzed: 04/19/21

Boron 5.55 0.0100 mg/L 5.00 0.136 108 75-125 2.60 25

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WSP
4600 West 60th Avenue
Arvada CO, 80003

Project: Ma State Tank Battery
Project Number: 050120002 Task 002
Project Manager: Ryan Dial

Reported:
04/22/21 17:43

Total Metals by EPA 6020B - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike	Source		%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit		

Batch BED0315 - EPA 3050B

Blank (BED0315-BLK1)

Prepared & Analyzed: 04/19/21

Arsenic	ND	0.200	mg/kg wet							
Barium	ND	0.400	"							
Cadmium	ND	0.200	"							
Copper	ND	0.400	"							
Lead	ND	0.200	"							
Nickel	ND	0.400	"							
Selenium	ND	0.260	"							
Silver	ND	0.0200	"							
Zinc	ND	0.400	"							

LCS (BED0315-BS1)

Prepared & Analyzed: 04/19/21

Arsenic	36.7	0.200	mg/kg wet	40.0	91.7	80-120
Barium	34.4	0.400	"	40.0	85.9	80-120
Cadmium	1.86	0.200	"	2.00	92.9	80-120
Copper	36.2	0.400	"	40.0	90.5	80-120
Lead	18.5	0.200	"	20.0	92.7	80-120
Nickel	34.7	0.400	"	40.0	86.7	80-120
Selenium	3.30	0.260	"	4.00	82.5	80-120
Silver	1.74	0.0200	"	2.00	86.8	80-120
Zinc	38.7	0.400	"	40.0	96.9	80-120

Duplicate (BED0315-DUP1)

Source: 2104209-01

Prepared & Analyzed: 04/19/21

Arsenic	2.87	0.231	mg/kg dry	2.94	2.49	30
Barium	108	0.463	"	109	1.09	30
Cadmium	0.244	0.231	"	0.261	6.65	30
Copper	10.1	0.463	"	10.3	1.96	30
Lead	9.62	0.231	"	10.3	6.93	30
Nickel	8.61	0.463	"	9.46	9.50	30
Selenium	1.00	0.301	"	1.02	2.13	30
Silver	0.0433	0.0231	"	0.0474	9.01	30
Zinc	44.3	0.463	"	46.9	5.69	30

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WSP
4600 West 60th Avenue
Arvada CO, 80003

Project: Ma State Tank Battery
Project Number: 050120002 Task 002
Project Manager: Ryan Dial

Reported:
04/22/21 17:43

Total Metals by EPA 6020B - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch BED0315 - EPA 3050B

Matrix Spike (BED0315-MS1)

Source: 2104209-01

Prepared & Analyzed: 04/19/21

Arsenic	42.2	0.231	mg/kg dry	46.3	2.94	84.8	75-125		
Barium	153	0.463	"	46.3	109	94.5	75-125		
Cadmium	2.25	0.231	"	2.31	0.261	85.9	75-125		
Copper	49.2	0.463	"	46.3	10.3	84.1	75-125		
Lead	27.9	0.231	"	23.1	10.3	75.8	75-125		
Nickel	46.9	0.463	"	46.3	9.46	80.9	75-125		
Selenium	4.90	0.301	"	4.63	1.02	83.7	75-125		
Silver	1.86	0.0231	"	2.31	0.0474	78.4	75-125		
Zinc	85.7	0.463	"	46.3	46.9	84.0	75-125		

Matrix Spike Dup (BED0315-MSD1)

Source: 2104209-01

Prepared & Analyzed: 04/19/21

Arsenic	40.1	0.231	mg/kg dry	46.3	2.94	80.4	75-125	5.00	25
Barium	157	0.463	"	46.3	109	103	75-125	2.62	25
Cadmium	2.12	0.231	"	2.31	0.261	80.6	75-125	5.70	25
Copper	45.1	0.463	"	46.3	10.3	75.3	75-125	8.60	25
Lead	31.0	0.231	"	23.1	10.3	89.6	75-125	10.8	25
Nickel	45.9	0.463	"	46.3	9.46	78.8	75-125	2.09	25
Selenium	4.81	0.301	"	4.63	1.02	81.9	75-125	1.75	25
Silver	2.23	0.0231	"	2.31	0.0474	94.5	75-125	18.1	25
Zinc	89.2	0.463	"	46.3	46.9	91.6	75-125	4.02	25

Summit Scientific

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WSP
4600 West 60th Avenue
Arvada CO, 80003

Project: Ma State Tank Battery
Project Number: 050120002 Task 002
Project Manager: Ryan Dial

Reported:
04/22/21 17:43

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch BED0273 - 3060A Mod

Blank (BED0273-BLK1)

Prepared: 04/15/21 Analyzed: 04/16/21

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BED0273-BS1)

Prepared: 04/15/21 Analyzed: 04/16/21

Chromium, Hexavalent 23.2 0.30 mg/kg wet 25.0 93.0 80-120

Duplicate (BED0273-DUP1)

Source: 2103472-05

Prepared: 04/15/21 Analyzed: 04/16/21

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BED0273-MS1)

Source: 2103472-05

Prepared: 04/15/21 Analyzed: 04/16/21

Chromium, Hexavalent 28.6 0.30 mg/kg dry 31.1 ND 92.0 75-125

Matrix Spike Dup (BED0273-MSD1)

Source: 2103472-05

Prepared: 04/15/21 Analyzed: 04/16/21

Chromium, Hexavalent 28.5 0.30 mg/kg dry 31.1 ND 91.6 75-125 0.436 20

Summit Scientific

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Reported:
04/22/21 17:43

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control

Summit Scientific

Analyte	Result	Reporting		Spike Level	Source Result	%REC		RPD		Notes
		Limit	Units			%REC	Limits	RPD	Limit	

Batch BED0337 - General Preparation

Blank (BED0337-BLK1)

Prepared: 04/20/21 Analyzed: 04/22/21

Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							

LCS (BED0337-BS1)

Prepared: 04/20/21 Analyzed: 04/22/21

Calcium	5.23	0.0500	mg/L wet	5.00		105	70-130			
Magnesium	6.01	0.0500	"	5.00		120	70-130			
Sodium	4.64	0.0500	"	5.00		92.7	70-130			

Summit Scientific

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Reported:
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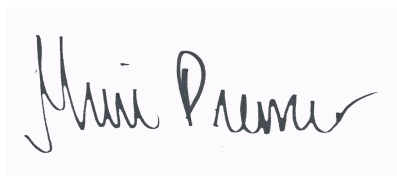
Physical Parameters by APHA/ASTM/EPA Methods - Quality Control
Summit Scientific

Analyte	Result	Reporting		Spike	Source	%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch BED0297 - General Preparation

Duplicate (BED0297-DUP1)		Source: 2103484-09		Prepared: 04/16/21 Analyzed: 04/19/21	
% Solids	85.6		%	85.5	0.129 20

Summit Scientific



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Arvada CO, 80003

Project: Ma State Tank Battery
Project Number: 050120002 Task 002
Project Manager: Ryan Dial

Reported:
04/22/21 17:43

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control

Summit Scientific

Analyte	Result	Reporting		Spike Level	Source Result	%REC		RPD		Notes
		Limit	Units			Limit	RPD	Limit	RPD	

Batch BED0370 - General Preparation

Blank (BED0370-BLK1)

Prepared & Analyzed: 04/21/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BED0370-BS1)

Prepared & Analyzed: 04/21/21

Specific Conductance (EC) 0.160 0.0100 mmhos/cm 0.150 106 90-110

Duplicate (BED0370-DUP1)

Source: 2104092-15

Prepared & Analyzed: 04/21/21

Specific Conductance (EC) 0.886 0.0100 mmhos/cm 0.894 0.832 20

Summit Scientific

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 Arvada CO, 80003

Project: Ma State Tank Battery
 Project Number: 050120002 Task 002
 Project Manager: Ryan Dial

Reported:
 04/22/21 17:43

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control

Summit Scientific

Analyte	Result	Reporting		Spike	Source	%REC		RPD		Notes
		Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

Batch BED0371 - General Preparation

LCS (BED0371-BS1)

Prepared & Analyzed: 04/21/21

pH	9.23	pH Units	9.21	100	95-105
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Duplicate (BED0371-DUP1)

Source: 2104092-15

Prepared & Analyzed: 04/21/21

pH	7.81	pH Units	7.78	0.385	20
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Summit Scientific

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Arvada CO, 80003

Project: Ma State Tank Battery
Project Number: 050120002 Task 002
Project Manager: Ryan Dial

Reported:
04/22/21 17:43

Notes and Definitions

DET Analyte DETECTED
ND Analyte NOT DETECTED at or above the reporting limit
NR Not Reported
dry Sample results reported on a dry weight basis
RPD Relative Percent Difference