

2019 Annual Report
To The Utah Division of Oil, Gas and Mining

Dugout Canyon Mine
C/007/039

Canyon Fuel Company, LLC
P.O. Box 1029
Wellington, UT 84542



Dugout Canyon Mine

P.O. Box 1029
Wellington, Utah 84542
(435) 637-6360
Fax (435) 636-2897

March 12, 2020

Utah Coal Regulatory Program
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, UT 84114-5801

RE: 2019 Annual Report for Dugout Canyon Mine

To Whom It May Concern:

Please find attached to this e-mail a copy of the 2019 Annual Report for Dugout Canyon Mine with relevant appendices.

If you have any questions or require further information, please contact me at (435) 636-2888.

Sincerely,

A handwritten signature in black ink that reads "R. Jay Marshall". The signature is written in a cursive, flowing style.

R. Jay Marshall P.E.
Engineering Manager

Attachments

cc. Chris Hansen
R. Jay Marshall

2019 ANNUAL REPORT

Submit the completed document and any additional information identified to the Division by March 31, 2020.

GENERAL INFORMATION

Company Name	Canyon Fuel Company, LLC	Mine Name	Dugout Canyon Mine
Permit Number	C/007/0039	Permit expiration Date	March 16, 2023
Operator Name	SAME	Phone Number	+1 (435) 637-6360
Mailing Address	P.O. Box 1029	Email	rmarshall@wolverinefuels.com
City	Wellington		
State	Utah	Zip Code	84542

DOGM File Location or Annual Report Location

Excess Spoil Piles	<input type="checkbox"/> Required <input checked="" type="checkbox"/> Not Required	
Refuse Piles	<input checked="" type="checkbox"/> Required <input type="checkbox"/> Not Required	
Impoundments	<input checked="" type="checkbox"/> Required <input type="checkbox"/> Not Required	
Other:		

OPERATOR COMMENTS

REVIEWER COMMENTS

Met Requirements Did Not Meet Requirements

COMMITMENTS AND CONDITIONS

The Permittee is responsible for ensuring annual technical commitments in the Mining and Reclamation Plan and conditions accepted with the permit are completed throughout the year. The Division has identified these commitments below and has provided space for you to report what you have done during the past year for each commitment. If additional written response is required, it should be filed as an attachment to this report.

Title: ANNUAL RAPTOR SURVEYS

Objective: To obtain baseline data prior to mining disturbances including subsidence of cliff habitat and any surface disturbances (construction, reclamation, or exploration). Conduct follow-up surveys within one year if nests were observed during the baseline surveys and if the nest or raptors could be impacted from mining (subsidence or proximity to surface facilities).

Frequency: Annually

Status: Ongoing

Reports: Annual

Citation: Chapter 3, Page 3-20

OPERATOR COMMENTS**REVIEWER COMMENTS**

Met Requirements

Did Not Meet Requirements

Title: SUBSIDENCE MONITORING VISUAL INSPECTIONS

Objective: To check for surface subsidence features.

Frequency: Annually

Status: Ongoing

Reports: Annual

Citation: Chapter 5, Section 525.100

OPERATOR COMMENTS**REVIEWER COMMENTS**

Met Requirements

Did Not Meet Requirements

Title: WASTE ROCK SAMPLING

Objective: To protect ground and surface water and potentially substantiate lesser cover at the waste rock site.

Frequency: One sample per 5,000 cubic yards taken to the waste rock site. Acid/toxic material to be buried within 30 days and should be compacted, and isolated from water infiltration.

Status: Ongoing. **Please indicate the volumes or tonnage placed during the year into the refuse pile and the remaining capacity in the pile.**

Reports: Annual report, and to be included in RA attachment 5-4.

Citation: Chapter 5, Section 513.400, Section 528.300, Section 536 and Refuse Pile Amendment Volume, Section 536.200

OPERATOR COMMENTS

REVIEWER COMMENTS

Met Requirements

Did Not Meet Requirements

Title: SEALING OF WELLS

Objective: Permanent casing and sealing of wells when no longer in use.

Frequency: Once upon termination of use.

Status: N/A

Reports: Report on status of wells

Citation: Chapter 6, Section 631, Chapter 7, Section 765

OPERATOR COMMENTS

Degas Wells G-2 through G-7, G-9 through G-14, G-16, G-18, G-19, G-22, G-25, G-26, G-30 and G-31 are sealed

REVIEWER COMMENTS

Met Requirements

Did Not Meet Requirements

FUTURE COMMITMENTS AND CONDITIONS

The following commitments are not required for the current annual report year, but will be required by the permittee in the future as indicated by the "status" field. These commitments are included for information only, and do not currently require action. If you feel that the commitment is no longer relevant or needs to be revised, please contact the Division.

Title: OVERBURDEN SAMPLING AND ANALYSIS

Objective: Generate quality substitute topsoil

Frequency: At Final Reclamation

Status: long term

Reports: at final reclamation

Citation: Chapter 2, Section 224, Section 233.100, .300, and .400.

Title: NUTRIENTS AND AMENDMENTS

Objective: Establishment of vegetation

Frequency: At final reclamation

Status: Long term

Reports: At final reclamation

Citation: Chapter 2, Section 243; Refuse Pile Amendment Volume, Section 243

Title: VEGETATION MITIGATION PROJECT FOR BATS

Objective: Permittee will plant additional willows along the channel where sufficient space allows.

Frequency: At final reclamation

Status:

Reports: At final reclamation

Citation: Chapter 3, Section 322, pages 3-19 through 3-20

REPORTING OF OTHER TECHNICAL DATA

Please list other technical data or information that was not included in the form above, but is required under the approved plan, which must be periodically submitted to the Division.

Please list attachments:

--

REVIEWER COMMENTS

Met Requirements

Did Not Meet Requirements

--

MAPS

Copies of mine maps, current and up-to-date, are to be provided to the Division as an attachment to this report in accordance with the requirements of R645-301-525.240. The map copies shall be made in accordance with 30 CFR 75.1200 as required by MSHA. Mine maps are not considered confidential.

Map Name	Map Number	Included		Confidential	
		Yes	No	Yes	No
Annual Subsidence Map		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Mine Map of Rock Canyon Seam	Appendix B	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Mine Map of Gilson Seam	Appendix B	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

REVIEWER COMMENTS Met Requirements Did Not Meet Requirements

APPENDIX A

Certified Reports

Excess Spoil Piles

Refuse Piles

Impoundments

As required under R645-301-514

CONTENTS

Refuse Pile Inspections

Impoundment Inspections

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 2	
Permit Number	<i>ACT/007/039</i>	Report Date	<i>6/04/2019</i>
Mine Name	<i>Dugout Canyon Mine</i>		
Company Name	<i>Canyon Fuel Company, LLC</i>		
Impoundment Identification	Impoundment Name	<i>Surface Facility Sedimentation Pond</i>	
	Impoundment Number	<i>None</i>	
	UPDES Permit Number	<i>UT0025593</i>	
	MSHA ID Number	<i>Impoundment -None (Mine - 42-01890)</i>	
IMPOUNDMENT INSPECTION			
Inspection Date	<i>2/02/19</i>		
Inspected By	<i>Jay Marshall</i>		
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	<i>Routine Quarterly Inspection</i>		
<p>1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.</p> <p><i>There were no signs of instability, structural weakness or other hazardous conditions observed during this inspection.</i></p>			
Required for an impoundment which functions as a SEDIMENTATION POND.	<p>2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.</p> <p><i>Sediment Storage Capacity - 100% = 0.34 acre-feet @ an elevation of 6,953.56 feet</i> <i>- 60% = 0.20 acre-feet @ an elevation of 6,951.66 feet</i></p> <p><i>At the time of the inspection, a conservative estimate on sediment volume is 34%, which would correspond to an elevation of approximately 6,950.25 feet. With the increase in storm events in the fall it appears that the sediment level is increasing slightly.</i></p>		
	<p>3. Principle and emergency spillway elevations.</p> <p><i>Principal Spillway Elevation - 6,964.44 feet</i> <i>Emergency Spillway Elevation - 6,964.5 feet</i></p>		
<p>4. Field Information. Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/instrumentation information, inlet/outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/repairs, monitoring information, vegetation on out slopes of embankments, etc.</p> <p><i>In 2017, Nielson Construction completed the last sedimentation pond cleanout on August 5th & 6th.</i></p>			

5. Field Evaluation. Describe any changes in the geometry of the impounding structure, average and maximum depths and elevations of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period.

At the time of the inspection, the level of the impounded water was approximately 2.0 feet below the bottom of the skimmer at the principal spillway riser.

Qualification Statement

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

Signature: _____ **Date:** _____

CERTIFIED REPORT

IMPOUNDMENT EVALUATION (IF NO, explain under Comments)	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	X	
2. Is impoundment free of instability, structural weakness, or any other hazardous condition?	X	
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	X	

COMMENTS AND OTHER INFORMATION

Certification Statement:

[PE Cert. Stamp]

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: R. Jay Marshall Engineering Supervisor
(Full Name and Title)

Signature: _____ **Date:** 6/04/2019

P.E. Number & State: No. 152606, State of Utah

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 2	
Permit Number	ACT/007/039	Report Date	7/11/2019
Mine Name	Dugout Canyon Mine		
Company Name	Canyon Fuel Company, LLC		
Impoundment Identification	Impoundment Name	Surface Facility Sedimentation Pond	
	Impoundment Number	None	
	UPDES Permit Number	UT0025593	
	MSHA ID Number	Impoundment - None (Mine - 42-01890)	
IMPOUNDMENT INSPECTION			
Inspection Date	5/20/19		
Inspected By	Seth McCourt		
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Routine Quarterly Inspection		
<p>1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.</p> <p><i>There were no signs of instability, structural weakness or other hazardous conditions observed during this inspection.</i></p>			
Required for an impoundment which functions as a SEDIMENTATION POND.	<p>2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.</p> <p><i>Sediment Storage Capacity - 100% = 0.34 acre-feet @ an elevation of 6,953.56 feet</i> <i>- 60% = 0.20 acre-feet @ an elevation of 6,951.66 feet</i></p> <p><i>At the time of the inspection, the sediment appears to be reaching cleanout level. Storm events in late spring significantly contributed to the increased sediment. Pond cleaning has been tentatively scheduled for late July 2019 (pending contractor availability).</i></p>		
	<p>3. Principle and emergency spillway elevations.</p> <p><i>Principal Spillway Elevation - 6,964.44 feet</i> <i>Emergency Spillway Elevation - 6,964.5 feet</i></p>		
<p>4. Field Information. Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/instrumentation information, inlet/outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/repairs, monitoring information, vegetation on out slopes of embankments, etc.</p> <p><i>In 2017, Nielson Construction completed the last sedimentation pond cleanout on August 5th & 6th.</i></p>			

5. Field Evaluation. Describe any changes in the geometry of the impounding structure, average and maximum depths and elevations of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period.

At the time of the inspection, the level of the impounded water was approximately 2.5 feet below the bottom of the skimmer at the principal spillway riser.

Qualification Statement

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

Signature: *[Signature]* Date: 7/11/19

CERTIFIED REPORT

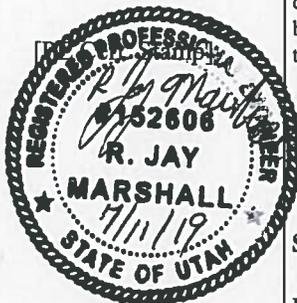
IMPOUNDMENT EVALUATION (If NO, explain under Comments)	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	X	
2. Is impoundment free of instability, structural weakness, or any other hazardous condition?	X	
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	X	

COMMENTS AND OTHER INFORMATION

Road Cleaning Scheduled for 7/12/19 by Nelson Construction

Certification Statement:

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.



By: R. Jay Marshall Engineering Supervisor
(Full Name and Title)

Signature: *R. Jay Marshall* Date: 7/11/2019

P.E. Number & State: No. 152606, State of Utah

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 2	
Permit Number	ACT/007/039	Report Date	10/21/2019
Mine Name	Dugout Canyon Mine		
Company Name	Canyon Fuel Company, LLC		
Impoundment Identification	Impoundment Name	Surface Facility Sedimentation Pond	
	Impoundment Number	None	
	UPDES Permit Number	UT0025593	
	MSHA ID Number	Impoundment - None (Mine - 42-01890)	
IMPOUNDMENT INSPECTION			
Inspection Date	7/17/19		
Inspected By	Seth McCourt		
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Routine Quarterly Inspection		
<p>1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.</p> <p><i>There were no signs of instability, structural weakness or other hazardous conditions observed during this inspection.</i></p>			
Required for an impoundment which functions as a SEDIMENTATION POND.	<p>2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.</p> <p><i>Sediment Storage Capacity - 100% = 0.34 acre-feet @ an elevation of 6,953.56 feet</i> <i>- 60% = 0.20 acre-feet @ an elevation of 6,951.66 feet</i></p> <p><i>After pond cleanout in July, a conservative estimate on sediment volume is 20% which would correspond to an elevation of approximately 6,950 feet.</i></p>		
	<p>3. Principle and emergency spillway elevations.</p> <p><i>Principal Spillway Elevation - 6,964.44 feet</i> <i>Emergency Spillway Elevation - 6,964.5 feet</i></p>		
<p>4. Field Information. Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/instrumentation information, inlet/outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/repairs, monitoring information, vegetation on out slopes of embankments, etc.</p> <p><i>In 2019, Nielson Construction completed the sedimentation pond cleanout on July 12th, 13th and 14th.</i></p>			

5. Field Evaluation. Describe any changes in the geometry of the impounding structure, average and maximum depths and elevations of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period.

At the time of the inspection, the level of the impounded water was approximately 3.0 feet below the bottom of the skimmer at the principal spillway riser.

Qualification Statement

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

Signature:  Date: 10/23/19

CERTIFIED REPORT

IMPOUNDMENT EVALUATION (If NO, explain under Comments)

	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	X	
2. Is impoundment free of instability, structural weakness, or any other hazardous condition?	X	
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	X	

COMMENTS AND OTHER INFORMATION

Certification Statement:

[PE Cert. Stamp]

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: _____
(Full Name and Title)

Signature: _____ Date: _____

P.E. Number & State: _____

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 2	
Permit Number	<i>ACT/007/039</i>	Report Date	<i>1/17/2020</i>
Mine Name	<i>Dugout Canyon Mine</i>		
Company Name	<i>Canyon Fuel Company, LLC</i>		
Impoundment Identification	Impoundment Name	<i>Surface Facility Sedimentation Pond</i>	
	Impoundment Number	<i>None</i>	
	UPDES Permit Number	<i>UT0025593</i>	
	MSHA ID Number	<i>Impoundment - None (Mine - 42-01890)</i>	
IMPOUNDMENT INSPECTION			
Inspection Date	<i>11/11/19</i>		
Inspected By	<i>Seth McCourt</i>		
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	<i>Routine Quarterly Inspection</i>		
<p>1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.</p> <p><i>There were no signs of instability, structural weakness or other hazardous conditions observed during this inspection.</i></p>			
Required for an impoundment which functions as a SEDIMENTATION POND.	<p>2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.</p> <p><i>Sediment Storage Capacity - 100% = 0.34 acre-feet @ an elevation of 6,953.56 feet</i> <i>- 60% = 0.20 acre-feet @ an elevation of 6,951.66 feet</i></p> <p><i>After pond cleanout in July, a conservative estimate on sediment volume is 20% which would correspond to an elevation of approximately 6,950 feet.</i></p>		
	<p>3. Principle and emergency spillway elevations.</p> <p><i>Principal Spillway Elevation - 6,964.44 feet</i> <i>Emergency Spillway Elevation - 6,964.5 feet</i></p>		
<p>4. Field Information. Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/instrumentation information, inlet/outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/repairs, monitoring information, vegetation on out slopes of embankments, etc.</p> <p><i>In 2019, Nielson Construction completed the sedimentation pond cleanout on July 12th, 13th and 14th.</i></p>			

5. Field Evaluation. Describe any changes in the geometry of the impounding structure, average and maximum depths and elevations of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period.

At the time of the inspection, the level of the impounded water was approximately 3.0 feet below the bottom of the skimmer at the principal spillway riser.

Qualification Statement

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

Signature: *R. Jay Marshall for Seth McCurt* Date: 3/9/20

CERTIFIED REPORT

IMPOUNDMENT EVALUATION (If NO, explain under Comments)

	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	X	
2. Is impoundment free of instability, structural weakness, or any other hazardous condition?	X	
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	X	

COMMENTS AND OTHER INFORMATION

Certification Statement:

[PE Cert. Stamp]

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: _____
(Full Name and Title)

Signature: _____ Date: _____

P.E. Number & State: _____

Pace Cyn. Sediment Trap	Date 3/20/2019	Time 9:29	Inspector(s) Signature 
Quarterly Inspection Form			

Site: 006	Action Required	Person Notified	Date Corrected	Comments/Remarks
Permit # UT0025593	Yes/No	OK	N/A	

Stability of Pond

Basin stability/weakness	X			
Erosion/Stability of banks	X			
Vegetation problem around basin	NO			

Hazardous Condition

Any visible contaminants	NO			
Hazardous condition observed	NO			

Inlet Conditions

Inlet functioning	X			
Culvert(s)/ditches	X			

Principle & Emergency Spillways

Water Discharging (rate)		X		
Pond water level		X		
Spillway is clear of debris		X		
Oil skimmer	X			
Emergency spillway	X			
Primary spillway	X			

Other Useful Information	Value	Comments/Remarks	Sediment Storage Capacity/ Elevation	Value	Comments/Remarks
Last cleaning date for basin	NA		100% sediment storage capacity (ft ³)	5,714.5	0.1312 acre-ft.
Primary Spillway elevation (ft.)	6,991		50% sediment storage capacity (ft ³), Cleaning is recommended at this elev.	2,175.2	0.3 ft. below Primary Spillway (6,990.7 ft.)
Emergency Spillway elevation (ft.)	6,993		Current sediment Volume ft ³ (est.)	486	6,987.65 ft.
			Remaining storage capacity ft ³ (est.)	1,689	Capacity from 50%.
			Percent sediment volume	9%	

Other Observations:

Pace Cyn. Sediment Trap	Date 4/16/2019	Time 10:00	Inspector(s) Signature 
Quarterly Inspection Form			

Site: 006	Permit # UT0025593	Action Required	Person Notified	Date Corrected	Comments/Remarks
		Yes/No	OK	N/A	

Stability of Pond					
Basin stability/weakness		X			
Erosion/Stability of banks		X			
Vegetation problem around basin	NO				

Hazardous Condition					
Any visible contaminants	NO				
Hazardous condition observed	NO				

Inlet Conditions					
Inlet functioning		X			
Culvert(s)/ditches		X			

Principle & Emergency Spillways					
Water Discharging (rate)			X		
Pond water level			X		
Spillway is clear of debris			X		
Oil skimmer		X			
Emergency spillway		X			
Primary spillway		X			

Other Useful Information	Value	Comments/Remarks	Sediment Storage Capacity/ Elevation	Value	Comments/Remarks
Last cleaning date for basin	NA		100% sediment storage capacity (ft ³)	5,714.5	0.1312 acre-ft.
Primary Spillway elevation (ft.)	6,991		50% sediment storage capacity (ft ³), Cleaning is recommended at this elev.	2,175.2	0.3 ft. below Primary Spillway (6,990.7 ft.)
Emergency Spillway elevation (ft.)	6,993		Current sediment Volume ft ³ (est.)	486	6,987.65 ft.
			Remaining storage capacity ft ³ (est.)	1,689	Capacity from 50%,
			Percent sediment volume	9%	

Other Observations:

Pace Cyn. Sediment Trap **Date** 8/5/2019 **Time** 9:49 **Inspector(s) Signature** *[Signature]* **Quarterly Inspection Form**

Site: 006 Permit # UT0025593	Action Required		Person Notified	Date Corrected	Comments/Remarks
	Yes/No	OK			
Stability of Pond					
Basin stability/weakness		X			
Erosion/Stability of banks		X			
Vegetation problem around basin	NO				

Hazardous Condition

Any visible contaminants	NO
Hazardous condition observed	NO

Inlet Conditions

Inlet functioning	X
Culvert(s)/ditches	X

Principle & Emergency Spillways

Water Discharging (rate)		X
Pond water level		X
Spillway is clear of debris		X
Oil skimmer	X	
Emergency spillway	X	
Primary spillway	X	

Other Useful Information	Value	Comments/Remarks	Sediment Storage Capacity/ Elevation	Value	Comments/Remarks
Last cleaning date for basin	NA		100% sediment storage capacity (ft ³)	5,714.5	0.1312 acre-ft.
Primary Spillway elevation (ft.)	6,991		50% sediment storage capacity (ft ³), Cleaning is recommended at this elev.	2,175.2	0.3 ft. below Primary Spillway (6,990.7 ft.)
Emergency Spillway elevation (ft.)	6,993		Current sediment Volume ft ³ (est.)	486	6,987.65 ft.
			Remaining storage capacity ft ³ (est.)	1,689	Capacity from 50%,
			Percent sediment volume	9%	

Other Observations: Embankment covered in vegetation

Pace Cyn.Sediment Trap	Date	Time	Inspector(s) Signature	Quarterly Inspection Form
	11/11/2019	9:53		

Site: 006	Action Required			Person Notified	Date Corrected	Comments/Remarks
Permit # UT0025593	Yes/No	OK	N/A			

Stability of Pond						
Basin stability/weakness		X				
Erosion/Stability of banks		X				
Vegetation problem around basin	NO					

Hazardous Condition						
Any visible contaminants	NO					
Hazardous condition observed	NO					

Inlet Conditions						
Inlet functioning		X				
Culvert(s)/ditches		X				

Principle & Emergency Spillways						
Water Discharging (rate)			X			
Pond water level			X			
Spillway is clear of debris			X			
Oil skimmer		X				
Emergency spillway		X				
Primary spillway		X				

Other Useful Information	Value	Comments/Remarks	Sediment Storage Capacity/ Elevation	Value	Comments/Remarks
Last cleaning date for basin	NA		100% sediment storage capacity (ft^3)	5,714.5	0.1312 acre-ft.
Primary Spillway elevation (ft.)	6,991		50% sediment storage capacity (ft^3), Cleaning is recommended at this elev.	2,175.2	0.3 ft. below Primary Spillway (6,990.7 ft.)
Emergency Spillway elevation (ft.)	6,993		Current sediment Volume ft^3 (est.)	486	6,987.65 ft.
			Remaining storage capacity ft^3 (est.)	1,689	Capacity from 50%,
			Percent sediment volume	9%	

Other Observations: Embankment covered in vegetation

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 2	
Permit Number	ACT/007/039	Report Date	6/04/2019
Mine Name	Dugout Canyon Mine		
Company Name	Canyon Fuel Company, LLC		
Impoundment Identification	Impoundment Name	Refuse Pile Sedimentation Pond #1	
	Impoundment Number	None	
	UPDES Permit Number	UT0025593	
	MSHA ID Number	Impoundment - None (Refuse Pile 1211-UT-09-01890-01)	
IMPOUNDMENT INSPECTION			
Inspection Date	2/08/2019		
Inspected By	Seth McCourt		
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Quarterly Inspection / Certification		
<p>1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.</p> <p><i>Construction of the Refuse Pile Sedimentation Pond has been completed in accordance with the approved plan. There were no signs instability, structural weakness or other hazardous conditions observed during this inspection.</i></p>			
Required for an impoundment which functions as a SEDIMENTATION POND.	<p>2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.</p> <p><i>Sediment Storage Capacity (as-built) - 100% = 0.67 acre-feet @ an elevation of 5,897.55 feet</i> <i>- 60% = 0.40 acre-feet @ an elevation of 5,896.5 feet</i> <i>At the time of the inspection, the estimated average elevation of the existing sediment was 5,895.5 feet.</i></p>		
	<p>3. Principle and emergency spillway elevations.</p> <p><i>Emergency Spillway Elevation (as-built) - 5,902.5 feet</i></p>		
<p>4. Field Information. Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/instrumentation information, inlet/outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/repairs, monitoring information, vegetation on out slopes of embankments, etc.</p> <p><i>The pond was wet at the time of the inspection.</i></p> <p><i>Sediment levels were observed as being below the established 60% levels.</i></p> <p><i>This pond has never discharged.</i></p>			

5. Field Evaluation. Describe any changes in the geometry of the impounding structure, average and maximum depths and elevations of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period.

Qualification Statement

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

Signature: R. Jay Marshall for Delta Project Date: 3/19/20

CERTIFIED REPORT

IMPOUNDMENT EVALUATION (If NO, explain under Comments)

	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	X	
2. Is impoundment free of instability, structural weakness, or any other hazardous condition?	X	
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	X	

COMMENTS AND OTHER INFORMATION

Certification Statement:

[PE Cert. Stamp]

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: R. Jay Marshall, Engineering Supervisor
(Full Name and Title)

Signature: _____ Date: 10/16/18

P.E. Number & State: No. 152606, State of Utah

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 2	
Permit Number	ACT/007/039	Report Date	7/11/2019
Mine Name	Dugout Canyon Mine		
Company Name	Canyon Fuel Company, LLC		
Impoundment Identification	Impoundment Name	Refuse Pile Sedimentation Pond #1	
	Impoundment Number	None	
	UPDES Permit Number	UT0025593	
	MSHA ID Number	Impoundment -None (Refuse Pile 1211-UT-09-01890-01)	
IMPOUNDMENT INSPECTION			
Inspection Date	5/03/2019		
Inspected By	Seth McCourt		
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Quarterly Inspection / Certification		
<p>1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.</p> <p><i>Construction of the Refuse Pile Sedimentation Pond has been completed in accordance with the approved plan. There were no signs instability, structural weakness or other hazardous conditions observed during this inspection.</i></p>			
Required for an impoundment which functions as a SEDIMENTATION POND.	<p>2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.</p> <p><i>Sediment Storage Capacity (as-built) - 100% = 0.67 acre-feet @ an elevation of 5,897.55 feet</i> <i>- 60% = 0.40 acre-feet @ an elevation of 5,896.5 feet</i> <i>At the time of the inspection, the estimated average elevation of the existing sediment was 5,895.5 feet.</i></p>		
	<p>3. Principle and emergency spillway elevations.</p> <p><i>Emergency Spillway Elevation (as-built) - 5,902.5 feet</i></p>		
<p>4. Field Information. Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/instrumentation information, inlet/outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/repairs, monitoring information, vegetation on out slopes of embankments, etc.</p> <p><i>At the time of the Inspection there was no water impounded.</i></p> <p><i>Sediment levels were observed as being below the established 60% levels.</i></p> <p><i>This pond has never discharged.</i></p>			

5. Field Evaluation. Describe any changes in the geometry of the impounding structure, average and maximum depths and elevations of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period.

Qualification Statement

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

Signature: *[Signature]* Date: 7/11/19

CERTIFIED REPORT

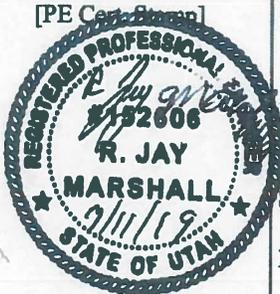
IMPOUNDMENT EVALUATION (If NO, explain under Comments)	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	X	
2. Is impoundment free of instability, structural weakness, or any other hazardous condition?	X	
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	X	

COMMENTS AND OTHER INFORMATION

Certification Statement:

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

[PE Cert. Stamp]



By: R. Jay Marshall, Engineering Supervisor
(Full Name and Title)

Signature: *[Signature]* Date: ~~10/16/18~~ 7/11/19

P.E. Number & State: No. 152606, State of Utah

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 2	
Permit Number	ACT/007/039	Report Date	10/21/2019
Mine Name	Dugout Canyon Mine		
Company Name	Canyon Fuel Company, LLC		
Impoundment Identification	Impoundment Name	Refuse Pile Sedimentation Pond #1	
	Impoundment Number	None	
	UPDES Permit Number	UT0025593	
	MSHA ID Number	Impoundment - None (Refuse Pile 1211-UT-09-01890-01)	
IMPOUNDMENT INSPECTION			
Inspection Date	9/03/2019		
Inspected By	Seth McCourt		
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Quarterly Inspection / Certification		
<p>1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.</p> <p><i>Construction of the Refuse Pile Sedimentation Pond has been completed in accordance with the approved plan. There were no signs instability, structural weakness or other hazardous conditions observed during this inspection.</i></p>			
Required for an impoundment which functions as a SEDIMENTATION POND.	<p>2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.</p> <p><i>Sediment Storage Capacity (as-built) - 100% = 0.67 acre-feet @ an elevation of 5,897.55 feet</i> <i>- 60% = 0.40 acre-feet @ an elevation of 5,896.5 feet</i> <i>At the time of the inspection, the estimated average elevation of the existing sediment was 5,895.5 feet.</i></p>		
	<p>3. Principle and emergency spillway elevations.</p> <p><i>Emergency Spillway Elevation (as-built) - 5,902.5 feet</i></p>		
<p>4. Field Information. Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/instrumentation information, inlet/outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/repairs, monitoring information, vegetation on out slopes of embankments, etc.</p> <p><i>At the time of the Inspection there was no water impounded.</i></p> <p><i>Sediment levels were observed as being below the established 60% levels.</i></p> <p><i>This pond has never discharged.</i></p>			

5. Field Evaluation. Describe any changes in the geometry of the impounding structure, average and maximum depths and elevations of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period.

Qualification Statement

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

Signature: *[Handwritten Signature]* Date: 10/21/19

CERTIFIED REPORT

IMPOUNDMENT EVALUATION (If NO, explain under Comments)	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	X	
2. Is impoundment free of instability, structural weakness, or any other hazardous condition?	X	
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	X	

COMMENTS AND OTHER INFORMATION

Certification Statement:

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

[PE Cert. Stamp]

By: _____
(Full Name and Title)

Signature: _____ Date: _____

P.E. Number & State: _____

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 2
--	--	--------------------

Permit Number	ACT/007/039	Report Date	1/17/2020
Mine Name	Dugout Canyon Mine		
Company Name	Canyon Fuel Company, LLC		
Impoundment Identification	Impoundment Name	Refuse Pile Sedimentation Pond #1	
	Impoundment Number	None	
	UPDES Permit Number	UT0025593	
	MSHA ID Number	Impoundment - None (Refuse Pile 1211-UT-09-01890-01)	

IMPOUNDMENT INSPECTION

Inspection Date	11/11/2019		
Inspected By	Seth McCourt		
Reason for Inspection <small>(Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)</small>	Quarterly Inspection / Certification		

1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.

Construction of the Refuse Pile Sedimentation Pond has been completed in accordance with the approved plan. There were no signs instability, structural weakness or other hazardous conditions observed during this inspection.

Required for an impoundment which functions as a SEDIMENTATION POND.	<p>2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.</p> <p><i>Sediment Storage Capacity (as-built) - 100% = 0.67 acre-feet @ an elevation of 5,897.55 feet</i> <i>- 60% = 0.40 acre-feet @ an elevation of 5,896.5 feet</i> <i>At the time of the inspection, the estimated average elevation of the existing sediment was 5,895.5 feet.</i></p>
	<p>3. Principle and emergency spillway elevations.</p> <p><i>Emergency Spillway Elevation (as-built) - 5,902.5 feet</i></p>

4. Field Information. Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/instrumentation information, inlet/outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/repairs, monitoring information, vegetation on out slopes of embankments, etc.

At the time of the Inspection there was no water impounded.

Sediment levels were observed as being below the established 60% levels.

This pond has never discharged.

5. Field Evaluation. Describe any changes in the geometry of the impounding structure, average and maximum depths and elevations of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period.

Qualification Statement

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

Signature: *R. Jay Mankin for Seth Mankin* Date: 3/9/20

CERTIFIED REPORT

IMPOUNDMENT EVALUATION (If NO, explain under Comments)	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	X	
2. Is impoundment free of instability, structural weakness, or any other hazardous condition?	X	
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	X	

COMMENTS AND OTHER INFORMATION

Certification Statement:

[PE Cert. Stamp]

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: _____
(Full Name and Title)

Signature: _____ Date: _____

P.E. Number & State: _____

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 2	
Permit Number	ACT/007/039	Report Date	6/04/2019
Mine Name	Dugout Canyon Mine		
Company Name	Canyon Fuel Company, LLC		
Impoundment Identification	Impoundment Name	Refuse Pile Sedimentation Pond #2	
	Impoundment Number	None	
	UPDES Permit Number	UT0025593	
	MSHA ID Number	Impoundment -None (Refuse Pile 1211-UT-09-01890-01)	
IMPOUNDMENT INSPECTION			
Inspection Date	2/08/2019		
Inspected By	Seth McCourt		
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Quarterly Inspection and Annual Certification		
<p>1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.</p> <p><i>Construction of the Refuse Pile Sedimentation Pond #2 was completed in October 2017. There were no signs of instability, structural weakness or other hazardous conditions observed during this inspection.</i></p>			
Required for an impoundment which functions as a SEDIMENTATION POND.	<p>2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.</p> <p><i>Sediment Storage Capacity (as-built) - 100% = 0.68 acre-feet @ an elevation of 5,862.67 feet</i> <i>- 60% = 0.41 acre-feet @ an elevation of 5,861.45 feet</i> <i>At the time of the inspection, the estimated average elevation of the existing sediment was 5,858.0 feet.</i></p>		
	<p>3. Principle and emergency spillway elevations.</p> <p><i>Emergency Spillway Elevation (as-built) - crest at 5,867.25 feet</i></p>		
<p>4. Field Information. Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/instrumentation information, inlet/outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/repairs, monitoring information, vegetation on outslopes of embankments, etc.</p> <p><i>The pond was constructed in October 2017.</i> <i>The pond was wet at the time of the inspection.</i> <i>Given the dry weather conditions since construction, it appears that this impoundment has yet to receive any significant runoff and the existing sediment accumulation is negligible.</i></p>			

5. Field Evaluation. Describe any changes in the geometry of the impounding structure, average and maximum depths and elevations of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period.

Qualification Statement

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

Signature: R. Jay Marshall for Seth Meert Date: 3/19/20

CERTIFIED REPORT

IMPOUNDMENT EVALUATION (If NO, explain under Comments)	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	X	
2. Is impoundment free of instability, structural weakness, or any other hazardous condition?	X	
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	X	

COMMENTS AND OTHER INFORMATION

Certification Statement:

[PE Cert. Stamp]

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: R. Jay Marshall Engineering Supervisor
(Full Name and Title)

Signature: _____ Date: 6/04/2019

P.E. Number & State: No. 152606 State of Utah

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 2
--	--	--------------------

Permit Number	ACT/007/039	Report Date	7/11/2019
Mine Name	Dugout Canyon Mine		
Company Name	Canyon Fuel Company, LLC		
Impoundment Identification	Impoundment Name	Refuse Pile Sedimentation Pond #2	
	Impoundment Number	None	
	UPDES Permit Number	UT0025593	
	MSHA ID Number	Impoundment - None (Refuse Pile 1211-UT-09-01890-01)	

IMPOUNDMENT INSPECTION

Inspection Date	5/03/2019	
Inspected By	Seth McCourt	
Reason for Inspection <small>(Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)</small>	Quarterly Inspection and Annual Certification	

1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.

Construction of the Refuse Pile Sedimentation Pond #2 was completed in October 2017. There were no signs of instability, structural weakness or other hazardous conditions observed during this inspection.

<p>Required for an impoundment which functions as a SEDIMENTATION POND.</p>	<p>2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.</p> <p><i>Sediment Storage Capacity (as-built) - 100% = 0.68 acre-feet @ an elevation of 5,862.67 feet</i> <i>- 60% = 0.41 acre-feet @ an elevation of 5,861.45 feet</i> <i>At the time of the inspection, the estimated average elevation of the existing sediment was 5,858.0 feet.</i></p>
	<p>3. Principle and emergency spillway elevations.</p> <p><i>Emergency Spillway Elevation (as-built) - crest at 5,867.25 feet</i></p>

4. Field Information. Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/instrumentation information, inlet/outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/repairs, monitoring information, vegetation on outsoles of embankments, etc.

*The pond was constructed in October 2017.
The pond was dry at the time of the inspection.
Given the dry weather conditions since construction, it appears that this impoundment has yet to receive any significant runoff and the existing sediment accumulation is negligible.*

5. Field Evaluation. Describe any changes in the geometry of the impounding structure, average and maximum depths and elevations of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period.

Qualification Statement

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

Signature: *[Handwritten Signature]* Date: 7/11/19

CERTIFIED REPORT

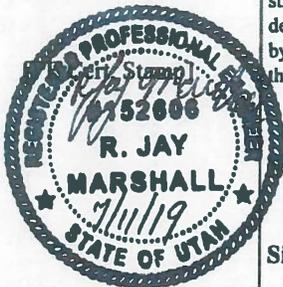
IMPOUNDMENT EVALUATION (If NO, explain under Comments)	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	X	
2. Is impoundment free of instability, structural weakness, or any other hazardous condition?	X	
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	X	

COMMENTS AND OTHER INFORMATION

no water impounded in the pond at time of inspection.

Certification Statement:

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.



By: R. Jay Marshall Engineering Supervisor
 (Full Name and Title)
 Signature: *[Handwritten Signature]* Date: 7/11/19
 P.E. Number & State: No. 152606 State of Utah

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 2
Permit Number	ACT/007/039	Report Date 10/21/2019
Mine Name	Dugout Canyon Mine	
Company Name	Canyon Fuel Company, LLC	
Impoundment Identification	Impoundment Name	Refuse Pile Sedimentation Pond #2
	Impoundment Number	None
	UPDES Permit Number	UT0025593
	MSHA ID Number	Impoundment - None (Refuse Pile 1211-UT-09-01890-01)
IMPOUNDMENT INSPECTION		
Inspection Date	9/03/2019	
Inspected By	Seth McCourt	
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Quarterly Inspection and Annual Certification	
<p>1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.</p> <p><i>Construction of the Refuse Pile Sedimentation Pond #2 was completed in October 2017. There were no signs of instability, structural weakness or other hazardous conditions observed during this inspection.</i></p>		
Required for an impoundment which functions as a SEDIMENTATION POND.	<p>2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.</p> <p><i>Sediment Storage Capacity (as-built) - 100% = 0.68 acre-feet @ an elevation of 5,862.67 feet</i> <i>- 60% = 0.41 acre-feet @ an elevation of 5,861.45 feet</i></p> <p><i>At the time of the inspection, the estimated average elevation of the existing sediment was 5,858.0 feet.</i></p>	
	<p>3. Principle and emergency spillway elevations.</p> <p><i>Emergency Spillway Elevation (as-built) - crest at 5,867.25 feet</i></p>	
<p>4. Field Information. Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/instrumentation information, inlet/outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/repairs, monitoring information, vegetation on out slopes of embankments, etc.</p> <p><i>The pond was constructed in October 2017.</i> <i>The pond was dry at the time of the inspection.</i> <i>Given the dry weather conditions since construction, it appears that this impoundment has yet to receive any significant runoff and the existing sediment accumulation is negligible.</i></p>		

5. Field Evaluation. Describe any changes in the geometry of the impounding structure, average and maximum depths and elevations of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period.

Qualification Statement

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

Signature: *Scott M. Stout* Date: 10/21/19

CERTIFIED REPORT

IMPOUNDMENT EVALUATION (If NO, explain under Comments)

YES NO

1. Is impoundment designed and constructed in accordance with the approved plan?	X	
2. Is impoundment free of instability, structural weakness, or any other hazardous condition?	X	
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	X	

COMMENTS AND OTHER INFORMATION

Certification Statement:

[PE Cert. Stamp]

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: _____
(Full Name and Title)

Signature: _____ Date: _____

P.E. Number & State: _____

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 2	
Permit Number	ACT/007/039	Report Date	1/17/2020
Mine Name	Dugout Canyon Mine		
Company Name	Canyon Fuel Company, LLC		
Impoundment Identification	Impoundment Name	Refuse Pile Sedimentation Pond #2	
	Impoundment Number	None	
	UPDES Permit Number	UT0025593	
	MSHA ID Number	Impoundment -None (Refuse Pile 1211-UT-09-01890-01)	
IMPOUNDMENT INSPECTION			
Inspection Date	11/11/2019		
Inspected By	Seth McCourt		
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Quarterly Inspection and Annual Certification		
<p>1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.</p> <p><i>Construction of the Refuse Pile Sedimentation Pond #2 was completed in October 2017. There were no signs of instability, structural weakness or other hazardous conditions observed during this inspection.</i></p>			
Required for an impoundment which functions as a SEDIMENTATION POND.	<p>2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.</p> <p><i>Sediment Storage Capacity (as-built) - 100% = 0.68 acre-feet @ an elevation of 5,862.67 feet</i> <i>- 60% = 0.41 acre-feet @ an elevation of 5,861.45 feet</i> <i>At the time of the inspection, the estimated average elevation of the existing sediment was 5,858.0 feet.</i></p>		
	<p>3. Principle and emergency spillway elevations.</p> <p><i>Emergency Spillway Elevation (as-built) – crest at 5,867.25 feet</i></p>		
<p>4. Field Information. Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/instrumentation information, inlet/outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/repairs, monitoring information, vegetation on outslopes of embankments, etc.</p> <p><i>The pond was constructed in October 2017.</i> <i>The pond was dry at the time of the inspection.</i> <i>Given the dry weather conditions since construction, it appears that this impoundment has yet to receive any significant runoff and the existing sediment accumulation is negligible.</i></p>			

5. Field Evaluation. Describe any changes in the geometry of the impounding structure, average and maximum depths and elevations of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period.

Qualification Statement

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

Signature: *R. Jay Marshall* *for* *Lech McCut* Date: *9/9/20*

CERTIFIED REPORT

IMPOUNDMENT EVALUATION (If NO, explain under Comments)

	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	X	
2. Is impoundment free of instability, structural weakness, or any other hazardous condition?	X	
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	X	

COMMENTS AND OTHER INFORMATION

Certification Statement:

[PE Cert. Stamp]

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: _____
(Full Name and Title)

Signature: _____ Date: _____

P.E. Number & State: _____

*To enter text, click in the box and type your response. If a box already contains an entry select the entry and type the replacement. You can use the **tab** key to move from one field to the next. To select a check box, click in the box or type an x.*

GENERAL INFORMATION

Report Date April 16, 2019
Permit Number C/007/039
Company Name Canyon Fuel Company, LLC - Dugout Canyon Mine

EXCESS SPOIL PILE OR REFUSE PILE IDENTIFICATION

Pile Name Dugout Canyon Mine Refuse Pile
Pile Number 1211-UT-09-01890-01
MSHA ID Number 42-01890

Inspection Date March 28, 2019
Inspected By Jay Marshall
Reason for Inspection Quarterly Inspection & Certification

Attachment to Report? Yes No

Field Evaluation

1. Foundation preparation, including the removal of all organic material and topsoil.

The foundation preparation was found to be in accordance with the approved plan.

2. Placement of underdrains and protective filter systems.

N/A

3. Installation of final surface drainage systems

All necessary drainage systems were constructed, functional and well established at the time of the inspection.

On June 7, 2017, DOGM granted the final approval of the Phase II expansion of this facility. Construction of the Phase II expansion commenced on August 14, 2017. This initial work concentrated on the construction of the 2nd sediment pond for the facility. The 2nd sediment pond has subsequently been completed and the "as-built" details were submitted to DOGM on 2/20/18. DOGM's conditional approval was granted on 3/9/18, pending the resubmittal of "clean" copies. Dugout submitted the "clean" copies on 3/14/18 and final approval was received from DOGM on 3/20/18.

4. Placement and compaction of fill materials

Placement and compaction of this refuse appears to have been completed in accordance with the approved plan.

5. Final grading and revegetation of fill.

As part of the Phase II expansion process, newly recovered soils were relocated and utilized for the contemporaneous reclamation of the northern portion of the existing refuse pile. All planned contemporaneous reclamation is now complete. This work included subsoil placement, topsoil placement, seeding and finalizing with select erosion control stabilization methods. With the wet winter and spring faint signs of vegetation is appearing on the reclaimed portion of the site.

6. Appearances of instability, structural weakness, and other hazardous conditions

There was no appearance of instability, structural weakness or other hazardous conditions observed during this inspection.

7. Other comments. Describe any changes in the geometry of the Excess Spoil/Refuse Pile structure, instrumentation, average and maximum lifts of materials placed in the pile, elevations of active benches, total and remaining storage capacity of the structure, evidence of fires in the pile and abatement of such fires, volumes of materials placed in the structure during the year, and any other aspect of the structure affecting its stability or function which has occurred during the reporting period

The site was not active at the time of the inspection. However, refuse placement has now expanded into the southern slope of the refuse pile. This new refuse volume is actively being placed in the additional space provided by the Phase II expansion.

A check of the records indicates that 12,881.65 Tons / 8,674.51 Yards was delivered from the Castle Valley Prep Plant to this facility YTD. Records also indicate that the most recent sample of refuse taken for analysis was obtained on 3/27/19.

CERTIFICATION STATEMENT

I hereby certify that; I am experienced in the construction of earth and rock fills; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of earth and rock fills in accordance with the certified and approved designs for this structure; that the fill structure has been maintained in accordance with the approved design and meet or exceed the minimum design requirements under all applicable federal, state, and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

By R. Jay Marshall, Engineering Supervisor
Full Name and Title

Signature *R. Jay Marshall* Date 4/16/19

P.E. Number and State No. 152606, State of Utah

[Cert. Stamp]



*To enter text, click in the box and type your response. If a box already contains an entry select the entry and type the replacement. You can use the **tab** key to move from one field to the next. To select a check box, click in the box or type an x.*

GENERAL INFORMATION

Report Date July 11, 2019
Permit Number C/007/039
Company Name Canyon Fuel Company, LLC - Dugout Canyon Mine

EXCESS SPOIL PILE OR REFUSE PILE IDENTIFICATION

Pile Name Dugout Canyon Mine Refuse Pile
Pile Number 1211-UT-09-01890-01
MSHA ID Number 42-01890

Inspection Date April 16, 2019
Inspected By Jay Marshall
Reason for Inspection Quarterly Inspection & Certification

Attachment to Report? Yes No

Field Evaluation

1. Foundation preparation, including the removal of all organic material and topsoil.

The foundation preparation was found to be in accordance with the approved plan.

2. Placement of underdrains and protective filter systems.

N/A

3. Installation of final surface drainage systems

All necessary drainage systems were constructed, functional and well established at the time of the inspection.

On June 7, 2017, DOGM granted the final approval of the Phase II expansion of this facility. Construction of the Phase II expansion commenced on August 14, 2017. This initial work concentrated on the construction of the 2nd sediment pond for the facility. The 2nd sediment pond has subsequently been completed and the "as-built" details were submitted to DOGM on 2/20/18. DOGM's conditional approval was granted on 3/9/18, pending the resubmittal of "clean" copies. Dugout submitted the "clean" copies on 3/14/18 and final approval was received from DOGM on 3/20/18.

4. Placement and compaction of fill materials

Placement and compaction of this refuse appears to have been completed in accordance with the approved plan.

5. Final grading and revegetation of fill.

As part of the Phase II expansion process, newly recovered soils were relocated and utilized for the contemporaneous reclamation of the northern portion of the existing refuse pile. All planned contemporaneous reclamation is now complete. This work included subsoil placement, topsoil placement, seeding and finalizing with select erosion control stabilization methods. With the wet winter and spring faint signs of vegetation is appearing on the reclaimed portion of the site.

6. Appearances of instability, structural weakness, and other hazardous conditions

There was no appearance of instability, structural weakness or other hazardous conditions observed during this inspection.

7. Other comments. Describe any changes in the geometry of the Excess Spoil/Refuse Pile structure, instrumentation, average and maximum lifts of materials placed in the pile, elevations of active benches, total and remaining storage capacity of the structure, evidence of fires in the pile and abatement of such fires, volumes of materials placed in the structure during the year, and any other aspect of the structure affecting its stability or function which has occurred during the reporting period

The site was not active at the time of the inspection. However, refuse placement has now expanded into the southern slope of the refuse pile. This new refuse volume is actively being placed in the additional space provided by the Phase II expansion.

A check of the records indicates that 43,620.47 Tons / 29,374.05 Yards was delivered from the Castle Valley Prep Plant to this facility YTD. Records also indicate that the most recent sample of refuse taken for analysis was obtained on 3/27/19.

CERTIFICATION STATEMENT

I hereby certify that; I am experienced in the construction of earth and rock fills; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of earth and rock fills in accordance with the certified and approved designs for this structure; that the fill structure has been maintained in accordance with the approved design and meet or exceed the minimum design requirements under all applicable federal, state, and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

By R. Jay Marshall, Engineering Supervisor

Full Name and Title

Signature

R. Jay Marshall

Date

7/11/19

P.E. Number and State

No. 152606, State of Utah

[Cert. Stamp]



*To enter text, click in the box and type your response. If a box already contains an entry select the entry and type the replacement. You can use the **tab** key to move from one field to the next. To select a check box, click in the box or type an x.*

GENERAL INFORMATION

Report Date October 21, 2019
Permit Number C/007/039
Company Name Canyon Fuel Company, LLC - Dugout Canyon Mine

EXCESS SPOIL PILE OR REFUSE PILE IDENTIFICATION

Pile Name Dugout Canyon Mine Refuse Pile
Pile Number 1211-UT-09-01890-01
MSHA ID Number 42-01890

Inspection Date September 3, 2019
Inspected By Jay Marshall
Reason for Inspection Quarterly Inspection & Certification

Attachment to Report? Yes No

Field Evaluation

1. Foundation preparation, including the removal of all organic material and topsoil.

The foundation preparation was found to be in accordance with the approved plan.

2. Placement of underdrains and protective filter systems.

N/A

3. Installation of final surface drainage systems

All necessary drainage systems were constructed, functional and well established at the time of the inspection.

On June 7, 2017, DOGM granted the final approval of the Phase II expansion of this facility. Construction of the Phase II expansion commenced on August 14, 2017. This initial work concentrated on the construction of the 2nd sediment pond for the facility. The 2nd sediment pond has subsequently been completed and the "as-built" details were submitted to DOGM on 2/20/18. DOGM's conditional approval was granted on 3/9/18, pending the resubmittal of "clean" copies. Dugout submitted the "clean" copies on 3/14/18 and final approval was received from DOGM on 3/20/18.

4. Placement and compaction of fill materials

Placement and compaction of this refuse appears to have been completed in accordance with the approved plan.

5. Final grading and revegetation of fill.

As part of the Phase II expansion process, newly recovered soils were relocated and utilized for the contemporaneous reclamation of the northern portion of the existing refuse pile. All planned contemporaneous reclamation is now complete. This work included subsoil placement, topsoil placement, seeding and finalizing with select erosion control stabilization methods. With the wet winter and spring faint signs of vegetation is appearing on the reclaimed portion of the site.

6. Appearances of instability, structural weakness, and other hazardous conditions

There was no appearance of instability, structural weakness or other hazardous conditions observed during this inspection.

7. Other comments. Describe any changes in the geometry of the Excess Spoil/Refuse Pile structure, instrumentation, average and maximum lifts of materials placed in the pile, elevations of active benches, total and remaining storage capacity of the structure, evidence of fires in the pile and abatement of such fires, volumes of materials placed in the structure during the year, and any other aspect of the structure affecting its stability or function which has occurred during the reporting period

The site was not active at the time of the inspection. However, refuse placement has now expanded into the southern slope of the refuse pile. This new refuse volume is actively being placed in the additional space provided by the Phase II expansion.

A check of the records indicates that 85,985.52 Tons / 57,902.71 Yards was delivered from the Castle Valley Prep Plant to this facility YTD. Records also indicate that the most recent sample of refuse taken for analysis was obtained on 9/30/19.

CERTIFICATION STATEMENT

I hereby certify that; I am experienced in the construction of earth and rock fills; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of earth and rock fills in accordance with the certified and approved designs for this structure; that the fill structure has been maintained in accordance with the approved design and meet or exceed the minimum design requirements under all applicable federal, state, and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

By R. Jay Marshall, Engineering Manager
Full Name and Title

Signature *R. Jay Marshall* Date 10/21/19

P.E. Number and State No. 152606, State of Utah

[Cert. Stamp]



*To enter text, click in the box and type your response. If a box already contains an entry select the entry and type the replacement. You can use the **tab** key to move from one field to the next. To select a check box, click in the box or type an x.*

GENERAL INFORMATION

Report Date January 17, 2020
Permit Number C/007/039
Company Name Canyon Fuel Company, LLC - Dugout Canyon Mine

EXCESS SPOIL PILE OR REFUSE PILE IDENTIFICATION

Pile Name Dugout Canyon Mine Refuse Pile
Pile Number 1211-UT-09-01890-01
MSHA ID Number 42-01890

Inspection Date November 11, 2019
Inspected By Seth McCourt
Reason for Inspection Quarterly Inspection & Certification

Attachment to Report? Yes No

Field Evaluation

1. Foundation preparation, including the removal of all organic material and topsoil.

The foundation preparation was found to be in accordance with the approved plan.

2. Placement of underdrains and protective filter systems.

N/A

3. Installation of final surface drainage systems

All necessary drainage systems were constructed, functional and well established at the time of the inspection.

On June 7, 2017, DOGM granted the final approval of the Phase II expansion of this facility. Construction of the Phase II expansion commenced on August 14, 2017. This initial work concentrated on the construction of the 2nd sediment pond for the facility. The 2nd sediment pond has subsequently been completed and the "as-built" details were submitted to DOGM on 2/20/18. DOGM's conditional approval was granted on 3/9/18, pending the resubmittal of "clean" copies. Dugout submitted the "clean" copies on 3/14/18 and final approval was received from DOGM on 3/20/18.

4. Placement and compaction of fill materials

Placement and compaction of this refuse appears to have been completed in accordance with the approved plan.

5. Final grading and revegetation of fill.

As part of the Phase II expansion process, newly recovered soils were relocated and utilized for the contemporaneous reclamation of the northern portion of the existing refuse pile. All planned contemporaneous reclamation is now complete. This work included subsoil placement, topsoil placement, seeding and finalizing with select erosion control stabilization methods. With the wet winter and spring faint signs of vegetation is appearing on the reclaimed portion of the site.

6. Appearances of instability, structural weakness, and other hazardous conditions

There was no appearance of instability, structural weakness or other hazardous conditions observed during this inspection.

7. Other comments. Describe any changes in the geometry of the Excess Spoil/Refuse Pile structure, instrumentation, average and maximum lifts of materials placed in the pile, elevations of active benches, total and remaining storage capacity of the structure, evidence of fires in the pile and abatement of such fires, volumes of materials placed in the structure during the year, and any other aspect of the structure affecting its stability or function which has occurred during the reporting period

The site was not active at the time of the inspection. However, refuse placement has now expanded into the southern slope of the refuse pile. This new refuse volume is actively being placed in the additional space provided by the Phase II expansion.

A check of the records indicates that 161,335.37 Tons / 108,643.35 Yards was delivered from the Castle Valley Prep Plant to this facility YTD. Records also indicate that the most recent sample of refuse taken for analysis was obtained on 11/10/19.

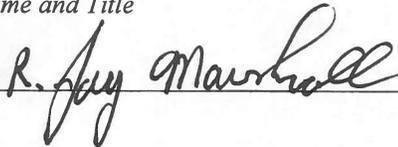
CERTIFICATION STATEMENT

I hereby certify that; I am experienced in the construction of earth and rock fills; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of earth and rock fills in accordance with the certified and approved designs for this structure; that the fill structure has been maintained in accordance with the approved design and meet or exceed the minimum design requirements under all applicable federal, state, and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

By R. Jay Marshall, Engineering Manager

Full Name and Title

Signature



Date

3/10/20

P.E. Number and State

No. 152606, State of Utah

[Cert. Stamp]



APPENDIX B

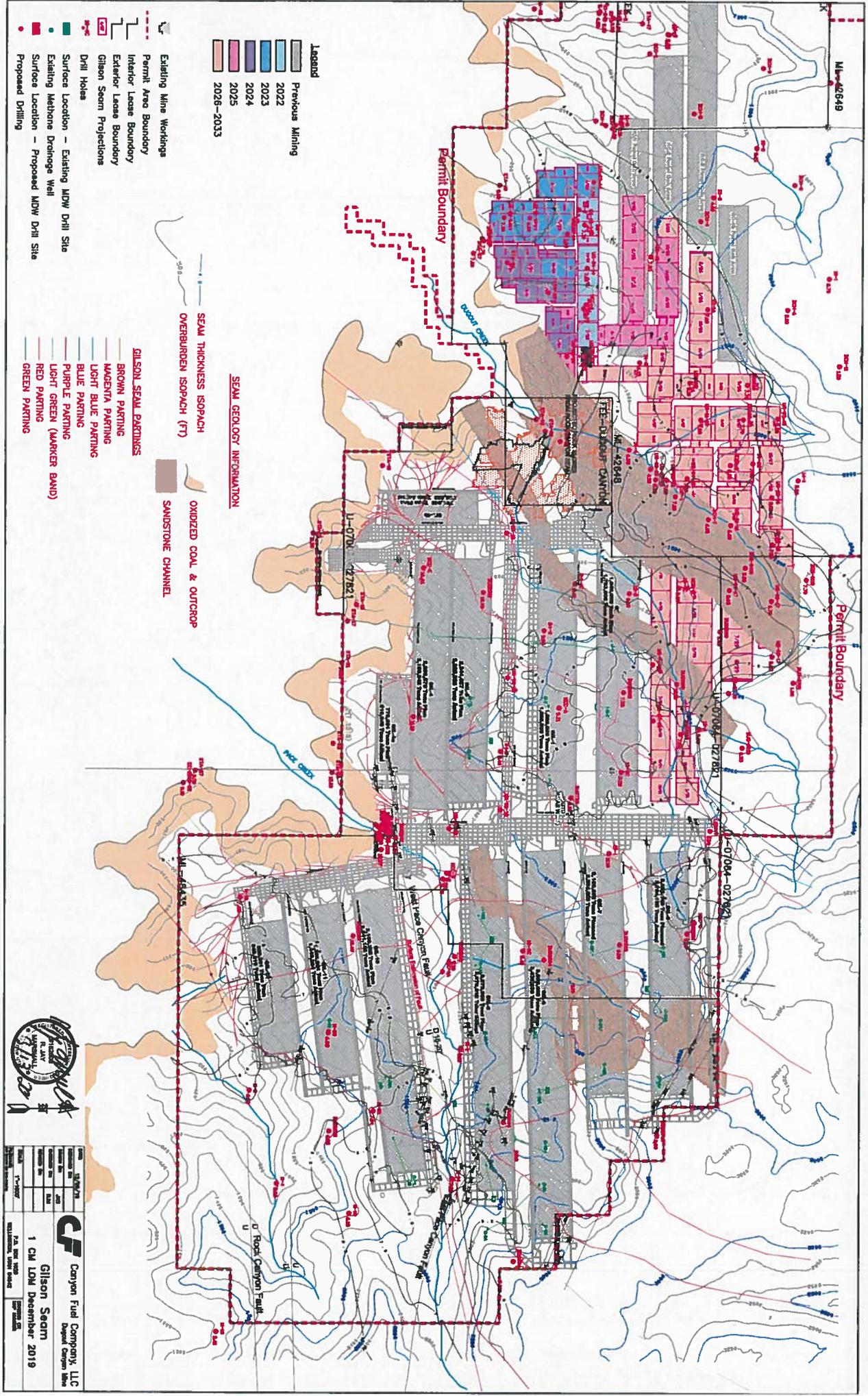
Certified Mine Maps

As required under R645-310-512 and R645-301-521

CONTENTS

Mine Map – Gilson Seam

Mine Map – Rock Canyon Seam



- Existing Mine Workings
- Permit Area Boundary
- Interior Lease Boundary
- Exterior Lease Boundary
- Gilson Seam Projections
- Drill Holes
- Surface Location - Existing MDW Drill Site
- Existing Machine Drainage Well
- Surface Location - Proposed MDW Drill Site
- Proposed Drilling

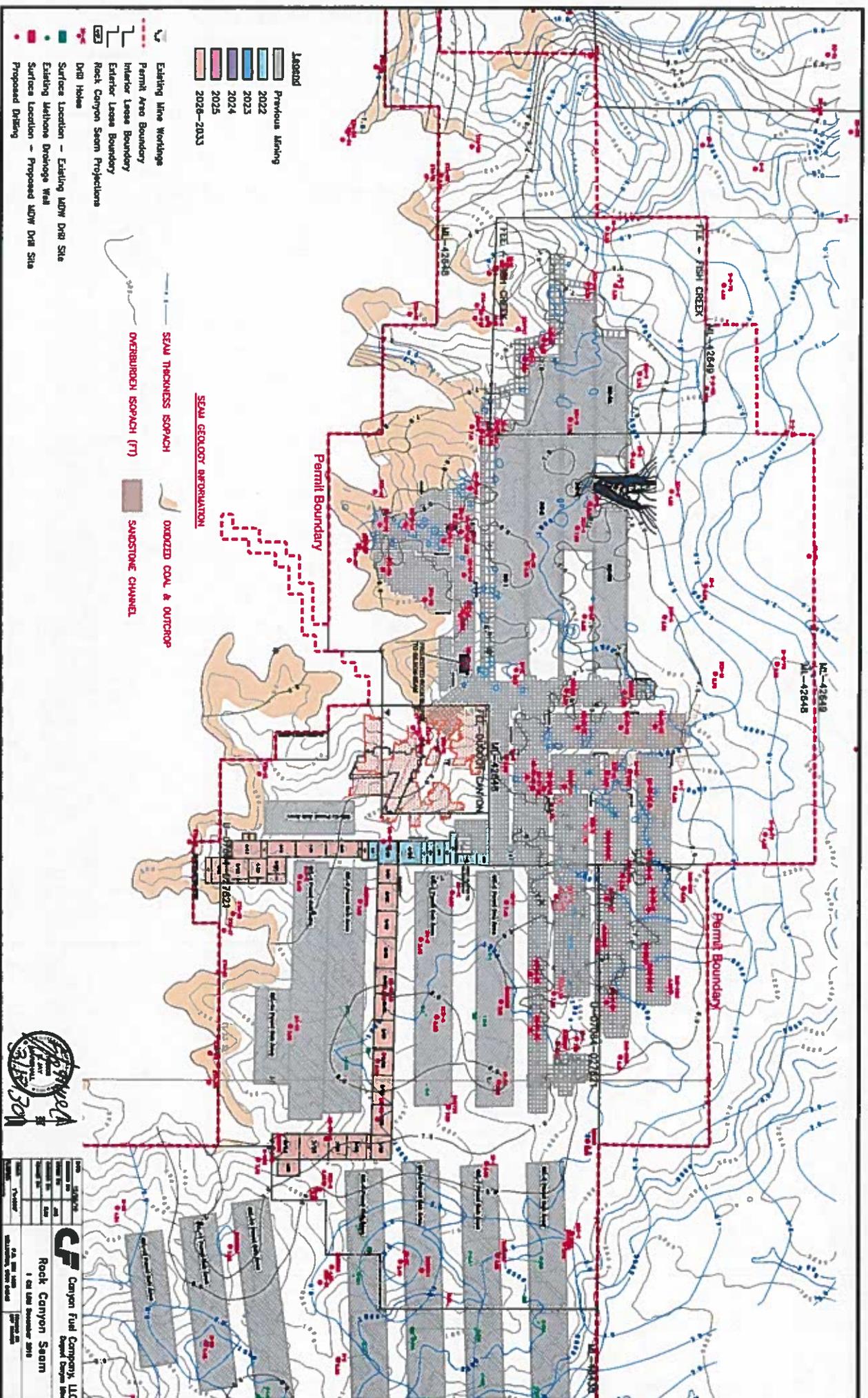
- Legend**
- Previous Mining
 - 2022
 - 2023
 - 2024
 - 2025
 - 2026-2033

- SEAM GEOLOGY INFORMATION**
- SEAM THICKNESS ISOPACH
 - OVERBURDEN ISOPACH (FT)
 - OXIDIZED COAL & OUTCROP
 - SANDSTONE CHANNEL
- GILSON SEAM PARTINGS**
- BROWN PARTING
 - MAGENTA PARTING
 - LIGHT BLUE PARTING
 - BLUE PARTING
 - PURPLE PARTING
 - LIGHT GREEN (MARKER BAND)
 - RED PARTING
 - GREEN PARTING



Canyon Fuel Company, LLC
 Digital Canyon Mine
Gilson Seam
 1 CM LOM December 2019

DATE	12/10/2019
SCALE	1"=1000'
PROJECT	DIGITAL CANYON MINE
REVISION	NO. 1
BY	W. JAY
CHECKED BY	W. JAY
DATE	12/10/2019
SCALE	1"=1000'
PROJECT	DIGITAL CANYON MINE
REVISION	NO. 1
BY	W. JAY
CHECKED BY	W. JAY
DATE	12/10/2019



- Legend**
- Previous Mining
 - 2022
 - 2023
 - 2024
 - 2025
 - 2026-2033

- Existing Mine Workings
- Permit Area Boundary
- Interior Lease Boundary
- Exterior Lease Boundary
- Rock Canyon Seam Projections
- DWB Holes
- Surface Location - Existing MDW DWB Site
- Existing Leikhone Drainage Wall
- Surface Location - Proposed MDW DWB Site
- Proposed Drilling

- SEAM THICKNESS ISOPACH
- OXIDIZED COAL & OUTCROP
- OVERBURDEN ISOPACH (FT)
- SANDSTONE CHANNEL
- SEAM GEOLOGY DEFORMATION



Rock Canyon Seam
 Canyon Fuel Company, LLC
 August 2018
 10100 Canyon Road
 Rock Canyon, NM 87042
 505.288.3300

APPENDIX C

Other Information

As required under R645-300, R645-301, & R645-302

CONTENTS

Refuse Pile Assessment

Subsidence Report & Map

Waste Rock Sampling

Dugout Canyon Mine Refuse Pile

2019 Annual Assessment

The following information has been determined for the 2018 activities conducted at the Dugout Canyon Mine Refuse Pile:

- 2018 Total Delivered Tonnage –161,335 Tons
- Average Density of the Placed and Compacted Refuse – 110 lbs/ft³
- Estimated 2019 Placed Refuse Volume – 2,933,370 ft³ (108,643 yd³)
- Estimated Capacity Remaining at Year's End – 11,112,381 ft³ (648,074 Tons @ 116.64 bs/ft³) (Note: The year-end capacity values include the Phase II Expansion project which was fully permitted and partially constructed in 2017.)

R. Jay Marshall, P.E.
Engineering Supervisor
P.E. No. 152606, State of Utah



Dugout Canyon Mine – Visual Checks for Subsidence – 2019

Dugout Canyon Mine, M&RP, Chapter 5, Section 525 “Visual checks for subsidence will be made during all surface activities, especially during water monitoring activities.

These visual surveys will be used to detect surface irregularities and surface cracks.”

During 2019 water monitoring in March (no access to higher elevations), May, September and October “No surface irregularities or surface cracks were observed”.

R. Jay Marshall
R. Jay Marshall P.E.

Engineering Supervisor





Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Date: 4/8/2019

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1902257

sampled 2/21/19

CASE NARRATIVE

Report ID: S1902257001

Sample WR 2019-02 was received on February 25, 2019.

Samples were analyzed using the methods outlined in the following references:

U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
American Society of Agronomy, Number 9, Part 2, 1982
USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
State of Nevada Modified Sobek Procedure
Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by: *Karen A Secor*

Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1902257001

Project: Dugout Canyon Mine
Date Received: 2/25/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 4/8/2019
Work Order: S1902257

Lab ID	Sample ID	pH	Saturation	Electrical	Field	Wilting	Calcium	Magnesium	Potassium	Sodium	SAR
		s.u.	%	Conductivity	Capacity	Point	PE	PE	PE	PE	
				dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1902257-001	WR 2019-02	8.1	27.7	0.82	18.3	4.8	2.53	2.30	0.29	4.51	2.90

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1902257001

Project: Dugout Canyon Mine
Date Received: 2/25/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 4/8/2019
Work Order: S1902257

Lab ID	Sample ID	Sand	Silt	Clay	Texture	Boron	Phosphorus	Selenium	Nitrate(as N)	Nitrogen
		%	%	%		ppm	ppm	ppm	ppm	TKN
S1902257-001	WR 2019-02	76.0	18.0	6.0	Loamy Sand	0.87	1	0.02	0.4	0.20

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1902257001

Project: Dugout Canyon Mine
Date Received: 2/25/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 4/8/2019
Work Order: S1902257

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S1902257-001	WR 2019-02	0.62	0.49	18.3	13.8

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2SO4= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1902257001

Project: Dugout Canyon Mine
Date Received: 2/25/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 4/8/2019
Work Order: S1902257

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	l/1000t	l/1000t	l/1000t	%	%	%	l/1000t	l/1000t
S1902257-001	WR 2019-02	0.20	6.25	373	367	<0.01	0.11	0.11	3.40	370

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Date: 5/6/2019

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1904004

*Sampled
3/27/19*

CASE NARRATIVE

Report ID: S1904004001

Sample WR 2019-03 was received on April 1, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by: *Karen A Secor*
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1904004001

Project: Dugout Canyon Mine
Date Received: 4/1/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 5/6/2019
Work Order: S1904004

Lab ID	Sample ID	pH	Saturation	Electrical Conductivity	Field Capacity	Wilting Point	Calcium PE	Magnesium PE	Potassium PE	Sodium PE	SAR
		s. u.	%	dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1904004-001	WR 2019-03	7.6	26.6	1.65	17.6	4.4	6.20	7.50	0.47	5.54	2.12

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1904004001

Project: Dugout Canyon Mine
Date Received: 4/1/2019

Date Reported: 5/6/2019
Work Order: S1904004

Lab ID	Sample ID	Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	Nitrogen
										TKN %
S1904004-001	WR 2019-03	78.0	15.0	7.0	Loamy Sand	3.35	2	0.17	0.6	0.35

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1904004001

Project: Dugout Canyon Mine
Date Received: 4/1/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 5/6/2019
Work Order: S1904004

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S1904004-001	WR 2019-03	0.55	0.40	17.1	14.9

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1904004001

Project: Dugout Canyon Mine
Date Received: 4/1/2019

Date Reported: 5/6/2019
Work Order: S1904004

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	†/1000†	†/1000†	†/1000†	%	%	%	†/1000†	†/1000†
S1904004-001	WR 2019-03	1.17	36.4	179	142	0.16	0.73	0.28	22.8	156

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Date: 7/15/2019

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1905220

*sampled
5/9/19*

CASE NARRATIVE

Report ID: S1905220001

Sample WR 2019-03 was received on May 14, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by: *Karen A Secor*

Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report
Canyon Fuel Company

Report ID: S1905220001

Project: Dugout Canyon Mine
Date Received: 5/14/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 7/15/2019
Work Order: S1905220

Lab ID	Sample ID	pH	Saturation	Electrical	Field	Wilting	Calcium	Magnesium	Potassium	Sodium	SAR
		s.u.	%	Conductivity	Capacity	Point	PE	PE	PE	PE	
				dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1905220-001	WR 2019-03	7.5	41.4	1.75	17.8	4.9	8.41	9.46	0.39	4.20	1.41

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1905220001

Project: Dugout Canyon Mine
Date Received: 5/14/2019

Date Reported: 7/15/2019
Work Order: S1905220

Lab ID	Sample ID	Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	Nitrogen
										TKN %
S1905220-001	WR 2019-03	68.0	18.0	14.0	Sandy Loam	5.13	3	0.11	0.4	0.35

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1905220001

Project: Dugout Canyon Mine
Date Received: 5/14/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 7/15/2019
Work Order: S1905220

Lab ID	Sample ID	Available Sodium	Exchangeable Sodium	Total Carbon	TOC
		meq/100g	meq/100g	%	%
S1905220-001	WR 2019-03	0.48	0.31	22.9	21.5

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A. Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1905220001

Project: Dugout Canyon Mine
Date Received: 5/14/2019

Date Reported: 7/15/2019
Work Order: S1905220

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	l/1000t	l/1000t	l/1000t	%	%	%	l/1000t	l/1000t
S1905220-001	WR 2019-03	0.52	16.1	109	93.3	<0.01	0.24	0.28	7.50	102

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Date: 7/15/2019

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1906085

*sample
6/4/19*

CASE NARRATIVE
Report ID: S1906085001

Sample WR 2019-03 was received on June 6, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by: *Karen A Secor*

Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1906085001

Project: Dugout Canyon Mine
Date Received: 6/6/2019

Date Reported: 7/15/2019
Work Order: S1906085

Lab ID	Sample ID	pH	Saturation	Electrical	Field	Wilting	Calcium	Magnesium	Potassium	Sodium	SAR
		s.u.	%	Conductivity	Capacity	Point	PE	PE	PE	PE	
				dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1906085-001	WR 2019-03	7.6	34.9	1.39	16.0	5.5	8.32	11.3	0.66	9.18	2.93

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report
Canyon Fuel Company

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1906085001

Date Reported: 7/15/2019

Work Order: S1906085

Project: Dugout Canyon Mine
Date Received: 6/6/2019

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1906085-001	WR 2019-03	66.0	20.0	14.0	Sandy Loam	4.99	4	0.22	0.4	0.25

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1906085001

Project: Dugout Canyon Mine
Date Received: 6/6/2019

Date Reported: 7/15/2019
Work Order: S1906085

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S1906085-001	WR 2019-03	1.07	0.75	12.5	11.3

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1906085001

Project: Dugout Canyon Mine
Date Received: 6/6/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 7/15/2019
Work Order: S1906085

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	†/1000†	†/1000†	†/1000†	%	%	%	†/1000†	†/1000†
S1906085-001	WR 2019-03	0.72	22.6	100	77.7	0.09	0.43	0.20	13.4	86.8

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Date: 8/6/2019

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1906350

sample to be 6/14/19

CASE NARRATIVE

Report ID: S1906350001

Sample WR 2019-05 was received on June 19, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by: *Karen A Secor*

Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1906350001

Project: Dugout Canyon Mine
Date Received: 6/19/2019

Date Reported: 8/6/2019
Work Order: S1906350

Lab ID	Sample ID	pH	Saturation	Electrical Conductivity	Field Capacity	Wilting Point	Calcium PE	Magnesium PE	Potassium PE	Sodium PE	SAR
		s.u.	%	dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1906350-001	WR 2019-05	8.4	27.3	1.13	16.5	4.4	1.15	0.94	0.47	12.0	11.7

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1906350001

Project: Dugout Canyon Mine
Date Received: 6/19/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 8/6/2019
Work Order: S1906350

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1906350-001	WR 2019-05	74.0	18.0	8.0	Sandy Loam	0.80	2	0.05	0.2	0.12

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1906350001

Project: Dugout Canyon Mine
Date Received: 6/19/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 8/6/2019
Work Order: S1906350

Lab ID	Sample ID	Available Sodium	Exchangeable Sodium	Total Carbon	TOC
		meq/100g	meq/100g	%	%
S1906350-001	WR 2019-05	1.12	0.79	8.8	7.4

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

**Soil Analysis Report
Canyon Fuel Company**

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1906350001

Project: Dugout Canyon Mine
Date Received: 6/19/2019

Date Reported: 8/6/2019
Work Order: S1906350

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	1/1000t	1/1000t	1/1000t	%	%	%	1/1000t	1/1000t
S1906350-001	WR 2019-05	0.21	6.40	117	110	<0.01	0.12	0.08	3.75	113

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Oso= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Date: 8/6/2019

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1906440

sampled 6/24/19

CASE NARRATIVE

Report ID: S1906440001

Sample WR 2019-05 was received on June 27, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by: *Karen A Secor*

Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1906440001

Project: Dugout Canyon Mine
Date Received: 6/27/2019

Date Reported: 8/6/2019
Work Order: S1906440

Lab ID	Sample ID	pH	Saturation	Electrical Conductivity	Field Capacity	Wilting Point	Calcium PE	Magnesium PE	Potassium PE	Sodium PE	SAR
		s.u.	%	dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1906440-001	WR 2019-05	7.3	27.3	4.84	19.1	4.6	26.4	20.9	0.78	23.7	4.87

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1906440001

Project: Dugout Canyon Mine
Date Received: 6/27/2019

Date Reported: 8/6/2019
Work Order: S1906440

Lab ID	Sample ID	Sand	Silt	Clay	Texture	Boron	Phosphorus	Selenium	Nitrate(as N)	Nitrogen
		%	%	%		ppm	ppm	ppm	ppm	TKN
S1906440-001	WR 2019-05	76.0	16.0	8.0	Sandy Loam	1.19	2	0.03	1.5	0.14

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1906440001

Project: Dugout Canyon Mine
Date Received: 6/27/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 8/6/2019
Work Order: S1906440

Lab ID	Sample ID	Available Sodium	Exchangeable Sodium	Total Carbon	TOC
		meq/100g	meq/100g	%	%
S1906440-001	WR 2019-05	1.52	0.87	10.4	8.3

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs

1673 Terra Avenue, Sheridan, Wyoming 82801 ph: (307) 672-8945

Your Environmental Monitoring Partner

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1906440001

Project: Dugout Canyon Mine
Date Received: 6/27/2019

Date Reported: 8/6/2019
Work Order: S1906440

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	l/1000t	l/1000t	l/1000t	%	%	%	l/1000t	l/1000t
S1906440-001	WR 2019-05	0.50	15.7	179	163	0.29	0.12	0.09	3.75	175

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Date: 9/27/2019

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1907241

sample 7/10/19

CASE NARRATIVE
Report ID: S1907241001

Sample WR 2019-05 was received on July 15, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by: *Karen A Secor*

Karen Secor, Soil Lab Supervisor



Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

Your Environmental Monitoring Partner
ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1907241001

Project: Dugout Canyon Mine
Date Received: 7/15/2019

Date Reported: 9/27/2019
Work Order: S1907241

Lab ID	Sample ID	pH	Saturation	Electrical	Field	Wilting	Calcium	Magnesium	Potassium	Sodium	SAR
		s.u.	%	Conductivity	Capacity	Point	PE	PE	PE	PE	
				dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1907241-001	WR 2019-05	5.5	52.3	1.88	19.1	3.3	14.7	12.6	0.87	2.34	0.63

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A. Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

Your Environmental Monitoring Partner
ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1907241001

Project: Dugout Canyon Mine
Date Received: 7/15/2019

Date Reported: 9/27/2019
Work Order: S1907241

Lab ID	Sample ID	Sand	Silt	Clay	Texture	Boron	Phosphorus	Selenium	Nitrate(as N)	Nitrogen
		%	%	%		ppm	ppm	ppm	ppm	TKN
S1907241-001	WR 2019-05	86.0	11.0	3.0	Loamy Sand	1.31	12	0.06	0.2	0.39

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

Your Environmental Monitoring Partner
ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1907241001

Project: Dugout Canyon Mine
Date Received: 7/15/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 9/27/2019
Work Order: S1907241

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S1907241-001	WR 2019-05	0.61	0.49	30.3	30.0

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

Your Environmental Monitoring Partner
ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1907241001

Project: Dugout Canyon Mine
Date Received: 7/15/2019

Date Reported: 9/27/2019
Work Order: S1907241

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	1/1000t	1/1000t	1/1000t	%	%	%	1/1000t	1/1000t
S1907241-001	WR 2019-05	3.24	101	26.6	-74.5	0.59	1.83	0.82	57.2	-30.5

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

Your Environmental Monitoring Partner

ph: (307) 672-8945

Date: 9/27/2019

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1908042

sampled 8/1/19

CASE NARRATIVE
Report ID: S1908042001

Sample WR 2019-06 was received on August 5, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Inter-Mountain Laboratories except as indicated in this case narrative.

Reviewed by: *Karen A Secor*

Karen Secor, Soil Lab Supervisor



Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

Your Environmental Monitoring Partner
ph: (307) 672-8945

Soil Analysis Report

Canyon Fuel Company

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1908042001

Project: Dugout Canyon Mine

Date Received: 8/5/2019

Date Reported: 9/27/2019

Work Order: S1908042

Lab ID	Sample ID	pH	Saturation	Electrical	Field	Wilting	Calcium	Magnesium	Potassium	Sodium	SAR
		s.u.	%	Conductivity	Capacity	Point	PE	PE	PE	PE	
				dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1908042-001	WR 2019-06	7.1	37.8	2.20	18.4	6.0	17.4	12.6	0.99	5.87	1.52

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

Your Environmental Monitoring Partner
ph: (307) 672-8945

Soil Analysis Report

Canyon Fuel Company

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1908042001

Project: Dugout Canyon Mine
Date Received: 8/5/2019

Date Reported: 9/27/2019
Work Order: S1908042

Lab ID	Sample ID	Sand	Silt	Clay	Texture	Boron	Phosphorus	Selenium	Nitrate(as N)	Nitrogen
		%	%	%		ppm	ppm	ppm	ppm	TKN
S1908042-001	WR 2019-06	75.0	16.0	9.0	Sandy Loam	1.13	19	0.02	2.8	0.04

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A. Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

Your Environmental Monitoring Partner
ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1908042001

Project: Dugout Canyon Mine
Date Received: 8/5/2019

Date Reported: 9/27/2019
Work Order: S1908042

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S1908042-001	WR 2019-06	0.89	0.67	20.6	20.0

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

Your Environmental Monitoring Partner
ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company

Report ID: S1908042001

Project: Dugout Canyon Mine
Date Received: 8/5/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 9/27/2019
Work Order: S1908042

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	t/1000t	t/1000t	t/1000t	%	%	%	t/1000t	t/1000t
S1908042-001	WR 2019-06	1.70	53.2	50.3	-2.90	0.21	1.11	0.38	34.7	15.6

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Date: 11/8/2019

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1908389

*sampled
8/12/19*

CASE NARRATIVE

Report ID: S1908389001

Sample WR 2019-06 was received on August 26, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical (Formerly Inter-Mountain Laboratories) except as indicated in this case narrative.

Reviewed by: *Karen A Secor*

Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company

Report ID: S1908389001

Project: Dugout Canyon Mine

Dugout Canyon Mine

Date Reported: 11/8/2019

Date Received: 8/26/2019

P.O. Box 1029

Wellington, UT 84542

Work Order: S1908389

Lab ID	Sample ID	pH	Saturation	Electrical Conductivity	Field Capacity	Wilting Point	Calcium PE	Magnesium PE	Potassium PE	Sodium PE	SAR
		s.u.	%	dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1908389-001	WR 2019-06	8.3	50.9	0.72	21.9	5.0	1.23	1.21	0.49	4.46	4.04

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1908389001

Project: Dugout Canyon Mine

Date Received: 8/26/2019

Date Reported: 11/8/2019

Work Order: S1908389

Lab ID	Sample ID	Sand	Silt	Clay	Texture	Boron	Phosphorus	Selenium	Nitrate(as N)	Nitrogen
		%	%	%		ppm	ppm	ppm	ppm	TKN
S1908389-001	WR 2019-06	73.0	18.0	9.0	Sandy Loam	1.24	3	0.02	0.2	0.21

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1908389001

Project: Dugout Canyon Mine
Date Received: 8/26/2019

Date Reported: 11/8/2019
Work Order: S1908389

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S1908389-001	WR 2019-06	0.61	0.38	11.1	8.8

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1908389001

Project: Dugout Canyon Mine
Date Received: 8/26/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 11/8/2019
Work Order: S1908389

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	t/1000t	t/1000t	t/1000t	%	%	%	t/1000t	t/1000t
S1908389-001	WR 2019-06	0.34	10.5	199	189	0.06	0.14	0.14	4.37	195

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Date: 11/8/2019

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1909185

sampled 9/13/19

CASE NARRATIVE

Report ID: S1909185001

Sample WR 2019-06 was received on September 10, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical (Formerly Inter-Mountain Laboratories) except as indicated in this case narrative.

Reviewed by: *Karen A Secor*

Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1909185001

Project: Dugout Canyon Mine

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 11/8/2019

Date Received: 9/10/2019

Work Order: S1909185

Lab ID	Sample ID	pH	Saturation	Electrical	Field	Wilting	Calcium	Magnesium	Potassium	Sodium	SAR
		s.u.	%	Conductivity	Capacity	Point	PE	PE	PE	PE	
				dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1909185-001	WR 2019-06	8.6	34.3	0.89	23.0	5.4	1.54	1.62	0.44	6.81	5.42

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1909185001

Project: Dugout Canyon Mine
Date Received: 9/10/2019

Date Reported: 11/8/2019
Work Order: S1909185

Lab ID	Sample ID	Sand	Silt	Clay	Texture	Boron	Phosphorus	Selenium	Nitrate(as N)	Nitrogen
		%	%	%		ppm	ppm	ppm	ppm	TKN
S1909185-001	WR 2019-06	68.0	20.0	12.0	Sandy Loam	1.04	3	0.04	0.1	0.15

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1909185001

Project: Dugout Canyon Mine

Dugout Canyon Mine

Date Reported: 11/8/2019

Date Received: 9/10/2019

P.O. Box 1029

Wellington, UT 84542

Work Order: S1909185

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S1909185-001	WR 2019-06	0.82	0.58	10.4	7.5

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1909185001

Project: Dugout Canyon Mine

Dugout Canyon Mine

Date Reported: 11/8/2019

Date Received: 9/10/2019

P.O. Box 1029

Wellington, UT 84542

Work Order: S1909185

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	t/1000t	t/1000t	t/1000t	%	%	%	t/1000t	t/1000t
S1909185-001	WR 2019-06	0.41	12.7	240	227	0.05	0.24	0.12	7.50	232

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Date: 11/20/2019

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1909316

sampled 9/19/19

CASE NARRATIVE

Report ID: S1909316001

Sample WR 2019-07 was received on September 19, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical (Formerly Inter-Mountain Laboratories) except as indicated in this case narrative.

Reviewed by: *Karen A Secor*
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1909316001

Project: Dugout Canyon Mine
Date Received: 9/19/2019

Date Reported: 11/20/2019
Work Order: S1909316

Lab ID	Sample ID	pH	Saturation	Electrical Conductivity	Field Capacity	Wilting Point	Calcium PE	Magnesium PE	Potassium PE	Sodium PE	SAR
		s.u.	%	dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1909316-001	WR 2019-07	8.6	30.3	0.44	16.8	3.9	1.04	1.12	0.49	2.72	2.61

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1909316001

Project: Dugout Canyon Mine

Date Reported: 11/20/2019

Date Received: 9/19/2019

Work Order: S1909316

Lab ID	Sample ID	Sand	Silt	Clay	Texture	Boron	Phosphorus	Selenium	Nitrate(as N)	Nitrogen
		%	%	%		ppm	ppm	ppm	ppm	TKN
S1909316-001	WR 2019-07	70.0	16.0	14.0	Sandy Loam	0.29	2	0.03	0.6	0.06

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1909316001

Project: Dugout Canyon Mine

Date Received: 9/19/2019

Date Reported: 11/20/2019

Work Order: S1909316

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S1909316-001	WR 2019-07	0.20	<0.01	4.4	3.9

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1909316001

Project: Dugout Canyon Mine

Date Received: 9/19/2019

Date Reported: 11/20/2019

Work Order: S1909316

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	1/1000t	1/1000t	1/1000t	%	%	%	1/1000t	1/1000t
S1909316-001	WR 2019-07	0.25	7.69	42.4	34.8	0.01	0.18	0.06	5.62	36.8

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2SO4= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot = Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Date: 11/20/2019

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1910040

9/30/19
Sampled

CASE NARRATIVE

Report ID: S1910040001

Sample Refuse Pile was received on October 2, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical (Formerly Inter-Mountain Laboratories) except as indicated in this case narrative.

Reviewed by: Karen A Secor

Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1910040001

Project: Dugout Canyon Mine
Date Received: 10/2/2019

Date Reported: 11/20/2019
Work Order: S1910040

Lab ID	Sample ID	pH	Saturation	Electrical Conductivity	Field Capacity	Wilting Point	Calcium PE	Magnesium PE	Potassium PE	Sodium PE	SAR
		s.u.	%	dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1910040-001	Refuse Pile	8.8	36.8	0.79	18.5	4.5	0.86	0.62	0.23	8.83	10.3

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1910040001

Project: Dugout Canyon Mine
Date Received: 10/2/2019

Date Reported: 11/20/2019
Work Order: S1910040

Lab ID	Sample ID	Sand	Silt	Clay	Texture	Boron	Phosphorus	Selenium	Nitrate(as N)	Nitrogen
		%	%	%		ppm	ppm	ppm	ppm	TKN
S1910040-001	Refuse Pile	66.0	18.0	16.0	Sandy Loam	1.22	2	0.02	0.6	0.15

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Oso= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor


Formerly Inter-Mountain Laboratories
 1673 Terra Avenue Sheridan, WY 82801 ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company

Report ID: S1910040001

Project: Dugout Canyon Mine
Date Received: 10/2/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 11/20/2019
Work Order: S1910040

Lab ID	Sample ID	Available Sodium	Exchangeable Sodium	Total Carbon	TOC
		meq/100g	meq/100g	%	%
S1910040-001	Refuse Pile	1.29	<0.01	9.8	6.9

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate
 Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential
 Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1910040001

Project: Dugout Canyon Mine
Date Received: 10/2/2019

Date Reported: 11/20/2019
Work Order: S1910040

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	1/1000t	1/1000t	1/1000t	%	%	%	1/1000t	1/1000t
S1910040-001	Refuse Pile	0.26	8.15	240	232	<0.01	0.17	0.09	5.31	235

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H20Sol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Inter-Mountain Labs
Sheridan, WY and Gillette, WY

- CHAIN OF CUSTODY RECORD -

Page 1 of 1

All shaded fields must be completed.
This is a legal document: any misrepresentation may be construed as fraud.

181413

Client Name Canyon Fuel-Dugart Mine		Project Identification Dugart		Sampler (Signature/Attestation of Authenticity)		Telephone #	
Report Address		Contact Name		ANALYSES / PARAMETERS			
Invoice Address		Email					
		Phone					
		Purchase Order #		Quote #		REMARKS	
ITEM	LAB ID (Lab Use Only)	DATE SAMPLED	TIME	SAMPLE IDENTIFICATION	Matrix	# of Containers	
1	S19100410-001	9/30/19		Refuse Pile	SL	1	
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
LAB COMMENTS		Relinquished By (Signature/Printed)		DATE	TIME	Received By (Signature/Printed)	
						Kare Alan 10/2/19 1030	
SHIPPING INFO		MATRIX CODES		TURNAROUND TIMES		COMPLIANCE INFORMATION	
<input type="checkbox"/> UPS <input type="checkbox"/> Fed Express <input type="checkbox"/> US Mail <input type="checkbox"/> Hand Carried <input type="checkbox"/> Other _____		Water WT Soil SL Solid SD Filter FT Other OT		Check desired service <input type="checkbox"/> Standard turnaround <input type="checkbox"/> RUSH - 5 Working Days <input type="checkbox"/> URGENT - < 2 Working Days <i>Rush & Urgent Surcharges will be applied</i>		Compliance Monitoring? Y / N Program (SDWA, NPDES,...) PWSID / Permit # Chlorinated? Y / N Sample Disposal: Lab Client	
						ADDITIONAL REMARKS	



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Date: 1/22/2020

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1910274

sampled 10/11/19

CASE NARRATIVE

Report ID: S1910274001

Sample **WR 2019-07** was received on October 15, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical (Formerly Inter-Mountain Laboratories) except as indicated in this case narrative.

Reviewed by: *Karen A Secor*

Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1910274001

Project: Dugout Canyon Mine
Date Received: 10/15/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 1/22/2020
Work Order: S1910274

Lab ID	Sample ID	pH	Saturation	Electrical Conductivity	Field Capacity	Wilting Point	Calcium PE	Magnesium PE	Potassium PE	Sodium PE	SAR
		s. u.	%	dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1910274-001	WR 2019-07	8.1	30.7	0.56	20.8	4.6	1.06	1.03	0.49	3.58	3.50

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Oso= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1910274001

Project: Dugout Canyon Mine

Date Received: 10/15/2019

Date Reported: 1/22/2020

Work Order: S1910274

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1910274-001	WR 2019-07	67.0	21.0	12.0	Sandy Loam	0.68	3	0.16	0.5	0.13

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S = Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot = Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1910274001

Project: Dugout Canyon Mine

Date Received: 10/15/2019

Date Reported: 1/22/2020

Work Order: S1910274

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S1910274-001	WR 2019-07	0.46	0.35	2.7	1.9

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Oso= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1910274001

Project: Dugout Canyon Mine

Dugout Canyon Mine

Date Reported: 1/22/2020

Date Received: 10/15/2019

P.O. Box 1029

Work Order: S1910274

Wellington, UT 84542

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	1/1000t	1/1000t	1/1000t	%	%	%	1/1000t	1/1000t
S1910274-001	WR 2019-07	0.13	4.07	64.4	60.4	0.02	0.08	0.03	2.50	61.9

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Date: 1/22/2020

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1910381

sampled 10/18/19

CASE NARRATIVE
Report ID: S1910381001

Sample **WR 2019-08** was received on October 22, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical (Formerly Inter-Mountain Laboratories) except as indicated in this case narrative.

Reviewed by: *Karen A Secor*

Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1910381001

Project: Dugout Canyon Mine

Date Received: 10/22/2019

Date Reported: 1/22/2020

Work Order: S1910381

Lab ID	Sample ID	pH s.u.	Saturation %	Electrical Conductivity dS/m	Field Capacity %	Wilting Point %	Calcium PE meq/L	Magnesium PE meq/L	Potassium PE meq/L	Sodium PE meq/L	SAR
S1910381-001	WR 2019-08	8.3	33.2	1.08	19.6	5.4	0.59	0.46	0.27	12.0	16.6

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1910381001

Project: Dugout Canyon Mine
Date Received: 10/22/2019

Date Reported: 1/22/2020
Work Order: S1910381

Lab ID	Sample ID	Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	Nitrogen
										TKN %
S1910381-001	WR 2019-08	65.0	21.0	14.0	Sandy Loam	1.44	3	0.04	0.3	0.16

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1910381001

Project: Dugout Canyon Mine

Date Received: 10/22/2019

Date Reported: 1/22/2020

Work Order: S1910381

Lab ID	Sample ID	Available Sodium	Exchangeable Sodium	Total Carbon	TOC
		meq/100g	meq/100g	%	%
S1910381-001	WR 2019-08	1.74	1.35	10.9	7.9

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1910381001

Project: Dugout Canyon Mine

Date Received: 10/22/2019

Date Reported: 1/22/2020

Work Order: S1910381

Lab ID	Sample ID	Total	T.S.	Neutral.	T.S.	Sulfate	Pyritic	Organic	PyriticS	PyriticS
		Sulfur	AB	Potential	ABP	Sulfur	Sulfur	Sulfur	AB	ABP
		%	1/1000t	1/1000t	1/1000t	%	%	%	1/1000t	1/1000t
S1910381-001	WR 2019-08	0.14	4.32	249	245	0.04	0.11	0.07	3.44	246

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Date: 1/22/2020

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1910472

sampled 10/29/19

CASE NARRATIVE

Report ID: S1910472001

Sample WR 2019-08 was received on October 30, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical (Formerly Inter-Mountain Laboratories) except as indicated in this case narrative.

Reviewed by: *Karen A Secor*

Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1910472001

Project: Dugout Canyon Mine

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 1/22/2020

Date Received: 10/30/2019

Work Order: S1910472

Lab ID	Sample ID	pH	Saturation	Electrical Conductivity	Field Capacity	Wilting Point	Calcium PE	Magnesium PE	Potassium PE	Sodium PE	SAR
		s. u.	%	dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1910472-001	WR 2019-08	7.3	28.4	1.99	19.4	5.2	4.72	4.95	0.64	16.6	7.55

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report

Canyon Fuel Company

Dugout Canyon Mine

P.O. Box 1029

Wellington, UT 84542

Report ID: S1910472001

Date Reported: 1/22/2020

Work Order: S1910472

Project: Dugout Canyon Mine

Date Received: 10/30/2019

Lab ID	Sample ID	Sand	Silt	Clay	Texture	Boron	Phosphorus	Selenium	Nitrate(as N)	Nitrogen
		%	%	%		ppm	ppm	ppm	ppm	TKN
S1910472-001	WR 2019-08	64.0	22.0	14.0	Sandy Loam	1.07	2	0.04	0.2	0.17

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1910472001

Project: Dugout Canyon Mine

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 1/22/2020

Date Received: 10/30/2019

Work Order: S1910472

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S1910472-001	WR 2019-08	1.09	0.62	12.6	7.8

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1910472001

Project: Dugout Canyon Mine

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 1/22/2020

Date Received: 10/30/2019

Work Order: S1910472

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	1/1000t	1/1000t	1/1000t	%	%	%	1/1000t	1/1000t
S1910472-001	WR 2019-08	1.46	45.5	408	362	<0.01	1.53	0.16	47.8	360

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Date: 1/22/2020

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1911108

Sampled 11/5/19

CASE NARRATIVE
Report ID: S1911108001

Sample WR 2019-08 was received on November 7, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical (Formerly Inter-Mountain Laboratories) except as indicated in this case narrative.

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1911108001

Project: Dugout Canyon Mine

Date Received: 11/7/2019

Date Reported: 1/22/2020

Work Order: S1911108

Lab ID	Sample ID	pH	Saturation	Electrical	Field	Wilting	Calcium	Magnesium	Potassium	Sodium	SAR
		s. u.	%	Conductivity	Capacity	Point	PE	PE	PE	PE	
				dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1911108-001	WR 2019-08	8.0	29.3	0.51	20.5	4.7	0.72	0.62	0.40	3.76	4.58

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by:

Karen A Secor

Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1911108001

Project: Dugout Canyon Mine

Date Received: 11/7/2019

Date Reported: 1/22/2020

Work Order: S1911108

Lab ID	Sample ID	Sand	Silt	Clay	Texture	Boron	Phosphorus	Selenium	Nitrate(as N)	Nitrogen
		%	%	%		ppm	ppm	ppm	ppm	TKN
S1911108-001	WR 2019-08	74.0	17.0	9.0	Sandy Loam	0.53	3	0.03	0.2	0.12

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company

Report ID: S1911108001

Project: Dugout Canyon Mine

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 1/22/2020

Date Received: 11/7/2019

Work Order: S1911108

Lab ID	Sample ID	Available Sodium	Exchangeable Sodium	Total Carbon	TOC
		meq/100g	meq/100g	%	%
S1911108-001	WR 2019-08	0.56	0.45	6.4	5.1

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by:

Karen A Secor

Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1911108001

Project: Dugout Canyon Mine

Date Received: 11/7/2019

Date Reported: 1/22/2020

Work Order: S1911108

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	l/1000t	l/1000t	l/1000t	%	%	%	l/1000t	l/1000t
S1911108-001	WR 2019-08	0.19	5.98	106	99.5	<0.01	0.14	0.05	4.37	101

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by:

Karen A Secor

Karen Secor, Soil Lab Supervisor



Date: 1/22/2020

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1911231

sampled 11/11/19

CASE NARRATIVE

Report ID: S1911231001

Sample WR 2019-08 was received on November 15, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical (Formerly Inter-Mountain Laboratories) except as indicated in this case narrative.

Reviewed by: *Karen A Secor*

Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1911231001

Project: Dugout Canyon Mine

Date Received: 11/15/2019

Date Reported: 1/22/2020

Work Order: S1911231

Lab ID	Sample ID	pH	Saturation	Electrical	Field	Wilting	Calcium	Magnesium	Potassium	Sodium	SAR
		s.u.	%	Conductivity	Capacity	Point	PE	PE	PE	PE	
				dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1911231-001	WR 2019-08	7.6	28.7	0.86	19.3	4.9	1.94	2.24	0.70	4.33	2.99

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report

Canyon Fuel Company

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1911231001

Project: Dugout Canyon Mine

Date Received: 11/15/2019

Date Reported: 1/22/2020

Work Order: S1911231

Lab ID	Sample ID	Sand	Silt	Clay	Texture	Boron	Phosphorus	Selenium	Nitrate(as N)	Nitrogen
		%	%	%		ppm	ppm	ppm	ppm	TKN
S1911231-001	WR 2019-08	65.0	21.0	14.0	Sandy Loam	0.75	2	0.06	0.3	0.15

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1911231001

Project: Dugout Canyon Mine
Date Received: 11/15/2019

Date Reported: 1/22/2020
Work Order: S1911231

Lab ID	Sample ID	Available Sodium	Exchangeable Sodium	Total Carbon	TOC
		meq/100g	meq/100g	%	%
S1911231-001	WR 2019-08	0.58	0.46	5.7	5.4

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1911231001

Project: Dugout Canyon Mine
Date Received: 11/15/2019

Date Reported: 1/22/2020
Work Order: S1911231

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	1/1000t	1/1000t	1/1000t	%	%	%	1/1000t	1/1000t
S1911231-001	WR 2019-08	0.92	28.8	26.0	-2.80	0.03	0.77	0.12	24.1	1.99

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Date: 1/22/2020

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1911273

*sampled
11/18/19*

CASE NARRATIVE

Report ID: S1911273001

Sample WR 2019-09 was received on November 20, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical (Formerly Inter-Mountain Laboratories) except as indicated in this case narrative.

Reviewed by: *Karen A Secor*

Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1911273001

Project: Dugout Canyon Mine
Date Received: 11/20/2019

Date Reported: 1/22/2020
Work Order: S1911273

Lab ID	Sample ID	pH	Saturation	Electrical	Field	Wilting	Calcium	Magnesium	Potassium	Sodium	SAR
		s. u.	%	Conductivity	Capacity	Point	PE	PE	PE	PE	
				dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1911273-001	WR 2019-09	8.2	29.8	0.47	16.8	5.3	1.05	1.15	0.55	2.25	2.14

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1911273001

Project: Dugout Canyon Mine

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 1/22/2020

Date Received: 11/20/2019

Work Order: S1911273

Lab ID	Sample ID	Sand	Silt	Clay	Texture	Boron	Phosphorus	Selenium	Nitrate(as N)	Nitrogen
		%	%	%		ppm	ppm	ppm	ppm	TKN
S1911273-001	WR 2019-09	77.0	17.0	6.0	Loamy Sand	0.62	3	0.04	0.1	0.06

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1911273001

Project: Dugout Canyon Mine
Date Received: 11/20/2019

Date Reported: 1/22/2020
Work Order: S1911273

Lab ID	Sample ID	Available Sodium	Exchangeable Sodium	Total Carbon	TOC
		meq/100g	meq/100g	%	%
S1911273-001	WR 2019-09	0.46	0.39	2.8	2.4

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1911273001

Project: Dugout Canyon Mine
Date Received: 11/20/2019

Date Reported: 1/22/2020
Work Order: S1911273

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	1/1000t	1/1000t	1/1000t	%	%	%	1/1000t	1/1000t
S1911273-001	WR 2019-09	0.16	5.00	32.8	27.8	<0.01	0.12	0.04	3.75	29.0

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Date: 1/22/2020

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1912013

*sampled
11/22/19*

CASE NARRATIVE

Report ID: S1912013001

Sample WR 2019-10 was received on December 2, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical (Formerly Inter-Mountain Laboratories) except as indicated in this case narrative.

Reviewed by: *Karen A. Secor*

Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1912013001

Project: Dugout Canyon Mine
Date Received: 12/2/2019

Date Reported: 1/22/2020
Work Order: S1912013

Lab ID	Sample ID	pH	Saturation	Electrical	Field	Wilting	Calcium	Magnesium	Potassium	Sodium	SAR
		s.u.	%	Conductivity	Capacity	Point	PE	PE	PE	PE	
				dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1912013-001	WR 2019-10	8.1	35.6	0.39	16.5	5.1	0.81	0.80	0.44	2.31	2.58

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by:

Karen A Secor

Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1912013001

Project: Dugout Canyon Mine
Date Received: 12/2/2019

Date Reported: 1/22/2020
Work Order: S1912013

Lab ID	Sample ID	Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrogen	
									Nitrate(as N) ppm	TKN %
S1912013-001	WR 2019-10	67.0	19.0	14.0	Sandy Loam	0.60	2	0.04	0.1	0.12

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot = Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1912013001

Project: Dugout Canyon Mine

Dugout Canyon Mine

Date Reported: 1/22/2020

Date Received: 12/2/2019

P.O. Box 1029

Work Order: S1912013

Wellington, UT 84542

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S1912013-001	WR 2019-10	0.50	0.41	6.8	6.5

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1912013001

Project: Dugout Canyon Mine
Date Received: 12/2/2019

Date Reported: 1/22/2020
Work Order: S1912013

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	t/1000t	t/1000t	t/1000t	%	%	%	t/1000t	t/1000t
S1912013-001	WR 2019-10	0.13	4.08	27.0	22.9	0.02	0.05	0.06	1.56	25.5

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Date: 1/22/2020

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1912173

*Samples
12/4/19*

CASE NARRATIVE

Report ID: S1912173001

Sample WR 2019-10 was received on December 12, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical (Formerly Inter-Mountain Laboratories) except as indicated in this case narrative.

Reviewed by: *Karen A Secor*

Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1912173001

Project: Dugout Canyon Mine
Date Received: 12/12/2019

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 1/22/2020
Work Order: S1912173

Lab ID	Sample ID	pH	Saturation	Electrical Conductivity	Field Capacity	Wilting Point	Calcium PE	Magnesium PE	Potassium PE	Sodium PE	SAR
		s.u.	%	dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1912173-001	WR 2019-10	7.6	34.6	1.15	21.8	4.1	2.05	3.34	0.27	7.62	4.65

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1912173001

Project: Dugout Canyon Mine
Date Received: 12/12/2019

Date Reported: 1/22/2020
Work Order: S1912173

Lab ID	Sample ID	Sand	Silt	Clay	Texture	Boron	Phosphorus	Selenium	Nitrate(as N)	Nitrogen
		%	%	%		ppm	ppm	ppm	ppm	TKN
S1912173-001	WR 2019-10	62.0	23.0	15.0	Sandy Loam	0.64	2	<0.02	<0.1	0.25

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1912173001

Project: Dugout Canyon Mine
Date Received: 12/12/2019

Date Reported: 1/22/2020
Work Order: S1912173

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S1912173-001	WR 2019-10	0.63	0.37	11.9	11.4

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2SO4= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A. Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1912173001

Project: Dugout Canyon Mine

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Date Reported: 1/22/2020

Date Received: 12/12/2019

Work Order: S1912173

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	1/1000t	1/1000t	1/1000t	%	%	%	1/1000t	1/1000t
S1912173-001	WR 2019-10	1.08	33.9	39.4	5.52	0.08	0.77	0.23	24.1	15.3

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Date: 1/22/2020

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1912225

*sample
12/13/19*

CASE NARRATIVE

Report ID: S1912225001

Sample WR 2019-11 was received on December 16, 2019.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical (Formerly Inter-Mountain Laboratories) except as indicated in this case narrative.

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1912225001

Project: Dugout Canyon Mine

Dugout Canyon Mine

Date Reported: 1/22/2020

Date Received: 12/16/2019

P.O. Box 1029

Wellington, UT 84542

Work Order: S1912225

Lab ID	Sample ID	pH	Saturation	Electrical Conductivity	Field Capacity	Wilting Point	Calcium PE	Magnesium PE	Potassium PE	Sodium PE	SAR
		s.u.	%	dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S1912225-001	WR 2019-11	8.1	29.8	0.44	18.2	5.4	0.77	0.72	0.41	3.09	3.58

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor

Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories
1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company
Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1912225001

Project: Dugout Canyon Mine
Date Received: 12/16/2019

Date Reported: 1/22/2020
Work Order: S1912225

Lab ID	Sample ID	Sand	Silt	Clay	Texture	Boron	Phosphorus	Selenium	Nitrate(as N)	Nitrogen
		%	%	%		ppm	ppm	ppm	ppm	TKN
S1912225-001	WR 2019-11	66.0	20.0	14.0	Sandy Loam	0.70	3	0.04	0.7	0.10

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1912225001

Project: Dugout Canyon Mine

Dugout Canyon Mine

P.O. Box 1029

Wellington, UT 84542

Date Reported: 1/22/2020

Date Received: 12/16/2019

Work Order: S1912225

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S1912225-001	WR 2019-11	0.64	0.55	4.0	3.8

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by:

Karen A Secor

Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

**Soil Analysis Report
Canyon Fuel Company**

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S1912225001

Project: Dugout Canyon Mine

Date Received: 12/16/2019

Date Reported: 1/22/2020

Work Order: S1912225

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	t/1000t	t/1000t	t/1000t	%	%	%	t/1000t	t/1000t
S1912225-001	WR 2019-11	0.40	12.4	20.0	7.59	0.04	0.29	0.07	9.06	10.9

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2Osol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Date: 3/12/2020

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S2001098

CASE NARRATIVE
Report ID: S2001098001

Sample WR 2019-11 was received on January 8, 2020.

Samples were analyzed using the methods outlined in the following references:

- U.S.E.P.A. 600/2-78-054 "Field and Laboratory Methods Applicable to Overburden and Mining Soils", 1978
- American Society of Agronomy, Number 9, Part 2, 1982
- USDA Handbook 60 "Diagnosis and Improvement of Saline and Alkali Soils", 1969
- Wyoming Department of Environmental Quality, Land Quality Division, Guideline No. 1, 1984
- New Mexico Overburden and Soils Inventory and Handling Guideline, March 1987
- State of Utah, Division of Oil, Gas, and Mining: Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining, April 1988
- Montana Department of State Lands, Reclamation Division: Soil, Overburden, and Regraded Spoil Guidelines, December 1994
- State of Nevada Modified Sobek Procedure
- Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition

All Quality Control parameters met the acceptance criteria defined by EPA and Pace Analytical (Formerly Inter-Mountain Laboratories) except as indicated in this case narrative.

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S2001098001

Project: Dugout Canyon Mine

Date Received: 1/8/2020

Date Reported: 3/12/2020

Work Order: S2001098

Lab ID	Sample ID	pH	Saturation	Electrical	Field	Wilting	Calcium	Magnesium	Potassium	Sodium	SAR
		s.u.	%	Conductivity	Capacity	Point	PE	PE	PE	PE	
				dS/m	%	%	meq/L	meq/L	meq/L	meq/L	
S2001098-001	WR 2019-11	8.1	28.1	0.65	20.4	5.2	1.22	1.32	0.65	2.94	2.61

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S2001098001

Project: Dugout Canyon Mine

Date Received: 1/8/2020

Date Reported: 3/12/2020

Work Order: S2001098

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S2001098-001	WR 2019-11	65.0	23.8	11.3	Sandy Loam	0.53	2	0.04	0.3	<0.01

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report
Canyon Fuel Company

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S2001098001

Project: Dugout Canyon Mine

Date Received: 1/8/2020

Date Reported: 3/12/2020

Work Order: S2001098

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S2001098-001	WR 2019-11	0.57	0.48	2.1	1.9

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor



Formerly Inter-Mountain Laboratories

1673 Terra Avenue Sheridan, WY 82801

ph: (307) 672-8945

Soil Analysis Report

Canyon Fuel Company

Dugout Canyon Mine
P.O. Box 1029
Wellington, UT 84542

Report ID: S2001098001

Date Reported: 3/12/2020

Work Order: S2001098

Project: Dugout Canyon Mine

Date Received: 1/8/2020

Lab ID	Sample ID	Total Sulfur	T.S. AB	Neutral. Potential	T.S. ABP	Sulfate Sulfur	Pyritic Sulfur	Organic Sulfur	PyriticS AB	PyriticS ABP
		%	t/1000t	t/1000t	t/1000t	%	%	%	t/1000t	t/1000t
S2001098-001	WR 2019-11	0.13	4.07	21.0	16.9	<0.01	0.10	0.03	3.12	17.9

These results apply only to the samples tested.

Abbreviations for extractants: PE= Saturated Paste Extract, H2OSol= water soluble, AB-DTPA= Ammonium Bicarbonate-DTPA, AAO= Acid Ammonium Oxalate

Abbreviations used in acid base accounting: T.S.= Total Sulfur, AB= Acid Base, ABP= Acid Base Potential, PyrS= Pyritic Sulfur, Pyr+Org= Pyritic Sulfur + Organic Sulfur, Neutral. Pot.= Neutralization Potential

Miscellaneous Abbreviations: SAR= Sodium Adsorption Ratio, CEC= Cation Exchange Capacity, ESP= Exchangeable Sodium Percentage, TOC=Total Organic Carbon

Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

APPENDIX D

Confidential Information

As required under R645-300-124.300 and R645-527.700

CONTENTS

Raptor Monitoring Survey

Notices of Proposed Mining