



**Canyon Fuel
Company, LLC**

A Subsidiary of Bowtie Resource Holdings, LLC

Dugout Canyon Mine

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

March 8, 2018

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

RE: 2017 Annual Report for Dugout Canyon Mine

To Whom It May Concern:

Please find attached to this e-mail a copy of the 2017 Annual Report for Dugout Canyon Mine with relevant appendices.

If you have any questions or require further information, please contact me at (435) 636-2898 or Dave Spillman at (435) 636-2872.

Sincerely,

A handwritten signature in black ink, appearing to read 'Bill King', with a long, sweeping underline.

Bill King
Mining Engineer

Attachments

cc. Chris Hansen
Dave Spillman

ANNUAL REPORT

This Annual Report shows information the Division has for your mine. Submit the completed document and any additional information identified in the Appendices to the Division by the date specified in the cover letter. During a complete inspection an inspector will check and verify the information.

GENERAL INFORMATION

Company Name	Canyon Fuel Company, LLC	Mine Name	Dugout 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	dspillman@bowieresources.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: MRP, Chapter 3, Page 3-20

Operator Comments

See Appendix D Confidential

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: MRP, Volume 3, Chapter 5, Section 525.100, page 5-29

Operator Comments

Please note that an annual subsidence map is no longer required under Dugout's current Mining and Reclamation Plan as approved under DOGM's Task # 5562. The Mine's Annual Report for 2016 verify's no subsidence change for the established control points for two consecutive years. Indicating that the period of potential subsidence was completed and no further annual subsidence surveys will be conducted unless secondary mining is re-established at the Mine. Visual ground checks for subsidence will still be made of areas surrounding monitored seeps, springs and streams during hydrologic monitoring.

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 reports, and to be included in RA attachment 5-4.

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

Operator Comments

See Appendix C

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: Chp. 6, Section 631, Chp. 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 Did Not Meet Requirements Met 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: MRP, 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: MRP, 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: Vol. Chap 3, Sec. 322, pp. 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

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 - Gilson Seam	Appendix B	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Mine Map - Rock Canyon 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

Please note that mine maps are not considered confidential as specified by R645-300-124.300.

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
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Permit Number	ACT/007/039	Report Date	3/23/17
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	
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Inspection Date	3/10/17
Inspected By	Bill King
Reason for Inspection <small>(Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)</small>	Routine Quarterly Inspection

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

There were no signs of 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 - 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 29 %, 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>
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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, the level of the impounded water was approximately 3.5 feet below the bottom of the skimmer at the principal spillway riser. The sediment cleanout marker was not visible, however Nielson Construction had recently completed a full cleanout of the accumulated sediment on June 12th, 2016. The pond was not discharging at the time of the inspection and there were no signs of any issues regarding stability of the embankment. The pond is scheduled for a full cleanout in June of 2017.

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: 3/23/17

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	6/9/2017
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	6/8/2017		
Inspected By	Bill King		
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, a conservative estimate on sediment volume is 38 %, which would correspond to an elevation of approximately 6,950.5 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>At the time of the inspection, the level of the impounded water was approximately 4.5 feet below the bottom of the skimmer at the principal spillway riser. The sediment cleanout marker was not visible, however Nielson Construction had recently completed a full cleanout of the accumulated sediment on June 12th, 2016. The pond was not discharging at the time of the inspection and there were no signs of any issues regarding stability of the embankment. The pond is scheduled for a full cleanout in July of 2017.</i></p>			

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 2	
Permit Number	ACT/007/039	Report Date	08/06/17
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	08/06/17		
Inspected By	Dave Spillman		
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Routine Quarterly Inspection and Annual Certification		
<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>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>Nielson Construction was contracted to clean the sediment accumulation out of the Dugout Canyon Mine sedimentation pond. Cleanout operations were conducted on August 5th & 6th. Nielson Construction also cleaned the pond in 2003, 2004, 2006, 2007, 2008, 2009, 2010, 2011, 2013, 2014, 2015 and 2016. Following the 2003 cleanout, Johansen and Tuttle Engineering, Inc., was contracted to survey the as-built details of the sedimentation pond. The as-built details of the pond were subsequently submitted to DOGM in September 2003 and were approved by DOGM in October 2003.</i></p> <p><i>During the 2003 cleanout, it was observed that the original pond was excavated to a point where the bottom was solid and substantial. This bottom is easily recognizable during cleaning operations. During the 2017 cleanout, it was observed that Nielson Construction cleaned sediment down to the same solid bottom.</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 inspection, the cleanout operations were complete. With the exception of one small pile along the northwestern edge of the impoundment, it appeared that the total sediment cleanout had been completed. This small pile was just beyond the safe reach of the long reach track-hoe and removal of this minimal volume did not warrant additional risk.

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

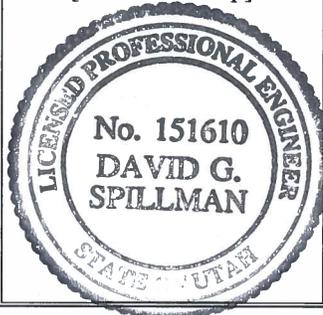
IMPOUNDMENT EVALUATION (If NO, explain under Comments)	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	X	
2. Is impoundment free of instability, structural weakness, or any other hazardous condition?	X	
3. Has the impoundment met all applicable performance standards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

COMMENTS AND OTHER INFORMATION

Certification Statement:

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: David G. Spillman, Technical Services Manager
(Full Name and Title)

Signature: David G. Spillman Date: 08/06/17

P.E. Number & State: No. 151610, State of Utah

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 3	
Permit Number	ACT/007/039	Report Date	11/29/2017
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	11/29/2017		
Inspected By	Bill King		
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, a conservative estimate on sediment volume is 15%, which would correspond to an elevation of approximately 6,949 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>Nielson Construction was contracted to clean the sediment accumulation out of the Dugout Canyon Mine sedimentation pond. Cleanout operations were conducted on August 5th & 6th. Nielson Construction also cleaned the pond in 2003, 2004, 2006, 2007, 2008, 2009, 2010, 2011, 2013, 2014, 2015 and 2016. Following the 2003 cleanout, Johansen and Tuttle Engineering, Inc., was contracted to survey the as-built details of the sedimentation pond. The as-built details of the pond were subsequently submitted to DOGM in September 2003 and were approved by DOGM in October 2003.</i></p> <p><i>During the 2003 cleanout, it was observed that the original pond was excavated to a point where the bottom was solid and substantial. This bottom is easily recognizable during cleaning operations. During the 2017 cleanout, it was observed that Nielson Construction cleaned sediment down to the same solid bottom.</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: Bill King Date: 11/29/17

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	C/007/039	Report Date	3/23/17
Mine Name	Dugout Canyon Mine		
Company Name	Canyon Fuel Company, LLC		
Impoundment Identification	Impoundment Name	Surface Facility Wastewater Disposal System (Leach Field)	
	Impoundment Number	None	
	UPDES Permit Number	None	
	MSHA ID Number	None (Mine - 42-01890)	
IMPOUNDMENT INSPECTION			
Inspection Date	3/10/17		
Inspected By	Bill King		
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.	2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.		
	3. Principle and emergency spillway elevations.		
<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, the leach field site appeared to be functioning as designed. There was no evidence to suggest that any effluent was improperly flowing to the surface at the septic tank, the distribution line clean-outs, air vent or downhill from the leach field.</i></p>			

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT

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.

No changes in the geometry of the leach field were observed.

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: *M. L. [Signature]*

Date: 3/23/17

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

The Dugout Canyon Mine wastewater disposal system was approved for operation on October 30, 2001. The Utah Department of Environmental Quality, Southeast Utah District, granted this approval.

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	C/007/039	Report Date	06/27/17
Mine Name	Dugout Canyon Mine		
Company Name	Canyon Fuel Company, LLC		
Impoundment Identification	Impoundment Name	Surface Facility Wastewater Disposal System (Leach Field)	
	Impoundment Number	None	
	UPDES Permit Number	None	
	MSHA ID Number	None (Mine - 42-01890)	
IMPOUNDMENT INSPECTION			
Inspection Date	06/05/17		
Inspected By	Dave Spillman		
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Routine Quarterly Inspection and Annual Certification		
<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>3. Principle and emergency spillway elevations.</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, the leach field site appeared to be functioning as designed. There was no evidence to suggest that any effluent was improperly flowing to the surface at the facility site, at the septic tank, at the distribution line clean-outs or air vent.</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.

During the 2015 repair and maintenance activities, all rubber rabbitbrush was grubbed from the site. This removal of the rubber rabbitbrush was intended to help minimize the root impact to the facilities subsurface laterals. Control of the rubber rabbitbrush has continued, with the most recent select spraying being implemented during June 2017.

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

The Dugout Canyon Mine wastewater disposal system was approved for operation on October 30, 2001. The Utah Department of Environmental Quality, Southeast Utah District, granted this approval.

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: David G. Spillman, Technical Services Manager
(Full Name and Title)

Signature: David Spillman **Date:** 06/27/17

P.E. Number & State: No. 151610, State of Utah

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 2
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Permit Number	C/007/039	Report Date	9/25/2017
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Mine Name	Dugout Canyon Mine
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Company Name	Canyon Fuel Company, LLC
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Impoundment Identification	Impoundment Name	Surface Facility Wastewater Disposal System (Leach Field)
	Impoundment Number	None
	UPDES Permit Number	None
	MSHA ID Number	None (Mine - 42-01890)

IMPOUNDMENT INSPECTION	
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Inspection Date	9/13/2017
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Inspected By	Bill King
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Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Routine Quarterly Inspection
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1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.

There were no signs of 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>3. Principle and emergency spillway elevations.</p>
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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 outcrops of embankments, etc.

At the time of the inspection, the leach field site appeared to be functioning as designed. There was no evidence to suggest that any effluent was improperly flowing to the surface at the facility site, at the septic tank, at the distribution line clean-outs or air vent.

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.

During the 2015 repair and maintenance activities, all rubber rabbitbrush was grubbed from the site. This removal of the rubber rabbitbrush was intended to help minimize the root impact to the facilities subsurface laterals. Control of the rubber rabbitbrush has continued, with the most recent select spraying being implemented during June 2017.

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: 9/25/17

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

The Dugout Canyon Mine wastewater disposal system was approved for operation on October 30, 2001. The Utah Department of Environmental Quality, Southeast Utah District, granted this approval.

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

Permit Number	C/007/039	Report Date	11/28/2017
Mine Name	Dugout Canyon Mine		
Company Name	Canyon Fuel Company, LLC		
Impoundment Identification	Impoundment Name	Surface Facility Wastewater Disposal System (Leach Field)	
	Impoundment Number	None	
	UPDES Permit Number	None	
	MSHA ID Number	None (Mine - 42-01890)	

IMPOUNDMENT INSPECTION

Inspection Date	10/24/2017
Inspected By	Bill King
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Routine Quarterly Inspection

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

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

Required for an impoundment which functions as a SEDIMENTATION POND.	2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.
	3. Principle and emergency spillway elevations.

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, the leach field site appeared to be functioning as designed. There was no evidence to suggest that any effluent was improperly flowing to the surface at the facility site, at the septic tank, at the distribution line clean-outs or air vent.

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.

During the 2015 repair and maintenance activities, all rubber rabbitbrush was grubbed from the site. This removal of the rubber rabbitbrush was intended to help minimize the root impact to the facilities subsurface laterals. Control of the rubber rabbitbrush has continued, with the most recent select spraying being implemented during June 2017.

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: *Mrs King* Date: 11/20/17

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

The Dugout Canyon Mine wastewater disposal system was approved for operation on October 30, 2001. The Utah Department of Environmental Quality, Southeast Utah District, granted this approval.

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	Time	Inspector(s) Signature <i>[Signature]</i>	Quarterly Inspection Form
	3/10/2017	9:32		

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					See Note Below
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 with vegetation.

Pace Cyn.Sediment Trap	Date	Time	Inspector(s) Signature <i>Russ Thig</i>	Quarterly Inspection Form
	6/12/2017	9:54		

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					See Note Below

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.	2,878	0.3 ft. below Primary Spillway (6,990.7 ft.)
Emergency Spillway elevation (ft.)	6,993		Current sediment Volume ft^3 (est.)	651.2	6,987.96 ft.
			Remaining storage capacity ft^3 (est.)	2,227	Capacity from 50%,
			Percent sediment volume	11%	

Other Observations: Embankment covered with vegetation.

Pace Cyn.Sediment Trap	Date	Time	Inspector(s) Signature <i>[Signature]</i>	Quarterly Inspection Form
	9/13/2017	10:08		

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					See Note Below

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.	2,878	0.3 ft. below Primary Spillway (6,990.7 ft.)
Emergency Spillway elevation (ft.)	6,993		Current sediment Volume ft^3 (est.)	651.2	6,987.96 ft.
			Remaining storage capacity ft^3 (est.)	2,227	Capacity from 50%,
			Percent sediment volume	11%	

Other Observations: Embankment covered with vegetation.

Pace Cyn.Sediment Trap	Date	Time	Inspector(s) Signature	Quarterly Inspection Form
	10/30/2017	9:36	<i>Bill King</i>	

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					See Note Below

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.	2,878	0.3 ft. below Primary Spillway (6,990.7 ft.)
Emergency Spillway elevation (ft.)	6,993		Current sediment Volume ft^3 (est.)	651.2	6,987.96 ft.
			Remaining storage capacity ft^3 (est.)	2,227	Capacity from 50%,
			Percent sediment volume	11%	

Other Observations: Embankment covered with vegetation.

Permit Number	ACT/007/039	Report Date	3/23/17
Mine Name	Dugout Canyon Mine		
Company Name	Canyon Fuel Company, LLC		
Impoundment Identification	Impoundment Name	Refuse Pile Sedimentation Pond	
	Impoundment Number	None	
	UPDES Permit Number	UT0025593	
	MSHA ID Number	Impoundment - None (Refuse Pile 1211-UT-09-01890-01)	

IMPOUNDMENT INSPECTION

Inspection Date	3/10/17		
Inspected By	Bill King		
Reason for Inspection <small>(Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)</small>	Quarterly Inspection		

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.

The pond contained approximately 6-8" of snow, ice and water at the time of the inspection.

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: Bill King Date: 3/23/17

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	06/27/17
Mine Name	Dugout Canyon Mine		
Company Name	Canyon Fuel Company, LLC		
Impoundment Identification	Impoundment Name	Refuse Pile Sedimentation Pond	
	Impoundment Number	None	
	UPDES Permit Number	UT0025593	
	MSHA ID Number	Impoundment - None (Refuse Pile 1211-UT-09-01890-01)	
IMPOUNDMENT INSPECTION			
Inspection Date	06/05/17		
Inspected By	Dave Spillman		
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 dry 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: _____ 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:

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: David G. Spillman, Technical Services Manager
(Full Name and Title)

Signature: David Spillman Date: 06/27/17

P.E. Number & State: No. 151610, State of Utah

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 2	
Permit Number	ACT/007/039	Report Date	9/25/2017
Mine Name	Dugout Canyon Mine		
Company Name	Canyon Fuel Company, LLC		
Impoundment Identification	Impoundment Name	Refuse Pile Sedimentation Pond	
	Impoundment Number	None	
	UPDES Permit Number	UT0025593	
	MSHA ID Number	Impoundment -None (Refuse Pile 1211-UT-09-01890-01)	
IMPOUNDMENT INSPECTION			
Inspection Date	9/13/2017		
Inspected By	Bill King		
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Quarterly Inspection		
<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 dry 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>			

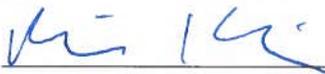
IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 2	
Permit Number	ACT/007/039	Report Date	9/26/2017
Mine Name	Dugout Canyon Mine		
Company Name	Canyon Fuel Company, LLC		
Impoundment Identification	Impoundment Name	Refuse Pile Sedimentation Pond #2	
	Impoundment Number	None	
	UPDES Permit Number	UT0025593	
	MSHA ID Number	Impoundment -None (Refuse Pile 1211-UT-09-01890-01)	
IMPOUNDMENT INSPECTION			
Inspection Date	9/14/2017		
Inspected By	Bill King		
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Quarterly Inspection		
<p>1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.</p> <p><i>The Refuse Pile Sedimentation Pond #2 is currently under construction. There were no signs instability, structural weakness or other hazardous conditions observed during this inspection. It is anticipated that the sedimentation pond #2 will be completed by the next 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% =</i></p>		
	<p>3. Principle and emergency spillway elevations.</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 dry at the time of the inspection.</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.

The refuse pile sedimentation pond #2 was under construction at the time of the inspection.

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: 9/26/17

CERTIFIED REPORT

IMPOUNDMENT EVALUATION (If NO, explain under Comments)

YES NO

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

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	11/10/2017
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	11/03/2017		
Inspected By	David Spillman		
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 outslopes of embankments, etc.</p> <p><i>The pond was dry 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: _____ Date: _____

CERTIFIED REPORT

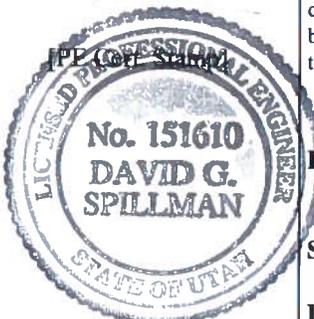
IMPOUNDMENT EVALUATION (If NO, explain under Comments)

	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:

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: David G. Spillman, Technical Services Manager
(Full Name and Title)

Signature: David G. Spillman Date: 11/10/17

P.E. Number & State: No. 151610, State of Utah

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of 2	
Permit Number	ACT/007/039	Report Date	12/01/2017
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	12/01/2017		
Inspected By	Jeff Erickson		
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 out slopes of embankments, etc.</p> <p><i>The pond was recently constructed in October 2017.</i> <i>The pond was dry at the time of the inspection.</i> <i>There is no embankment erosion.</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: _____ **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?

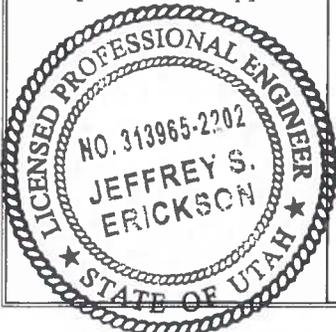
X

COMMENTS AND OTHER INFORMATION

Certification Statement:

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: Jeffrey S. Erickson, P.E. Mining Engineer
(Full Name and Title)

Signature: *Jeffrey S. Erickson* **Date:** 12/01/17

P.E. Number & State: No. 313965-2202, State of Utah

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GENERAL INFORMATION

Report Date March 23, 2017
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 15, 16 & 22, 2017
Inspected By David G. Spillman
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. Nielson Construction had recently been hired to complete some maintenance activities on the sites drainage systems. Their equipment was onsite during the inspections.

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.

N/A

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. A check of the records indicated that 9,609 tons (6,471 yd³ at 110 lbs/ft³) have been 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 03/22/16.

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 David G. Spillman, Technical Services Manager
Full Name and Title

Signature David G. Spillman Date 3/23/17

P.E. Number and State No. 151610, 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 June 6, 2017
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 June 5, 2017
Inspected By David G. Spillman
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. In March, Nielson Construction was hired to complete some maintenance activities on some of the sites drainage systems. This work was completed in early April and concentrated on the refurbishment of the drainage ditches adjacent to the facilities main access road.

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.

N/A

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. A check of the records indicated that 20,832 tons (14,028 yd3 at 110 lbs/ft3) have been 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 04/10/17.

Note: On May 9, 2017, DOGM tentatively approved the Phase II expansion of this facility. This expansion will add approximately 869,000 tons of additional refuse capacity to the site. Final approval is pending DOGM's acceptance of the "clean copies", of the Phase II amendment, for official incorporation into the mine's M&RP.

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 David G. Spillman, Technical Services Manager

Full Name and Title

Signature David Spillman Date 6-6-17

P.E. Number and State No. 151610, 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 28, 2017
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 July 27, 2017
Inspected By David G. Spillman
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. In March, Nielson Construction was hired to complete some maintenance activities on some of the sites drainage systems. This work was completed in early April and concentrated on the refurbishment of the undisturbed drainage ditches north to the facilities main access road. Furthermore, the as-built details of this work was documented and submitted to DOGM on June 29th.

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.

N/A

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 active at the time of the inspection. A GPS guided Cat was actively working the southeast portion of the refuse pile. To date, most of the eastern slopes and the Phase I expansion area have now been graded to their final maximum configuration. A check of the records indicates that 51,562 tons (34,722 yd³ at 110 lbs/ft³) have been 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 07/24/17.

Note: On June 7, 2017, DOGM granted the final approval of the Phase II expansion of this facility. This expansion will add approximately 869,000 tons of additional refuse capacity to the site. It's now expected that the initial construction of the Phase II expansion will commence in August.

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 David G. Spillman, Technical Services Manager
Full Name and Title

Signature David G. Spillman Date 7/28/17

P.E. Number and State No. 151610, 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 November 10, 2017
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 3, 2017
Inspected By David G. Spillman
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. On September 25, 2017, foundation preparation for a portion of the Phase II refuse pile expansion commenced. Test pits were dug for a qualified soil scientist and salvaging depths for both topsoil and subsoil were determined throughout the site. This information was communicated to the contractor. Vegetation was grubbed and boulders were relocated to support the recovery of topsoil & subsoil from this area. At the time of the inspection, all soil recovery efforts were complete and the expansion area was ready to accept refuse placement.

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 are currently being documented for incorporation into the mine's M&RP.

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 are to be relocated and utilized for the contemporaneous reclamation of the northern portion of the existing refuse pile. This portion of the pile had previously been graded to the final design slopes by utilizing a GPS guided Cat. The same GPS guided Cat will be used for placement of the required volumes of subsoil & topsoil. At the time of the inspection, subsoil placement was continuing and almost complete. Topsoil placement, seeding and erosion control stabilization methods will continue and are expected to be complete by months' end.

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 active at the time of the inspection. A GPS guided Cat was actively placing subsoil to design depths on the Phase I contemporaneous reclamation area. A second Cat was actively working and placing refuse on the southern slope of the refuse pile (towards the Phase II expansion area).

A check of the records indicates that 107,094 tons (72,117 yd³ at 110 lbs/ft³) have been 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 10/31/17.

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 David G. Spillman, Technical Services Manager
Full Name and Title

Signature David G. Spillman Date 11/10/17

P.E. Number and State No. 151610, State of Utah

[Cert. Stamp]



APPENDIX B

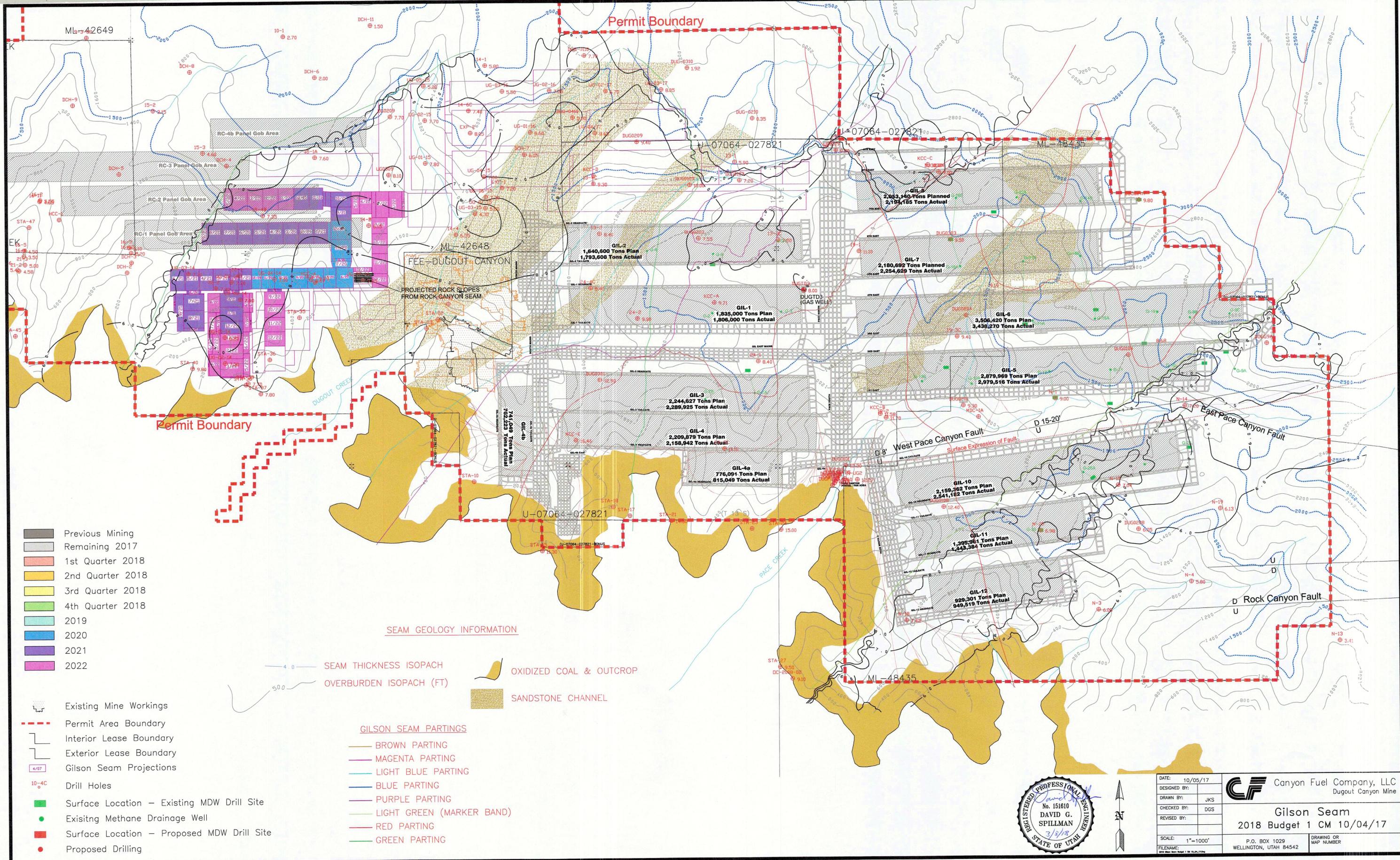
Certified Mine Maps

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

CONTENTS

Mine Map – Gilson Seam

Mine Map – Rock Canyon Seam

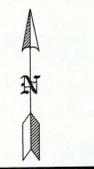
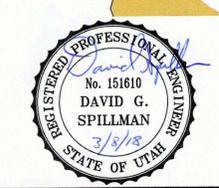


- Previous Mining
- Remaining 2017
- 1st Quarter 2018
- 2nd Quarter 2018
- 3rd Quarter 2018
- 4th Quarter 2018
- 2019
- 2020
- 2021
- 2022

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

- SEAM GEOLOGY INFORMATION**
- 4.0 SEAM THICKNESS ISOPACH
 - 5.0 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



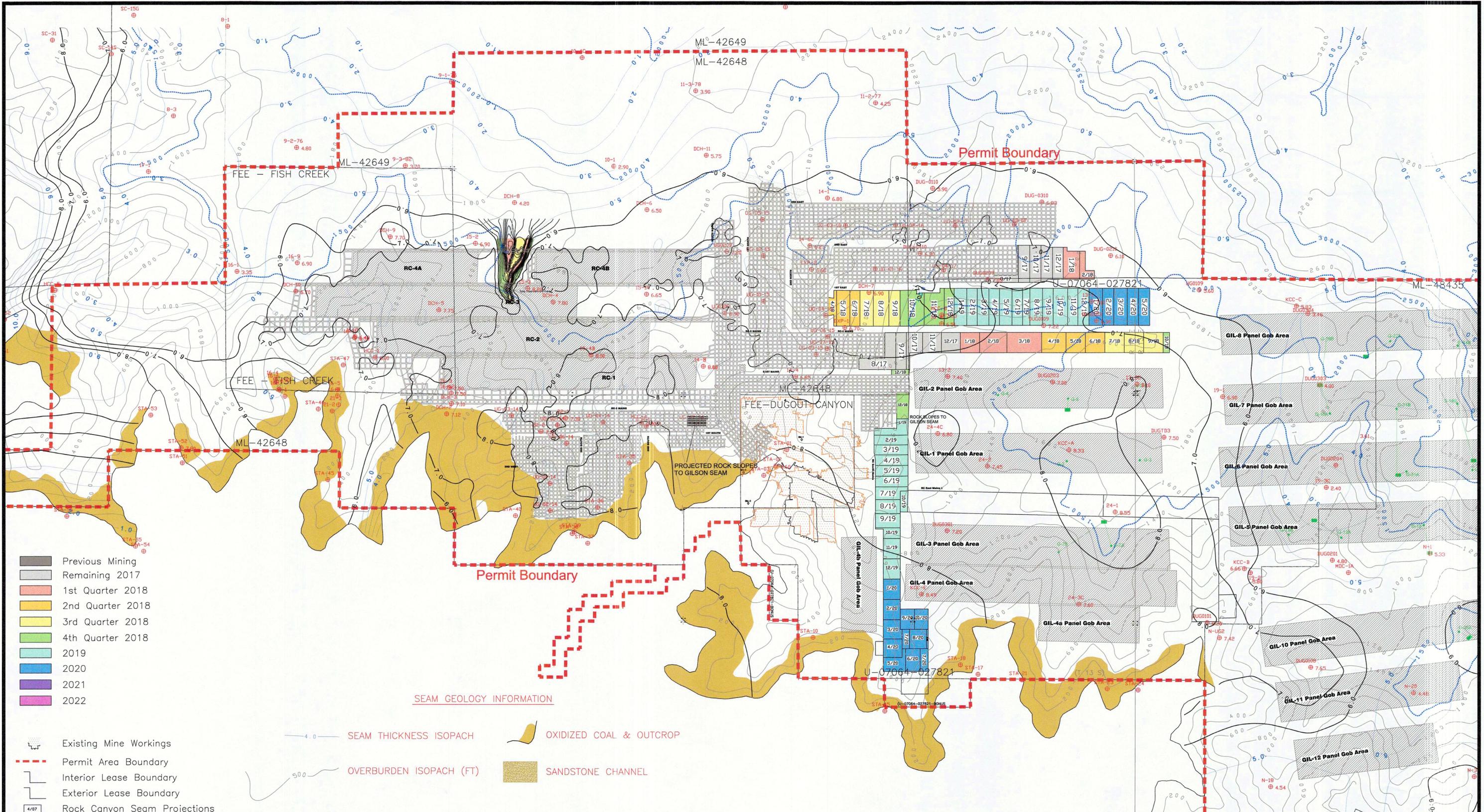
DATE:	10/05/17
DESIGNED BY:	JKS
DRAWN BY:	JKS
CHECKED BY:	DGS
REVISD BY:	
SCALE:	1"=1000'
FILENAME:	

Canyon Fuel Company, LLC
Dugout Canyon Mine

Gilson Seam
2018 Budget 1 CM 10/04/17

P.O. BOX 1029
WELLINGTON, UTAH 84542

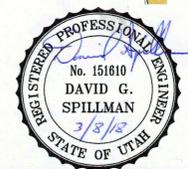
DRAWING OR
MAP NUMBER



- Previous Mining
- Remaining 2017
- 1st Quarter 2018
- 2nd Quarter 2018
- 3rd Quarter 2018
- 4th Quarter 2018
- 2019
- 2020
- 2021
- 2022

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

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



DATE:	10/05/17	Canyon Fuel Company, LLC Dugout Canyon Mine
DESIGNED BY:	JKS	
CHECKED BY:	DGS	
REVISED BY:		
SCALE:	1"=1000'	P.O. BOX 1029 WELLINGTON, UTAH 84542
FILENAME:		
Rock Canyon Seam 2018 Budget 1 CM 10/04/17		DRAWING OR MAP NUMBER

APPENDIX C

Other Information

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

CONTENTS

Refuse Pile Assessment

Subsidence Visual Checks

Waste Rock Sampling

Dugout Canyon Mine Refuse Pile 2017 Annual Assessment

The following information has been determined for the 2017 activities conducted at the Dugout Canyon Mine Refuse Pile:

- 2017 Total Delivered Tonnage – 116,148 Tons
- Estimated Average Density of the Placed and Compacted Refuse – 105.7 lbs/ft³
- Estimated 2017 Placed Refuse Volume – 2,198,127 ft³ (81,412 yd³)
- Permitted Capacity Remaining at Year's End – 14,833,935 ft³ (815,866 Tons @ 110 lbs/ft³)
(Note: The year-end capacity values include the Phase II Expansion project which was fully permitted and partially constructed in 2017.)

David G. Spillman, P.E.
Technical Services Manager
P.E. No. 151610-2202, State of Utah



Dugout Canyon Mine – Visual Checks for Subsidence – 2017

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 2017 water monitoring in March (no access to higher elevations), June, August and October “No surface irregularities or surface cracks were observed”.

X

Bill King 3/7/2018

Bill King
Mining Engineer



Date: 2/14/2017

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1701212

CASE NARRATIVE
Report ID: S1701212001

Sample WR 2017-01 was received on January 25, 2017.

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.

Karen A Secor



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1701212001

Date Reported: 2/14/2017

Work Order: S1701212

Project: Dugout Canyon Mine

Date Received: 1/25/2017

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	
S1701212-001	WR 2017-01	7.8	32.9	2.85	24.0	5.5	12.0	18.3	0.29	9.00	2.31

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

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



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1701212001

Project: Dugout Canyon Mine

Date Reported: 2/14/2017

Date Received: 1/25/2017

Work Order: S1701212

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1701212-001	WR 2017-01	80.0	14.0	6.0	Loamy Sand	0.93	4	<0.02	0.3	0.22

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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1701212001

Project: Dugout Canyon Mine

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

Date Reported: 2/14/2017

Date Received: 1/25/2017

Work Order: S1701212

Lab ID	Sample ID	Available	Exchangeable	Total	
		Sodium	Sodium	Carbon	TOC
		meq/100g	meq/100g	%	%
S1701212-001	WR 2017-01	0.56	0.27	13.0	11.5

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

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



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1701212001

Date Reported: 2/14/2017

Work Order: S1701212

Project: Dugout Canyon Mine

Date Received: 1/25/2017

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
S1701212-001	WR 2017-01	0.93	29.0	121	92.1	0.10	0.65	0.17	20.4	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

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

Inter-Mountain Laboratories, Inc.
CHAIN OF CUSTODY
DUGOUT CANYON MINE

51701212-001

Sample Identification	WR 2017-01																			
Sample Date	01/17/17																			
Number of Samples	1																			
Type of Soil	WR																			
Laboratory Analyses																				
Table 6, Topsoil & Overburden Parameters	X																			
AND																				
Texture	X																			
pH	X																			
Electrical Conductivity	X																			
Total Carbon	X																			
SAR	X																			
Water Holding Capacity	X																			
Plant Available Nitrogen	X																			
Phosphorus	X																			
Pyritic sulfur	X																			
T.S. ABP	X																			

WR (Waste Rock), SS (Sub-Soil), TS (Topsoil)

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
Bill King <i>Bill King</i>	1/23/2017	11:53 AM 11:53 AM	<i>Karen Secor</i>	1/25/17	1057



Date: 5/25/2017

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1705037

CASE NARRATIVE
Report ID: S1705037001

Samples WR 2017-02, and WR 2017-03 were received on May 2, 2017.

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.

Karen A Secor



Soil Analysis Report
Canyon Fuel Company

Report ID: S1705037001

Project: Dugout Canyon Mine

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

Date Reported: 5/25/2017

Date Received: 5/2/2017

Work Order: S1705037

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	
S1705037-001	WR 2017-02	8.5	27.8	3.36	23.0	3.2	11.5	9.76	1.33	19.3	5.91
S1705037-002	WR 2017-03	10.2	29.5	2.73	22.9	4.7	11.4	0.57	0.96	16.6	6.76

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

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



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1705037001

Project: Dugout Canyon Mine

Date Reported: 5/25/2017

Date Received: 5/2/2017

Work Order: S1705037

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1705037-001	WR 2017-02	80.0	14.0	6.0	Loamy Sand	0.52	3	<0.02	0.3	0.07
S1705037-002	WR 2017-03	82.0	13.0	5.0	Loamy Sand	0.68	4	0.02	1.0	0.07

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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1705037001

Project: Dugout Canyon Mine

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

Date Reported: 5/25/2017

Date Received: 5/2/2017

Work Order: S1705037

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S1705037-001	WR 2017-02	0.91	0.37	6.5	2.4
S1705037-002	WR 2017-03	1.12	0.63	7.9	2.5

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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1705037001

Project: Dugout Canyon Mine

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

Date Reported: 5/25/2017

Date Received: 5/2/2017

Work Order: S1705037

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
S1705037-001	WR 2017-02	0.11	3.31	342	339	0.01	0.05	0.04	1.67	341
S1705037-002	WR 2017-03	0.10	3.04	449	446	0.02	0.02	0.06	0.55	449

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

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

Inter-Mountain Laboratories, Inc.
CHAIN OF CUSTODY
DUGOUT CANYON MINE

51705037-001

Sample Identification	WR 2017-02																			
Sample Date	03/22/07																			
Number of Samples	1																			
Type of Soil	WR																			
Laboratory Analyses																				
Table 6, Topsoil & Overburden Parameters	X																			
AND																				
Texture	X																			
pH	X																			
Electrical Conductivity	X																			
Total Carbon	X																			
SAR	X																			
Water Holding Capacity	X																			
Plant Available Nitrogen	X																			
Phosphorus	X																			
Pyritic sulfur	X																			
T.S. ABP	X																			

WR (Waste Rock), SS (Sub-Soil), TS (Topsoil)

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
Bill King <i>Bill King</i>	4/28/2017	10:04 AM	<i>Karen Seco</i>	5/2/17	1035

Inter-Mountain Laboratories, Inc.
CHAIN OF CUSTODY
DUGOUT CANYON MINE

51705037-002

Sample Identification	WR 2017-03																			
Sample Date	04/10/17																			
Number of Samples	1																			
Type of Soil	WR																			
Laboratory Analyses																				
Table 6, Topsoil & Overburden Parameters	X																			
AND																				
Texture	X																			
pH	X																			
Electrical Conductivity	X																			
Total Carbon	X																			
SAR	X																			
Water Holding Capacity	X																			
Plant Available Nitrogen	X																			
Phosphorus	X																			
Pyritic sulfur	X																			
T.S. ABP	X																			

WR (Waste Rock), SS (Sub-Soil), TS (Topsoil)

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
Bill King <i>[Signature]</i>	4/28/2017	10:04 AM	<i>[Signature]</i>	5/2/17	1035



Date: 7/26/2017

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1706281

CASE NARRATIVE
Report ID: S1706281001

Sample WR 2017-04 was received on June 14, 2017.

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.

Karen A Secor



Soil Analysis Report
Canyon Fuel Company

Report ID: S1706281001

Project: Dugout Canyon Mine

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

Date Reported: 7/26/2017

Date Received: 6/14/2017

Work Order: S1706281

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	
S1706281-001	WR 2017-04	8.1	27.2	1.92	20.4	6.4	5.41	5.50	1.61	8.25	3.53

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

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



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1706281001

Project: Dugout Canyon Mine

Date Received: 6/14/2017

Date Reported: 7/26/2017

Work Order: S1706281

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1706281-001	WR 2017-04	61.0	29.0	10.0	Sandy Loam	0.67	3	0.14	0.2	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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1706281001

Project: Dugout Canyon Mine

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

Date Reported: 7/26/2017

Date Received: 6/14/2017

Work Order: S1706281

Lab ID	Sample ID	Available	Exchangeable	Total	
		Sodium	Sodium	Carbon	TOC
		meq/100g	meq/100g	%	%
S1706281-001	WR 2017-04	0.64	0.42	6.8	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

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



**Soil Analysis Report
Canyon Fuel Company**

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

Report ID: S1706281001

Project: Dugout Canyon Mine

Date Received: 6/14/2017

Date Reported: 7/26/2017

Work Order: S1706281

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
S1706281-001	WR 2017-04	0.22	6.90	109	103	<0.01	0.14	0.08	4.47	105

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

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

Inter-Mountain Laboratories, Inc.
CHAIN OF CUSTODY
DUGOUT CANYON MINE

5706281-001

Sample Identification	WR 2017-04																			
Sample Date	06/08/17																			
Number of Samples	1																			
Type of Soil	WR																			
Laboratory Analyses																				
Table 6, Topsoil & Overburden Parameters	X																			
AND																				
Texture	X																			
pH	X																			
Electrical Conductivity	X																			
Total Carbon	X																			
SAR	X																			
Water Holding Capacity	X																			
Plant Available Nitrogen	X																			
Phosphorus	X																			
Pyritic sulfur	X																			
T.S. ABP	X																			

WR (Waste Rock), SS (Sub-Soil), TS (Topsoil)

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
Bill King <i>Bill King</i>	6/9/2017	12:11 PM	<i>Karen Secor</i>	6/14/17	1500



Date: 7/26/2017

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1706446

CASE NARRATIVE
Report ID: S1706446001

Sample WR 2017-05 was received on June 23, 2017.

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.

Karen A Secor



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1706446001

Date Reported: 7/26/2017

Work Order: S1706446

Project: Dugout Canyon Mine

Date Received: 6/23/2017

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	
S1706446-001	WR 2017-05	8.3	35.4	0.98	15.9	5.0	0.54	0.52	0.45	8.54	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

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



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1706446001

Date Reported: 7/26/2017

Work Order: S1706446

Project: Dugout Canyon Mine

Date Received: 6/23/2017

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1706446-001	WR 2017-05	68.0	18.0	14.0	Sandy Loam	0.65	2	0.02	<0.1	0.23

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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1706446001

Project: Dugout Canyon Mine

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

Date Reported: 7/26/2017

Date Received: 6/23/2017

Work Order: S1706446

Lab ID	Sample ID	Available	Exchangeable	Total	
		Sodium	Sodium	Carbon	TOC
		meq/100g	meq/100g	%	%
S1706446-001	WR 2017-05	1.09	0.79	12.7	12.0

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

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



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1706446001

Project: Dugout Canyon Mine

Date Received: 6/23/2017

Date Reported: 7/26/2017

Work Order: S1706446

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
S1706446-001	WR 2017-05	0.25	7.69	55.3	47.6	<0.01	0.13	0.12	4.05	51.2

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

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

Inter-Mountain Laboratories, Inc.
CHAIN OF CUSTODY
DUGOUT CANYON MINE

51706446-001

Sample Identification	WR 2017-05																		
Sample Date	06/20/17																		
Number of Samples	1																		
Type of Soil	WR																		
Laboratory Analyses																			
Table 6, Topsoil & Overburden Parameters	X																		
AND																			
Texture	X																		
pH	X																		
Electrical Conductivity	X																		
Total Carbon	X																		
SAR	X																		
Water Holding Capacity	X																		
Plant Available Nitrogen	X																		
Phosphorus	X																		
Pyritic sulfur	X																		
T.S. ABP	X																		

WR (Waste Rock), SS (Sub-Soil), TS (Topsoil)

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
Bill King 	6/21/2017	7:15 AM		6/20/17	1100



Date: 7/31/2017

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1706501

CASE NARRATIVE
Report ID: S1706501001

Sample WR 2017-06 was received on June 28, 2017.

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.

Karen A Secor



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1706501001

Date Reported: 7/31/2017

Work Order: S1706501

Project: Dugout Canyon Mine

Date Received: 6/28/2017

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	
S1706501-001	WR 2017-06	8.6	34.1	1.11	23.7	7.1	1.03	0.74	0.42	7.91	8.42

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

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



**Soil Analysis Report
Canyon Fuel Company**

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

Report ID: S1706501001

Date Reported: 7/31/2017

Work Order: S1706501

Project: Dugout Canyon Mine

Date Received: 6/28/2017

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1706501-001	WR 2017-06	66.0	20.0	14.0	Sandy Loam	0.79	1	0.04	<0.1	0.19

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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1706501001

Project: Dugout Canyon Mine

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

Date Reported: 7/31/2017

Date Received: 6/28/2017

Work Order: S1706501

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S1706501-001	WR 2017-06	1.32	1.05	10.3	9.4

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

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



**Soil Analysis Report
Canyon Fuel Company**

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

Report ID: S1706501001

Date Reported: 7/31/2017

Work Order: S1706501

Project: Dugout Canyon Mine

Date Received: 6/28/2017

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
S1706501-001	WR 2017-06	0.20	6.05	75.5	69.4	<0.01	0.09	0.10	2.72	72.7

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

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



Date: 8/2/2017

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1707075

CASE NARRATIVE
Report ID: S1707075001

Sample WR 2017-07 was received on July 7, 2017.

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.

Karen A Secor



Soil Analysis Report
Canyon Fuel Company

Report ID: S1707075001

Project: Dugout Canyon Mine

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

Date Reported: 8/2/2017

Date Received: 7/7/2017

Work Order: S1707075

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	
S1707075-001	WR 2017-07	8.6	32.8	1.19	23.4	6.9	1.41	1.04	0.49	7.01	6.34

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

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



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1707075001

Project: Dugout Canyon Mine

Date Received: 7/7/2017

Date Reported: 8/2/2017

Work Order: S1707075

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1707075-001	WR 2017-07	77.0	17.0	6.0	Loamy Sand	0.63	3	0.03	0.6	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

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



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1707075001

Project: Dugout Canyon Mine

Date Received: 7/7/2017

Date Reported: 8/2/2017

Work Order: S1707075

Lab ID	Sample ID	Available	Exchangeable	Total	
		Sodium	Sodium	Carbon	TOC
		meq/100g	meq/100g	%	%
S1707075-001	WR 2017-07	1.49	1.26	8.1	6.6

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

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



**Soil Analysis Report
Canyon Fuel Company**

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

Report ID: S1707075001

Date Reported: 8/2/2017

Work Order: S1707075

Project: Dugout Canyon Mine

Date Received: 7/7/2017

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
S1707075-001	WR 2017-07	0.28	8.64	125	116	<0.01	0.25	0.02	7.88	117

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

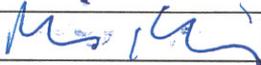
Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

Inter-Mountain Laboratories, Inc.
CHAIN OF CUSTODY
DUGOUT CANYON MINE

51707075-001

Sample Identification	WR 2017-07																			
Sample Date	07/03/17																			
Number of Samples	1																			
Type of Soil	WR																			
Laboratory Analyses																				
Table 6, Topsoil & Overburden Parameters	X																			
AND																				
Texture	X																			
pH	X																			
Electrical Conductivity	X																			
Total Carbon	X																			
SAR	X																			
Water Holding Capacity	X																			
Plant Available Nitrogen	X																			
Phosphorus	X																			
Pyritic sulfur	X																			
T.S. ABP	X																			

WR (Waste Rock), SS (Sub-Soil), TS (Topsoil)

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
Bill King 	7/3/2017	12:34 PM		7/7/17	1430



Date: 9/1/2017

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1707405

CASE NARRATIVE
Report ID: S1707405001

Sample WR 2017-08 was received on July 27, 2017.

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.

Karen A Secor



Soil Analysis Report
Canyon Fuel Company

Report ID: S1707405001

Project: Dugout Canyon Mine

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

Date Reported: 9/1/2017

Date Received: 7/27/2017

Work Order: S1707405

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	
S1707405-001	WR 2017-08	8.0	29.7	1.46	17.2	6.5	4.16	3.07	1.00	9.46	4.98

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

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



Soil Analysis Report
Canyon Fuel Company

Report ID: S1707405001

Project: Dugout Canyon Mine

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

Date Reported: 9/1/2017

Date Received: 7/27/2017

Work Order: S1707405

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1707405-001	WR 2017-08	61.0	26.0	13.0	Sandy Loam	0.65	4	0.05	0.5	0.27

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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1707405001

Project: Dugout Canyon Mine

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

Date Reported: 9/1/2017

Date Received: 7/27/2017

Work Order: S1707405

Lab ID	Sample ID	Available	Exchangeable	Total	
		Sodium	Sodium	Carbon	TOC
		meq/100g	meq/100g	%	%
S1707405-001	WR 2017-08	0.51	0.23	12.7	11.8

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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1707405001

Project: Dugout Canyon Mine

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

Date Reported: 9/1/2017

Date Received: 7/27/2017

Work Order: S1707405

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
S1707405-001	WR 2017-08	0.24	7.43	72.4	65.0	<0.01	0.13	0.12	3.94	68.5

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

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



Date: 10/13/2017

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1708151

CASE NARRATIVE
Report ID: S1708151001

Sample WR 2017-09 was received on August 8, 2017.

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.

Karen A Secor



**Soil Analysis Report
Canyon Fuel Company**

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

Report ID: S1708151001

Date Reported: 10/13/2017

Work Order: S1708151

Project: Dugout Canyon Mine

Date Received: 8/8/2017

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	
S1708151-001	WR 2017-09	7.4	38.9	1.84	23.3	5.6	7.91	10.7	0.45	4.89	1.60

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

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



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1708151001

Date Reported: 10/13/2017

Work Order: S1708151

Project: Dugout Canyon Mine

Date Received: 8/8/2017

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1708151-001	WR 2017-09	83.0	13.0	4.0	Loamy Sand	0.54	1	<0.02	0.1	0.24

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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1708151001

Project: Dugout Canyon Mine

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

Date Reported: 10/13/2017

Date Received: 8/8/2017

Work Order: S1708151

Lab ID	Sample ID	Available	Exchangeable	Total	
		Sodium	Sodium	Carbon	TOC
		meq/100g	meq/100g	%	%
S1708151-001	WR 2017-09	0.44	0.25	11.4	10.7

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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1708151001

Project: Dugout Canyon Mine

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

Date Reported: 10/13/2017

Date Received: 8/8/2017

Work Order: S1708151

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
S1708151-001	WR 2017-09	0.90	28.1	61.7	33.6	0.04	0.67	0.18	21.0	40.6

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

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



Date: 10/13/2017

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1708389

CASE NARRATIVE
Report ID: S1708389001

Sample WR 2017-10 was received on August 22, 2017.

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.

Karen A Secor



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1708389001

Date Reported: 10/13/2017

Work Order: S1708389

Project: Dugout Canyon Mine

Date Received: 8/22/2017

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	
S1708389-001	WR 2017-10	7.3	29.7	3.08	16.5	11.7	18.1	23.3	1.10	6.65	1.46

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

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



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1708389001

Date Reported: 10/13/2017

Work Order: S1708389

Project: Dugout Canyon Mine

Date Received: 8/22/2017

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1708389-001	WR 2017-10	55.0	35.0	10.0	Sandy Loam	1.45	1	0.04	0.2	0.28

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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1708389001

Project: Dugout Canyon Mine

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

Date Reported: 10/13/2017

Date Received: 8/22/2017

Work Order: S1708389

Lab ID	Sample ID	Available	Exchangeable	Total	
		Sodium	Sodium	Carbon	TOC
		meq/100g	meq/100g	%	%
S1708389-001	WR 2017-10	0.50	0.30	10.8	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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1708389001

Project: Dugout Canyon Mine

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

Date Reported: 10/13/2017

Date Received: 8/22/2017

Work Order: S1708389

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
S1708389-001	WR 2017-10	1.02	32.0	41.6	9.55	0.06	0.77	0.19	24.1	17.5

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

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

Inter-Mountain Laboratories, Inc.
CHAIN OF CUSTODY
DUGOUT CANYON MINE

51708389-001

Sample Identification	WR 2017-10																				
Sample Date	08/16/17																				
Number of Samples	1																				
Type of Soil	WR																				
Laboratory Analyses																					
Table 6, Topsoil & Overburden Parameters	X																				
AND																					
Texture	X																				
pH	X																				
Electrical Conductivity	X																				
Total Carbon	X																				
SAR	X																				
Water Holding Capacity	X																				
Plant Available Nitrogen	X																				
Phosphorus	X																				
Pyritic sulfur	X																				
T.S. ABP	X																				

WR (Waste Rock), SS (Sub-Soil), TS (Topsoil)

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
Bill King <i>Bill King</i>	8/17/2017	1:43 PM	<i>Karen Secor</i>	8/22/17	



Date: 10/31/2017

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1708469

CASE NARRATIVE
Report ID: S1708469001

Sample WR 2017-11 was received on August 29, 2017.

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.

Karen A Secor



Soil Analysis Report
Canyon Fuel Company

Report ID: S1708469001

Project: Dugout Canyon Mine

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

Date Reported: 10/31/2017

Date Received: 8/29/2017

Work Order: S1708469

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	
S1708469-001	WR 2017-11	7.5	35.7	2.34	22.8	5.6	10.8	15.4	0.64	7.04	1.94

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

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



**Soil Analysis Report
Canyon Fuel Company**

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

Report ID: S1708469001

Date Reported: 10/31/2017

Work Order: S1708469

Project: Dugout Canyon Mine

Date Received: 8/29/2017

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1708469-001	WR 2017-11	75.0	16.0	9.0	Sandy Loam	1.22	2	0.04	0.2	0.26

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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1708469001

Project: Dugout Canyon Mine

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

Date Reported: 10/31/2017

Date Received: 8/29/2017

Work Order: S1708469

Lab ID	Sample ID	Available	Exchangeable	Total	
		Sodium	Sodium	Carbon	TOC
		meq/100g	meq/100g	%	%
S1708469-001	WR 2017-11	0.52	0.27	10.8	10.2

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

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



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1708469001

Project: Dugout Canyon Mine

Date Received: 8/29/2017

Date Reported: 10/31/2017

Work Order: S1708469

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
S1708469-001	WR 2017-11	1.22	38.1	50.9	12.8	0.11	0.91	0.20	28.5	22.4

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

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

Inter-Mountain Laboratories, Inc.
CHAIN OF CUSTODY
DUGOUT CANYON MINE

51708469-001

Sample Identification	WR 2017-11																			
Sample Date	08/24/17																			
Number of Samples	1																			
Type of Soil	WR																			
Laboratory Analyses																				
Table 6, Topsoil & Overburden Parameters	X																			
AND																				
Texture	X																			
pH	X																			
Electrical Conductivity	X																			
Total Carbon	X																			
SAR	X																			
Water Holding Capacity	X																			
Plant Available Nitrogen	X																			
Phosphorus	X																			
Pyritic sulfur	X																			
T.S. ABP	X																			

WR (Waste Rock), SS (Sub-Soil), TS (Topsoil)

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
Bill King <i>AK</i>	8/24/2017	2:48 PM	<i>Karen A Sec</i>	8/29/17	1045



Date: 10/31/2017

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1709149

CASE NARRATIVE
Report ID: S1709149001

Sample WR 2017-12 was received on September 11, 2017.

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.

Karen A Secor



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1709149001

Date Reported: 10/31/2017

Work Order: S1709149

Project: Dugout Canyon Mine

Date Received: 9/11/2017

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	
S1709149-001	WR 2017-12	7.3	35.0	3.54	22.0	5.2	17.8	16.3	0.98	15.1	3.64

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

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



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1709149001

Date Reported: 10/31/2017

Work Order: S1709149

Project: Dugout Canyon Mine

Date Received: 9/11/2017

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1709149-001	WR 2017-12	67.0	23.0	10.0	Sandy Loam	0.91	3	0.05	0.4	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

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



Soil Analysis Report
Canyon Fuel Company

Report ID: S1709149001

Project: Dugout Canyon Mine

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

Date Reported: 10/31/2017

Date Received: 9/11/2017

Work Order: S1709149

Lab ID	Sample ID	Available	Exchangeable	Total	
		Sodium	Sodium	Carbon	TOC
		meq/100g	meq/100g	%	%
S1709149-001	WR 2017-12	1.16	0.64	9.6	9.1

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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1709149001

Project: Dugout Canyon Mine

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

Date Reported: 10/31/2017

Date Received: 9/11/2017

Work Order: S1709149

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
S1709149-001	WR 2017-12	1.05	32.9	39.4	6.55	0.17	0.72	0.16	22.6	16.9

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

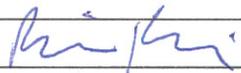
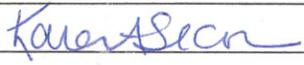
Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

Inter-Mountain Laboratories, Inc.
CHAIN OF CUSTODY
DUGOUT CANYON MINE

51709149-001

Sample Identification	WR 2017-12																			
Sample Date	09/06/17																			
Number of Samples	1																			
Type of Soil	WR																			
Laboratory Analyses																				
Table 6, Topsoil & Overburden Parameters	X																			
AND																				
Texture	X																			
pH	X																			
Electrical Conductivity	X																			
Total Carbon	X																			
SAR	X																			
Water Holding Capacity	X																			
Plant Available Nitrogen	X																			
Phosphorus	X																			
Pyritic sulfur	X																			
T.S. ABP	X																			

WR (Waste Rock), SS (Sub-Soil), TS (Topsoil)

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
Bill King 	9/7/2017	7:10 AM		9/11/17	1100



Date: 10/31/2017

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1709403

CASE NARRATIVE
Report ID: S1709403001

Sample WR 2017-13 was received on September 26, 2017.

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.

Karen A Secor



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1709403001

Date Reported: 10/31/2017

Work Order: S1709403

Project: Dugout Canyon Mine

Date Received: 9/26/2017

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	
S1709403-001	WR 2017-13	7.9	34.2	3.10	19.0	7.5	8.94	4.83	0.91	23.6	9.01

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

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



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1709403001

Date Reported: 10/31/2017

Work Order: S1709403

Project: Dugout Canyon Mine

Date Received: 9/26/2017

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1709403-001	WR 2017-13	67.0	18.0	15.0	Sandy Loam	0.77	2	<0.02	0.2	0.28

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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1709403001

Project: Dugout Canyon Mine

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

Date Reported: 10/31/2017

Date Received: 9/26/2017

Work Order: S1709403

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S1709403-001	WR 2017-13	2.23	1.42	15.5	15.1

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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1709403001

Project: Dugout Canyon Mine

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

Date Reported: 10/31/2017

Date Received: 9/26/2017

Work Order: S1709403

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
S1709403-001	WR 2017-13	0.34	10.6	29.2	18.6	0.03	0.15	0.16	4.79	24.4

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

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

Inter-Mountain Laboratories, Inc.
CHAIN OF CUSTODY
DUGOUT CANYON MINE

51709403-001

Sample Identification	WR 2017-13																			
Sample Date	09/20/17																			
Number of Samples	1																			
Type of Soil	WR																			
Laboratory Analyses																				
Table 6, Topsoil & Overburden Parameters	X																			
AND																				
Texture	X																			
pH	X																			
Electrical Conductivity	X																			
Total Carbon	X																			
SAR	X																			
Water Holding Capacity	X																			
Plant Available Nitrogen	X																			
Phosphorus	X																			
Pyritic sulfur	X																			
T.S. ABP	X																			

WR (Waste Rock), SS (Sub-Soil), TS (Topsoil)

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
Bill King 	9/21/2017	2:48 PM		9/26/17	1100



Date: 12/6/2017

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1710131

CASE NARRATIVE
Report ID: S1710131001

Sample WR 2017-14 was received on October 6, 2017.

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.

Karen A Secor



Soil Analysis Report
Canyon Fuel Company

Report ID: S1710131001

Project: Dugout Canyon Mine

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

Date Reported: 12/6/2017

Date Received: 10/6/2017

Work Order: S1710131

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	
S1710131-001	WR 2017-14	8.6	35.4	0.87	19.2	5.5	0.17	0.14	0.17	7.71	19.8

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

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



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1710131001

Project: Dugout Canyon Mine

Date Received: 10/6/2017

Date Reported: 12/6/2017

Work Order: S1710131

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1710131-001	WR 2017-14	56.0	30.0	14.0	Sandy Loam	1.35	6	0.03	<0.1	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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1710131001

Project: Dugout Canyon Mine

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

Date Reported: 12/6/2017

Date Received: 10/6/2017

Work Order: S1710131

Lab ID	Sample ID	Available	Exchangeable	Total	
		Sodium	Sodium	Carbon	TOC
		meq/100g	meq/100g	%	%
S1710131-001	WR 2017-14	1.71	1.44	9.5	7.2

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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1710131001

Project: Dugout Canyon Mine

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

Date Reported: 12/6/2017

Date Received: 10/6/2017

Work Order: S1710131

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
S1710131-001	WR 2017-14	0.15	4.73	188	183	0.02	0.07	0.07	2.17	186

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

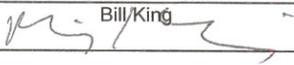
Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

Inter-Mountain Laboratories, Inc.
CHAIN OF CUSTODY
DUGOUT CANYON MINE

51710131-001

Sample Identification	WR 2017-14																			
Sample Date	10/03/17																			
Number of Samples	1																			
Type of Soil	WR																			
Laboratory Analyses																				
Table 6, Topsoil & Overburden Parameters	X																			
AND																				
Texture	X																			
pH	X																			
Electrical Conductivity	X																			
Total Carbon	X																			
SAR	X																			
Water Holding Capacity	X																			
Plant Available Nitrogen	X																			
Phosphorus	X																			
Pyritic sulfur	X																			
T.S. ABP	X																			

WR (Waste Rock), SS (Sub-Soil), TS (Topsoil)

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
 Bill King	10/3/2017	2:03 PM	 Kare Asea	10/6/17	



Date: 12/8/2017

CLIENT: Canyon Fuel Company
Project:
Lab Order: S1710320

CASE NARRATIVE
Report ID: S1710320001

Sample WR 2017-15 was received on October 19, 2017.

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.

Karen A Secor



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1710320001

Date Reported: 12/8/2017

Work Order: S1710320

Project:
Date Received: 10/19/2017

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	
S1710320-001	WR 2017-15	7.7	34.4	2.71	15.4	6.8	6.90	5.74	0.80	18.6	7.39

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

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



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1710320001

Date Reported: 12/8/2017

Work Order: S1710320

Project:
Date Received: 10/19/2017

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1710320-001	WR 2017-15	54.0	28.0	18.0	Sandy Loam	0.82	3	0.07	0.7	0.33

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

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



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1710320001

Date Reported: 12/8/2017

Work Order: S1710320

Project:
Date Received: 10/19/2017

Lab ID	Sample ID	Available	Exchangeable	Total	TOC
		Sodium	Sodium	Carbon	
		meq/100g	meq/100g	%	%
S1710320-001	WR 2017-15	1.55	0.91	11.1	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

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



**Soil Analysis Report
Canyon Fuel Company**

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

Report ID: S1710320001

Date Reported: 12/8/2017

Work Order: S1710320

Project:
Date Received: 10/19/2017

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
S1710320-001	WR 2017-15	0.48	15.1	21.6	6.49	0.09	0.24	0.15	7.63	14.0

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

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

Inter-Mountain Laboratories, Inc.
CHAIN OF CUSTODY
DUGOUT CANYON MINE

51710320-001

Sample Identification	WR 2017-15																			
Sample Date	10/16/17																			
Number of Samples	1																			
Type of Soil	WR																			
Laboratory Analyses																				
Table 6, Topsoil & Overburden Parameters	X																			
AND																				
Texture	X																			
pH	X																			
Electrical Conductivity	X																			
Total Carbon	X																			
SAR	X																			
Water Holding Capacity	X																			
Plant Available Nitrogen	X																			
Phosphorus	X																			
Pyritic sulfur	X																			
T.S. ABP	X																			

WR (Waste Rock), SS (Sub-Soil), TS (Topsoil)

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
Bill King <i>Bill King</i>	10/17/2017	7:16 AM	<i>Karen A. Sec</i>	10/17/17	11:00



Date: 12/14/2017

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1711094

CASE NARRATIVE
Report ID: S1711094001

Sample WR 2017-16 was received on November 6, 2017.

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.

Karen A Secor



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1711094001

Date Reported: 12/14/2017

Work Order: S1711094

Project: Dugout Canyon Mine

Date Received: 11/6/2017

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	
S1711094-001	WR 2017-16	7.8	33.9	3.58	23.6	7.1	15.7	13.0	1.06	21.7	5.72

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

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



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1711094001

Date Reported: 12/14/2017

Work Order: S1711094

Project: Dugout Canyon Mine

Date Received: 11/6/2017

Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1711094-001	WR 2017-16	72.0	16.0	12.0	Sandy Loam	0.99	2	0.06	0.6	0.38

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

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



Soil Analysis Report
Canyon Fuel Company

Report ID: S1711094001

Project: Dugout Canyon Mine

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

Date Reported: 12/14/2017

Date Received: 11/6/2017

Work Order: S1711094

Lab ID	Sample ID	Available	Exchangeable	Total	
		Sodium	Sodium	Carbon	TOC
		meq/100g	meq/100g	%	%
S1711094-001	WR 2017-16	1.34	0.61	14.5	13.3

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

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



**Soil Analysis Report
Canyon Fuel Company**

Report ID: S1711094001

Project: Dugout Canyon Mine

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

Date Reported: 12/14/2017

Date Received: 11/6/2017

Work Order: S1711094

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
S1711094-001	WR 2017-16	0.77	24.2	102	78.1	<0.01	0.57	0.19	17.8	84.5

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

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



Date: 2/12/2018

CLIENT: Canyon Fuel Company
Project: Dugout Canyon Mine
Lab Order: S1712089

CASE NARRATIVE
Report ID: S1712089001

Sample WR 2017-17 was received on December 5, 2017.

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.

Karen A Secor



Soil Analysis Report
Canyon Fuel Company

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

Report ID: S1712089001

Date Reported: 2/12/2018

Work Order: S1712089

Project: Dugout Canyon Mine

Date Received: 12/5/2017

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	
S1712089-001	WR 2017-17	7.6	25.8	2.22	27.0	4.4	9.16	11.6	0.65	9.40	2.92

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

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



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Lab ID	Sample ID	Nitrogen								
		Sand %	Silt %	Clay %	Texture	Boron ppm	Phosphorus ppm	Selenium ppm	Nitrate(as N) ppm	TKN %
S1712089-001	WR 2017-17	78.0	14.0	8.0	Loamy Sand	0.73	1	<0.02	<0.1	0.10

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Lab ID	Sample ID	Available	Exchangeable	Total	
		Sodium	Sodium	Carbon	TOC
		meq/100g	meq/100g	%	%
S1712089-001	WR 2017-17	0.38	0.14	6.5	5.8

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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
S1712089-001	WR 2017-17	1.47	45.8	56.3	10.6	0.10	1.15	0.21	35.8	20.5

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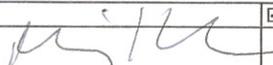
Reviewed by: Karen A Secor
Karen Secor, Soil Lab Supervisor

Inter-Mountain Laboratories, Inc.
CHAIN OF CUSTODY
DUGOUT CANYON MINE

51712089-001

Sample Identification	WR 2017-17																			
Sample Date	11/28/17																			
Number of Samples	1																			
Type of Soil	WR																			
Laboratory Analyses																				
Table 6, Topsoil & Overburden Parameters	X																			
AND																				
Texture	X																			
pH	X																			
Electrical Conductivity	X																			
Total Carbon	X																			
SAR	X																			
Water Holding Capacity	X																			
Plant Available Nitrogen	X																			
Phosphorus	X																			
Pyritic sulfur	X																			
T.S. ABP	X																			

WR (Waste Rock), SS (Sub-Soil), TS (Topsoil)

RELINQUISHED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME
Bill King 	11/28/2017	3:16 PM		12/5/17	1300

APPENDIX D

Confidential Information

As required under R645-300-124.300 and R645-527.700

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Raptor Monitoring Survey