



Lila Canyon Project
P. O. Box 910
East Carbon, Utah 84520
Phone: (435) 888-4000
(435) 650-3157
Fax: (435) 888-4002

Utah Division of Oil, Gas & Mining
Utah Coal Program
1594 West North Temple, Suite 1210
P.O. Box 145801
Salt Lake City, UT 84114-5801

February 14, 2019

Attn: Steve Christensen
Permit Supervisor

Re: Lila Canyon Mine, UtahAmerican Energy, Inc. C/007/013
Annual Report

Dear Mr. Christensen

Attached you will find all of the information needed to complete the annual report for 2018 for the Lila Canyon Mine.

If you have any questions, or need any additional information regarding this submittal, please contact me directly at 435-888-4000.

Sincerely,

A handwritten signature in black ink, appearing to read 'Karin Madsen', is written over a horizontal line.

Karin Madsen
Engineering Tech
UtahAmerican Energy, Inc.

2018 ANNUAL REPORT

Submit the completed document and any additional information identified to the Division by March 31, 2019.

GENERAL INFORMATION

Company Name	UtahAmerican Energy	Mine Name	Horse Canyon Mine
Permit Number	C/007/0013	Permit Expiration Date	5-6-21
Operator Name	UtahAmerican Energy, Inc.	Phone Number	+1 (435) 888-4000
Mailing Address	PO Box 910	Email	kmadsen@coalsource.com
City	East Carbon		
State	UT	Zip Code	84520

DOG M File Location or Annual Report Location

Excess Spoil Piles	<input type="checkbox"/> Required <input checked="" type="checkbox"/> Not Required	Not Required
Refuse Piles	<input type="checkbox"/> Required <input checked="" type="checkbox"/> Not Required	Not Required
Impoundments	<input checked="" type="checkbox"/> Required <input type="checkbox"/> Not Required	Annual pond certifications included for bonds 1 and 2
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: RAPTOR SURVEY & PROTECTION

Objective: Identify and monitor all raptors and nests. For possible subsidence impacts to raptor nests, develop a mitigation plan that must be submitted and approved. Apply for 'take permit' through USFWS 2 years prior to subsidence of the nests. Maintain escarpment barrier of at least 200' to prevent cliff habitat loss. **The text of Chapter 3, pg. 13, sect 332 (1) needs to be revised or clarified to demonstrate how the 200' barrier will be measured**

Frequency: Annually

Status: Ongoing since 2005. The map must clearly show raptor nests in relation to mining and subsidence.

Reports: Annual Reports

Citation: MRP, Part B, Section 322.220, page 10, Section 330, page 20, Section 358.100 page 38, Sec. 332 P.13.

OPERATOR COMMENTS

the 2018 raptor surveys were completed by EIS and the report is included in the Confidential Folder. The required text change to Chapter 3 as requested above was made during the 2017 annual report and approved 1-25-18.

REVIEWER COMMENTS

Met Requirements

Did Not Meet Requirements

Title: COLORADO RIVER ENDANGERED FISH RECOVERY PROGRAM

Objective: Report water depletion for the CO River Endangered Fish Recovery Program

Frequency: Annually

Status: Ongoing

Reports: Annual

Citation: MRP, Section 322.220, page 11

OPERATOR COMMENTS

The Water Depletion Calculations for the Colorado River Endangered Fish Recovery Program is included.

REVIEWER COMMENTS

Met Requirements

Did Not Meet Requirements

Title: VEGETATION MONITORING

Objective: Submit color infrared photography. Submit and implement a mitigation plan, if results indicate impact from mining operations.

Frequency: Prior to any mining, and every 5 years after.

Status: Ongoing

Reports: Annual Report

Citation: MRP, Part B, Section 332, page 14

OPERATOR COMMENTS

Not required in 2018, however updated comparisons and a report done by Mt. Nevy Scientific were compiled from the 2016 survey and are included in this report.

REVIEWER COMMENTS

Met Requirements

Did Not Meet Requirements

Title: MAINTAIN RECORDS OF SOIL SALVAGE

Objective: Records of soil salvage will be maintained and included in the annual report. A soil specialist will oversee the soil removal. Soil pedestals will be left to verify soil removal depths.

Frequency: During phase 1 and 2 construction, the soils specialist will record topsoil salvaged and placed in the topsoil stockpile and number of acres salvaged.

Status: Ongoing, Topsoil salvage will resume in 2012.

Reports: Provide an update to the number of acres salvaged and volumes salvaged in the Annual report "Topsoil Movement and Construction Record" and include a map of salvaged and undisturbed acreage.

Citation: R645-301-232.500 and R645-301-232.100 and N10045 abatement.

OPERATOR COMMENTS

Topsoil reports were completed by EIS, are included in this report.

REVIEWER COMMENTS

Met Requirements

Did Not Meet Requirements

Title: REACTIVATION OF OPERATIONAL MONITORING OF SURFACE WATER SAMPLING LOCATIONS

Objective: Quarterly sampling to initiate at least two years prior to resuming underground mining activities on sites L-6-G, L-7-G, L-8-G, L-9-G, L-10-G, L-11-G, L-12-G, L-13-S, L-14-S, L-15-S, L-18-S, L-19-S, L-20-S, IPA-1, IPA-2, IPA-3

Frequency: Notify Division once, quarterly sampling

Status: Monitoring suspended as of October 2011, Division awaiting reactivation notification.

Reports: Annual Report, notify Division if/when mining is to occur.

Citation: MRP, Part B, Section 731.222, table 7-3

OPERATOR COMMENTS

Quarterly sampling of locations: L-7-G, L-8-G, L-9-G, L-11-G, L-12-G, L-19-S, IPA 1, IPA 2, and IPA 3 have resumed, and an updated Monitoring Location table was incorporated into the MRP and approved as of May 28, 2015. L-6-G, L-10-G, L-13-S, L-14-S, L-15-S, and L-20-S were permanently suspended in 2003. See MRP Table 7-3 for further information. IPA #3 was sealed in October of 2017, and an MRP correction was approved at that time.

REVIEWER COMMENTS Met Requirements Did Not Meet Requirements

Title: GENEVA MINE/ LILA CANYON FAN PORTAL BARRICADES

Objective: Inspect the Geneva Mine fan portal Barricades annually and report findings to Division and BLM.

Frequency: Annually

Status: Ongoing

Reports: Annual Report.

Citation: MRP, Part B, Chapter 5, Section 529, page 54 and 55

OPERATOR COMMENTS

The inspection was done by EIS and is included.

REVIEWER COMMENTS Met Requirements Did Not Meet Requirements

FUTURE COMMITMENTS AND CONDITIONS

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

Title: WILDLIFE

Objective: Adhere to wildlife exclusionary periods: raptors (Feb 1 - July 1), bighorn sheep lambing, (May 1 - June 15), and pronghorn (May 15 - June 20).

Frequency: Prior to construction of any new facility projects, structures, and roads; and prior to reclamation.

Citation: MRP, Part B, Sec. 330, p. 20.

Title: LILA CANYON MINE SALVAGE OF CRYPTOGRAMS ON TOPSOIL PILE PRIOR TO RECLAMATION.

Objective: Salvaged cryptograms will be added to the wood fiber mulch and hydrosprayed on the surface of the reclaimed site.

Frequency: Immediately after seeding of the reclaimed site.

Status: During reclamation of the Lila Canyon Mine.

Reports: Success of cryptogamic establishment will be evaluated (by Division and Permittee) prior to collection from topsoil stockpile.

Citation: MRP, Part B, Section 232.100, and Section 234.230

Title: VEGETATION MONITORING

Objective: Submit color infrared photography. Submit and implement a mitigation plan, if results indicate impact from mining operations.

Frequency: Prior to any mining, and every 5 years after.

Status: Ongoing. Baseline submitted in 2011. Next round of photos are due in 2016. A comparison between 2016 and 2011 photos will be required in 2016.

Reports: Annual Report

Citation: MRP, Part B, Section 332, page 14

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:

Annual opacity survey was completed by Barr Engineering and the results are included.
Annual Rainfall report was completed by HydroPlot Engineering, and the results are included.

REVIEWER COMMENTS

Met Requirements

Did Not Meet Requirements

MAPS

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

Map Name	Map Number	Included		Confidential	
		Yes	No	Yes	No
Annual Subsidence Map		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Mine Map	Included	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Raptor Map	Confidential	<input checked="" 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"/>	<input type="checkbox"/>

REVIEWER COMMENTS Met Requirements Did Not Meet Requirements

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of	
Permit Number	ACT/007/013	Report Date	10-23-18
Mine Name	Lila Canyon		
Company Name	UtahAmerican Energy, Inc.		
Impoundment Identification	Impoundment Name	Sediment Pond #2 Small	
	Impoundment Number	Pond #2	
	UPDES Permit Number	NA	
	MSHA ID Number	NA	
IMPOUNDMENT INSPECTION			
Inspection Date	10-23-18		
Inspected By	Karin Madsen		
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	4th Quarter		
<p>1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.</p> <p>No appearance of instability, structural weakness, or any other hazardous condition was observed at the time of inspection. Culvert diverting road water into pond is in place and functioning as designed. Due to recent flood conditions, the pond has accumulated a large amount of water. A pump was installed to pump water out of pond 2 and into pond 1 to protect from discharge.</p> <p>Sediment levels were surveyed by Ware Surveying in December 2017.</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>Sediment Elevations:</p> <p style="margin-left: 40px;">60% 5847.0'</p> <p style="margin-left: 40px;">100% 5848.1'</p> <p>Pond has been partially cleaned. Sediment elevation in cleaned section is ~5837.4' Due to large amount of water in the pond, a sediment level is currently not visible. The pond will be cleaned in the spring.</p>		
	<p>3. Principle and emergency spillway elevations.</p> <p style="margin-left: 40px;">Principle 5849.61'</p> <p style="margin-left: 40px;">Emergency 5851.25'</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.

Due to recent flood conditions, the pond has a approximately 4' of water in lower area which was partially cleaned in the spring. The Pond at time of cleaning was too wet to remove all sediment successfully. When pond dries out, it will be cleaned the rest of the way. As a safety measure, a pump was placed at pond 2 to move water into pond 1 to avoid any potential overflow that would be caused by flash flooding. The pond has not 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.

No changes. Sediment marker is visible.

Qualification Statement

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

Signature: _____



Date: _____

10.23.18

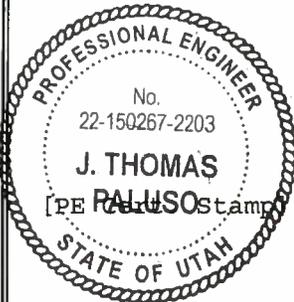
CERTIFIED REPORT

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

COMMENTS AND OTHER INFORMATION

NONE

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: JOSEPH PALUSO
 (Full Name and Title)

Signature: J J Paluso Date: 10/30/18

P.E. Number & State: 22-150267-2203

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 1 of	
Permit Number	ACT/007/013	Report Date	10-23-18
Mine Name	Lila Canyon		
Company Name	UtahAmerican Energy, Inc.		
Impoundment Identification	Impoundment Name	Sediment Pond #1 Large	
	Impoundment Number	Pond #1	
	UPDES Permit Number	UTG 040024	
	MSHA ID Number	NA	
IMPOUNDMENT INSPECTION			
Inspection Date	10-23-18		
Inspected By	Karin Madsen		
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	4th Quarter		
<p>1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.</p> <p>No appearance of instability, structural weakness, or any other hazardous condition was observed at the time of inspection.</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>Sediment Elevations:</p> <p style="text-align: center;">60% 5843.6' 100% 5847.7'</p>		
	<p>3. Principle and emergency spillway elevations.</p> <p style="text-align: center;">Principle 5853.0' Emergency 5854.0'</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.

Pond construction complete and all construction material has been removed from the pond site. The west portion of the pond was increased in height and the road built up per construction plan. The risers were increased to compensate for elevated pond height.

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.

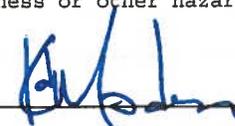
No Changes. Pond has a small amount of accumulated water that has been pumped from Pond 2 to avoid any potential overflowing in the smaller pond due to the flooding that has been occurring in the area. Sediment marker is visible.

Ware Surveying completed sediment surveys on 5-18-18.

Sediment level at time of survey was 5837.5'

Qualification Statement

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

Signature: 

Date: 10.23.18

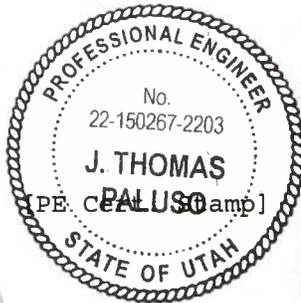
CERTIFIED REPORT

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

COMMENTS AND OTHER INFORMATION

NONE

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: JOSEPH PALUSO
 (Full Name and Title)

Signature: J. J. Paluso Date: 10/30/18

P.E. Number & State: 22-150267-2203, UTAH

EIS Environmental & Engineering Consulting
31 North Main Street * Helper, Utah 84526
Office – (435) 472-3814 * Toll free – (800) 641-2927 * Fax – (435) 472-8780
eisec@preciscom.net

April 3, 2018

Karin Madsen
UtahAmerican Energy, Inc.
PO Box 910
East Carbon, UT 84520

RE: Horse Canyon Mine Portal

On March 30, 2018, Molly Hocanson from EIS Environmental and Engineering Consulting visited the closed Horse Canyon Mine portals in Lila Canyon to inspect the portal fence and closures for signs of vandalism and general status. Several photographs were taken of the portals.

There was no evidence of vandalism or tampering to the southern portal fence and there were no openings or structural damage to the fence. There was no evidence of vandalism to the northern portal. The northern portal was sealed with rock and could not be entered. The signs at both portals remain posted. The rock slide from above the southern portal that had occurred in 2015 that left multiple large rocks, still remain at the opening of the portal, the fence and signs still remain in place with no signs of damage or tampering (see photographs).

All Photographs Taken March 30, 2018



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MT NEBO SCIENTIFIC, INC.

research & consulting

VIA: E-mail: January 3, 2019

Karin Odendahl Madsen
UtahAmerican Energy
Lila Canyon Project
P.O. Box 910
East Carbon, Utah 84520

Dear Karin:

Enclosed please find a electronic copy for the color infrared vegetation study at the Lila Canyon Mine called:

A Comparison of the
Plant Communities Using
Color Infrared Aerial Photographs
for the Lila Canyon Mine
2011 & 2016

in
Emery County,
Utah

Please let me know if you have questions or comments.

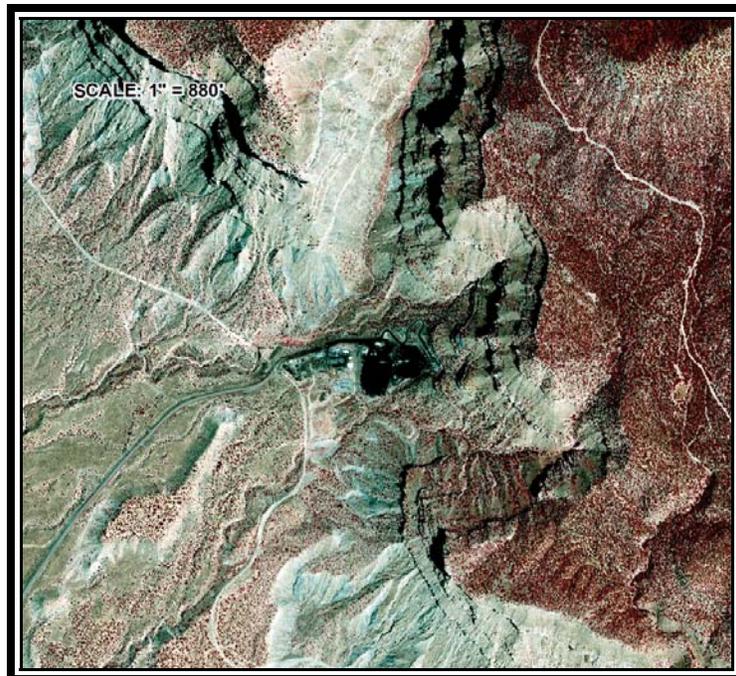
Sincerely,

Patrick D. Collins, Ph.D.
Biologist/Environmental Consultant

Enclosure

A Comparison of the
Plant Communities Using
Color Infrared Aerial Photographs
for the Lila Canyon Mine
2011 & 2016

in
Emery County,
Utah



Infrared Aerial Image of the Lila Canyon Mine Area

Prepared by

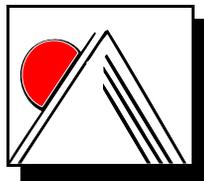
Mt. Nebo Scientific, Inc.
330 East 400 South, Suite 6
P.O. Box 337
Springville, Utah 84663

by

Patrick D. Collins, Ph.D.

for

UtahAmerican Energy, Inc.
Lila Canyon Project
P.O. Box 910
East Carbon, Utah 84520



January 2019

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INTRODUCTION

The Lila Canyon Mine is a coal mine located in Emery County, about 33 miles east of the town of Price, Utah. Planned subsidence, or the predicted movement and readjustment of the ground surface due to collapse of overburden from mining underneath it, could potentially impact the plant communities and wildlife habitat above. As one method to monitor the impacts of subsidence, Lila Canyon Mine's, Mining and Reclamation Plan (MRP) submitted to the State of Utah, Division of Oil, Gas & Mining (DOG M), made a commitment to review color infrared (CIR) aerial photographs every 5 years within the permit area (MRP, Section 330).

Using CIR aerial photography for vegetation analyses can distinguish active transpiring plants from those that may be dead, dying, have become senescent, or have gone dormant. This happens because actively growing plants show high reflectivity in the infrared wavelength range. Healthy growing leaves reflect high levels of near infrared wavelengths which show up as varying degrees of red on CIR film. Dying, unhealthy or dormant vegetation usually appear light-red or blue-green in color on the film.

The objective in reviewing the CIR's is not to reveal *subtle* changes to plant community structure and species composition, but rather to try and observe

major impacts to the plant communities and habitats such die-offs or shifts to different community types (e.g. from tree or shrub stands to herbaceous, weedy, invasive or pioneer species).

This document reports the findings of vegetation comparisons of CIR images between 2011 and 2016.

METHODS

A review of aerial imagery available on-site at the Lila Canyon Mine was first completed. Next, imagery was reviewed from other available sources such as Google Maps, Bing Maps and the Utah Automatic Geographic Reference Center (AGRC). Moreover, Joe Helfrich (DOGM biologist) visited the USDA Aerial Photography Field office in Salt Lake City to assess the images they had in their files for the study area. The USDA CIR images were most applicable and therefore used for this study. Side-by-side comparisons were made from CIR photography dated July 22, 2011 and July 22, 2016 in the offices of *Mt. Nebo Scientific, Inc.* Magnification was used on the images when needed, but with the large size of the photographs, this was mostly unnecessary.

TOPSOIL MOVEMENT & CONSTRUCTION RECORD

UTAHAMERICAN ENERGY

LILA CANYON MINE

December 2008-May 2018

Report Updated May 2018



Prepared by

J. T. Paluso, P. E.

**EIS ENVIRONMENTAL & ENGINEERING CONSULTING
31 North Main, Helper, Utah 84526**

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April 28, 2010	31
May 26, 2010	33
July 15, 2010	35
June 23, 2014	38
August 20, 2014	40
March 30, 2015	43
May 7, 2018	47
Total Topsoil Removal Table as of May 2018	50
Appendix 1: Topsoil Removal Map	51

Scope of Work

EIS Environmental & Engineering Consulting (EIS) was hired by UtahAmerican Energy, Inc (UEI) to monitor the removal of topsoil from the Lila Canyon Mine for Phase I construction activities.

Phase I consisted of the following activities:

- Construct stormwater detention ponds. These ponds are needed to contain all runoff coming from disturbed areas.
- Construct portal access road. Due to the length of time required to construct the underground rock slopes, it was necessary to construct the portal access road during Phase I of the construction activities.
- Remove topsoil from the west portion of the coal stockpile area. This area was needed to provide storage space for material generated during the construction of the underground rock slopes.
- Remove topsoil from the warehouse pad area. This area was also needed to provide storage space for material generated from the rock slope construction work.
- Construct employee parking and temporary bathhouse area. This area was needed to provide parking space and bathhouse facilities for the crews developing the rock slopes.

During Phase I activities the follow amounts of topsoil were generated from the various locations:

LOCATION	LOADS	VOLUME (Yd³)
Employee Parking Lot	378	12,110
Portal Road	238	7,622
Storm Water Detention Pond	154	4,943
Small Detention Pond	61	1,940
Coal Stockpile	269	8,601
Warehouse Pad	137	4,385
Topsoil Area	Push with Dozer	646
TOTAL		40,247 Yd³

**LILA CANYON MINE
TOPSOIL & CONSTRUCTION ACTIVITY RECORD**

December 24, 2008 (Mel Coonrod & Matt Serfustini)

The following activities were observed during this visit:

1. Fill material was being removed from the stormwater detention pond. Some topsoil still remains to be removed from the pond area.
2. Work on portal access road was proceeding.
3. Topsoil was being removed from employee parking area.
4. Topsoil had been removed from west end of coal pile area.

PHOTOGRAPHS



LOOKING SOUTH TOWARDS TOPSOIL STORAGE AREA



MATERIAL REMOVED FROM TOPSOIL STORAGE SITE



**PORTAL ACCESS ROAD TOPSOIL NORTH OF COAL STOCKPILE, PHOTO
TAKEN LOOKING EAST**



**SOIL PROFILE ON PORTAL ACCESS ROAD LOOKING NORTH, TAKEN
ADJACENT TO PRIOR PHOTOGRAPH**



**TOPSOIL REMOVAL SOUTH END OF EMPLOYEE PARKING LOT
LOOKING SOUTH EAST**



SOUTH OF LOADOUT STATION LOOKING NORTH



SOUTH OF LOADOUT STATION LOOKING SOUTH



SOIL PROFILE AT THE SAME LOCATION AS THE TWO PREVIOUS PHOTOGRAPHS



BOULDER REMOVAL SOUTH OF LOADOUT STATION LOOKING NORTH



EMPLOYEE PARKING AREA LOOKING SOUTH

December 30, 2008(Tom Paluso)

The following activities were observed during my site visit:

1. Fill material was being removed from portal access road. Contractor was working on side slopes on the portal access road.
2. Topsoil was being removed from employee parking area and delivered to the topsoil storage area.
3. Contractor was breaking large rocks on west end of coal storage pile. The large rocks were being reduced to make it easier to obtain necessary compaction with fill material being deposited in this area.

PHOTOGRAPHS



TOPSOIL REMOVAL FROM EMPLOYEE PARKING AREA



LOOKING SOUTHWEST OVER PROJECT AREA

January 7, 2009 (Tom Paluso)

The following activities were observed during site visit:

1. Contractor was transporting topsoil from office area to topsoil site.
2. Portal access road grade was being lowered northeast of employee's parking area.
3. Hydraulic hoes were working on portal area.

The stormwater detention pond still has approximately 15 percent of the topsoil to be removed. This material is located in the southeast corner of the pond. According to Shane Campbell this material was intentionally left to provide work during bad weather conditions. Shane also mentioned that topsoil removal at the warehouse site should probably start on January 15 or 16.

PHOTOGRAPHS



TOPSOIL REMOVAL FROM OFFICE AREA



BOULDERS BEING SEPARATED FROM TOPSOIL MATERIAL



LOWER PORTAL ACCESS ROAD GRADE



FILL MATERIAL BEING REMOVED FROM PORTAL ACCESS ROAD



HYDRAULIC BACKHOES WORKING ON PORTAL AREA

January 15, 2009 (Tom Paluso)

The following activities were observed during site visit:

1. Large boulders are being crushed to make gravel for this project.
2. Boulders are being stockpiled at future coal stockpile site. These boulders will be crushed into gravel.
3. Work on the portal area is still in progress.

PHOTOGRAPHS



BOULDERS BEING CRUSHED INTO GRAVEL



CRUSHED GRAVEL PILE



BOULDERS BEING STOCKPILED FOR CRUSHING

January 28, 2009 (Tom Paluso)

The following activities were observed during site visit:

1. Removing material from north end of parking lot.
2. Removing topsoil from stacking tube area.
3. Employee parking lot grading.

PHOTOGRAPHS



PARKING LOT MATERIAL REMOVAL



FINAL GRADING WEST END OF EMPLOYEE PARKING AREA



EMPLOYEE PARKING LOOKING NORTH WITH CRUSHED GRAVEL PILE



BOULDER REMOVAL FROM STACKING TUBE AREA LOOKING EAST



TOPSOIL REMOVAL FROM STACKING TUBE AREA LOOKING NORTH



STACKING TUBE AREA LOOKING EAST TOWARDS PORTALS



EAST OF STACKING TUBE LOOKING WEST

January 29, 2009 (Tom Paluso)

The following activities were observed during site visit:

- 1 Removing material from north end of parking lot.
- 2 Removing topsoil from stacking tube area.
- 3 Employee parking lot grading.

PHOTOGRAPHS



TOPSOIL PROFILE BY STACKING TUBE AREA



CLOSE-UP OF TOPSOIL PROFILE

February 6, 2009 (Tom Paluso)

The following activities were observed during site visit:

1. Removing topsoil from shop-warehouse area.
2. Completing work around silo area.

PHOTOGRAPHS



LOOKING SOUTHEAST FROM SILO AREA, TOPSOIL IS BEING COLLECTED



COLLECTING BOULDERS AND VEGETATION



LOOKING NORTHEAST FROM SILO AREA, TOPSOIL HAS BEEN REMOVED

February 18, 2009 (Tom Paluso)

The following activities were observed during site visit:

1. Removing topsoil from small Stormwater Detention Pond.
2. Removing remaining topsoil from large Stormwater Detention Pond.
3. Working on final grade for Portal Access Road

PHOTOGRAPHS



SIGN LOCATED BY CONSTRUCTION OFFICE & NEAR SMALL STORMWATER DETENTION POND



**COLLECTING TOPSOIL AT SMALL STORMWATER RETENTION POND
(SRP)**



COLLECTING TOPSOIL AT SMALL SRP



REMOVING BOULDER FROM SMALL SRP



NORTHEAST SOIL PROFILE



SOUTHEAST SOIL PROFILE



REMOVE REMAINING MATERIAL FROM LARGE STORMWATER RETENTION POND (SRP)



WEST END LARGE SRP



FINAL WORK ON PORTAL ROAD



TOPSOIL PILE LOOKING NORTHEAST



TOPSOIL PILE LOOKING SOUTH EAST

FOR TOPSOIL TRACKING PURPOSES, PHASE I OPERATIONS ENDS HERE

September 30, 2009 (Tom Paluso)

Lila Canyon Mine is in the process of installing a temporary coal conveyor belt that will be used to remove coal from the mine while the permanent conveyor belt is installed. According to Jay Marshall, this temporary conveyor belt may be used for up to five years while the permanent system is completed.

The construction of this temporary conveyor belt will require concrete supports for bent installations. Topsoil removal at this point is necessary to provide access for equipment required for bent construction. During this phase of topsoil removal 9,324 cubic yards of topsoil was salvaged.



REMOVAL OF TOPSOIL NEAR PORTAL



SOIL PROFILE



TOPSOIL BEING DELIVERED TO TOPSOIL PILE

April 28, 2010 (Tom Paluso)

Scamp Excavation was removing topsoil from the warehouse pad and temporary coal pad. During this section of topsoil removal, 3,772 cubic yards of topsoil was salvaged.



TOPSOIL REMOVAL NEAR PORTAL ROAD



CLOSEUP VIEW OF TOPSOIL MATERIAL



DISTRIBUTION OF TOPSOIL AT TOPSOIL STORAGE AREA

May 26, 2010 (Tom Paluso)

Nielson Construction is removing topsoil from the substation pad area. Approximately 2,100 cubic yards of topsoil was salvaged from this area.



TOPSOIL PROFILE



SUBSTATION PAD LOOKING TOWARDS PORTAL



TOPSOIL PILE AT SUBSTATION SITE



VEGETATION REMOVED FROM TOPSOIL AT SUBSTATION SITE

July 15, 2010 (Tom Paluso)

Scamp Excavation salvaging topsoil at stockpile pad and warehouse pad. Both of these pads are being enlarged to accommodate next phase of construction activities. A total of 6,930 cubic yards of topsoil was salvaged during this section of topsoil removal.



WAREHOUSE PAD BELOW PORTALS



VEGETATION SEPARATION AT SITE



TOPSOIL PLACED AT TOPSOIL PILE



TOPSOIL AT TOPSOIL PILE

June 23, 2014 (Tom Paluso)

Scamp Excavation removed topsoil from the Portal Borrow Area. This area is adjacent to portal road. The area on which the topsoil was removed was approximately 120' x 100'. A total of 333 cubic yards were removed and placed in the topsoil pile. Refer to the pictures below.



TOPSOIL REMOVAL PORTAL BORROW AREA (JULY 23, 2014)



LOOKING TOWARDS LILA CANYON



SOIL PROFILE AT TOP OF CUT

August 20, 2014 (Tom Paluso)

Scamp Excavation from August 20 through August 22, 2014, removed topsoil from the south end of the Upper Pad Area and the Middle Pad Area. A total of 1040 cubic yards were removed from these two areas. The pH of the soil was 7.1. The Upper Pad Area is approximately 500' long.

On August 25- 26, topsoil removal was moved to the Truck Loop Area. The Truck Loop Area is north and adjacent to the Access Road going to the portals. A total of 720 cubic yards were removed and sent to the topsoil pile.



UPPER PAD AREA LOOKING SOUTH WEST



UPPER PAD AREA LOOKING SOUTHEAST



TRUCK LOOP AREA LOOKING TOWARDS PORTAL



TRUCK LOOP AREA CLOSER TO PORTALS

March 30, 2015 (Tom Paluso)

Topsoil removal on the Future Parking Lot and Material Storage area was started on March 30, 2015. This area is located between the material storage yard and the west sediment pond. Removal of the large boulders and stockpiling of the topsoil was handled by foreman Mike Allred. This work continued until April 23, 2015, when Scamp Excavation hauled the topsoil and placed it into the topsoil storage area. A total of 1280 cubic yards of topsoil was moved to the topsoil storage area.

An access road leading to the west sediment pond, previously had topsoil removed. This road provided access to the west sediment pond from the material storage yard. This road was inside of this topsoil removal project.



LOOKING EAST AT STORAGE AREA FROM WEST SEDIMENT POND



LOOKING WEST FROM STORAGE YARD



LOOKING NORTH



ROCK PILE



LOOKING NORTH WEST OF MATERIAL STORAGE YARD



LOOKING WEST AFTER TOPSOIL HAS BEEN REMOVED

May 2018 Storage Pad (Mel Coonrod)

Topsoil removal for a new equipment Storage Pad was started on April 23, 2018, and was completed on May 5, 2018. This newly stripped area is located south of the Substation and Substation grounding Field. Please refer to the photographs shown below. Scamp Excavation was the contractor that removed and hauled the topsoil to the topsoil storage area. Scamp also removed the large boulders from this area and placed them in the rock storage area. A total of 247 truckloads or 5,434 cubic yards of topsoil were stripped and moved to the topsoil storage area. Refer to Total Topsoil Removal Table located near the end of the report.



TOPSOIL VARIED FROM 8" TO 30" (AVERAGED 20")



LOADING TOPSOIL WITH 36" BUCKET



MOVING ROCKS



PLACING TOPSOIL ON TOPSOIL PILE



CLEARED AREA

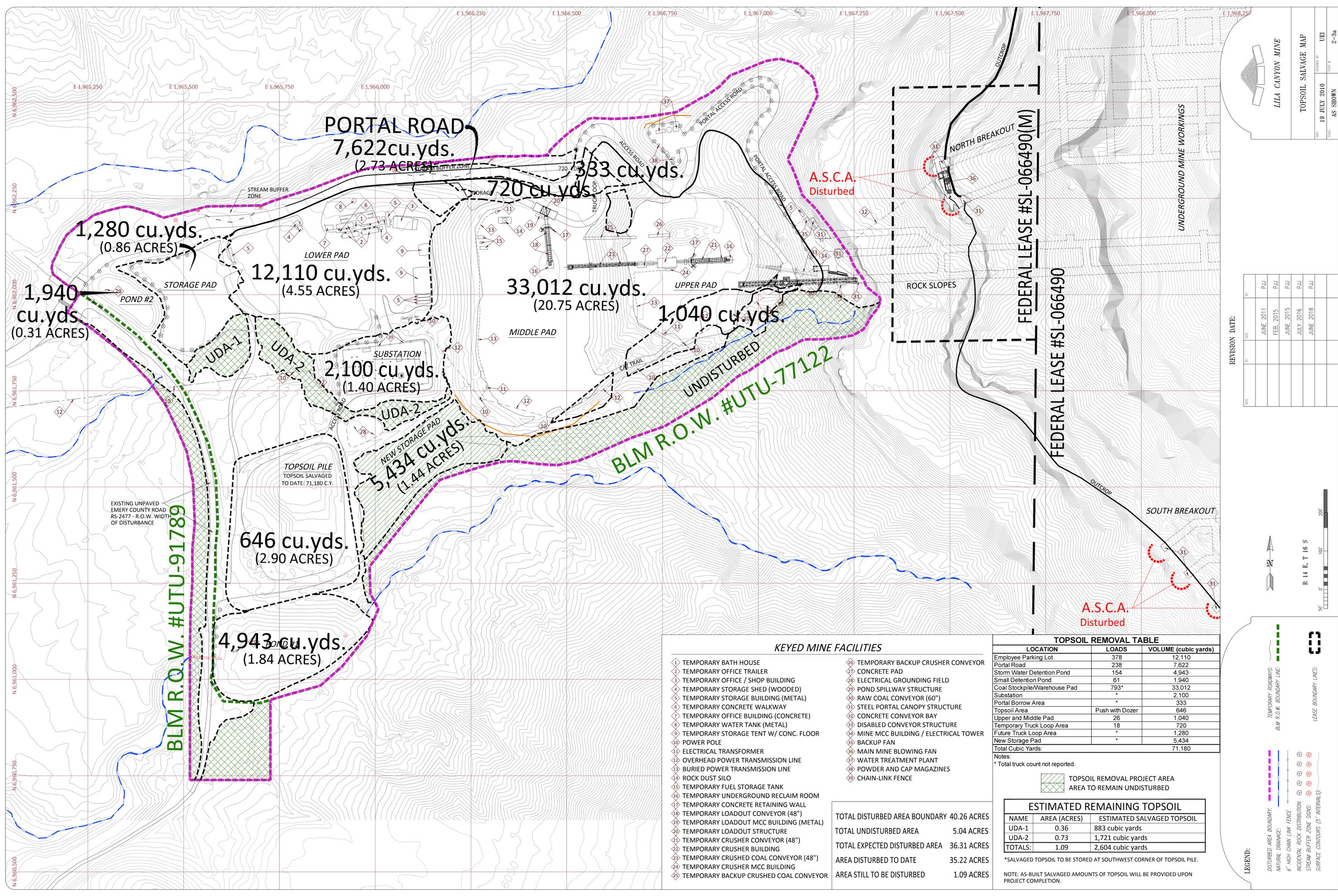
TOTAL TOPSOIL REMOVAL TABLE AS OF MAY 20185

LOCATION	LOADS	VOLUME (Yd³)
Employee Parking Lot	378	12,110
Portal Road	238	7,622
Storm Water Detention Pond	154	4,943
Small Detention Pond	61	1,940
Coal Stockpile/Warehouse pads	793*	33,012
Topsoil Area	Push with Dozer	646
Substation Area	*	2,100
Portal Borrow Area	*	333
Upper & Middle Pod	26	1,040
Truck Loop Area	18	720
Future Truck Loop/Storage Yd.	32	1,280
Storage Pad	247	5,434
Total		71,180

*** Total Truck Count Not Reported**

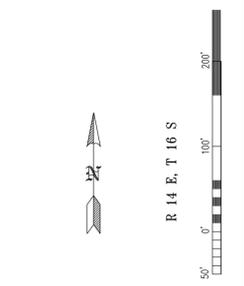
The above topsoil removal quantities were based upon recommendations from the earth removal contractor. Prior to final reclamation it is recommended that the topsoil pile be surveyed to determine the exact amount of topsoil available for reclamation.

APPENDIX 1
TOPSOIL REMOVAL MAP



REVISION DATE:

DATE	BY	DESCRIPTION
JUNE 2011	PAJ	
FEB. 2015	PAJ	
JUNE 2015	PAJ	
JULY 2016	PAJ	
JUNE 2018	PAJ	



LEGEND:

- DISTURBED AREA BOUNDARY: Dashed black line
- NATURAL DRAINAGE: Blue line
- 6" HIGH CHAIN LINK FENCE: Dashed green line
- INCIDENTAL ROCK DISTRIBUTION: Dotted green line
- STREAM BUFFER ZONE SIGNS: Red dashed line with circles
- SURFACE CONTOURS (5' INTERVALS): Brown contour lines
- TEMPORARY ROADWAYS: Dashed red line
- BLM R.O.W. BOUNDARY LINE: Dashed purple line
- LEASE BOUNDARY LINES: Dashed black line
- TOPSOIL REMOVAL PROJECT AREA: Green hatched area
- AREA TO REMAIN UNDISTURBED: White area

KEYED MINE FACILITIES

- | | |
|--|--|
| ① TEMPORARY BATH HOUSE | ②③ TEMPORARY BACKUP CRUSHER CONVEYOR |
| ② TEMPORARY OFFICE TRAILER | ④ CONCRETE PAD |
| ③ TEMPORARY OFFICE / SHOP BUILDING | ⑤ ELECTRICAL GROUNDING FIELD |
| ④ TEMPORARY STORAGE SHED (WOODED) | ⑥ POND SPILLWAY STRUCTURE |
| ⑤ TEMPORARY STORAGE BUILDING (METAL) | ⑦ RAW COAL CONVEYOR (60") |
| ⑥ TEMPORARY CONCRETE WALKWAY | ⑧ STEEL PORTAL CANOPY STRUCTURE |
| ⑦ TEMPORARY OFFICE BUILDING (CONCRETE) | ⑨ CONCRETE CONVEYOR BAY |
| ⑧ TEMPORARY WATER TANK (METAL) | ⑩ DISABLED CONVEYOR STRUCTURE |
| ⑨ TEMPORARY STORAGE TENT W/ CONC. FLOOR | ⑪ MINE MCC BUILDING / ELECTRICAL TOWER |
| ⑩ POWER POLE | ⑫ BACKUP FAN |
| ⑪ ELECTRICAL TRANSFORMER | ⑬ MAIN MINE BLOWING FAN |
| ⑫ OVERHEAD POWER TRANSMISSION LINE | ⑭ WATER TREATMENT PLANT |
| ⑬ BURIED POWER TRANSMISSION LINE | ⑮ POWDER AND CAP MAGAZINES |
| ⑭ ROCK DUST SILO | ⑯ CHAIN-LINK FENCE |
| ⑮ TEMPORARY FUEL STORAGE TANK | |
| ⑯ TEMPORARY UNDERGROUND RECLAIM ROOM | |
| ⑰ TEMPORARY CONCRETE RETAINING WALL | |
| ⑱ TEMPORARY LOADOUT CONVEYOR (48") | |
| ⑲ TEMPORARY LOADOUT MCC BUILDING (METAL) | |
| ⑳ TEMPORARY LOADOUT STRUCTURE | |
| ㉑ TEMPORARY CRUSHER CONVEYOR (48") | |
| ㉒ TEMPORARY CRUSHER BUILDING | |
| ㉓ TEMPORARY CRUSHED COAL CONVEYOR (48") | |
| ㉔ TEMPORARY CRUSHER MCC BUILDING | |
| ㉕ TEMPORARY BACKUP CRUSHED COAL CONVEYOR | |

TOTAL DISTURBED AREA BOUNDARY	40.26 ACRES
TOTAL UNDISTURBED AREA	5.04 ACRES
TOTAL EXPECTED DISTURBED AREA	36.31 ACRES
AREA DISTURBED TO DATE	35.22 ACRES
AREA STILL TO BE DISTURBED	1.09 ACRES

TOPSOIL REMOVAL TABLE

LOCATION	LOADS	VOLUME (cubic yards)
Employee Parking Lot	378	12,110
Portal Road	238	7,622
Storm Water Detention Pond	154	4,943
Small Detention Pond	61	1,940
Coal Stockpile/Warehouse Pad	793*	33,012
Substation	*	2,100
Portal Borrow Area	*	333
Topsoil Area	Push with Dozer	646
Upper and Middle Pad	26	1,040
Temporary Truck Loop Area	18	720
Future Truck Loop Area	*	1,280
New Storage Pad	*	5,434
Total Cubic Yards:		71,180

Notes:
 * Total truck count not reported.

TOPSOIL REMOVAL PROJECT AREA
 AREA TO REMAIN UNDISTURBED

ESTIMATED REMAINING TOPSOIL

NAME	AREA (ACRES)	ESTIMATED SALVAGED TOPSOIL
UDA-1	0.36	883 cubic yards
UDA-2	0.73	1,721 cubic yards
TOTALS:	1.09	2,604 cubic yards

*SALVAGED TOPSOIL TO BE STORED AT SOUTHWEST CORNER OF TOPSOIL PILE.
 NOTE: AS-BUILT SALVAGED AMOUNTS OF TOPSOIL WILL BE PROVIDED UPON PROJECT COMPLETION.

Lila Canyon Mine
East Carbon, UTAH

2018 Rain Gauge Data Evaluation

Prepared For:

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February 2019

INTRODUCTION:

The purpose of this study was to aid in addressing DOGM baseline data requirements and to specifically:

- o Describe the rain gauge data collection for the upper and lower areas within the Lila Canyon Mine Permit Area.
- o Evaluate data and recommend future sampling activities.

UEI installed the rain gauges to document precipitation on Little Park Wash and near the Lila Mine facilities.

RAIN GAUGES

As reported in the 2008 - 2016 reports, in accordance with DOGM stipulations, two rain gauges were installed within the Lila Canyon Mine Permit area. The lower elevation gauge is located to the south of the mine facilities area and the upper elevation gauge is located on top of the Book Cliffs in the Little Park Wash drainage area (near the IPA #2 well site). The locations of the rain gauges were determined by a Delorme Earthmate PN-20 GPS unit and are shown on Plate 1 and the coordinates and elevations are presented in Table 1.

METHODS: These rain gauges are tipping bucket type rain gauges with a data logger. The data are collected in 0.01" increments with a resolution of 0.01 inches per second. Readings are taken only when precipitation is recorded. The data are stored in the data logger memory until the data are downloaded. There is sufficient memory in the data loggers to store more than a year of data before a download is required.

Attempts are made to download the data regularly; however, due to difficulties in scheduling and winter weather conditions, it is sometimes hard to access the upper sites. This means that there are periods that are sometimes longer than desired between data downloads. The summary tables adjust these data to the various years as appropriate.

RESULTS: The available rainfall data are reported for the 4th quarter of 2017 and four quarters of 2018 at the lower rain gauge and for the 4th quarter of 2017 and two quarters of 2018 at the upper rain gauge. Due to access issues in the fall of 2018, the

upper gauge data was not downloaded. Thus, no data for the 3rd quarter of 2018 were included for the upper gauge. These data will be reported in the next annual report.

EVALUATION: Table 2 presents the lower gauge data and Table 3 presents to upper gauge data. The breakdown of the rainfall for each of the quarters for the last sampling period for the various gauges is:

Station ID	2017 4th	2018 1st	2018 2nd	2018 3rd	2018 4 th	Annual
Lower	0.02"	0.96"	1.76"	2.04"	3.38"	8.14"
Upper	0.02"	1.17"	1.82"	NR*	NR*	3.01"***

* Data Not Downloaded

** Annual sum missing data

CONCLUSIONS AND RECOMMENDATIONS:

The 2017-18 data, plus the data from the 2008 - 2017 reports, demonstrate the types of rainfall that are common in the mine permit area. There are three types of precipitation events recorded: short duration small isolated storms, short duration, high intensity storms, and longer frontal type storms.

The rainfall types occurring in the area were described as a combination of short duration, high intensity thunderstorms and gentle frontal storms. These are the same types of storms that were recorded in the data collected. The only difference was the additional identification of short duration small isolated storms. These storms were generally less than 0.1 inches in depth and less than 60 minutes in duration. Therefore, the precipitation regime occurring in the mine permit area is now fully documented and matches that described in the PAP.

The data presented in the 2008 - 2018 summaries demonstrate the typical rainfall conditions for the mine permit area. The conditions described by these data are consistent with the descriptions presented in the PAP for the Lila Canyon Mine.

It is recommended that precipitation monitoring be continued to assist in understanding the precipitation events that occur in the mine area. This will identify those events that are greater than design events.

TABLE 1
Lila Canyon - Water Monitoring Coordinate Data

Site	Latitude	Longitude	Stateplane N (feet)	Stateplane E (feet)	Elevation (ft.)	# of satellites	Error margin (+/-)	Flow Rat	Cond.	Temp	pH
IPA #1	39° 25.514' N	110° 18.439' W	399946.05	2336903.63	7049	6	22				
IPA #2	39° 25.088' N	110° 19.144' W	397316.3	2333618.88	6872	6	17				
IPA #3	39° 24.488' N	110° 18.718' W	393701.03	2335672.92	6820	7	17				
L-01-S	39° 25.6457' N	110° 20.8662' W	400595.57	2325467.03	5826	8	19				
L-02-S	39° 25.5230' N	110° 20.7040' W	399860.709	2326240.081	5934	8	19				
L-07-G	39° 26.450' N	110° 18.223' W	405640.88	2337844.49	7354	5	19				
L-08-G	39° 25.717' N	110° 17.621' W	401229.84	2340737.86	7049	5	45				
L-09-G	39° 24.958' N	110° 17.952' W	396601.96	2339241.56	7036	6	18				
L-11-G	39° 26.618' N	110° 19.781' W	406563.58	2330498.28	7220	4	35				
L-12-G	39° 24.143' N	110° 18.038' W	391649.72	2338902.98	6762	6	29				
L-13-S	39° 24.831' N	110° 19.032' W	395763.35	2334166.82	6820	6	18				
L-14-S	39° 23.960' N	110° 18.472' W	390511.64	2336874	6678	8	19				
L-16-G	39° 24.2498' N	110° 19.5893' W	392201.033	2331589.099	5792	8	19				
L-17-G	39° 24.2957' N	110° 19.4968' W	392485.352	2332021.029	5896	8	19				
L-18-S	39° 23.9966' N	110° 20.1881' W	390627.335	2328789.29	5513	8	19				
L-19-S	39° 24.228' N	110° 19.094' W	392099.45	2333923.26	6700	5	18				
L-20-S	39° 26.314' N	110° 18.916' W	404771.98	2334593.76	7153	9	15				

RAIN GAUGES - APRIL 2008 & AUGUST 2008

RG-1	39° 25.5620' N	110° 20.8216' W	400090.286	2325683.408	5946	8	19				
RG-2	39° 25.1101' N	110° 19.1383' W	397450.92	2333644.12	6875	8	19				

SPRING & SEEP - APRIL 2008

JS-1	39° 24.2052' N	110° 19.7143' W	391922.606	2331004.009	5793	8	19	damp	-	-	-
JS-2	39° 24.3467' N	110° 19.5807' W	392789.721	2331621.879	5932	8	19	0.01	+4000	54.3	9.03
TS-1	39° 24.2667' N	110° 19.5851' W	392303.871	2331607.531	5873	8	19	0.01	+4000	40.2	8.68
TS-2	39° 24.2848' N	110° 19.5101' W	392418.37	2331959.268	6005	8	19	damp	-	-	-
TS-3	39° 24.2899' N	110° 19.5168' W	392448.911	2331927.311	5992	8	19	damp	-	-	-

CREST GAUGES - AUGUST 2008

Lila CG1	39° 25.6006' N	110° 21.0658' W	400309.785	2324530.799	5739	8	19				
Lila CG2	39° 26.7540' N	110° 18.7754' W	407451.416	2335220.175	7303	8	19				
Lila CG3	39° 26.3110' N	110° 18.8839' W	404755.876	2334745.274	7233	8	19				
Lila CG4	39° 25.4918' N	110° 18.8207' W	399787.62	2335108.598	6968	8	19				
Lila CG5	39° 23.9398' N	110° 18.4462' W	390390.749	2336997.324	6675	8	19				
Lila CG6	39° 24.8083' N	110° 18.9742' W	395629.264	2334440.693	6809	8	19				
Lila CG7	39° 23.9969' N	110° 18.9549' W	390705.618	2334596.861	6656	8	19				

Table 2
 Lower Rain Gauge
 4th Q 2017 and 1st, 2nd, 3rd, 4th Q 2018

Date	Duration		Depth
	Min	Hrs	
11/17/2017	8	0.13	0.02
1/9/2018	265	4.41	0.25
1/10/2018	957	15.95	0.03
1/20/2018	365	6.09	0.07
1/23/2018	160	2.66	0.02
2/13/2018	7	0.11	0.03
2/22/2018	103	1.72	0.04
2/23/2018	41	0.68	0.09
2/24/2018	185	3.08	0.08
3/4/2018	63	1.05	0.02
3/14/2018	34	0.57	0.06
3/15/2018	260	4.33	0.02
3/16/2018	35	0.59	0.05
3/18/2018	121	2.01	0.2
4/7/2018	587	9.79	0.34
4/8/2018	96	1.61	0.31
4/20/2018	255	4.25	0.09
5/1/2018	97	1.61	0.17
5/2/2018	532	8.87	0.52
5/3/2018	14	0.24	0.15
5/20/2018	53	0.88	0.05
6/17/2018	91	1.52	0.13
7/17/2018	943	15.72	0.27
7/21/2018	6	0.10	0.05
7/27/2018	13	0.21	0.32
7/28/2018	89	1.49	0.08
8/4/2018	217	3.62	0.07
8/18/2018	22	0.37	0.01
8/21/2018	494	8.24	0.3
8/22/2018	48	0.80	0.17
8/23/2018	105	1.75	0.49
8/26/2018	231	3.85	0.03
9/5/2018	18	0.30	0.24
9/6/2018	13	0.22	0.01
9/17/2018	7	0.12	0.01
10/2/2018	205	3.42	0.2
10/3/2018	7	0.12	0.02
10/4/2018	784	13.06	0.82
10/6/2018	197	3.28	0.1
10/7/2018	1315	21.91	0.5

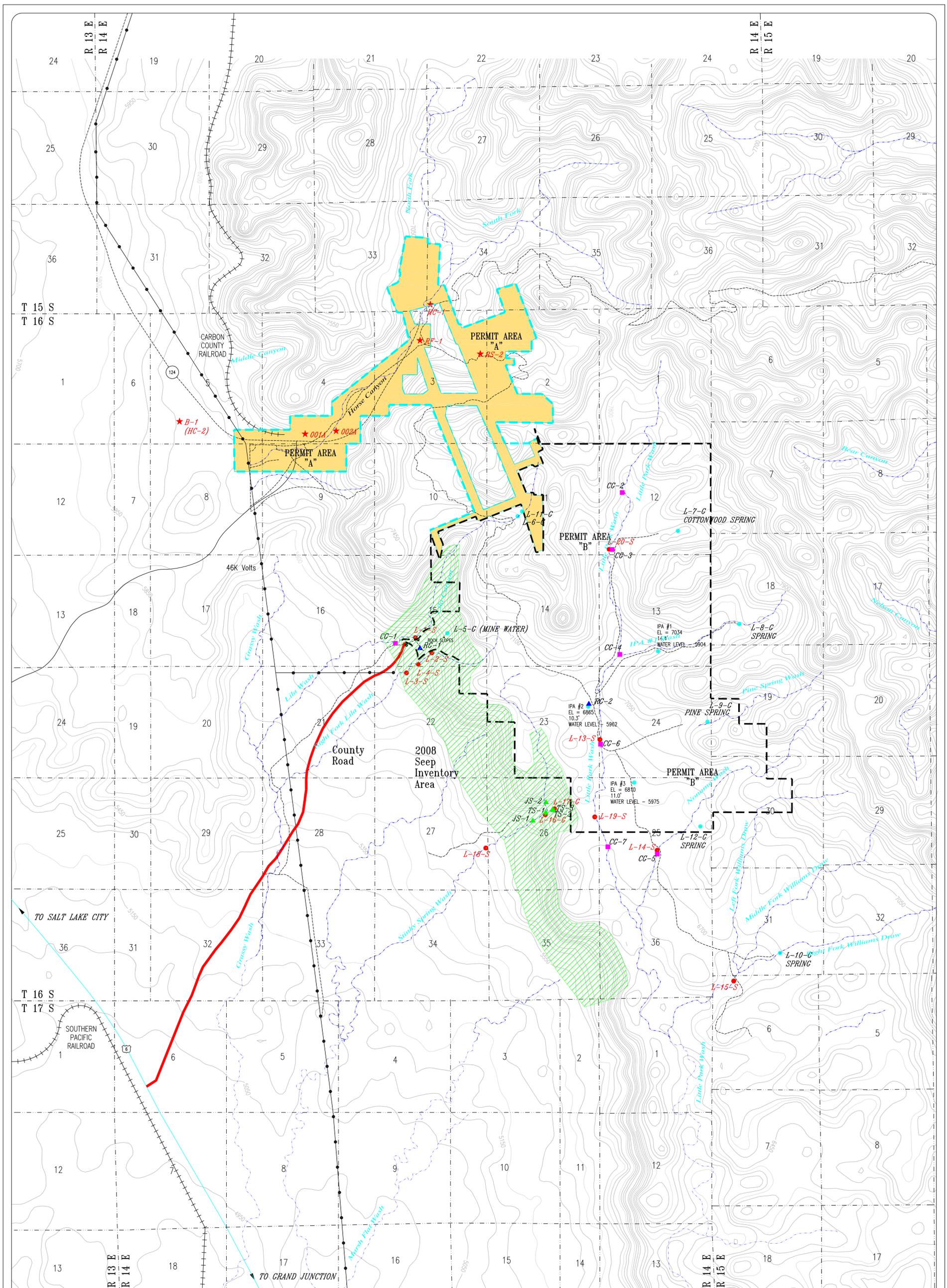
Table 2
Lower Rain Gauge
4th Q 2017 and 1st, 2nd, 3rd, 4th Q 2018

Date	Duration		Depth
	Min	Hrs	
10/8/2018	54	0.89	0.19
10/9/2018	258	4.30	0.07
10/10/2018	92	1.53	0.08
10/11/2018	422	7.03	0.02
10/17/2018	216	3.60	0.2
10/18/2018	633	10.55	0.34
10/22/2018	101	1.68	0.18
11/23/2018	20	0.34	0.06
11/24/2018	5	0.09	0.02
11/29/2018	291	4.86	0.14
11/30/2018	642	10.70	0.15
12/2/2018	17	0.28	0.01
12/3/2018	100	1.66	0.06
12/12/2018	27	0.45	0.01
12/25/2018	424	7.07	0.06
12/26/2018	66	1.10	0.15

Table 3

Upper Rain Gauge
4th Q 2017 and 1st and 2nd Q 2018

Date	Duration		Depth
	Min	Hrs	
10/5/2017	26	0.43	0
10/5/2017	29	0.48	0
12/20/2017	1	0.02	0.02
1/7/2018	28	0.47	0.04
1/9/2018	736	12.26	0.22
1/10/2018	867	14.45	0.06
1/21/2018	310	5.17	0.15
1/22/2018	27	0.45	0.01
1/23/2018	117	1.95	0.05
2/13/2018	9	0.15	0.04
2/22/2018	554	9.23	0.02
2/26/2018	13	0.22	0.01
3/1/2018	17	0.28	0.01
3/2/2018	11	0.18	0.01
3/4/2018	55	0.91	0.04
3/14/2018	20	0.34	0.06
3/15/2018	505	8.41	0.09
3/16/2018	80	1.34	0.14
3/18/2018	31	0.51	0.06
3/19/2018	168	2.80	0.17
3/23/2018	12	0.20	0.01
4/7/2018	277	4.61	0.35
4/8/2018	173	2.88	0.38
4/20/2018	247	4.11	0.1
4/21/2018	8	0.13	0.01
5/1/2018	164	2.73	0.18
5/2/2018	851	14.19	0.41
5/3/2018	373	6.21	0.26
5/4/2018	14	0.23	0.01
5/19/2018	9	0.14	0.03
5/20/2018	67	1.12	0.06
5/22/2018	33	0.55	2.99



LEGEND:

PERMIT AREA "A" (HORSE CANYON):

PERMIT AREA "B" (LILA CANYON):

WATER MONITORING:

HORSE CANYON MONITORING: ★

LILA CANYON SURFACE MONITORING: ●

LILA CANYON GROUNDWATER MONITORING: ●

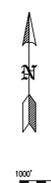
LILA CANYON CREST GAUGE MONITORING: ▲

LILA CANYON SEEP LOCATIONS: ▲

LILA CANYON RAIN GAUGE LOCATIONS: ▲

REVISION DATE:

DATE	BY	DATE	BY
July 1999	WJ		
November 1999	BHE	August 2008	TJS
March 2000	BHE		
August 2000	BJ		
December 2000	BJ		
July 2001	BJ		
September 2002	RJM		
November 2006	TJS		



LILA CANYON MINE

WATER MONITORING LOCATIONS

DATE: **MAY 1998** DESIGNED BY: **BLACKHAWK ENG.**

SCALE: **AS SHOWN** PLATE #: **1**

ATTACHMENT A

Annual Data Summary for Upper and Lower Rain Gauges

Lower Gauge Data

Appendix A

Lower Gauge

Date/Time	Rainfall Count
10/11/2017 11:13	0 Start record
11/17/2017 16:09	1
11/17/2017 16:15	2
1/9/2018 14:38	3
1/9/2018 14:44	4
1/9/2018 14:50	5
1/9/2018 14:54	6
1/9/2018 14:59	7
1/9/2018 15:04	8
1/9/2018 15:10	9
1/9/2018 15:15	10
1/9/2018 15:18	11
1/9/2018 15:21	12
1/9/2018 15:24	13
1/9/2018 15:27	14
1/9/2018 15:30	15
1/9/2018 15:32	16
1/9/2018 15:37	17
1/9/2018 15:41	18
1/9/2018 15:45	19
1/9/2018 15:49	20
1/9/2018 15:54	21
1/9/2018 15:59	22
1/9/2018 16:05	23
1/9/2018 16:11	24
1/9/2018 16:19	25
1/9/2018 16:34	26
1/9/2018 19:02	27
1/10/2018 5:29	28
1/10/2018 11:13	29
1/10/2018 21:26	30
1/20/2018 11:43	31
1/20/2018 11:52	32
1/20/2018 12:03	33
1/20/2018 12:21	34
1/20/2018 12:40	35
1/20/2018 13:03	36
1/20/2018 17:49	37
1/23/2018 12:59	38
1/23/2018 15:39	39
2/13/2018 10:50	40
2/13/2018 10:54	41

Appendix A

Lower Gauge

Date/Time	Rainfall Count
2/13/2018 10:57	42
2/22/2018 10:53	43
2/22/2018 11:52	44
2/22/2018 11:52	45
2/22/2018 12:36	46
2/23/2018 16:33	47
2/23/2018 16:33	48
2/23/2018 16:36	49
2/23/2018 16:41	50
2/23/2018 16:47	51
2/23/2018 16:53	52
2/23/2018 17:00	53
2/23/2018 17:06	54
2/23/2018 17:13	55
2/24/2018 11:19	56
2/24/2018 11:41	57
2/24/2018 11:41	58
2/24/2018 12:04	59
2/24/2018 12:19	60
2/24/2018 12:28	61
2/24/2018 12:28	62
2/24/2018 14:24	63
3/4/2018 10:45	64
3/4/2018 11:48	65
3/14/2018 21:25	66
3/14/2018 21:42	67
3/14/2018 21:43	68
3/14/2018 21:45	69
3/14/2018 21:56	70
3/14/2018 21:59	71
3/15/2018 19:26	72
3/15/2018 23:46	73
3/16/2018 10:10	74
3/16/2018 10:18	75
3/16/2018 10:25	76
3/16/2018 10:33	77
3/16/2018 10:45	78
3/18/2018 16:07	79
3/18/2018 16:22	80
3/18/2018 16:25	81
3/18/2018 16:29	82
3/18/2018 16:32	83

Appendix A

Lower Gauge

Date/Time	Rainfall Count
3/18/2018 16:34	84
3/18/2018 16:37	85
3/18/2018 16:42	86
3/18/2018 16:45	87
3/18/2018 16:48	88
3/18/2018 16:51	89
3/18/2018 16:55	90
3/18/2018 16:59	91
3/18/2018 17:04	92
3/18/2018 17:11	93
3/18/2018 17:22	94
3/18/2018 17:26	95
3/18/2018 17:30	96
3/18/2018 17:37	97
3/18/2018 18:07	98
4/7/2018 14:12	99
4/7/2018 14:37	100
4/7/2018 14:42	101
4/7/2018 14:48	102
4/7/2018 14:54	103
4/7/2018 15:11	104
4/7/2018 15:21	105
4/7/2018 15:34	106
4/7/2018 15:38	107
4/7/2018 17:35	108
4/7/2018 17:40	109
4/7/2018 17:42	110
4/7/2018 17:42	111
4/7/2018 17:43	112
4/7/2018 17:44	113
4/7/2018 17:45	114
4/7/2018 17:47	115
4/7/2018 17:49	116
4/7/2018 17:53	117
4/7/2018 17:57	118
4/7/2018 18:00	119
4/7/2018 18:04	120
4/7/2018 18:07	121
4/7/2018 18:10	122
4/7/2018 18:14	123
4/7/2018 18:16	124
4/7/2018 18:19	125

Appendix A

Lower Gauge

Date/Time	Rainfall Count
4/7/2018 18:23	126
4/7/2018 18:26	127
4/7/2018 18:28	128
4/7/2018 18:30	129
4/7/2018 23:41	130
4/7/2018 23:57	131
4/7/2018 23:59	132
4/8/2018 0:00	133
4/8/2018 0:01	134
4/8/2018 0:13	135
4/8/2018 0:44	136
4/8/2018 0:45	137
4/8/2018 0:46	138
4/8/2018 0:47	139
4/8/2018 0:50	140
4/8/2018 0:52	141
4/8/2018 0:54	142
4/8/2018 0:56	143
4/8/2018 0:59	144
4/8/2018 1:01	145
4/8/2018 1:03	146
4/8/2018 1:04	147
4/8/2018 1:07	148
4/8/2018 1:08	149
4/8/2018 1:09	150
4/8/2018 1:10	151
4/8/2018 1:11	152
4/8/2018 1:12	153
4/8/2018 1:14	154
4/8/2018 1:15	155
4/8/2018 1:17	156
4/8/2018 1:19	157
4/8/2018 1:20	158
4/8/2018 1:22	159
4/8/2018 1:24	160
4/8/2018 1:26	161
4/8/2018 1:29	162
4/8/2018 1:37	163
4/20/2018 17:37	164
4/20/2018 18:38	165
4/20/2018 18:54	166
4/20/2018 19:10	167

Appendix A

Lower Gauge

Date/Time	Rainfall Count
4/20/2018 19:48	168
4/20/2018 20:55	169
4/20/2018 21:13	170
4/20/2018 21:23	171
4/20/2018 21:52	172
5/1/2018 17:52	173
5/1/2018 17:58	174
5/1/2018 18:36	175
5/1/2018 18:43	176
5/1/2018 18:50	177
5/1/2018 18:57	178
5/1/2018 18:59	179
5/1/2018 19:02	180
5/1/2018 19:03	181
5/1/2018 19:05	182
5/1/2018 19:06	183
5/1/2018 19:07	184
5/1/2018 19:08	185
5/1/2018 19:10	186
5/1/2018 19:12	187
5/1/2018 19:17	188
5/1/2018 19:29	189
5/2/2018 1:42	190
5/2/2018 1:47	191
5/2/2018 1:50	192
5/2/2018 1:57	193
5/2/2018 2:00	194
5/2/2018 2:05	195
5/2/2018 2:14	196
5/2/2018 2:24	197
5/2/2018 2:47	198
5/2/2018 3:06	199
5/2/2018 4:02	200
5/2/2018 4:47	201
5/2/2018 5:15	202
5/2/2018 5:42	203
5/2/2018 6:10	204
5/2/2018 6:16	205
5/2/2018 6:23	206
5/2/2018 6:31	207
5/2/2018 6:47	208
5/2/2018 6:51	209

Appendix A

Lower Gauge

Date/Time	Rainfall Count
5/2/2018 7:03	210
5/2/2018 7:15	211
5/2/2018 7:24	212
5/2/2018 7:30	213
5/2/2018 7:33	214
5/2/2018 7:37	215
5/2/2018 7:39	216
5/2/2018 7:41	217
5/2/2018 7:45	218
5/2/2018 7:50	219
5/2/2018 7:57	220
5/2/2018 8:03	221
5/2/2018 8:10	222
5/2/2018 8:14	223
5/2/2018 8:17	224
5/2/2018 8:20	225
5/2/2018 8:23	226
5/2/2018 8:26	227
5/2/2018 8:31	228
5/2/2018 8:34	229
5/2/2018 8:39	230
5/2/2018 8:44	231
5/2/2018 8:51	232
5/2/2018 9:03	233
5/2/2018 9:12	234
5/2/2018 9:16	235
5/2/2018 9:24	236
5/2/2018 9:33	237
5/2/2018 9:47	238
5/2/2018 9:57	239
5/2/2018 10:08	240
5/2/2018 10:35	241
5/3/2018 20:10	242
5/3/2018 20:11	243
5/3/2018 20:12	244
5/3/2018 20:13	245
5/3/2018 20:13	246
5/3/2018 20:13	247
5/3/2018 20:14	248
5/3/2018 20:14	249
5/3/2018 20:15	250
5/3/2018 20:16	251

Appendix A

Lower Gauge

Date/Time	Rainfall Count
5/3/2018 20:17	252
5/3/2018 20:18	253
5/3/2018 20:19	254
5/3/2018 20:21	255
5/3/2018 20:25	256
5/20/2018 18:40	257
5/20/2018 18:43	258
5/20/2018 18:58	259
5/20/2018 19:21	260
5/20/2018 19:32	261
5/29/2018 10:43	261 End of Record
5/29/2018 10:50	0 Start Record
6/17/2018 2:24	1
6/17/2018 2:32	2
6/17/2018 2:40	3
6/17/2018 2:41	4
6/17/2018 2:42	5
6/17/2018 2:43	6
6/17/2018 2:45	7
6/17/2018 2:46	8
6/17/2018 2:51	9
6/17/2018 2:55	10
6/17/2018 3:28	11
6/17/2018 3:35	12
6/17/2018 3:56	13
7/17/2018 3:25	14
7/17/2018 19:00	15
7/17/2018 19:01	16
7/17/2018 19:01	17
7/17/2018 19:02	18
7/17/2018 19:02	19
7/17/2018 19:02	20
7/17/2018 19:02	21
7/17/2018 19:03	22
7/17/2018 19:03	23
7/17/2018 19:03	24
7/17/2018 19:03	25
7/17/2018 19:03	26
7/17/2018 19:03	27
7/17/2018 19:04	28
7/17/2018 19:04	29
7/17/2018 19:04	30

Appendix A

Lower Gauge

Date/Time	Rainfall Count
7/17/2018 19:04	31
7/17/2018 19:04	32
7/17/2018 19:05	33
7/17/2018 19:05	34
7/17/2018 19:06	35
7/17/2018 19:06	36
7/17/2018 19:07	37
7/17/2018 19:07	38
7/17/2018 19:07	39
7/17/2018 19:08	40
7/21/2018 16:02	41
7/21/2018 16:03	42
7/21/2018 16:04	43
7/21/2018 16:05	44
7/21/2018 16:08	45
7/27/2018 15:58	46
7/27/2018 15:59	47
7/27/2018 15:59	48
7/27/2018 16:00	49
7/27/2018 16:00	50
7/27/2018 16:01	51
7/27/2018 16:01	52
7/27/2018 16:02	53
7/27/2018 16:02	54
7/27/2018 16:02	55
7/27/2018 16:03	56
7/27/2018 16:03	57
7/27/2018 16:04	58
7/27/2018 16:05	59
7/27/2018 16:05	60
7/27/2018 16:05	61
7/27/2018 16:06	62
7/27/2018 16:06	63
7/27/2018 16:06	64
7/27/2018 16:06	65
7/27/2018 16:07	66
7/27/2018 16:07	67
7/27/2018 16:07	68
7/27/2018 16:07	69
7/27/2018 16:08	70
7/27/2018 16:08	71
7/27/2018 16:08	72

Appendix A

Lower Gauge

Date/Time	Rainfall Count
7/27/2018 16:09	73
7/27/2018 16:09	74
7/27/2018 16:10	75
7/27/2018 16:11	76
7/27/2018 16:11	77
7/28/2018 14:17	78
7/28/2018 14:18	79
7/28/2018 14:20	80
7/28/2018 14:21	81
7/28/2018 14:24	82
7/28/2018 14:29	83
7/28/2018 15:25	84
7/28/2018 15:47	85
8/4/2018 13:34	86
8/4/2018 13:36	87
8/4/2018 13:40	88
8/4/2018 14:12	89
8/4/2018 14:13	90
8/4/2018 17:04	91
8/4/2018 17:11	92
8/18/2018 4:35	93
8/21/2018 10:14	94
8/21/2018 10:18	95
8/21/2018 10:18	96
8/21/2018 10:19	97
8/21/2018 10:19	98
8/21/2018 10:20	99
8/21/2018 10:20	100
8/21/2018 10:20	101
8/21/2018 10:21	102
8/21/2018 10:22	103
8/21/2018 10:24	104
8/21/2018 15:25	105
8/21/2018 15:32	106
8/21/2018 15:39	107
8/21/2018 16:56	108
8/21/2018 17:02	109
8/21/2018 17:03	110
8/21/2018 17:03	111
8/21/2018 17:05	112
8/21/2018 17:08	113
8/21/2018 17:09	114

Appendix A

Lower Gauge

Date/Time	Rainfall Count
8/21/2018 17:11	115
8/21/2018 17:13	116
8/21/2018 17:16	117
8/21/2018 17:19	118
8/21/2018 17:24	119
8/21/2018 18:04	120
8/21/2018 18:08	121
8/21/2018 18:14	122
8/21/2018 18:29	123
8/22/2018 2:36	124
8/22/2018 2:40	125
8/22/2018 2:42	126
8/22/2018 2:45	127
8/22/2018 2:48	128
8/22/2018 2:52	129
8/22/2018 2:53	130
8/22/2018 2:55	131
8/22/2018 2:56	132
8/22/2018 2:58	133
8/22/2018 2:59	134
8/22/2018 3:02	135
8/22/2018 3:04	136
8/22/2018 3:07	137
8/22/2018 3:09	138
8/22/2018 3:15	139
8/22/2018 3:24	140
8/23/2018 2:17	141
8/23/2018 2:18	142
8/23/2018 2:19	143
8/23/2018 2:19	144
8/23/2018 2:20	145
8/23/2018 2:20	146
8/23/2018 2:21	147
8/23/2018 2:21	148
8/23/2018 2:22	149
8/23/2018 2:22	150
8/23/2018 2:22	151
8/23/2018 2:22	152
8/23/2018 2:23	153
8/23/2018 2:23	154
8/23/2018 2:23	155
8/23/2018 2:23	156

Appendix A

Lower Gauge

Date/Time	Rainfall Count
8/23/2018 2:23	157
8/23/2018 2:24	158
8/23/2018 2:24	159
8/23/2018 2:24	160
8/23/2018 2:25	161
8/23/2018 2:25	162
8/23/2018 2:25	163
8/23/2018 2:25	164
8/23/2018 2:25	165
8/23/2018 2:26	166
8/23/2018 2:26	167
8/23/2018 2:27	168
8/23/2018 2:27	169
8/23/2018 2:28	170
8/23/2018 2:29	171
8/23/2018 2:29	172
8/23/2018 2:31	173
8/23/2018 2:36	174
8/23/2018 2:51	175
8/23/2018 2:54	176
8/23/2018 3:17	177
8/23/2018 3:19	178
8/23/2018 3:20	179
8/23/2018 3:21	180
8/23/2018 3:21	181
8/23/2018 3:21	182
8/23/2018 3:22	183
8/23/2018 3:22	184
8/23/2018 3:22	185
8/23/2018 3:23	186
8/23/2018 3:53	187
8/23/2018 3:56	188
8/23/2018 4:02	189
8/26/2018 17:32	190
8/26/2018 17:34	191
8/26/2018 21:23	192
9/5/2018 17:03	193
9/5/2018 17:04	194
9/5/2018 17:06	195
9/5/2018 17:07	196
9/5/2018 17:09	197
9/5/2018 17:10	198

Appendix A

Lower Gauge

Date/Time	Rainfall Count
9/5/2018 17:11	199
9/5/2018 17:12	200
9/5/2018 17:13	201
9/5/2018 17:13	202
9/5/2018 17:14	203
9/5/2018 17:15	204
9/5/2018 17:15	205
9/5/2018 17:15	206
9/5/2018 17:16	207
9/5/2018 17:16	208
9/5/2018 17:16	209
9/5/2018 17:16	210
9/5/2018 17:17	211
9/5/2018 17:18	212
9/5/2018 17:19	213
9/5/2018 17:19	214
9/5/2018 17:20	215
9/5/2018 17:21	216
9/6/2018 16:30	217
9/17/2018 20:59	218
10/2/2018 15:47	219
10/2/2018 15:52	220
10/2/2018 15:55	221
10/2/2018 15:58	222
10/2/2018 16:04	223
10/2/2018 16:08	224
10/2/2018 16:17	225
10/2/2018 16:36	226
10/2/2018 16:48	227
10/2/2018 16:49	228
10/2/2018 16:51	229
10/2/2018 17:49	230
10/2/2018 18:00	231
10/2/2018 18:05	232
10/2/2018 18:15	233
10/2/2018 19:05	234
10/2/2018 19:06	235
10/2/2018 19:07	236
10/2/2018 19:09	237
10/2/2018 19:12	238
10/3/2018 1:57	239
10/3/2018 2:04	240

Appendix A

Lower Gauge

Date/Time	Rainfall Count
10/4/2018 1:56	241
10/4/2018 1:57	242
10/4/2018 1:59	243
10/4/2018 2:00	244
10/4/2018 2:01	245
10/4/2018 2:02	246
10/4/2018 2:03	247
10/4/2018 2:04	248
10/4/2018 2:08	249
10/4/2018 4:04	250
10/4/2018 4:22	251
10/4/2018 4:23	252
10/4/2018 4:24	253
10/4/2018 4:25	254
10/4/2018 4:28	255
10/4/2018 4:31	256
10/4/2018 4:35	257
10/4/2018 6:13	258
10/4/2018 6:31	259
10/4/2018 6:32	260
10/4/2018 6:33	261
10/4/2018 6:34	262
10/4/2018 6:37	263
10/4/2018 6:40	264
10/4/2018 6:43	265
10/4/2018 6:43	266
10/4/2018 6:44	267
10/4/2018 6:45	268
10/4/2018 6:46	269
10/4/2018 6:57	270
10/4/2018 7:14	271
10/4/2018 7:35	272
10/4/2018 8:59	273
10/4/2018 9:04	274
10/4/2018 9:12	275
10/4/2018 9:16	276
10/4/2018 9:20	277
10/4/2018 9:24	278
10/4/2018 9:33	279
10/4/2018 9:38	280
10/4/2018 10:13	281
10/4/2018 10:25	282

Appendix A

Lower Gauge

Date/Time	Rainfall Count
10/4/2018 10:35	283
10/4/2018 10:42	284
10/4/2018 10:46	285
10/4/2018 10:50	286
10/4/2018 10:53	287
10/4/2018 10:55	288
10/4/2018 10:58	289
10/4/2018 11:02	290
10/4/2018 11:16	291
10/4/2018 11:34	292
10/4/2018 11:36	293
10/4/2018 11:36	294
10/4/2018 11:37	295
10/4/2018 11:38	296
10/4/2018 11:39	297
10/4/2018 11:40	298
10/4/2018 11:42	299
10/4/2018 11:43	300
10/4/2018 11:44	301
10/4/2018 11:45	302
10/4/2018 11:45	303
10/4/2018 11:46	304
10/4/2018 11:47	305
10/4/2018 11:47	306
10/4/2018 11:47	307
10/4/2018 11:48	308
10/4/2018 11:48	309
10/4/2018 11:49	310
10/4/2018 11:50	311
10/4/2018 11:51	312
10/4/2018 11:53	313
10/4/2018 11:55	314
10/4/2018 11:58	315
10/4/2018 12:00	316
10/4/2018 12:02	317
10/4/2018 12:04	318
10/4/2018 12:07	319
10/4/2018 12:08	320
10/4/2018 12:11	321
10/4/2018 14:59	322
10/6/2018 20:19	323
10/6/2018 20:30	324

Appendix A

Lower Gauge

Date/Time	Rainfall Count
10/6/2018 20:37	325
10/6/2018 20:41	326
10/6/2018 20:47	327
10/6/2018 21:05	328
10/6/2018 21:58	329
10/6/2018 22:29	330
10/6/2018 23:09	331
10/6/2018 23:36	332
10/7/2018 0:11	333
10/7/2018 0:23	334
10/7/2018 0:38	335
10/7/2018 0:52	336
10/7/2018 1:03	337
10/7/2018 1:08	338
10/7/2018 1:15	339
10/7/2018 1:23	340
10/7/2018 1:32	341
10/7/2018 1:39	342
10/7/2018 1:44	343
10/7/2018 1:49	344
10/7/2018 1:56	345
10/7/2018 2:03	346
10/7/2018 2:14	347
10/7/2018 2:26	348
10/7/2018 2:47	349
10/7/2018 3:26	350
10/7/2018 3:49	351
10/7/2018 11:09	352
10/7/2018 13:39	353
10/7/2018 13:42	354
10/7/2018 13:44	355
10/7/2018 13:48	356
10/7/2018 13:51	357
10/7/2018 13:54	358
10/7/2018 13:58	359
10/7/2018 14:02	360
10/7/2018 14:10	361
10/7/2018 14:20	362
10/7/2018 15:25	363
10/7/2018 17:57	364
10/7/2018 17:59	365
10/7/2018 18:02	366

Appendix A

Lower Gauge

Date/Time	Rainfall Count
10/7/2018 18:07	367
10/7/2018 18:10	368
10/7/2018 18:13	369
10/7/2018 18:15	370
10/7/2018 18:19	371
10/7/2018 18:22	372
10/7/2018 18:36	373
10/7/2018 18:41	374
10/7/2018 18:51	375
10/7/2018 19:38	376
10/7/2018 19:42	377
10/7/2018 19:46	378
10/7/2018 19:50	379
10/7/2018 19:53	380
10/7/2018 19:59	381
10/7/2018 22:05	382
10/8/2018 18:21	383
10/8/2018 18:25	384
10/8/2018 18:27	385
10/8/2018 18:28	386
10/8/2018 18:29	387
10/8/2018 18:30	388
10/8/2018 18:31	389
10/8/2018 18:32	390
10/8/2018 18:33	391
10/8/2018 18:34	392
10/8/2018 18:35	393
10/8/2018 18:35	394
10/8/2018 18:36	395
10/8/2018 18:39	396
10/8/2018 18:40	397
10/8/2018 18:41	398
10/8/2018 18:49	399
10/8/2018 18:58	400
10/8/2018 19:15	401
10/9/2018 19:30	402
10/9/2018 19:45	403
10/9/2018 19:49	404
10/9/2018 19:56	405
10/9/2018 21:45	406
10/9/2018 22:29	407
10/9/2018 23:48	408

Appendix A

Lower Gauge

Date/Time	Rainfall Count
10/10/2018 0:41	409
10/10/2018 0:45	410
10/10/2018 0:52	411
10/10/2018 1:01	412
10/10/2018 1:04	413
10/10/2018 1:08	414
10/10/2018 1:16	415
10/10/2018 2:13	416
10/11/2018 10:32	417
10/11/2018 17:34	418
10/17/2018 18:59	419
10/17/2018 19:02	420
10/17/2018 19:09	421
10/17/2018 19:12	422
10/17/2018 19:15	423
10/17/2018 19:17	424
10/17/2018 19:21	425
10/17/2018 19:24	426
10/17/2018 19:30	427
10/17/2018 19:33	428
10/17/2018 19:36	429
10/17/2018 19:39	430
10/17/2018 19:42	431
10/17/2018 19:44	432
10/17/2018 19:49	433
10/17/2018 19:55	434
10/17/2018 21:44	435
10/17/2018 21:51	436
10/17/2018 22:28	437
10/17/2018 22:34	438
10/18/2018 3:18	439
10/18/2018 3:21	440
10/18/2018 3:25	441
10/18/2018 3:34	442
10/18/2018 3:56	443
10/18/2018 7:49	444
10/18/2018 8:01	445
10/18/2018 8:18	446
10/18/2018 8:30	447
10/18/2018 8:35	448
10/18/2018 8:39	449
10/18/2018 8:42	450

Appendix A

Lower Gauge

Date/Time	Rainfall Count
10/18/2018 8:44	451
10/18/2018 8:46	452
10/18/2018 8:48	453
10/18/2018 8:51	454
10/18/2018 8:54	455
10/18/2018 8:58	456
10/18/2018 9:06	457
10/18/2018 9:13	458
10/18/2018 9:22	459
10/18/2018 9:27	460
10/18/2018 9:31	461
10/18/2018 9:37	462
10/18/2018 9:43	463
10/18/2018 9:52	464
10/18/2018 9:59	465
10/18/2018 10:05	466
10/18/2018 12:53	467
10/18/2018 13:01	468
10/18/2018 13:08	469
10/18/2018 13:15	470
10/18/2018 13:25	471
10/18/2018 13:51	472
10/22/2018 19:20	473
10/22/2018 19:43	474
10/22/2018 19:49	475
10/22/2018 19:55	476
10/22/2018 19:59	477
10/22/2018 20:02	478
10/22/2018 20:09	479
10/22/2018 20:22	480
10/22/2018 20:30	481
10/22/2018 20:34	482
10/22/2018 20:40	483
10/22/2018 20:45	484
10/22/2018 20:47	485
10/22/2018 20:50	486
10/22/2018 20:54	487
10/22/2018 20:57	488
10/22/2018 20:59	489
10/22/2018 21:00	490
11/23/2018 11:31	491
11/23/2018 11:35	492

Appendix A

Lower Gauge

Date/Time	Rainfall Count
11/23/2018 11:39	493
11/23/2018 11:43	494
11/23/2018 11:47	495
11/23/2018 11:52	496
11/24/2018 11:26	497
11/24/2018 11:32	498
11/29/2018 10:21	499
11/29/2018 11:54	500
11/29/2018 11:58	501
11/29/2018 12:04	502
11/29/2018 12:14	503
11/29/2018 13:24	504
11/29/2018 14:23	505
11/29/2018 14:27	506
11/29/2018 14:31	507
11/29/2018 14:36	508
11/29/2018 14:43	509
11/29/2018 14:51	510
11/29/2018 15:01	511
11/29/2018 15:13	512
11/30/2018 1:18	513
11/30/2018 1:26	514
11/30/2018 1:38	515
11/30/2018 4:11	516
11/30/2018 7:17	517
11/30/2018 11:16	518
11/30/2018 11:18	519
11/30/2018 11:21	520
11/30/2018 11:24	521
11/30/2018 11:27	522
11/30/2018 11:34	523
11/30/2018 11:39	524
11/30/2018 11:44	525
11/30/2018 11:49	526
11/30/2018 12:00	527
12/2/2018 16:59	528
12/3/2018 12:49	529
12/3/2018 13:04	530
12/3/2018 13:20	531
12/3/2018 13:51	532
12/3/2018 14:11	533
12/3/2018 14:29	534

Appendix A

Lower Gauge

Date/Time	Rainfall Count
12/12/2018 13:47	535
12/25/2018 11:24	536
12/25/2018 11:28	537
12/25/2018 11:31	538
12/25/2018 11:37	539
12/25/2018 17:18	540
12/25/2018 18:28	541
12/26/2018 12:28	542
12/26/2018 12:30	543
12/26/2018 12:31	544
12/26/2018 12:33	545
12/26/2018 12:41	546
12/26/2018 12:47	547
12/26/2018 12:49	548
12/26/2018 12:52	549
12/26/2018 12:54	550
12/26/2018 12:58	551
12/26/2018 13:01	552
12/26/2018 13:10	553
12/26/2018 13:14	554
12/26/2018 13:30	555
12/26/2018 13:34	556
1/2/2019 13:46	557 End Record

Upper Gauge Data

Appendix A

Upper Gauge

Date/Time	Rainfall Count
10/5/2017 12:10	0 Start of Record
10/5/2017 12:14	1 Bumped gauge
12/20/2017 14:52	2
12/20/2017 14:52	3
1/7/2018 15:41	4
1/9/2018 11:28	5
1/9/2018 16:40	6
1/9/2018 16:47	7
1/9/2018 17:00	8
1/9/2018 17:16	9
1/9/2018 17:37	10
1/9/2018 17:52	11
1/9/2018 18:11	12
1/9/2018 18:25	13
1/9/2018 18:47	14
1/9/2018 19:07	15
1/9/2018 19:30	16
1/9/2018 19:42	17
1/9/2018 20:03	18
1/9/2018 20:17	19
1/9/2018 20:46	20
1/9/2018 21:03	21
1/9/2018 21:22	22
1/9/2018 21:37	23
1/9/2018 22:01	24
1/9/2018 22:18	25
1/9/2018 22:52	26
1/9/2018 23:43	27
1/10/2018 0:56	28
1/10/2018 1:15	29
1/10/2018 5:52	30
1/10/2018 7:34	31
1/10/2018 14:11	32
1/21/2018 10:51	33
1/21/2018 11:00	34
1/21/2018 11:06	35
1/21/2018 14:28	36
1/21/2018 14:36	37
1/21/2018 14:43	38
1/21/2018 14:48	39
1/21/2018 14:55	40
1/21/2018 15:00	41

Appendix A

Upper Gauge

Date/Time	Rainfall Count
1/21/2018 15:16	42
1/21/2018 15:22	43
1/21/2018 15:26	44
1/21/2018 15:28	45
1/21/2018 15:50	46
1/21/2018 16:01	47
1/22/2018 13:18	48
1/23/2018 12:12	49
1/23/2018 13:07	50
1/23/2018 13:08	51
1/23/2018 14:09	52
1/23/2018 14:09	53
2/13/2018 10:56	54
2/13/2018 10:58	55
2/13/2018 11:01	56
2/13/2018 11:05	57
2/22/2018 11:03	58
2/22/2018 20:17	59
2/26/2018 14:21	60
3/1/2018 17:32	61
3/2/2018 12:09	62
3/4/2018 12:06	63
3/4/2018 12:11	64
3/4/2018 12:24	65
3/4/2018 13:00	66
3/14/2018 21:38	67
3/14/2018 21:43	68
3/14/2018 21:46	69
3/14/2018 21:54	70
3/14/2018 21:56	71
3/14/2018 21:59	72
3/15/2018 8:54	73
3/15/2018 9:27	74
3/15/2018 9:36	75
3/15/2018 16:56	76
3/15/2018 17:00	77
3/15/2018 17:02	78
3/15/2018 17:05	79
3/15/2018 17:12	80
3/15/2018 17:19	81
3/16/2018 10:22	82
3/16/2018 10:25	83

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Upper Gauge

Date/Time	Rainfall Count
3/16/2018 10:27	84
3/16/2018 10:30	85
3/16/2018 10:33	86
3/16/2018 10:36	87
3/16/2018 10:38	88
3/16/2018 10:41	89
3/16/2018 10:44	90
3/16/2018 10:46	91
3/16/2018 10:50	92
3/16/2018 10:53	93
3/16/2018 10:58	94
3/16/2018 11:42	95
3/18/2018 17:31	96
3/18/2018 17:33	97
3/18/2018 17:37	98
3/18/2018 17:40	99
3/18/2018 17:47	100
3/18/2018 18:02	101
3/19/2018 9:41	102
3/19/2018 10:11	103
3/19/2018 10:11	104
3/19/2018 10:58	105
3/19/2018 10:58	106
3/19/2018 11:10	107
3/19/2018 11:22	108
3/19/2018 11:22	109
3/19/2018 11:32	110
3/19/2018 11:38	111
3/19/2018 11:46	112
3/19/2018 11:55	113
3/19/2018 12:06	114
3/19/2018 12:14	115
3/19/2018 12:19	116
3/19/2018 12:26	117
3/19/2018 12:30	118
3/23/2018 8:05	119
4/7/2018 14:05	120
4/7/2018 14:26	121
4/7/2018 14:36	122
4/7/2018 14:44	123
4/7/2018 14:48	124
4/7/2018 14:54	125

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Upper Gauge

Date/Time	Rainfall Count
4/7/2018 15:01	126
4/7/2018 15:17	127
4/7/2018 15:34	128
4/7/2018 15:40	129
4/7/2018 17:39	130
4/7/2018 17:42	131
4/7/2018 17:43	132
4/7/2018 17:44	133
4/7/2018 17:45	134
4/7/2018 17:46	135
4/7/2018 17:47	136
4/7/2018 17:49	137
4/7/2018 17:50	138
4/7/2018 17:51	139
4/7/2018 17:53	140
4/7/2018 17:57	141
4/7/2018 18:01	142
4/7/2018 18:05	143
4/7/2018 18:07	144
4/7/2018 18:11	145
4/7/2018 18:14	146
4/7/2018 18:18	147
4/7/2018 18:20	148
4/7/2018 18:23	149
4/7/2018 18:26	150
4/7/2018 18:29	151
4/7/2018 18:31	152
4/7/2018 18:33	153
4/7/2018 18:42	154
4/8/2018 0:03	155
4/8/2018 0:06	156
4/8/2018 0:16	157
4/8/2018 0:46	158
4/8/2018 0:47	159
4/8/2018 0:50	160
4/8/2018 0:54	161
4/8/2018 0:55	162
4/8/2018 0:57	163
4/8/2018 0:58	164
4/8/2018 1:00	165
4/8/2018 1:01	166
4/8/2018 1:03	167

Appendix A

Upper Gauge

Date/Time	Rainfall Count
4/8/2018 1:05	168
4/8/2018 1:06	169
4/8/2018 1:08	170
4/8/2018 1:09	171
4/8/2018 1:10	172
4/8/2018 1:11	173
4/8/2018 1:12	174
4/8/2018 1:13	175
4/8/2018 1:14	176
4/8/2018 1:15	177
4/8/2018 1:16	178
4/8/2018 1:17	179
4/8/2018 1:17	180
4/8/2018 1:18	181
4/8/2018 1:20	182
4/8/2018 1:21	183
4/8/2018 1:22	184
4/8/2018 1:23	185
4/8/2018 1:25	186
4/8/2018 1:26	187
4/8/2018 1:27	188
4/8/2018 1:30	189
4/8/2018 1:31	190
4/8/2018 1:35	191
4/8/2018 2:55	192
4/20/2018 17:54	193
4/20/2018 18:56	194
4/20/2018 19:28	195
4/20/2018 20:33	196
4/20/2018 20:58	197
4/20/2018 21:10	198
4/20/2018 21:21	199
4/20/2018 21:26	200
4/20/2018 21:44	201
4/20/2018 22:01	202
4/21/2018 0:51	203
5/1/2018 17:45	204
5/1/2018 17:53	205
5/1/2018 18:00	206
5/1/2018 18:45	207
5/1/2018 18:52	208
5/1/2018 18:56	209

Appendix A

Upper Gauge

Date/Time	Rainfall Count
5/1/2018 18:58	210
5/1/2018 19:01	211
5/1/2018 19:03	212
5/1/2018 19:06	213
5/1/2018 19:10	214
5/1/2018 19:15	215
5/1/2018 19:16	216
5/1/2018 19:21	217
5/1/2018 19:25	218
5/1/2018 19:30	219
5/1/2018 19:33	220
5/1/2018 20:29	221
5/2/2018 1:44	222
5/2/2018 1:52	223
5/2/2018 2:03	224
5/2/2018 2:18	225
5/2/2018 2:28	226
5/2/2018 2:41	227
5/2/2018 2:50	228
5/2/2018 3:36	229
5/2/2018 4:24	230
5/2/2018 4:45	231
5/2/2018 5:03	232
5/2/2018 5:31	233
5/2/2018 5:56	234
5/2/2018 6:03	235
5/2/2018 6:09	236
5/2/2018 6:24	237
5/2/2018 6:36	238
5/2/2018 7:03	239
5/2/2018 7:24	240
5/2/2018 7:35	241
5/2/2018 7:41	242
5/2/2018 7:53	243
5/2/2018 8:04	244
5/2/2018 10:20	245
5/2/2018 10:35	246
5/2/2018 10:38	247
5/2/2018 10:40	248
5/2/2018 10:43	249
5/2/2018 10:45	250
5/2/2018 10:48	251

Appendix A

Upper Gauge

Date/Time	Rainfall Count
5/2/2018 10:50	252
5/2/2018 10:53	253
5/2/2018 10:54	254
5/2/2018 10:57	255
5/2/2018 10:58	256
5/2/2018 11:02	257
5/2/2018 11:03	258
5/2/2018 11:06	259
5/2/2018 11:08	260
5/2/2018 11:12	261
5/2/2018 15:55	262
5/3/2018 15:17	263
5/3/2018 20:15	264
5/3/2018 20:16	265
5/3/2018 20:17	266
5/3/2018 20:19	267
5/3/2018 20:20	268
5/3/2018 20:20	269
5/3/2018 20:21	270
5/3/2018 20:23	271
5/3/2018 20:24	272
5/3/2018 20:29	273
5/3/2018 20:34	274
5/3/2018 20:38	275
5/3/2018 20:41	276
5/3/2018 20:45	277
5/3/2018 20:48	278
5/3/2018 20:53	279
5/3/2018 20:56	280
5/3/2018 21:00	281
5/3/2018 21:03	282
5/3/2018 21:06	283
5/3/2018 21:10	284
5/3/2018 21:15	285
5/3/2018 21:19	286
5/3/2018 21:26	287
5/3/2018 21:30	288
5/4/2018 7:36	289
5/19/2018 21:35	290
5/19/2018 21:40	291
5/19/2018 21:43	292
5/20/2018 18:28	293

Appendix A

Upper Gauge

Date/Time	Rainfall Count
5/20/2018 18:31	294
5/20/2018 18:34	295
5/20/2018 18:36	296
5/20/2018 18:49	297
5/20/2018 19:35	298
5/22/2018 8:39	299
6/5/2018 13:45	299 End of Record

RESULTS

Results from the side-by-side comparison of the CIR images for 2011 and 2016 suggested no discernable differences in the plant communities for the permit area at the Lila Canyon Mine. That said, ground-truthing trips to the field to assess potential subsidence impacts seen in the photographs were not conducted.

DISCUSSION

To reiterate the point made in the Introduction above, *the primary objective in reviewing the CIR's was not to reveal minor changes in the vegetation , rather, it was to try and observe major impacts to the plant communities and habitats.* No differences between years were observed in this exercise, suggesting the subsidence has had little impact to the plant communities at the Lila Canyon Mine.

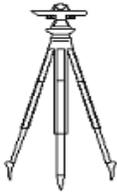
Strengths of the methods used for this study included: 1) the large sizes of the CIR images, 2) the high resolution of the photographs, 3) the exact day of the growing season between the years were available for comparison (July 22, 2011 and July 22, 2016), and 4) the same areas and very close to the same camera angles were used for both years.

UtahAmerican Energy
Lila Canyon
 Subsidence Survey

9/3/2018

STATION	U.S. State Plane 1983 Utah Central (4302)		2015	2016	2017	2018	Difference 2017-2018	POINT DESCRIPTION
	NORTHING	EASTING	ELEVATION	ELEVATION	ELEVATION	ELEVATION		
3038	6963059.31	1970354.30	7136.95	7136.87	7136.80	7136.77	0.03	Panel 1, Boulder
3039	6962366.57	1970260.70	7094.84	7094.77	7094.10	7094.61	-0.51	Panel 1, Boulder
3040	6961183.95	1970973.83	7036.94	7037.02	7037.04	7037.17	-0.13	Panel 1, Rebar
3521	6957129.21	1975742.38			6841.08	6840.81	0.27	Panel 7, Rebar
3524	6956311.45	1975096.11			6797.62	6793.26	4.36	Panel 5, Rebar
Camp	6956954.55	1975215.55			6820.30	6816.20	4.10	Panel 6, Roof bolt

All coordinates are U.S. Survey Feet
 C.A.F. at Control Point "Portal" = 1.0003657322



WARE SURVEYING, L.L.C.

1344 North 1000 West –
 Price, UT 84501
 Office: 435-820-4335



November 2, 2018

Karin Madsen
Utah American Energy
794 North "C" Canyon Road
P.O. Box 910
East Carbon, UT 84520-0910

Re: Opacity Monitoring at the Lila Canyon Mine

Dear Karin:

This letter presents the results of opacity monitoring performed at the Lila Canyon coal mine located in Emery County, Utah. The mine is operated by Utah American Energy, Inc. who contracted with Barr Engineering Co. (Barr) to perform the monitoring in compliance with the minor source Approval Order (AO) issued by the Utah Division of Air Quality (UDAQ). Joelle Dickson of Barr, an EPA Method 9 Certified Visible Emissions Reader, performed opacity readings at the Lila Canyon Mine on October 23, 2018.

The Clean Air Act amendments of 1970 directed the Environmental Protection Agency to develop New Source Performance Standards (NSPS) for new and modified stationary sources of air pollutants. These Standards of Performance for New Stationary Sources (40 CFR Part 60) have been adopted by the UDAQ, and all AOs issued by the agency include emissions limitations as well as requirements for monitoring, testing, reporting, and recordkeeping for the applicable standard. The Lila Canyon mine is subject to Subpart Y of the NSPS. The monitoring requirements are described below.

Lila Canyon Mine Emissions Testing Standards and Procedures

The Lila Canyon mine is subject to Section 60.255(b)(2) of Subpart Y of the NSPS which applies to facilities that commenced construction, reconstruction or modification after April 28, 2008. This Section requires that an initial performance test be conducted as well as repeat performance tests throughout the period of operation of the mine to demonstrate compliance with the applicable emissions standard stated in the AO. The AO for the Lila Canyon Mine was modified to include additional equipment and was approved on May 10, 2013. This AO also lowered the emissions limits for the existing temporary and planned permanent emissions sources at the mine. An initial performance test was performed on these sources in compliance with Section II.B of the AO in 2013. Opacity limits from emission points at the mine, as stated in the 2013 modification to the 2008 AO, are included in Table 1 of the *Observation Results* section of this report.

Method 9 visible emissions observations were performed according to the test methods and procedures outlined in the NSPS Subpart Y, Section 60.257(a)(1)-(3) and the 2013 AO. For sources subject to the NSPS, these procedures require one-hour observations of each source (ten 6-minute averages) unless all of the 6-minute averages are equal to or less than half the applicable opacity limit, then the observation time may be reduced to 30 minutes. As stated in Section II.B.1.b.2 of the AO, visible emissions observations for mobile equipment in operational areas use procedures similar to Method 9 but the requirement for observations at 15 second intervals over a 6-minute period does not apply. For run of mine (ROM) coal transport,

observations were made at six points along the route of travel and averaged. For truck loadout, observations were made over two 6-minute periods using standard Method 9 procedures. A tabulation of either the 6-minute or 6-point average visible emissions for each observed source is included in Attachment 1 to this letter and the opacity observation field sheets are included in Attachment 2.

Lila Canyon Mine Emissions Observation Results

The Lila Canyon Mine is permitted to produce 4.5 million tons of coal annually. Construction of the mine facilities is not complete so it is not currently operating at full capacity. The temporary facilities include a 48" conveyor that delivers ROM coal to a storage pile which is then pushed by heavy equipment to an under-pile port which feeds a 42" conveyor that delivers the ROM coal to an enclosed screen and crusher building. The crushed coal is fed onto a 42" conveyor inside the building and dropped to a storage pile. Heavy equipment then pushes the coal to an under-pile port that feeds a conveyor belt to a loadout bin and chute system into haul trucks.

Barr performed opacity readings at four emissions sources at the mine. All 6-minute averages were less than half of the applicable opacity limit, so observations of sources subject to the NSPS were reduced to 30 minutes. Due to the size and location of the storage pile, it was not possible to observe the crushed coal conveyor drop point from a location in conformance with Method 9 requirements, therefore this source was not observed. The haul road has been paved so this source was also not observed. The opacity limits and highest average observed opacity for each observed source are included in Table 1 below.

Table 1 – Lila Canyon Mine Opacity Limits and Highest Average Observed Opacity

Opacity Limits	per 5/10/13 AO (%)	Highest Average (%)	Notes
Enclosed crusher exhaust	10	0 ¹	
Conveyor drop points	10	0 ¹	ROM conveyor
	10		Crushed coal conveyor not observed. See note above
All other points	20	0 ²	Heavy equipment (ROM transport)
	20	0 ¹	Truck loadout

¹ 6-minute average

² 6-point average

Conclusions and Recommendations

No emissions were observed from any of the observed sources. According to Section 60.255(b)(2) of Subpart Y the timing of repeat performance tests is dependent on the following conditions:

- i) If any 6-minute average opacity reading in the most recent performance test exceeds half the applicable opacity limit, a new performance test must be conducted within 90 operating days of the date that the previous performance test was required to be completed.

- ii) If all 6-minute average opacity readings in the most recent performance test are equal to or less than half the applicable opacity limit, a new performance test must be conducted within 12 calendar months of the date that the previous performance test was required to be completed.

Based on the above requirements for 6-minute observations, the next performance test would be due within 12 calendar months of the date that this performance test was completed. However, if any new equipment is installed within the next year and the AO is modified by the State for these installations, the timing of the next performance test may change, which would be specified in the approval conditions.

Barr has performed its work in a manner consistent with the care and skill ordinarily exercised by members of the environmental profession in accordance with the agreed upon scope of services. Within this context, Barr assumes responsibility for its own observations, along with its interpretation of the information gathered. No other warranty is made or intended.

Sincerely,

Barr Engineering



Joelle Dickson
Senior Environmental Specialist

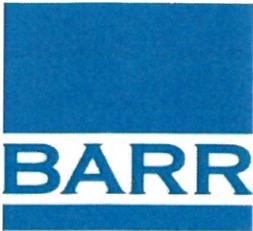
Attachment 1: Tabulation of visible emissions averages

Attachment 2: Opacity observation field sheets

Attachment 3: Method 9 Certification

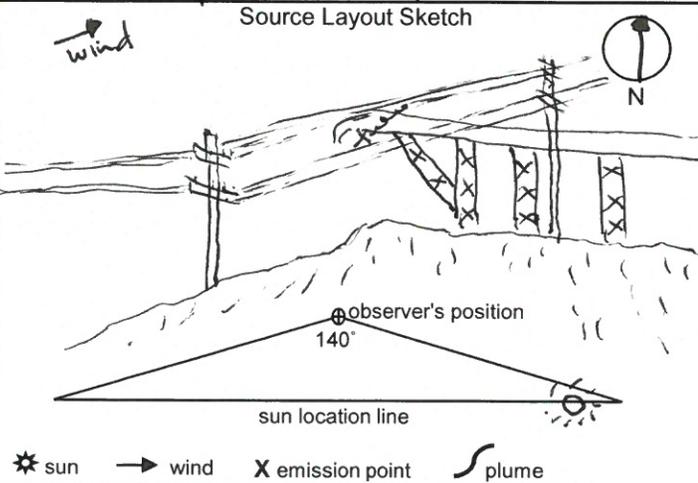
Utah American Energy					
Visible Emissions Averages					
Facility	Source	Date	Minutes	Average Opacity (%)	Notes
Lila Cyn Mine	ROM Coal Conveyor Drop Point	10/23/18	1-6	0	Observations stopped after 30 mins because all 6-minute averages are equal to or less than half of opacity limit.
			7-12	0	
			13-18	0	
			19-24	0	
			25-30	0	
	Crushed Coal Conveyor Drop Point	10/23/18	1-6		Opacity for this source not observed. Due to the size and location of the crushed coal storage pile, it was not possible to observe the conveyor drop point from a location in conformance with Method 9 requirements.
			7-12		
			13-18		
			19-24		
			25-30		
	Enclosed Crusher & Screen	10/23/18	1-6	0	Observations stopped after 30 mins because all 6-minute averages are equal to or less than half of opacity limit.
			7-12	0	
			13-18	0	
			19-24	0	
			25-30	0	
	Coal Loadout	10/23/18	1-6	0	Observed for 12 mins
			7-12	0	
Pass #					
	Heavy Equipment (ROM transport)	10/23/18	1	0	Observation at 6 pts for four passes
			2	0	
			3	0	
			4	0	
	Haul Road	10/23/18			Opacity for this source not observed as the haul road has been paved.

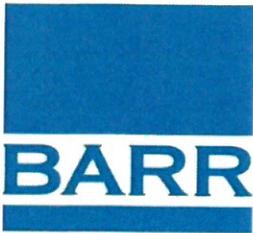
Bold indicates 6-minute average or 6-point average is greater than half of the allowable opacity limit for each source



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1-Hour Visible Emissions Observation Form

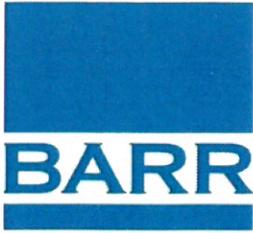
Source Name <i>Lila Canyon Mine - Utah American Energy</i>		Observation Date <i>10/23/18</i>				Start Time <i>10:28</i>		Stop Time <i>10:58</i>			
Address/Location <i>23415 N. Lila Canyon Rd.</i>		min/sec	0	15	30	45	min/sec	0	15	30	45
City <i>Green River</i>	State <i>UT</i>	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	31				
Source ID Number:		2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	32				
Process Equipment <i>ROM Coal Conveyor</i>		Operating Mode <i>13,236 T/day</i>		3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	33		
Control Equipment <i>water sprayers</i>		Operating Mode <i>Continuous</i>		4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	34		
Emission Point <i>Conveyor drop point</i>		5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	35				
Distance from Observer <i>100'</i>		Direction from Observer <i>345°</i>		6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	36		
Height Above Ground <i>60'</i>		Height Relative to Observer <i>+45'</i>		7	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	37		
Plume Color <i>None.</i>		Plume Type: continuous <input type="checkbox"/>		8	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	38		
		fugitive <input type="checkbox"/> intermittent <input type="checkbox"/>		9	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	39		
Point in the Plume at Which Opacity was Determined (from source): Horizontal Distance: <i>2'</i> Vertical Distance: <i>3'</i>		10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	40				
Water Droplets Present no <input checked="" type="checkbox"/> yes <input type="checkbox"/>		Water Droplet Plume is attached <input type="checkbox"/> detached <input type="checkbox"/>		11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	41		
Background Description (Color) <i>white clouds / blue sky</i>		12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	42				
Sky Conditions <i>75-80% clouds</i>		Ambient Temperature <i>50°F</i>		13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	43		
Wind Speed <i>0-5 mph</i>		Wind Direction <i>220°</i>		14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	44		
Source Layout Sketch 		15	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	45				
		16	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	46				
		17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	47				
		18	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	48				
		19	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	49				
		20	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	50				
		21	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	51				
		22	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	52				
		23	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	53				
		24	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	54				
		25	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	55				
		26	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	56				
		27	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	57				
		28	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	58				
		29	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	59				
		30	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	60				
Avg. Opacity for Highest Period <i>0</i>							# of Readings Above 20% were <i>0</i>				
Range of Opacity Readings											
Minimum: <i>0</i>						Maximum: <i>0</i>					
Observer's Name: <i>Joelle Dickson</i>											
Observer's Signature <i>Joelle Dickson</i>									Date <i>10/23/18</i>		
Organization: <i>Barr Engineering Co.</i>											
Certified by: <i>Opacitek</i>									Date <i>9/10/18</i>		



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1-Hour Visible Emissions Observation Form

Source Name <i>Lila Canyon Mine - Utah American Energy</i>		Observation Date <i>10/23/18</i>				Start Time <i>1146</i>		Stop Time <i>1216</i>			
Address/Location <i>23415 N. Lila Canyon Rd.</i>		min/sec	0	15	30	45	min/sec	0	15	30	45
City <i>Green River</i>	State <i>UT</i>	1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	31				
Source ID Number:		2	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	32				
Process Equipment <i>Enclosed crusher/screen</i>		3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	33				
Operating Mode <i>13,236 T/day</i>		4	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	34				
Control Equipment <i>Water sprayers</i>		5	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	35				
Operating Mode <i>continuous</i>		6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	36				
Emission Point <i>Shaker screen</i>		7	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	37				
Distance from Observer <i>65'</i>		8	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	38				
Direction from Observer <i>350°</i>		9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	39				
Height Above Ground <i>30'</i>		10	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	40				
Height Relative to Observer <i>+25'</i>		11	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	41				
Plume Color <i>None.</i>		12	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	42				
Plume Type: continuous <input type="checkbox"/>		13	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	43				
fugitive <input type="checkbox"/>		14	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	44				
intermittent <input type="checkbox"/>		15	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	45				
Point in the Plume at Which Opacity was Determined (from source):		16	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	46				
Horizontal Distance: <i>1'</i>		17	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	47				
Vertical Distance: <i>2'</i>		18	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	48				
Water Droplets Present no <input checked="" type="checkbox"/> yes <input type="checkbox"/>	Water Droplet Plume is attached <input type="checkbox"/> detached <input type="checkbox"/>	19	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	49				
Background Description (Color) <i>white clouds / tan cliffs / blue sky</i>		20	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	50				
Sky Conditions <i>65-85</i>		21	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	51				
Ambient Temperature <i>50°F</i>		22	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	52				
Wind Speed <i>0-5 mph.</i>		23	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	53				
Wind Direction <i>220°</i>		24	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	54				
<p>Source Layout Sketch</p> <p>sun location line 140°</p> <p>sun → wind X emission point S plume</p>		25	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	55				
		26	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	56				
		27	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	57				
		28	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	58				
		29	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	59				
		30	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	60				
		Avg. Opacity for Highest Period <i>0</i>		# of Readings Above 20% were <i>0</i>							
Range of Opacity Readings		Minimum: <i>0</i> Maximum: <i>0</i>									
Observer's Name: <i>Joelle Dickson</i>		Date <i>10/23/18</i>									
Observer's Signature <i>Joelle Dickson</i>		Organization: <i>Barr Engineering Co.</i>									
Certified by: <i>Opacitek</i>		Date <i>9/10/18</i>									



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Visible Emissions Observation Form

Source Name Lila Canyon Mine - Utah American Energy		Observation Date 10/23/18		Start Time 1120	Stop Time 1123
Address/Location 23415 N. Lila Canyon Rd.		<input checked="" type="checkbox"/> On-site reading		<input type="checkbox"/> Site Boundary Reading	
City Green River	State UT	min/sec	01	02	30
Activity Transfer ROM coal to crusher port		1	0	0	0
Source Equipment Loader		2	0	0	0
Operating Mode Continuous		3	0	0	0
Control Method None		4	0	0	0
Operating Mode		5	0	0	0
Emission Point Loader tracks		6	0	0	0
Distance from Observer 75-130'		Direction from Observer 10°		Avg. Opacity for Highest Period 0	
Height Above Ground 0'		Height Relative to Observer -5'		# of Readings Above 20% were 0	
Plume Color None		Plume Type: continuous <input type="checkbox"/>		Range of Opacity Readings	
Background Description (Color) black coal		fugitive <input type="checkbox"/> intermittent <input type="checkbox"/>		Minimum: 0 Maximum: 0	
Sky Conditions 65-75' i. clouds.		Ambient Temperature 50°F		Observer's Name: Joelle Dickson	
Wind Speed 0-5 mph.		Wind Direction 220°		Observer's Signature Joelle Dickson	
Source Layout Sketch		Date 10/23/18		Organization: Barr Engineering Co.	
<p>sun location line 140°</p> <p>sun → wind X emission point plume</p>		Certified by: Opacitek		Date 9/10/18	
		Comments: Observed 4 passes of loader at 6 points along travel path. Read down columns 1-4.			



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Visible Emissions Observation Form

Source Name <i>Lila Canyon Mine - Utah American Energy</i>		Observation Date <i>10/23/18</i>		Start Time <i>1236</i>	Stop Time <i>1242</i>
Address/Location <i>23415 N. Lila Canyon Rd.</i>		<input checked="" type="checkbox"/> On-site reading		<input type="checkbox"/> Site Boundary Reading	
City <i>Green River</i>		State <i>UT</i>		min/sec	0 15 30 45
Activity <i>Truck loadout</i>		1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Source Equipment <i>Truck loadout</i>		2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Operating Mode <i>intermittent</i>		3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Control Method <i>None</i>		4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Operating Mode		5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Emission Point <i>Coal drop.</i>		6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Distance from Observer <i>40'</i>		Direction from Observer <i>25°</i>		<input checked="" type="checkbox"/> On-site reading	Start Time <i>1249</i>
Height Above Ground <i>15'</i>		Height Relative to Observer <i>+ 10'</i>		<input type="checkbox"/> Site Boundary Reading	Stop Time <i>1255</i>
Plume Color <i>None</i>		Plume Type: continuous <input type="checkbox"/>		min/sec	
Background Description (Color) <i>tan rock</i>		fugitive <input type="checkbox"/> intermittent <input type="checkbox"/>		0	15 30 45
Sky Conditions <i>90-95% clouds</i>		Ambient Temperature <i>55°F</i>		Avg. Opacity for Highest Period <i>0</i>	
Wind Speed <i>0-5 mph</i>		Wind Direction <i>220°</i>		# of Readings Above 20% were <i>0</i>	
Source Layout Sketch		Range of Opacity Readings			
		Minimum: <i>0</i>		Maximum: <i>0</i>	
		Observer's Name: <i>Joelle Dickson</i>			
		Observer's Signature <i>Joelle Dickson</i>		Date <i>10/23/18</i>	
		Organization: <i>Barr Engineering Co.</i>			
		Certified by: <i>Opacitek</i>		Date <i>9/10/18</i>	
Comments: <i>observed 2 trucks during two 6-min readings</i>					

OPACITEK

14246

Environmental Services

Awards this Certificate to

JOELLE DICKSON

For Successfully Completing the
Federal EPA Method 9
Visible Emissions Evaluation Course



Manager

SOUTH JORDAN, UT

Location

SEPT. 10, 2018

Date of Certification