C/041/002 Incoming

#5343

Canyon Fuel Company, LLC
A Subsidiary of Bowie Resources Partner, LLC

Sufco Mine
John D. Byars
General Manager
597 South SR24
Salina, Utah 84654
(435) 286-4400
Fax (435) 286-4499

February 9, 2017

Permit Supervisor
Utah Coal Regulatory program
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, UT 84114-5801

Re: Waste Rock Site – Subsurface Density Tests Amendment, Task ID#5343, Canyon Fuel Company, LLC, Sufco Mine

Dear Sirs:

Please find enclosed with this letter clean copies of an amendment to the Sufco Mine Permit to include the density testing for the subsurface base upon which the waste will be placed. Map 2B shows the location of where the samples were taken. Appendix VIII has been added, which includes the density test results, in addition Appendix VIII has been added to the Table of Contents.

Tasks #5343 and 5344 were approved together, both contain page 5-12 from Chapter 5. Page 5-12 includes the incorporated text for both amendments.

If you have questions or need addition information please contact Vicky Miller at (435)286-4481.

CANYON FUEL COMPANY
SUFCO Mine

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Jacob Smith
Technical Services Manager

Encl.

cc: DOGM Correspondence File

C/041/002 Incoming
#5344

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February 9, 2017

Permit Supervisor
Utah Coal Regulatory program
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
PO Box 145801
Salt Lake City, UT 84114-5801

Re: Waste Sock Site Compaction Specification Amendment – Task ID#5344, Canyon Fuel Company, LLC, Sufco Mine

Dear Sirs:

Please find enclosed with this letter revised clean copy text pages for Chapter 5 of the permit. The revisions concern compaction specifications at the Sufco's Waste Rock Disposal Site

Tasks #5343 and 5344 were approved together, both contain page 5-12 from Chapter 5. Page 5-12 includes the incorporated text for both amendments

If you have questions or need additional information please contact Vicky Miller (435) 286-4481 or Bryant Bunnell (435) 286-4490.

CANYON FUEL COMPANY
SUFCO Mine

Jacob Smith
Technical Services Manager

Encl.

cc: DOGM Correspondence File

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APPLICATION FOR COAL PERMIT PROCESSING
Detailed Schedule Of Changes to the Mining And Reclamation Plan

Permittee: Canyon Fuel Company, LLC
Mine: Sufco Mine **Permit Number:** C/041/002
Title: Waste Rock Disposal Site - Subsurface Density Tests Amendment, Task ID#5343

Provide a detailed listing of all changes to the Mining and Reclamation Plan, which is required as a result of this proposed permit application. Individually list all maps and drawings that are added, replaced, or removed from the plan. Include changes to the table of contents, section of the plan, or other information as needed to specifically locate, identify and revise the existing Mining and Reclamation Plan. Include page, section and drawing number as part of the description.

			DESCRIPTION OF MAP, TEXT, OR MATERIAL TO BE CHANGED
☐ Add	☐ Replace	☐ Remove	M&RP - WRDS Volume 3
☐ Add	☒ Replace	☐ Remove	Chapter 5, Page 5-12
☒ Add	☐ Replace	☐ Remove	Appendix VIII
☐ Add	☒ Replace	☐ Remove	Maps 2B
☐ Add	☒ Replace	☐ Remove	TOC Page 1-iv (added Appendix VIII)
☐ Add	☐ Replace	☐ Remove	Chapter 5, page 5-10
☐ Add	☐ Replace	☐ Remove	
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Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.

February 9, 2017

Received by Oil, Gas & Mining

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CHAPTER 1

GENERAL CONTENTS

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LIST OF APPENDICES

APPENDIX I Cultural Resource Evaluations
APPENDIX I (A) Cultural Resource Evaluations - **Confidential**
APPENDIX II Geotechnical/Hydrological Investigation Report Waste Rock Disposal Site
APPENDIX II(A) Slope Stability Report Waste Rock Disposal Site
APPEDNIX III Engineering Calculations
APPENDIX IV Vegetation of the Proposed Waste Rock Disposal Site
APPENDIX IV(A) Vegetation Report of the Proposed Waste Rock Disposal Site
APPENDIX V Soils Report
APPENDIX V (A) Soils Report
APPENDIX VI Vegetation Guidelines
APPENDIX VII Waste Rock Pile Hydrology
APPENDIX VIII Density Data

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CHAPTER 5

ENGINEERING

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If a catastrophic event's causes damage to access roads, the repair of the road/roads will begin as soon as practical following the catastrophic damage.

528 Handling and Disposal of Coal, Excess Spoil, and Coal Mine Waste

Waste rock will be loaded into dump trucks at the mine site and will transport the waste rock approximately 6.4 miles to the disposal site. Trucks will not be overloaded. Because of the damp nature of the waste rock, any wind losses will be minimal. If any spillage should occur in a route to the disposal site, it will be cleaned up and transported to the disposal site as soon as practical. Haulage to the disposal site will be on an intermittent basis. Entrance to the waste rock disposal site is shown on Maps 4A and 5A. Refer to Section 531 for additional detail.

Non-coal waste will not be deposited at the waste rock disposal site. Final disposal of non-coal wastes shall continue to be in an approved sanitary land fill. Durable rock type construction materials such as cinder block, concrete, however, will be deposited at the disposal site.

Acid and Toxic Forming Materials - Based on analyses of material that has been placed in the waste rock disposal site to date, no acid forming problems are anticipated. There is a potential for borderline toxicity problems from boron. Samples of the waste material will be collected quarterly and will be analyzed for acid or toxic forming potential. Identified potential acid or toxic forming materials will be buried or otherwise treated.

Copies of laboratory reports on toxicity/acid-base accountability from representative waste samples are included in Volume 8 of the M&RP prior to 2005 and starting in 2005 will be included in the annual report.

529 Management of Mine Openings

No mine openings will be built in the area.

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Once the topsoil and subsoil has been removed (Sections 222 and 231), subgrade surface will be scarified and re-compacted to a minimum of 90% maximum density. Subgrade surface density test data is located in Appendix VIII, the physical location of the test is shown on Map 2B. The surface density met the minimum re-compacted density limit. Densities will be taken on subgrade at a minimum of one per 5000 square yards using a nuclear density gauge. Scarification will be done using earth moving equipment such as a grader, dozer or excavator. Compaction will be done utilizing the same type of equipment by wheel rolling the subgrade surface prior to any waste rock being placed. Water will be added to material as needed to obtain compaction.

Once subgrade has been scarified and compacted, waste rock will be delivered to the site using haul trucks such as 10 wheeled dump trucks and double trailer belly dumps. As the waste pile is being constructed a berm along the outside edge of the pile will be constructed to comply with MSHA regulations. In addition the berm will act as a diversion to direct on site water into the ditches and eventually into the sediment pond. As the waste rock is delivered on site, it will be handled and placed in its final position using earth moving equipment such as loaders, graders and dozers. The waste rock will be placed in approximately 2 foot lifts and each lift will be compacted. As each layer is being constructed, it will be keyed into the adjacent slope at a minimum of 1 foot per lift or at a 1:1 keyed in slope (Map 3C). The material will be compacted to 95% of maximum laboratory compaction. To determine compaction, a nuclear density gauge will be used for random testing bi-monthly, except when waste material is not being placed. To assure the randomness of the bi-monthly test a contractor will choose the time and date to perform each random test. Testing location will be staggered and spaced not less than 50 feet apart during the bi-monthly test. The results of the bi-monthly tests will be submitted quarterly with the quarterly waste rock inspection. When necessary due to the hydro carbons in the material, a density of the material may also be determined using a sand cone which will assist the nuclear density gauge results by providing an additional factor.

As the pile is constructed a 1:1 sideslope on the outside of the pile adjacent to the adjoining phases will remain. As the phase is completed, the top of the waste rock pile will be reclaimed by placing the designated depth of topsoil on the top of the pile. Once the topsoil is placed, extreme roughening techniques will be applied. Extreme surface roughening techniques may include pocking and gouging, ripping, or other erosion control roughening methods. When pocking and gouging, equipment will have a maximum bucket width of 30" or less. As construction from one phase to the other occurs, steps above will repeat.

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APPENDIX VIII

Density Data

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NUCLEAR MOISTURE-DENSITY TEST DATA

STANDARD COUNT			MAXIMUM OBTAINABLE DENSITY	OPTIMUM MOISTURE	COMPACTION REQUIREMENT
	DENSITY	MOISTURE			
@ SITE	DS=2336 MS=662		102.2	18.1	90
Ns=	ND=	NM=	Material Type: Tan Native clay		
NS=	=No+1.96(√No/64)		Source:		

TEST NUMBER	1		2		3		4		5		6	
Progess or Final	Progress		Progress		Progress		Progress		Progress		Progress	
STATION												
OFFSET												
LOCATION	TH # 1 Marked by survey		TH # 2 Marked by survey		TH # 3 Marked by survey		TH # 4 marked by survey		Th # 5 Marked by survey		TH # 6 Marked by survey	
DEPTH	6"		6"		6"		6"		6"		6"	
WET DENSITY PCF	110.6		114.8		108		129.6		105.4		102.9	
DRY DENSITY	100.4		102.3		96.8		119.2		96.8		93	
% MOISTURE	10.1		12.2		11.6		8.7		8.9		10.6	
% RELATIVE DENSITY	98.3		100		94.7		92.1		94.7		91	
AVERAGE												

LOCATION MAP (IF APPLICABLE)

Test # 4 was in a rockier part of site up against north side of site a different proctor was used from phase one the proctor used was 129.3 @ 9.2% moisture

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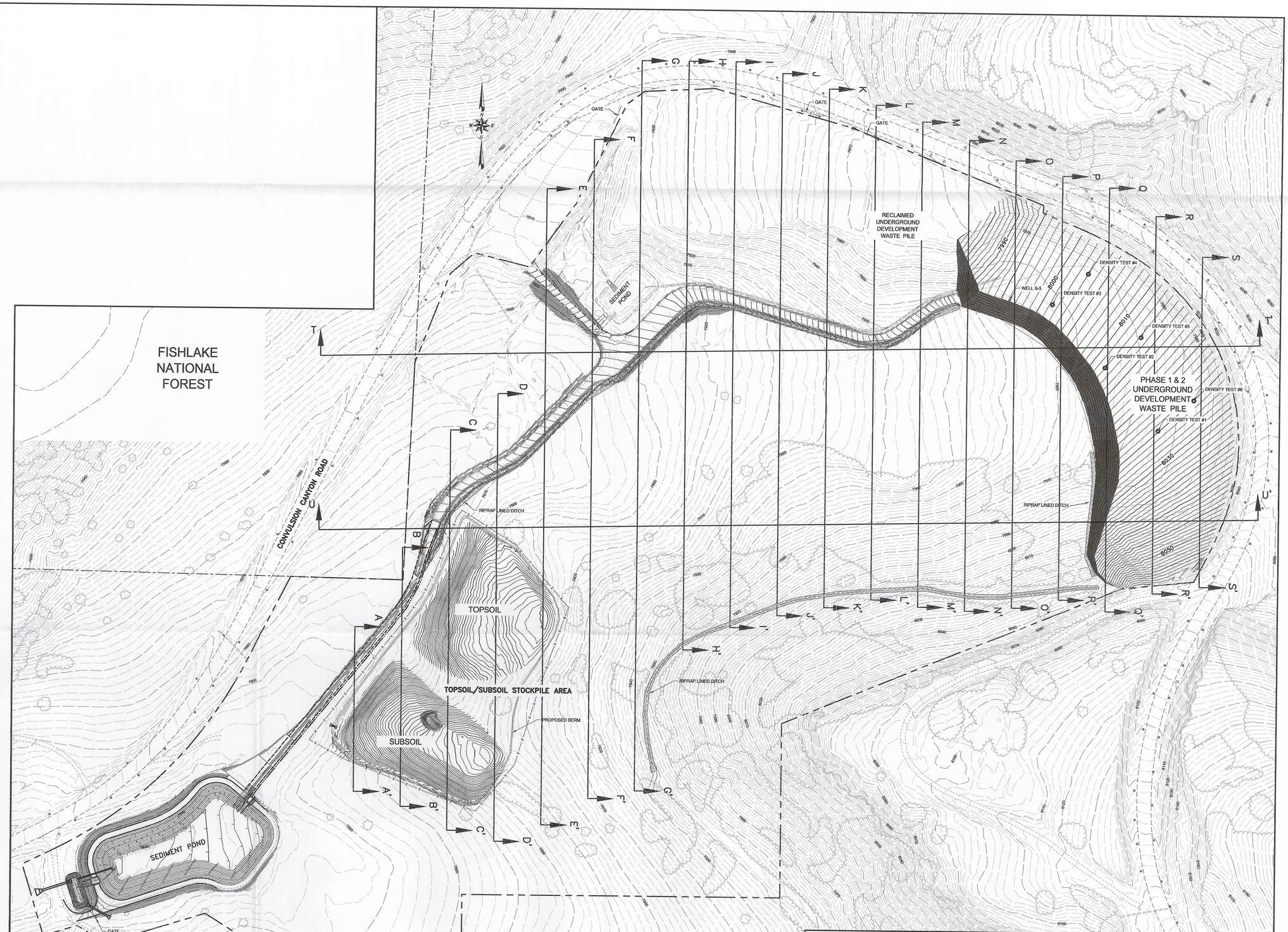
INSTRUMENT	TESTED BY
3440	Tom T
TROXLER # 66112	ENGINEER

Sufco waste rock site

PROJECT NO	5/24/2016
1406-120	

JONES & DEMILLE ENGINEERING
1535 South 100 West
Richfield, UT 84701



LEGEND

- 8140 — EXISTING GROUND MAJOR CONTOUR (10 FOOT)
- EXISTING GROUND MINOR CONTOUR (2 FOOT)
- 8140 — OPERATIONAL GROUND MAJOR CONTOUR (5 FOOT)
- OPERATIONAL GROUND MINOR CONTOUR (1 FOOT)
- EXISTING ROAD
- EXISTING PAVED ROAD
- EXISTING RIPRAP
- EXISTING DITCH
- EXISTING SIGN
- PROPOSED ANCILLARY ROAD
- EXISTING CULVERT
- PROPOSED CULVERT
- PROPOSED BERM
- DISTURBED AREA BOUNDARY
- PROPERTY BOUNDARY
- EXISTING TREELINE
- A — A' OPERATIONAL CROSS SECTION LOCATION (SEE MAP 3A, MAP 3B AND MAP 3C FOR CROSS-SECTIONS)

PROFESSIONAL ENGINEER
2/9/17
No. 9073281
JACOB D. SMITH
STATE OF UTAH

NOTE:
TOPOGRAPHIC DATA BASED ON 2016 AERIAL SURVEY

User: 11/2/2016 7:10 AM

REVISIONS

NO.	DATE	REQ. BY	DWG. BY	REMARKS
1	8/6/2014	VM	JA	PLATE UPDATES
2	9/4/2014	VM	JA	PLATE UPDATES
3	9/19/2014	VM	JA	PLATE UPDATES
4	10/18/2016	VM	JA	PLATE UPDATES

Canyon Fuel Company, LLC
SUFCO Mine
597 South SR 24 – Salina, UT 84654
(435) 286-4880 Phone
(435) 286-4499 Fax

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WASTE ROCK PILE
OPERATIONAL PLAN – PHASE 1 & 2

PEN TBL:	SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
_1Stndrd–HPT1100.ctb	1" = 100'	11/2/2016	JA	LF / TH	VM	MAP 2B

SHT SET:	PROJECT NUMBER:	FILE NAME:
1406–120	1406–120	H:\JD\Proj\1406–120\DWG\SHEET 1 OPERATIONAL COVER–2B.dwg