C/041/002 Incoming

#4973

Canyon Fuel Company, LLC
A Subsidiary of Bowie Resource Holdings, LLC

Sufco Mine
Kenneth E. May
General Manager
397 South 800 West
Salina, Utah 84654
(435) 286-4400
Fax (435) 286-4499

August 26, 2015

RECEIVED
AUG 27 2015
DIV. OF OIL, GAS & MINING

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: Revisions to SITLA Lease Modification and BLM Right-of-Way Addition Amendment, Task ID#4944, Sufco Mine, Canyon Fuel Company, LLC, Permit Number C/041/0002

Dear Sirs:

Please find enclosed with this letter a copy of the amendment related to the addition of a BLM Right-of-Way and the modification of an existing SITLA lease to incorporate the acreage into the permit boundary. The addition of the ROW and modification of the lease has required revisions to plates in the existing permit to incorporate the acreage into the boundary. In some cases addition information was gathered and placed on the plates. Chapter 4 has been updated with this submittal to include text revisions, revisions to a plate and the addition of information to Appendices 4-2 and 4-6.

Baseline information for the expanded areas were provided in the permit previously as part of the SITLA Muddy Tract or are part of the Greens Hollow SEIS information gathered by Cirrus. Right-of -Entry information has been provided in Appendix 1-1.

Information within the submittal either highlighted or underlined in light blue is provided to demonstrate locations where information already exists in the approved permit to support permitting regulations.

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

CANYON FUEL COMPANY, SUFCO Mine

Vicky S Miller
for

Kenneth E. May
General Manager

Encl.

cc: DOGM Correspondence File

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change X New Permit ☐ Renewal ☐ Exploration ☐ Bond Release ☐ Transfer ☐

Permittee: Canyon Fuel Company, LLC
Mine: Sufco Mine **Permit Number:** C/041/0002
Title: Revision to SITLA Lease Modification and BLM Right of Way Amendment, Task ID#4944
Description, Include reason for application and timing required to implement:

Instructions: If you answer yes to any of the first eight (gray) questions, this application may require Public Notice publication.

☒ Yes No 1. Change in the size of the Permit Area? Acres: 489.65 Disturbed Area: _____ ☒ increase ☐ decrease.
☐ Yes X No 2. Is the application submitted as a result of a Division Order? DO# _____
☐ Yes X No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
☐ Yes X No 4. Does the application include operations in hydrologic basins other than as currently approved?
☐ Yes X No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
☐ Yes X No 6. Does the application require or include public notice publication?
☒ Yes No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
☐ Yes X No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
☐ Yes X No 9. Is the application submitted as a result of a Violation? NOV # _____
☐ Yes X No 10. Is the application submitted as a result of other laws or regulations or policies?
Explain: _____
☐ Yes X No 11. Does the application affect the surface landowner or change the post mining land use?
☐ Yes X No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
☐ Yes X No 13. Does the application require or include collection and reporting of any baseline information?
☐ Yes X No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
☐ Yes X No 15. Does the application require or include soil removal, storage or placement?
☐ Yes X No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
☐ Yes X No 17. Does the application require or include construction, modification, or removal of surface facilities?
☐ Yes X No 18. Does the application require or include water monitoring, sediment or drainage control measures?
☒ Yes No 19. Does the application require or include certified designs, maps or calculation?
☐ Yes X No 20. Does the application require or include subsidence control or monitoring?
☐ Yes X No 21. Have reclamation costs for bonding been provided?
☐ Yes X No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
☐ Yes X No 23. Does the application affect permits issued by other agencies or permits issued to other entities?

Please attach one (1) review copy of the application.

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

Jacob D. Smith
Print Name

Sign Name, Position, Date: Eng. Mgr., 8/26/15

Subscribed and sworn to before me this 26 day of August, 20 15

Notary Public

My commission Expires: _____, 20___}
Attest: State of _____} } ss:
County of _____

JACQUELYN NEBEKER
Notary Public
State of Utah
My Commission Expires 03/24/2019
COMMISSION NUMBER 681827

For Office Use Only:	Assigned Tracking Number:	Received by Oil, Gas & Mining
		RECEIVED AUG 27 2015 DIV. OF OIL, GAS & MINING

Form DOGM- C1 (Revised 9/17/2013)

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/041/0002
Title: Revisions to SITLA Lease Modification and BLM Right of Way Amendment, Task ID#4944

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	Chapter 1, TOC and Pages 1-1 thru 1-15
☒ Add	☐ Replace	☐ Remove	Appendix 1-1, add information to the back of appendix
☐ Add	☒ Replace	☐ Remove	Chapter 2, Page 2-2
☐ Add	☒ Replace	☐ Remove	Plates, 2-3
☐ Add	☒ Replace	☐ Remove	Chapter 3, Page 3-4
☐ Add	☒ Replace	☐ Remove	Plates 3-1, 3-2, and 3-3
☐ Add	☒ Replace	☐ Remove	Chapter 5, Pages 5-14, 5-20 and 5-21
☐ Add	☒ Replace	☐ Remove	Plates 5-1, 5-2C, 5-5, 5-6, 5-7, 5-8, 5-10A, and 5-11
☐ Add	☒ Replace	☐ Remove	Plate 6-1
☐ Add	☒ Replace	☐ Remove	Plates 7-2A and 7-3
☐ Add	☒ Replace	☐ Remove	Plate 9-1
☐ Add	☒ Replace	☐ Remove	Chapter 4, Pages 4-ii, 4-8, 4-11 and 4-12
☒ Add	☐ Replace	☐ Remove	Appendix 4-6 Cultural Resource Documentation
☐ Add	☒ Replace	☐ Remove	Plate 4-1B
☐ Add	☐ Replace	☐ Remove	
☐ Add	☐ Replace	☐ Remove	
☐ Add	☐ Replace	☐ Remove	
☐ Add	☐ Replace	☐ Remove	
☐ Add	☐ Replace	☐ Remove	Confidential
☐ Add	☒ Replace	☐ Remove	Plate 5-10C
☒ Add	☐ Replace	☐ Remove	Appendix 4-2 Muddy Creek Technical Report: Heritage Resources (pages previously not copied as part of the submittal approved in January 2006)
☐ Add	☐ Replace	☐ Remove	
☐ Add	☐ Replace	☐ Remove	
☐ Add	☐ Replace	☐ Remove	
☐ Add	☐ Replace	☐ Remove	
☐ Add	☐ Replace	☐ Remove	
☐ Add	☐ Replace	☐ Remove	
☐ Add	☐ Replace	☐ Remove	

Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.

August 27, 2015

Received by Oil, Gas & Mining

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DIV. OF OIL, GAS & MINING

Form DOGM - C2 (Revised March 12, 2002)

CHAPTER 1

GENERAL CONTENTS

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LIST OF APPENDICES

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Appendix

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CHAPTER 1
GENERAL CONTENTS

110 Minimum Requirements for Legal, Financial, Compliance and Related Information

111 Introduction

For information pertaining to this section(s) refer to the General Chapter 1 binder for Canyon Fuel Company, LLC prepared for the Dugout Canyon Mine, Soldier Canyon Mine, SUFCO Mine, Skyline Mines and Banning Loadout operations.

112 Identification of Interests

112.100 Business Entity

For information pertaining to this section(s) refer to the General Chapter 1 binder for Canyon Fuel Company, LLC prepared for the Dugout Canyon Mine, Soldier Canyon Mine, SUFCO Mine, Skyline Mines and Banning Loadout operations.

112.200 Applicant and Operator

For information pertaining to this section(s) refer to the General Chapter 1 binder for Canyon Fuel Company, LLC prepared for the Dugout Canyon Mine, Soldier Canyon Mine, SUFCO Mine, Skyline Mines and Banning Loadout operations.

112.300 Control Persons

For information pertaining to this section(s) refer to the General Chapter 1 binder for Canyon Fuel Company, LLC prepared for the Dugout Canyon Mine, Soldier Canyon Mine, SUFCO Mine, Skyline Mines and Banning Loadout operations.

112.400 Coal Mining and Reclamation Operation Permit Applications Previous, Current or Pending

The following list describes all permits held by Canyon Fuel Company, LLC, all pending applications for permits, and any permit recognized as necessary in the future for which no application has been filed. Identification numbers of applications or permits are contained in the following list. Many of the agencies listed, however, have review responsibility only and may not have submitted a numbered permit.

Permit	Issuing Authority	Approval Status/ Identification No.
Mining and Reclamation Permit C/041/002	State of Utah Department of Natural Resources Division of Oil, Gas and Mining Department of Interior U.S. Geological Survey and Office of Surface Mining Department of Agriculture U.S. Forest Service Fishlake National Forest and Manti La Sal National Forest	Approved
U.P.D.E.S. Permit UT-0022918	Environmental Protection Agency and Utah D.E.Q.	Approved
Disposal for Water Discharge	Utah Department of Health	Approved
Business License	Sevier County	Approved
Mine Health and Safety Permits 42-00089	Mine Safety and Health Administration - Utah	Approved
ID No. 1211-UT-09-00089-01	Mine Safety and Health Administration	Waste Rock Disposal Area Construction Plan
Radio Permits	Federal Communications Commission	Approved

Certificate of Insurance and Authorization to do Business in State	State Industrial Development Commission	Approved
Public Water Supply Permit #21020	State of Utah Department of Health Division of Environmental Health	Approved
Radiation Control	State of Utah Department of Environmental Quality, Division of Radiation Control	Approved
Special Use 4078-2	U.S. Forest Service Fishlake National Forest	Approved
Air Quality Approval Orders	State of Utah Utah Air Conservation Committee Department of Health Division of Environmental Health	Approved
Water Rights	State Engineer	Approved

The Canyon Fuel Company, LLC mining permits and operations are:

SUFCO Mine	C/041/002
Skyline Mine	C/007/005
Soldier Canyon Mine	C/007/018
Banning Loadout	C/007/034
Dugout Canyon	C/007/039

The issuing authority for the Canyon Fuel Company, LLC permits is the UDOGM.

Operations held by subsidiary companies of Arch Coal, Inc. and corporate structure are presented on Figure 1-1 in the General Chapter 1 for Canyon Fuel Company, LLC. Facility names, mailing addresses and permit numbers for these operations are provided in either Table 1-1 and/or Table 1-2. For additional information refer to the General Chapter 1 binder for Canyon Fuel Company, LLC prepared for the Dugout Canyon Mine, Soldier Canyon Mine, SUFCO Mine and Skyline Mines and Banning Loadout operations.

112.500 Legal or Equitable Owner of the Surface and Mineral Properties

Owner of all the surface under Federal Coal Leases U-062453, SL-062583, U-0149084, U-047080, U-063214, U-28297, UTU-76195 and State of Utah Coal Lease ML 49443-OBA is:

United States of America
Department of Agriculture
U.S. Forest Service
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

United States of America
Department of Agriculture
U.S. Forest Service
Manti-La Sal Forest
599 West Price River Drive
Price, Utah 84501

United States of America
Department of Interior
Bureau of Land Management
Price Coal Office
125 South 600 West
Price, Utah 84501

Lessee for the Federal Coal Leases and State of Utah Coal Lease is:

Canyon Fuel Company, LLC
225 North 5th Street, 9th Floor
Grand Junction, CO 81501
Telephone: (970) 263-5130

~~Lessee for the State of Utah Coal Lease is:~~

~~Ark Land Company and Arch Coal Inc.~~
~~Cityplace One, Suite 300~~
~~St. Louis, MO 63141~~

The Bureau of Land Management owns the mineral rights for the Federal Coal Leases and the State of Utah owns the mineral rights for the State Coal Lease.

United States of America
Department of Interior
Bureau of Land Management
Price Coal Office
125 South 600 West
Price, Utah 84501

State of Utah
School and Institutional Trust Lands Administration
675 East 500 South, Suite 500
Salt Lake City, Utah 84102-2818

The Applicant owns 640 acres of coal within the lease area. Surface ownership of these acres is listed below:

Neal J. Mortensen
c/o UNELCO, Inc.
Aurora, Utah 84620

Roger E. Nielsen and Ruth Nielsen
515 East 240 North
Salina, Utah 84654

Canyon Fuel Company, LLC
225 North 5th Street, 9th Floor
Grand Junction, CO 81501
Telephone: (970) 263-5130

A property ownership map of the permit area and adjacent area is presented as Plate 5-6.

No area within the lands to be affected by surface operations and facilities or within the area of coal to be mined is under a real estate contract.

Coal mining and reclamation operations are listed on Table 1-1 and the corporate structures is presented on Figure 1-1 in the General Chapter 1 binder.

112.600 Owners of Record of Property Contiguous to Proposed Permit Area

The following list contains the names and addresses of all owners of surface lands contiguous to the permit boundary:

United States of America
Department of Agriculture
U.S. Forest Service
Fishlake National Forest
115 East 900 North
Richfield, Utah 84701

United States of America
Department of Agriculture
U.S. Forest Service
Manti-La Sal National Forest
599 West Price River Drive
Price, Utah 84501

State of Utah
School and Institutional Trust Lands Administration
675 East 500 South, Suite 500
Salt Lake City, Utah 84102-2818

United States of America
Department of Interior
Bureau of Land Management
Price Coal Office
125 South 600 West
Price, Utah 84501

The following list contains the names and addresses of the owners of mineral acreage contiguous to the permit boundary:

State of Utah
School and Institutional Trust Lands Administration
675 East 500 South, Suite 500
Salt Lake City, Utah 84102-2818

United States of America
Department of Interior
Bureau of Land Management
Price Coal Office
125 South 600 West
Price, Utah 84501

112.700 MSHA Numbers

Mine ID No. 42-00089, Waste Rock ID No. 1211-UT-09-00089-01.

112.800 Interest in Contiguous Lands

The applicant owns or controls, directly or indirectly, no legal or equitable interest in any lands contiguous to the permit area.

112.900 Certification of Submitted Information

Canyon Fuel Company, LLC hereby attests that the information contained in this permit document is true and correct to the best of their knowledge.

113 Violation Information

For violation information refer to Table 1-2 in the General Chapter 1 binder for Canyon Fuel Company, LLC prepared for the Dugout Canyon Mine, Soldier Canyon Mine, SUFCO Mine, Skyline Mines and Banning Loadout operations.

114 Right-of-Entry Information

Copies of documents granting the legal right to enter and begin underground coal mining activities have not changed with the acquisition. They can be found in Appendix 1.1 Mining and Reclamation Plan for the SUFCO Mine, which is unmodified by this Notice of Change in Ownership and Control Information.

The right to enter the leaseholds conveyed by the Federal Coal Leases is conferred to the lessee by the Mineral Leasing Act of 1920 and the leases themselves. Copies of Federal Coal Leases U-47080, U-28297, U-62453, U-149084, U-63214, UTU-76195, UTU-91108 (ROW), SL-062583 and

State of Utah Coal Lease ML 49443-OBA which grant the right to enter and conduct underground mining operations on the leased premises are presented in Appendix 1-2 Mining and Reclamation Plan for the SUFCO Mine. Appendix 1-2 is unmodified by this Notice of Change in Ownership and Control Information.

Federal Coal Lease SL-062583 grants the right to use lands for the construction and utilization of surface facilities necessary for underground coal mining.

The legal description of the SUFCO coal leases:

Federal Coal Lease U-28297 - (716.51 acres) - Approved January 1979
Modified January 2012

T. 21 S., R. 5 E., SLM, Utah
Sec. 32, lot 1, N1/2S1/2
Sec. 33, NW1/4SW1/4
T. 22 S., R. 5 E., SLM, Utah
Sec. 5, W1/2W1/2;
Sec. 7, S1/2NE1 /4, E1/2SW1/4, W1/2SE1/4;
Sec. 8, W1/2NW1/4.

Federal Coal Lease U-062453 - (480 acres) - Approved March 1962
T. 21 S., R. 5 E., SLM, Utah
Sec. 28, SW1/4SW1/4
Sec. 29, SE1/4SE1/4
Sec. 32, N1/2
Sec. 33, W1/2NW1/4

Federal Coal Lease U-0149084 - (240 acres) - Approved June 1966
T. 22 S., R. 4 E., SLM, Utah
Sec. 12, NE1/4 and N1/2SE1/4

Federal Coal Lease SL-062583 - (3,079.83 acres) - Approved September 1941
Modified January 1973
Modified December 2009

T. 21 S., R. 4 E., SLM, Utah
Sec. 36, S1/2
T. 21 S., R. 5 E., SLM, Utah
Sec. 31, all;
T. 22 S., R. 4 E., SLM, Utah
Sec. 1, lots 1 to 4 incl. S1/2N1/2, S1/2
Sec. 2, SE1/4, S1/2SW1/4;

Sec. 3, SE1/4SE1/4;
Sec. 10, E1/2NE1/4, NE1/4SE1/4;
Sec. 11, N1/2, N1/2S1/2;
Sec. 12, NW1/4
T. 22 S., R. 5 E., SLM, Utah
Sec. 6, all;
Sec. 7, N1/2NE1/4, E1/2NW1/4

Federal Coal Lease U-47080 - (1,953.73 acres) - Approved October 1981
Modified December 2009

T. 21 S., R. 4 E., SLM, Utah
Sec. 25, all;
Sec. 35, E1/2, E1/2SW1/4;
Sec. 36, N1/2.
T. 21 S., R. 5 E., SLM, Utah
Sec. 30, lots 2-4, W1/2SE1/4
T. 22 S., R. 4 E., SLM, Utah
Sec. 2, lots 1-4, S1/2NE1/4, S1/2NW1/4, N1/2SW1/4;
Sec. 3, NE1/4SE1/4.

Federal Coal Lease U-63214 - (8,826.34 acres) - Approved July 1989
Modified June 1999
Modified December 2009
Modified May 2011

Tract 1:
T. 21 S., R. 4 E., SLM, Utah
Sec. 12, E1/2SE1/4
Sec. 13, E1/2NE1/4, S1/2
Sec. 14, E1/2SW1/4, SE1/4
Sec. 23, E1/2, E1/2W1/2
Sec. 24, all.
T. 21 S., R. 5 E., SLM, Utah
Sec. 15, W1/2
Secs.16-21, all;
Sec. 22, W1/2
Sec. 26, W1/2NW1/4SW1/4, SW1/4SW1/4
Sec. 27, all;
Sec. 28, N1/2, N1/2SW1/4, SE1/4SW1/4, SE1/4
Sec. 29, E1/2NE1/4, NE1/4SE1/4
Sec. 30, lot 1, N1/2NE1/4
Sec. 33, NE1/4, E1/2NW1/4, NE1/4SW1/4, N1/2SE1/4
Sec. 34, NW1/4NE1/4, NW1/4, NW1/4SW1/4.

Tract 2:
T. 21 S., R. 5 E., SLM, Utah

Sec. 10, SE1/4NW1/4, E1/2SW1/4, E1/2E1/2SW1/4SW1/4,
E1/2E1/2NW1/4SW1/4, E1/2E1/2SW1/4NW1/4.

Tract 3:
T. 21 S., R. 4 E., SLM, Utah
Sec. 26, E1/2, E1/2SW1/4;
Sec. 35, NW1/4, W1/2SW1/4.

Federal Coal Lease UTU-76195 - (5,694.66 acres) - Approved October 1999
Modified December 2006

T. 21 S., R. 5 E., SLM
Sec. 2, lots 3,4, S1/2SW1/4, SW1/4SE1/4
Sec. 10, E1/2
Sec. 11, all
Sec. 12, S1/2SW1/4, NW1/4SW1/4
Sec. 13, NW1/4, S1/2
Sec. 14, all
Sec. 15, E1/2
Sec. 22, E1/2
Sec. 23-24, all
Sec. 25, N1/2, N1/2S1/2
Sec. 26, N1/2, NE1/4SW1/4, E1/2NW1/4SW1/4, SE1/4
T. 21 S., R. 6 E., SLM
Sec. 19, lots 3-4, E1/2SW1/4
Sec. 30, lots 1-3, E1/2NW1/4, NE1/4SW1/4

BLM Right-of-Way UTU-91108 (70 Acres) - Approved June 4, 2015

T. 21 S., R. 4 E., SLB&M
Sec. 1,E1/2SE1/4SE1/4, SE1/4NE1/4SE1/4
Sec. 12, E1/2E1/2NE1/4

State of Utah Coal Lease ML 49443-OBA - (2,~~134.19~~ 553.84 acres) - Approved October 2004
Modified June 2015

T. 20 S., R. 5 E., SLB&M
Sec. 32: S1/2S1/2
Sec. 33: S1/2S1/2

T. 21 S., R. 5 E., SLB&M
Sec. 4: Lots 1, 2, 3, 4, S1/2S1/2
Sec. 5: Lots 1, 2, 3, 4, S1/2S1/2
Sec. 7: Lots 1, 2, 3, 4, ~~S1/2~~NE1/4, SE1/4,
Sec. 8: All
Sec. 9: All

Canyon Fuel Company, LLC acquired the right to entry on these properties in the merger described in Section 111 hereinabove.

In addition, the SUFCO Mine permit area includes certain fee lands owned by Canyon Fuel Company, LLC as follows:

T. 21 S., R. 5 E., SLB&M, Utah
Sec. 29, SW1/4, NW1/4, W1/2NE1/4, W1/2SE1/4
Sec. 30, S1/2NE1/4, E1/2SE1/4
containing 640.00 acres
T. 22 S., R. 4 E., SLB&M, Utah
Sec. 18, NW1/4NE1/4
containing 40 acres

The name of the owner of these fee lands changed from Coastal States Energy Company to Canyon Fuel Company, LLC as a result of the merger transaction described in Section 111 hereinabove.

The SUFCO Mine also uses certain Forest Service lands in its operation for a spring collection system, pumphouse, water transmission line, sanitary discharge line, sanitary drainfield, access road to the sediment pond, and 25 KV powerline. These USFS special use permit areas are shown on Plate 5-6 through portions of:

T. 22 S., R. 4 E., SLB&M, Utah
Sec. 12, S1/2
containing 15.32 acres

The name of the permittee changed from Southern Utah Fuel Company to Canyon Fuel Company, LLC pursuant to the merger described in Section 111 herein above.

The total lease area includes 20,991.07 acres of Federal coal leases, 70 acres of BLM R-O-W, ~~2,134.19~~ 2,553.84 acres of State of Utah coal leases, 640 acres of fee coal leases, the 40 acres waste rock disposal site and 15.32 acres under U.S. Forest Service special use permit for a total of ~~23,, 820.58~~ 24,310.23 acres.

115 Status of Unsuitability Claims

To the best knowledge of Canyon Fuel Company, LLC, no portion of the area to be permitted is designated, or under study for being designated, unsuitable for mining.

Since the SUFCO Mine was in production before passage of the Surface Mining Control and Reclamation Act of 1977, the unsuitability criteria were not applied to the existing surface facilities.

Canyon Fuel Company, LLC does not propose to conduct coal mining or reclamation operations within 300 feet of any occupied dwelling. Coal mining and reclamation operations have been or will be conducted within 100 feet of a public road, see Section 5.2.1.1 for details. Forest Service approval to conduct coal mining and reclamation operations within 100 feet of the Link Canyon forest service road is located in Appendix 1-1 and the newspaper advertisement for public comment is located in Appendix 1-3.

116 Permit Term

The following information is presented to identify permit term requirements and stipulations. Canyon Fuel Company will be operating the SUFCO Mine with continuous miner and longwall mining methods. ~~Although the Mining and Reclamation Permit Application covers the next five-year period of mining, information is presented below for the life of the mining operation.~~

~~1.~~	~~First coal produced~~	~~1941~~
~~2.~~	~~Termination of mining activity~~	~~August, 2025~~
~~3.~~	~~Horizontal extent of mine workings~~	~~23,820.58 acres~~ ~~(Life of mine)~~
~~4.~~	~~Vertical extent of mine workings~~	~~Surface to 2,000 feet deep~~ ~~(Life of mine)~~

~~The anticipated total acreage to be affected during the five years of operation by underground mining activities is 1,500 acres.~~ The estimated number of total surface acres to be affected over the entire mining operation is 48.432 acres.

PERMITTED DISTURBED AREA BOUNDARY	ACTUAL AREA CURRENTLY DISTURBED TO BE RECLAIMED	SITE DESCRIPTION
30.210	17.405	Mine Site, East Spring Canyon
0.967	0.39	Spring Collection Field, Convulsion Canyon
0.220	0.075	Pump House, Convulsion Canyon
0.784	0.40	Leach Field, Convulsion Canyon
1.595	0.193	Water Tank, East Spring Canyon
0.286	0.017	3 East Portals
1.774	0.70	4 East Portals
0.302	0.017	South Portals
0.396	0.017	Quitchupah Portals
0.287	0.18	Link Canyon Substation No. 1
0.245	0.12	Link Canyon Substation No. 2
0.380	0.18	Link Canyon Portal
10.986	8.733	Waste Rock Disposal Site
0.000	0.00	North Water Mitigation Area
0.000	0.00	Quitchupah Fan and Shaft Site
48.432	28.427	Totals

The legal description of the SUFCO permit area:

Mine Site Facility, Water Tank, South Portals, Spring Collection Field, Pump House, Pipeline, Leachfield (Approximately 64.403 acres)

T. 22 S., R. 4 E., SLBM, Utah
Section 12: A Portion of the following:
E1/2NW1/4, SW1/4NW1/4NE1/4, S1/2

Portals - 3 East, 4 East, Quitchupah and Link Canyon, Link Canyon Substation No. 1 and No. 2 (Approximately 3.368 acres)

T. 21 S., R. 5 E., SLBM, Utah
Section 26: A Portion of the following:
SE1/4SW1/4SW1/4NW1/4, E1/2NW1/4NW1/4SW1/4
SE1/4NE1/4SW1/4SW1/4
Section 29: A Portion of the following:
NW1/4NW1/4SW1/4SE1/4, NE1/4NW1/4SE1/4SW1/4,
NE1/4NE1/4SE1/4SW1/4
Section 32: A Portion of the following:
NE1/4SW1/4SW1/4NE1/4

Waste Rock Disposal Site (Approximately 41.812 acres)

T. 22 S., R. 4 E., SLBM, Utah
Section 18: NW1/4NE1/4

North Water Mitigation Area (Approximately 542.260 acres)

T. 21 S., R. 5 E., SLBM, Utah

Section 2:	A Portion of the following: SW1/4SW1/4SW1/4
Section 3:	A Portion of the following: S1/2SE1/4
Section 10:	A Portion of the following: NE1/4, N1/2NE1/4SE1/4
Section 11:	A Portion of the following: W1/2NW1/4, W1/2SE1/4NW1/4, E1/2SW1/4, NW1/4SW1/4, S1/2SE1/4, E1/2SW1/4SW1/4, NW1/4SE1/4, S1/2NE1/4SE1/4
Section 12:	A Portion of the following: W1/2SW1/4
Section 14:	A Portion of the following: W1/2NE1/4, NE1/4NW1/4

Quitchupah Fan and Shaft Site (Approximately 68.640 acres)

T. 21 S., R. 5 E., SLBM, Utah

Section 18:	A Portion of the following: S1/2
Section 19:	A Portion of the following: NW1/4NE1/4NE1/4

The permit area boundary, which is shown on Plate 5-6, includes portions of Federal coal leases, fee coal leases, the waste rock disposal site and U.S. Forest Service special use permit areas for a total of 720.483 acres.

117 Insurance and Proof of Publication

Certificates of Insurance issued to Canyon Fuel Company, LLC are located in the General Chapter 1 binder prepared for the Dugout Canyon Mine, Soldier Canyon Mine, SUFCO Mine, Skyline Mines and Banning Loadout operations and in Appendix 8-1.

The newspaper advertisement appears in Appendix 1-3. Verification of the advertisement appearing in the appropriate newspapers will be added to Appendix 1-3 and submitted to the Division no later than 4 weeks after publication.

118 Filing Fee

A photocopy of the receipt is presented in Appendix 1-4 as proof of payment of the permit filing fee.

120 Permit Application Format and Contents

The permit application contains clear, concise, current information, in the format required by the UDOGM.

130 Reporting of Technical Data

All technical data submitted in the permit application is accompanied by the names of persons or organizations that collected and analyzed the data. The technical data also contains the dates of collection and analysis of the data, and descriptions of the method used to collect and analyze data. A professional qualified in the subject, planed or directed the technical analyses.

140 Maps and Plans

The maps submitted in this permit application correspond to the format required by the regulations.

Those portions in the mine plan area in which underground coal mining activities occurred before August 3, 1997, and from August 3, 1977 to May 3, 1978 are presented on Plate 5-1.

150 Completeness

The Applicant believes the information in this permit application to be compete and correct.

APPENDIX 1-1

Legal Right-of-Entry Documents

Form 2800-14
(August 1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RIGHT-OF-WAY GRANT/TEMPORARY USE PERMIT

Issuing Office
Utah State Office

Serial Number
UTU-91108

1 A (right-of-way) (permit) is hereby granted pursuant to:

a. ☑ Title V of the Federal Land Policy and Management Act of October 21, 1976 (90 Stat. 2776; 43 U.S.C. 1761);

b. ☐ Section 28 of the Mineral Leasing Act of 1920, as amended (30 U.S.C. 185);

c. ☐ Other *(describe)* _____

2. Nature of Interest:

a. By this instrument, the holder **Canyon Fuel Company, LLC** receives a right to construct, operate, maintain, and terminate a **an underground access Right-of-Way through Federal Mineral Estate** on public lands (or Federal land for MLA Rights-of-Way) described as follows.

Salt Lake Meridian, Utah
T. 21 S., R. 4 E.
Sec. 1, E½SE¼SE¼, SE¼NE¼SE¼;
Sec. 12, E½E½NE¼.

b. The right-of-way or permit area granted herein is **660** feet wide, **4,620** feet long and contains **70** acres, more or less. If a site type facility, the facility contains **N/A** acres

c. This instrument shall terminate on **December 31, 2045**, **30** years from its effective date unless, prior thereto, it is relinquished, abandoned, terminated, or modified pursuant to the terms and conditions of this instrument or of any applicable Federal law or regulation.

d This instrument ☑ may ☐ may not be renewed. If renewed, the right-of-way or permit shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the authorized officer deems necessary to protect the public interest.

e. Notwithstanding the expiration of this instrument or any renewal thereof, early relinquishment, abandoment, or termination, the provisions of this instrument, to the extent applicable, shall continue in effect and shall be binding on the holder, its successors, or assigns, until they have fully satisfied the obligations and/or liabilities accruing herein before or on account of the expiration, or prior termination, of the grant.

(Continued on page 2)

3 Rental

For and in consideration of the rights granted, the holder agrees to pay the Bureau of Land Management fair market value rental as determined by the authorized officer unless specifically exempted from such payment by regulation Provided, however, that the rental may be adjusted by the authorized officer, whenever necessary, to reflect changes in the fair market rental value as determined by the application of sound business management principles, and so far as practicable and feasible, in accordance with comparable commercial practices.

4 Terms and Conditions:

a. This grant or permit is issued subject to the holder's compliance with all applicable regulations contained in Title 43 Code of Federal Regulations parts 2800 and 2880.

b. Upon grant termination by the authorized officer, all improvements shall be removed from the public lands within 90 days, or otherwise disposed of as provided in paragraph (4)(d) or as directed by the authorized officer.

c. Each grant issued pursuant to the authority of paragraph (1)(a) for a term of 20 years or more shall, at a minimum, be reviewed by the authorized officer at the end of the 20th year and at regular intervals thereafter not to exceed 10 years. Provided, however, that a right-of-way or permit granted herein may be reviewed at any time deemed necessary by the authorized officer.

d. The stipulations, plans, maps, or designs set forth in Exhibit(s) Labeled "A" and "B", dated 02/17/2015, attached hereto, are incorporated into and made a part of this grant instrument as fully and effectively as if they were set forth herein in their entirety.

e. Failure of the holder to comply with applicable law or any provision of this right-of-way grant or permit shall constitute grounds for suspension or termination thereof

f. The holder shall perform all operations in a good and workmanlike manner so as to ensure protection of the environment and the health and safety of the public.

IN WITNESS WHEREOF, The undersigned agrees to the terms and conditions of this right-of-way grant or permit

E E Landis	Roger L Bankert
(Signature of Holder)	(Signature of Authorized Officer)
Chief Operating Officer	Actg Green River District Manager
(Title)	(Title)
6/3/15	June 4, 2015
(Date)	(Effective Date of Grant)

Plan of Development for Proposed Underground Access Right-of-Way

1. Purpose and Need for the Right-of-Way

a. What will be constructed

Approximately 4,600 feet of three access entries will be constructed, two of which will be constructed within the proposed underground right-of-way. This is the furthest extent of three access entries that are approximately 8,600 feet in total length. The described entries will serve as ventilation and escapeway routes for the miners. The two entries will include the intake and return ventilation.

b. Actual purpose and/or need for the proposal

The proposed project is needed in order to develop underground access from the existing mine area to coal reserves held by the Utah State Institutional Trust Lands Administration (SITLA). Without access, Sufco Mine will face possible shut down and the SITLA coal reserves will never be recovered.

The proposed underground right-of-way is being sought based upon the precedent set forth in the case of the State of Utah v. Andrus, Nos. C.79-0037, C-0307. The findings of the court in this case state that: "1) BLM can regulate the method and route of access to state trust lands; 2) this regulation may be done with a view toward preventing impairment of wilderness characteristics (assuming no existing use); and 3) the regulation may not, however, prevent the state or its lessee from gaining access to its land, nor may it be so prohibitively restrictive as to render the land incapable of full economic benefit".

The proposed underground right-of-way is located entirely underground and will be accessed through the active area within the Sufco Mine. The Sufco mine will serve as the access point to the SITLA reserve by utilizing the already disturbed surface at the mine site. The only alternative to access the SITLA coal reserve would be to construct new surface facilities on United States Forest Service lands. This would result in surface disturbance of approximately 100 acres.

There is no planned entry closure or surface subsidence across the entries within the proposed underground right-of-way.

The term of the underground right-of-way will be for a period of thirty (30) years.

c. Length and width of the right-of-way and the area needed for related facilities

The area for the underground right-of-way is contained within 70 acres. A legal description is provided in section "5. Right-of-way location".

d. Type of construction

All construction within the underground right-of-way will be new. It will be constructed with standard underground mining equipment and entry support. No surface access will be required for construction.

e. Is the use temporary or permanent

Access through the underground right-of-way will be temporary, however, the entries and associated support structures will remain permanently in place. Upon completion of mining of the SITLA and adjacent Federal coal, all temporary equipment, structures, etc. will be removed. Once all items are recovered, the access entries will be permanently sealed.

f. Is this ancillary to an existing right-of-way

No. This is a new underground right-of-way that will allow access across a small portion of coal reserves that is adjacent to currently leased and future planned leased SITLA reserves.

g. Type and volume of traffic anticipated

Underground traffic will be limited only to approved underground mining equipment and qualified operators. There will be no public access. The underground right-of-way will be used daily 24 hours per day.

h. Origination and destination

The underground right-of-way will originate at the boundary line of existing coal lease UTU-63214, and also the quarter section line of section 12 T.21S R.4E. The underground right-of-way will continue adjacent to the end of the SITLA owned coal reserve to the North. The underground right-of-way is comprised of seven ten acre parcels.

i. List alternative routes or locations

The only alternative to access the SITLA coal reserve would be to construct new surface facilities on United States Forest Service lands. This would result in new surface disturbance of approximately 100 acres.

2. Right-of-way Location

a. Legal description

T. 21 S., R. 4 E., SLBM

Sec. 1: $E_2SE_4SE_4$, $SE_4NE_4SE_4$

Sec. 12: $E_2E_2NE_4$

Acre calculation of the right-of-way by land status (federal, private, etc.)

Approximately 70 acres federally held.

b. Maps

See attached

3. Design Factors

a. Minimum and maximum engineering standards

1. Mining will occur through the use of a continuous miner by developing underground entry roads within the Upper-Hiawatha coal seam and leaving behind permanent support pillars.
2. Grade and pitch of the entries on the proposed underground right-of-way will run concurrently with the variance in the coal seam. At this location, the coal seam dips gently to the West Northwest at approximately 4 degrees.
3. There will be no surface impacts, all work will be performed underground.
4. As needed, gravel will be used from a local source to repair the floor of the entries within the proposed underground right-of-way.
5. Width of the underground right-of-way will be approximately 660 feet. The underground right-of-way will extend approximately 4,620 feet in length. Each entry is approximately 18 feet wide, dimensions of construction are illustrated on Exhibit 1.
6. There will be no fill needed in the underground right-of-way. Approximately 102,000 tons of coal will be removed to construct the entries within the proposed underground right-of-way.

b. Plans and specifications for major structures

There will be no surface structures built within or above the underground right-of-way.

c. Temporary areas needed

There will be no surface areas needed within or above the underground right-of-way.

4. Additional Components of the Right-of-way

a. Existing components on or off public land

The proposed underground right-of-way is immediately adjacent to, and required for accessing, a SITLA issued coal lease where CFC holds the right and obligation to mine coal using underground mining methods.

b. Possible future components

Not applicable

c. Sand/Gravel supplies

None required from public land.

d. Location of equipment storage areas

Any equipment required for construction and operation of the access entries within the proposed underground right-of-way will be stored at the existing mine facilities, away from the proposed underground right-of-way.

5. Government Agencies Involved

a. Are Section 404 permits needed
Section 404 does not apply to this underground right-of-way.

b. Are State or local permits needed
CFC currently holds the coal lease associated with the adjacent SITLA ML 49443-OBA coal reserve and Federal coal lease UTU-63214. CFC also holds Utah DOGM Permit ID# C0410002.

6. Construction of the Facility

a. General overview of construction

1. The majority of construction will consist of the mining of three access entries, two of which are located within the proposed underground right-of-way. The construction will remove approximately 102,000 tons of coal and install permanent support structures.
2. Ancillary facilities consist of temporary water lines, electricity cables, and ventilation routing systems.
3. Methods of construction will be the extraction of coal using continuous miners and the beltline system. The coal will then be conveyed through the existing portion of the Sufco mine, to the existing mine site coal handling facilities.

b. Workforce
There will be approximately 45 employees used for the construction of the entries within the proposed underground right-of-way.

c. Underground flagging and staking of the right-of-way.
The entries within the proposed right-of-way will be surveyed using approved underground mining survey techniques. The surveys will occur regularly to determine the proper direction and alignment. The survey will be advanced every 200 feet. Check surveys are also conducted every 2,000 feet.

d. Clearing and grading
There will be no clearing or grading.

e. Facility construction data
The continuous miner will cut and remove coal from the designated coal seam to develop the three access entries, two of which are within the proposed underground right-of-way.

f. Access to and along right-of-way during construction
Access to the underground right-of-way will be underground through the Sufco mine main portal and entries. There will be no access from the surface above the proposed underground right-of-way.

g. Contingency Planning

1. Sufco Mine
   Ken May
   597 South SR24
   Salina, UT 84654
   (435) 286-4400

2. BLM Price Field Office
   Stephen Falk
   125 South 600 West
   Price, UT 84501
   (435) 636-3600

h. Safety Requirements

The design and operation of the entries within the underground right-of-way will meet the safety requirements governed by the Mine Safety and Health Administration (MSHA).

i. Industrial waste and toxic substances

No hazardous materials will be produced or stored on or within the underground right of way. Should a hazardous material spill occur, CERCLA regulations will be adhered to.

j. Seasonal restrictions

There are no anticipated seasonal restrictions that apply to the proposed underground right-of-way.

7. Resource Values and Environmental Concerns

a. Commensurate level of anticipated impacts

1. There are no anticipated impacts in regards to existing underground corridors.

b. Anticipated conflicts with resources

1. Public health and safety – No conflicts with public health and safety are anticipated.*
2. Air, noise, geologic hazards, mineral and energy resources, paleontological resources, soils, water, and vegetation – No conflicts anticipated.*
3. Wildlife, threatened and endangered species, - No threatened or endangered species are to be disturbed.*
4. Cultural resources – No cultural resource conflicts are anticipated.*
5. Visual resources, recreation activities, wilderness – No conflicts anticipated.*
6. BLM projects – No conflicts are anticipated with BLM projects.*

*The underground right-of-way will be located approximately 1,800 feet under the surface.

8. Stabilization and Rehabilitation

a. Rehabilitation of Right-of-way

The entries within the proposed underground right-of-way will be properly sealed and abandoned in accordance with MSHA and CERCLA regulations prior to expiration of the term.

9. Operation and Maintenance

a. Minimum maintenance and maintenance schedule
The entries within the proposed underground right-of-way will be maintained as needed to support the structural integrity of the entries.

b. Placement of control, warning and directional traffic signs
Underground signage will be placed as needed and in accordance with MSHA regulations.

c. Maintenance of special needs
There are no anticipated special needs.

d. Safety
The development and operation of the entries within the proposed underground right-of-way will meet the requirements of MSHA, 30 CFR 75.

e. Industrial waste and toxic substances
See section 6i.

f. Inspection and maintenance schedule
See section 9a. and 9i.

g. Work schedules
Work on the entries within the proposed underground right-of-way can occur 24-hours a day, 7 days a week.

h. Fire Control
All precautions necessary will be taken in order to prevent any fire from occurring. Sufco mine is trained and prepared to control a fire if such were to occur within the underground right-of-way. The equipment used for construction has fire suppression systems on board. Firefighting and personal rescue equipment is stored in each mining section pursuant to MSHA regulations.

i. Inspections
As with the existing Sufco Mine, daily inspections will be made of the access entries during construction. These inspections will be performed by a qualified person. A report will be prepared to discuss the appearances of any safety condition, instability, structural weakness, or other hazardous conditions requiring maintenance or repair.

j. Contingency planning

1. Sufco Mine
   Ken May
   597 South SR24
   Salina, UT 84654
   (435) 286-4400

2. BLM Price Field Office
   Stephen Falk
   125 South 600 West
   Price, UT 84501
   (435) 636-3600

10. Termination and Restoration

a. Will the right-of-way be totally obliterated

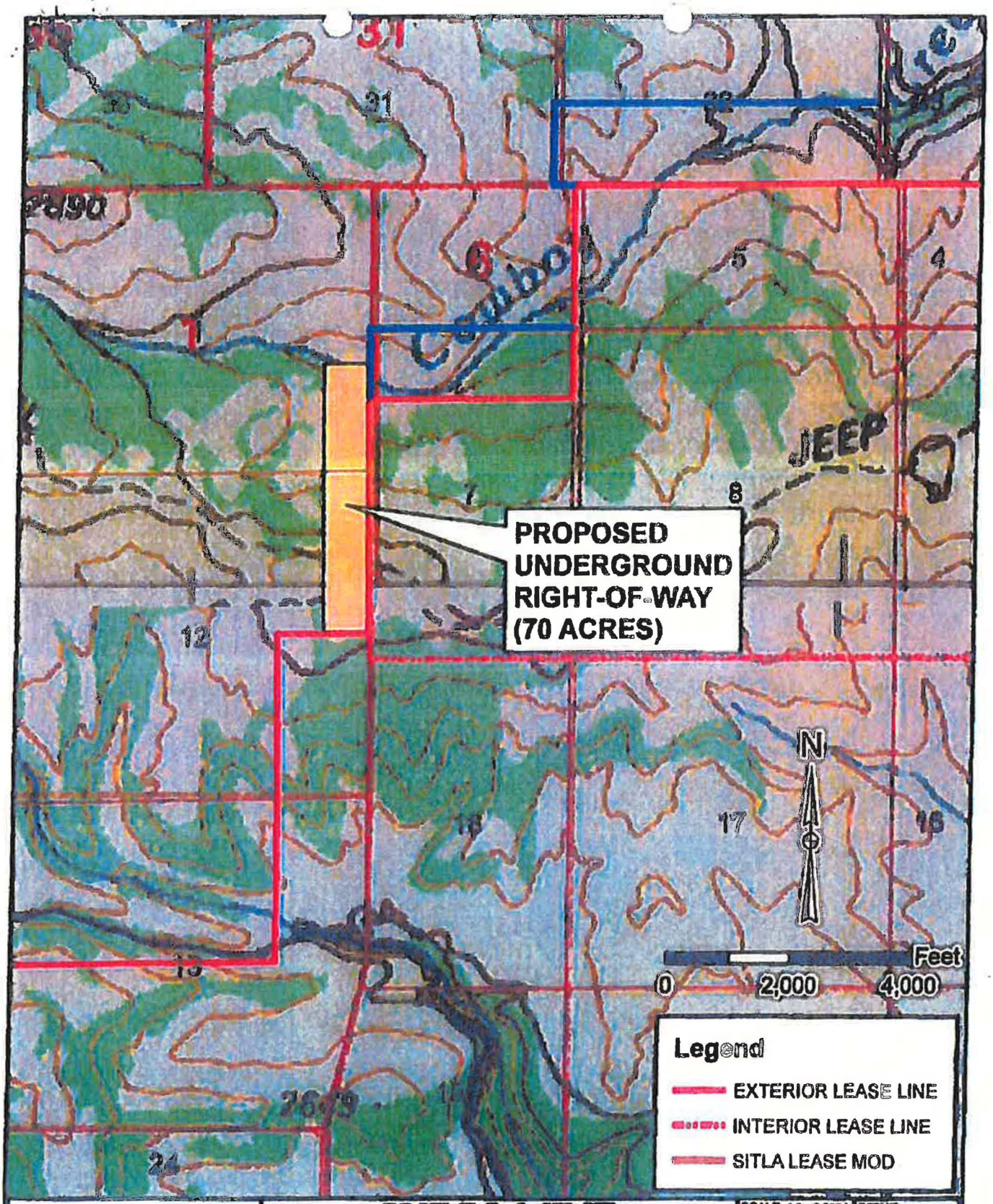
Structural integrity of the access entries within the underground right-of-way will continue past the expiration of the term; however, access will not be available to any person or wildlife.

b. What structures will be left in place or removed

Mine support structures will be left in place, all other structures will be removed prior to abandonment of the entries within the underground right-of-way and the area will be sealed off according to MSHA approved sealing plans.

c. Stabilization of disturbed area

See above sections 10a. and b.



Canyon Fuel Company, LLC
SUFCO Mine

SUFCO MINE

1 RIGHT 5 WEST - SURFACE OWNERSHIP

PROPOSED UNDERGROUND RIGHT-OF-WAY

SCALE: 1" = 2,000'
DATE: 2/9/2016
DRAWN BY: T.R.B.
CHECKED BY: J.D.B.
ENGINEER: J.D.B.
PROJ: 0416-001

SHEET NO: 2

FILE NAME: M:\PROJ\0416-001\GIS\Maps\Ownership_8.5x11.mxd

TERMS AND CONDITIONS

1) **Cultural and Paleontological Resources** – If cultural resources or paleontological remains (fossils) of significant scientific interest are discovered during operations under this underground Right-of-Way (ROW) agreement, the Operator prior to disturbance shall immediately bring them to the attention of the appropriate authorities. Paleontological remains of significant scientific interest do not included leaves, ferns or dinosaur tracks commonly encountered during underground mining operations. The cost of conducting the inventory, preparing reports, and carrying out mitigating measures shall be borne by the Operator.

2) **Subsidence** – Except at locations specifically approved by the Authorized Officer (AO), with concurrence of the Forest Service, underground mining operations shall be conducted in a manner so as to prevent surface subsidence that would: (1) cause the creation of hazardous conditions such as potential escarpment failure and landslides, (2) cause damage to existing surface structures, and (3) damage or alter the flow of perennial streams. The Operator shall provide specific measures for the protection of escarpments, and determine corrective measures to assure that hazardous conditions are not created.

3) **Underground Mining** – The coal contained within, and authorized for mining under this ROW, shall be extracted only by underground mining methods. Only the removal of coal necessary to access the SITLA lands is authorized to be removed.

4) **Replacement of Affected Surface Water** – The Operator, at its expense, will be responsible to replace any surface and/or developed ground water sources identified for protection, that may be lost or adversely affected by mining operations, with water from an alternate source in sufficient quantity and quality to maintain existing riparian habitat, fishery habitat, livestock and wildlife use, or other land uses (authorized by 36 CFR 251).

5) **Recoverable Coal** – Only coal necessary to access the SITLA lands is authorized to be removed. The BLM reserves the right to seek damages against the operator in the event the operator is determined to have removed more coal than authorized. Damages shall be assessed on the value, for the removed coal. BLM accepts that the projected mine entry dimensions and orientations are subject to standard operating practice variances for underground coal mining.

   Subject to the right to appeal hereinafter set forth, payment on such mined coal shall become due and payable upon determination by the AO.

   The BLM may enforce this provision either by issuing a written decision requiring payment, or by issuing a notice of non-compliance. A decision or notice of non-compliance issued by the BLM that payment is due under this stipulation is appealable as allowed by law.

6) **Waste Certification** – The Operator shall provide upon abandonment and/or sealing off a mined area and prior to lease termination/relinquishment, certification to the Operator that, based upon a complete search of all the operators records for the mine and upon their knowledge of past operations, there has been no **hazardous substances** per (40 CFR 302.4) or **used oil** as per Utah State Management Rule R-315-15, deposited within the ROW, either on the surface or underground, or that all remedial action necessary has been taken to protect human health and the environment with respect to any such substances remaining on the property. The back-up documentation to be provided shall be described by the Operator prior to the first certification and shall include all documentation applicable to the Emergency Planning and Community Right-to-know Act (EPCRA, Public Law 99-499), Title III of the Superfund Amendments and Reauthorization Act of 1986 or equivalent.

7) **Abandonment of Equipment** – The Operator is responsible for compliance with reporting regarding toxic and hazardous material and substances under federal law and all associated amendments and regulations for the handling of such materials on the land surface and in underground mine workings.

   The lessee/operator must remove mine equipment and materials not needed for continued operations, roof support and mine safety from underground workings prior to abandonment of mine sections. Exceptions can be approved by the AO (BLM) in consultation with the surface management agency. Creation of a situation that would prevent removal of such material and by retreat or abandonment of mine sections without prior authorization would be considered a noncompliance with ROW terms and conditions and subject to appropriate penalties under the ROW.

8) **Underground Inspection** – All safe and accessible areas shall be inspected prior to being sealed. The Operator shall notify the AO in writing 30 days prior to the sealing of any areas in the mine and state the reason for closure. Prior to seals being put into place, the Operator shall inspect the area and document for approval any equipment/machinery, hazardous substances, or used oil that is to be left underground.

   The purpose of this inspection will be: (1) to provide documentation for compliance with 42 U.S.C. 9620 section 120(h) and State Management Rule R-315-15, and to assure that certification will be meaningful at the time of ROW relinquishment, (2) to document the inspection with a mine map showing location of equipment/machinery (model, type of fluid, amount remaining, batteries etc.) that is proposed to be left underground. In addition, these items will be photographed at the Operator's expense and shall be submitted to the AO as part of the certification. The abandonment of any equipment/machinery shall be on a case by case basis and shall not be accomplished unless the AO has granted a written approval. .

9) **Operation and Maintenance**

a. Minimum maintenance and maintenance schedule
The mine entries within the proposed underground right-of-way will be maintained as needed to support the structural integrity of the entries.

b. Placement of control, warning and directional traffic signs
Underground signage will be placed as needed and in accordance with MSHA regulations.

c. Maintenance of special needs
There are no anticipated special needs.

d. Safety
The development and operation of the entries within the proposed underground right-of-way will meet the requirements of MSHA, 30 CFR 75.

e. Industrial waste and toxic substances
See Section 6i.

f. Inspection and maintenance schedule
See Section 9a and 9i.

g. Work schedules
Work on the entries within the proposed underground right-of-way can occur, 24-hours a day, 7 days a week.

h. Fire Control
All precautions necessary will be taken in order to prevent any fire from occurring. SUFCO mine is trained and prepared to control a fire is such were to occur within the underground right-of-way. The equipment used for construction has fire suppression systems on board. Firefighting and personal rescue equipment is stored in each mining section pursuant to MSHA regulations.

i. Inspections
As with the existing SUFCO Mine, daily inspections and records will be made of the access entries during construction/operation. These inspections will be performed by a qualified person. A report will be prepared to discuss the appearances of any safety condition, instability, structural weakness, or other hazardous conditions requiring maintenance or repair.

j. Contingency Planning

1. SUFCO Mine
   Ken May
   597 South SR24
   Salina, UT 84654
   (435) 286-4400

2. BLM Price Field Office
   Stephen Falk
   125 South 600 West
   Price, UT 84501
   (435) 636-3600

10) Termination and Restoration

a. Will the right-of-way be totally obliterated
Structural integrity of the access entries within the underground right-of-way will continue past the expiration of the term; however, access will not be available to any person or wildlife.

b. What structures will be left in place or removed
Mine support features will be left in place, all other structures will be removed prior to abandonment of the entries within the underground right-of-way and the area will be sealed off according to MSHA approved sealing plans.

c. Stabilization of disturbed area
See above Sections 10a and 10b.

11) Fair Market Value

a. The proponent will pay at the time the Right-of-way grant is issued an initial FMV of $0.20 per ton of coal accessed on 102,000 tons. After the Greens Hollow Tract is leased an adjustment will be made on the FMV based on the winning bonus bid. Payment shall be in the form of a cashier's check, certified check, bank draft, or money order payable to the Bureau of Land Management, Division of Lands and Minerals, 440 West 200 South, Salt Lake City, Utah 84101.

b. The proponent will pay an 8 percent surcharge on the coal sold as calculated and paid as if it were sold from a lease pursuant to 43 CFR 3400. Payment shall be in the form of a cashier's check, certified check, bank draft, or money order payable to the Bureau of Land Management, Division of Lands and Minerals, 440 West 200 South, Salt Lake City, Utah 84101.

CHAPTER 2

SOILS

Dr. Theron B. Hutchings, State Soil Scientist for the Soil Conservation Service, substantiated the absence of prime farmland in the Convulsion Canyon and Link Canyon areas. (Appendix 2-1).

2.2.2 Soil Survey

A Level I soil survey of the entire SUFCO Mine disturbed area, including the Link Canyon Substations No. 1 and 2 , has been conducted. Soil survey data are presented in Appendix 2-2 for the majority of the permit area, Appendix 2-6 for the Link Canyon Substation areas, and are herein summarized in Sections 2.2.2.1 through 2.2.2.3. Survey data includes the following information: taxonomic classification, horizon name and depth, dry and moist color, texture (percent sand, silt, and clay), class, structure, percent rock fragments and organic matter, pH, effervescence, EC, and solubility of calcium, magnesium, and sodium (Appendices 2-2, and 2-6). A cross-reference list of map unit, soil taxonomic classification, and sample site appears in pages 17 through 19 of Appendix 2-2.

A site specific soil survey will be completed for the Overflow Pond prior to disturbance and this information will be utilized in determining topsoil salvage depth. The results of this soil survey will be included in the as-built addendum to be included in Appendix 2-2.

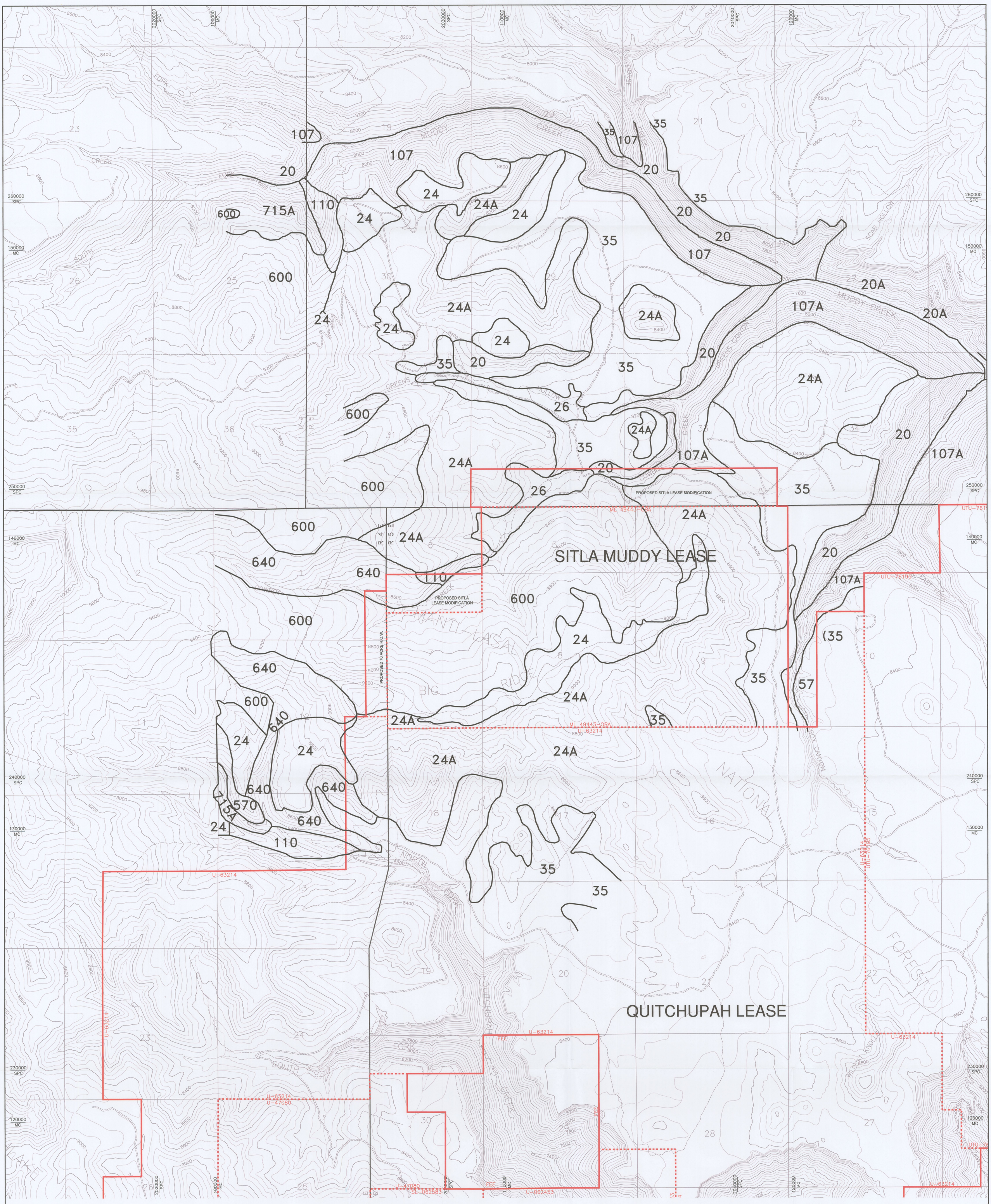
An Order 2 soil survey has been completed for the Link Canyon Substation No. 1 disturbed area and is included in Appendix 2-2. Additionally, an Order 1 soil survey was conducted of the substation Nos. 1 and 2 pad areas and the results are included in Appendix 2-6.

An Order 3 soil survey has been conducted for the Pines Tract and the results are included in Appendix 2-8. (Plate 2-2)

An Order 3 soil survey has been conducted for the SITLA Muddy Tract and the results are included in Appendix 2-10. (Plate 2-3) Soils associated with the 70 Acre BLM Right of Way are part of the Order 3 soil survey located in Appendix 2-10.

2.2.2.1 Soils Map

Plates 2-1 and 2-2 delineates the soil types present in the disturbed and adjacent areas.



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AUG 27 2015
DIV. OF OIL, GAS & MINING

EXPLANATION

- SUFCO EXTERIOR LEASE BOUNDARY
- SUFCO INTERIOR LEASE BOUNDARY
- MINE COORDINATES
- STATE PLANE COORDINATES

SOIL TYPES

7	SHUPERT–WINETTI FAMILIES
20	STRYCH–PATHEAD–WIGGLER FAMILIES
20A	ANDOK–STRYCH–WIGGLER FAMILIES
20X	ANDOK–WELRING FAMILIES
24	RABBITEX–REPP FAMILIES
24A	WHETROCK–DETRA FAMILIES
26	MARA–RABBITEX FAMILIES
35	DETRA FAMILY
57	FALCON FAMILY
107	BUNDO–SCOUT–UINTA FAMILIES
107A	CIRCLEVILLE–SCOUT–PANGUITCH FAMILIES
110	CASTINO–ELWOOD FAMILIES
600	FAIM–CLAYBURN–CASTINO FAMILIES
640	KILDOR FAMILY
715A	CROYDON–MORTENSON FAMILIES
570	LUCKY STAR–PRITCHETT FAMILIES

SOURCE:
COAL TRACT EVALUATIONS ON THE MANTI–LA SAL NATIONAL FOREST
MUDDY TRACT SOILS MAP
MARCH 2004
CIRRUS ECOLOGICAL SOLUTIONS, LC
965 SOUTH 100 WEST, SUITE 200
LOGAN, UTAH 84321
NATIONAL FORESTS SOIL SURVEY DATA
UTM NAD 83 ZONE 12N METERS 2013–2014

REGISTERED PROFESSIONAL ENGINEER #334504-2202 JOHN D. BYARS STATE OF UTAH

I CERTIFY THE ITEMS SHOWN ON THIS DRAWING ARE ACCURATE TO THE BEST OF MY KNOWLEDGE

1000 0 1000

REVISIONS

NO.	DATE	REQ. BY	DWG. BY	REMARKS
1	05/08/2007	M.L.D.	B.D.H.	
2	03/02/2015	V.M.	T.R.B.	ADDED 70 ACRE R.O.W. AREA FOR 5 WEST

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

SOIL TYPES
SITLA MUDDY & GREENS HOLLOW TRACT

PEN TBL:	SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
_Stnd-SUFDP1.ctb	1" = 1,000'	3/11/2015	B.D.H.		M.L.D.	PLATE 2–3 v2
SHT SET: ####	PROJECT NUMBER: ####	FILE NAME: H:\DRAWINGS\MRP\PLATES\PLATE 2–3v2.dwg				

CHAPTER 3

BIOLOGY

Grassland-perennial forbs

Sagebrush

Mountain brush

Conifer timber

Mixed

Barren ground

Aspen-deciduous forest

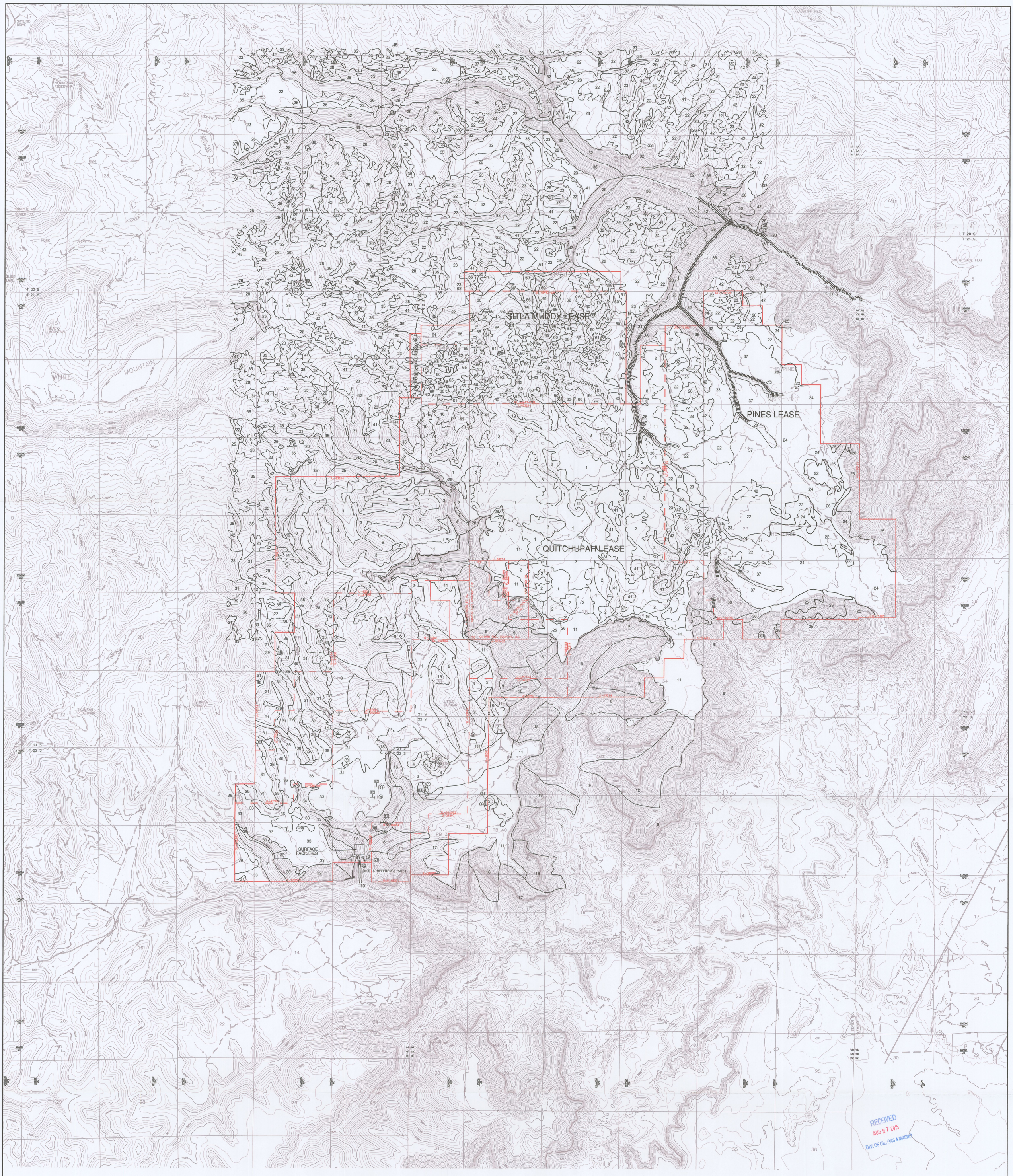
Additional plant communities are designated on Plate 3-1.

Field sampling of these plant communities was initially done in July of 1983 and the findings were documented in the INV report. A Level II riparian inventory has been conducted along portions of East Fork of Box Canyon (USDA-USFS, 1993). The plant communities and reference areas are outlined on Plate 3-1. In 1999, another vegetation (and wildlife) report (VWP) was prepared for the proposed mine expansion called the Pines Tract Project. Vegetation communities were described and shown on a map included in that document, most of which are also listed in the plant communities shown above. The vegetation types in the SITLA Muddy Tract were identified by Cirrus and reported in EIS documents for the entire BLM and SITLA Muddy Tract. The vegetation types in the SITLA Muddy Tract are illustrated on Plate 3-1. This plate will be updated in the appropriate season of 2006 to more clearly indicate types and extent of vegetation in the SITLA Muddy Tract. As of October 2005, the available Forest Service information used to create the map is essentially correct but Sufco has agreed the vegetation boundaries and descriptions can be further refined. The work to be performed in 2006 will include the evaluation of available aerial photos of the area by a qualified person who then will create an updated vegetation map of the tract. The updated version of the plate will be submitted to the Division before the end of 2006.

A description of the potential impacts of mining on vegetation is included in Section 3.3.3.3 of this permit.

3.2.1.2 Land Productivity Prior to Mining

The land productivity of the mine area was not measured in 1941 when mining began. However, Appendix 2-2 contains a consultant study (EPS, pgs. 45 - 78) compiled in 1980, which states total



QUITCHUPAH LEASE PLANT COMMUNITIES

SOURCE:
SOUTHERN UTAH FUEL COMPANY
CONVULSION CANYON AND QUITCHUPAH TRACTS
VEGETATION MAP
EPS, INC. 129 NORTH 1000 EAST
OREM, UTAH 84057
1 OCTOBER 1991

1. SAGEBRUSH–GRASS
2. GRASS–BLACK SAGEBRUSH
3. MOUNTAIN BRUSH (OAK–SERVICEBERRY MOUNTAIN MAHOGANY, ETC.)
4. ASPEN
5. ASPEN–OAK
6. ASPEN–DOUGLAS FIR–LIMBER PINE
7. MOUNTAIN MAHOGANY–OAK–PONDEROSA PINE
8. DOUGLAS FIR–SPRUCE–LIMBER PINE
9. PINYON–JUNIPER–MOUNTAIN MAHOGANY
10. LIMBER PINE
11. PONDEROSA PINE–MOUNTAIN MAHOGANY–MANZANITA
12. PINYON–JUNIPER–DOUGLAS FIR
13. WIREGRASS–FOXTAIL–HAPLOPAPPUS
14. DOUGLAS FIR–SPRUCE–LIMBER PINE–ASPEN
15. LIMBER PINE–MOUNTAIN MAHOGANY–SERVICEBERRY
16. MOUNTAIN MAHOGANY
17. PINYON–JUNIPER
18. DOUGLAS FIR & OTHER
19. RIPARIAN
20. PONDEROSA PINE–DOUGLAS FIR–ASPEN–SERVICEBERRY

LEASE PLAN COMMUNITIES

SOURCE:
FISHLAKE NATIONAL FOREST VEGETATION GROUPS
MANTI–LA SAL NATIONAL FOREST
FES FIGURE 3–10 VEGETATION TYPES
JANUARY 1999
MANTI–LA SAL NATIONAL FOREST
FEIS, FIGURE 4–6 DECEMBER 2011

21. GRASSLAND PERENNIAL FORBS
22. SAGEBRUSH
23. MOUNTAIN BRUSH – SHRUBS
24. CONIFER TIMBER
25. MIXED CONIFER
26. BARREN GROUND
27. ASPEN – DECIDOUS FOREST
28. ASPEN – MIXED CONIFER
29. COTTONWOOD – BRUSH
30. PINYON – JUNIPER
31. GAMBEL OAK – OAK BRUSH
32. MOUNTAIN MAHOGANY
33. JUNIPER – MAHOGANY – WOODLAND
34. PONDEROSA PINE
35. ASPEN
36. FIR FOREST
37. PINE FOREST
38. HIGH MOUNTAIN BRUSH
39. RIPARIAN – WETLANDS – MEADOW
40. MANZANITA
41. PERENNIAL FORB LAND (ELEVATION MID–LOW)
42. PERENNIAL GRASSLAND (LOW ELEVATION)
43. PERENNIAL GRASSLAND (MID ELEVATION)
44. INTERMITTENT WET – DRY MEADOW
45. WILLOW – DOMINATED RIPARIAN

SITLA MUDDY LEASE PLANT COMMUNITIES

SOURCE:
MT NEBO SCIENTIFIC, INC.
RESEARCH & CONSULTING
330 EAST 400 SOUTH, SUITE 6
SPRINGVILLE, UTAH 84663
PATRICK D. COLLINS Ph.D. JANUARY 30, 2008

60. SAGEBRUSH/GRASS
61. MOUNTAIN BRUSH
62. MOUNTAIN HERBLANDS
63. OAK BRUSH
64. PINYON–JUNIPER
65. ASPEN
66. CONIFER

EXPLANATION

- SUFCO EXTERIOR LEASE BOUNDARY
- SUFCO INTERIOR LEASE BOUNDARY
- 100000 MC — MINE COORDINATES
- 2020000 SPC — STATE PLANE COORDINATES
- VEGETATION SAMPLE SITE
- 22 — SOIL SAMPLE SITE
- 12 — VEGETATION SAMPLE NUMBER
- RIPARIAN AREAS

2000 0 2000

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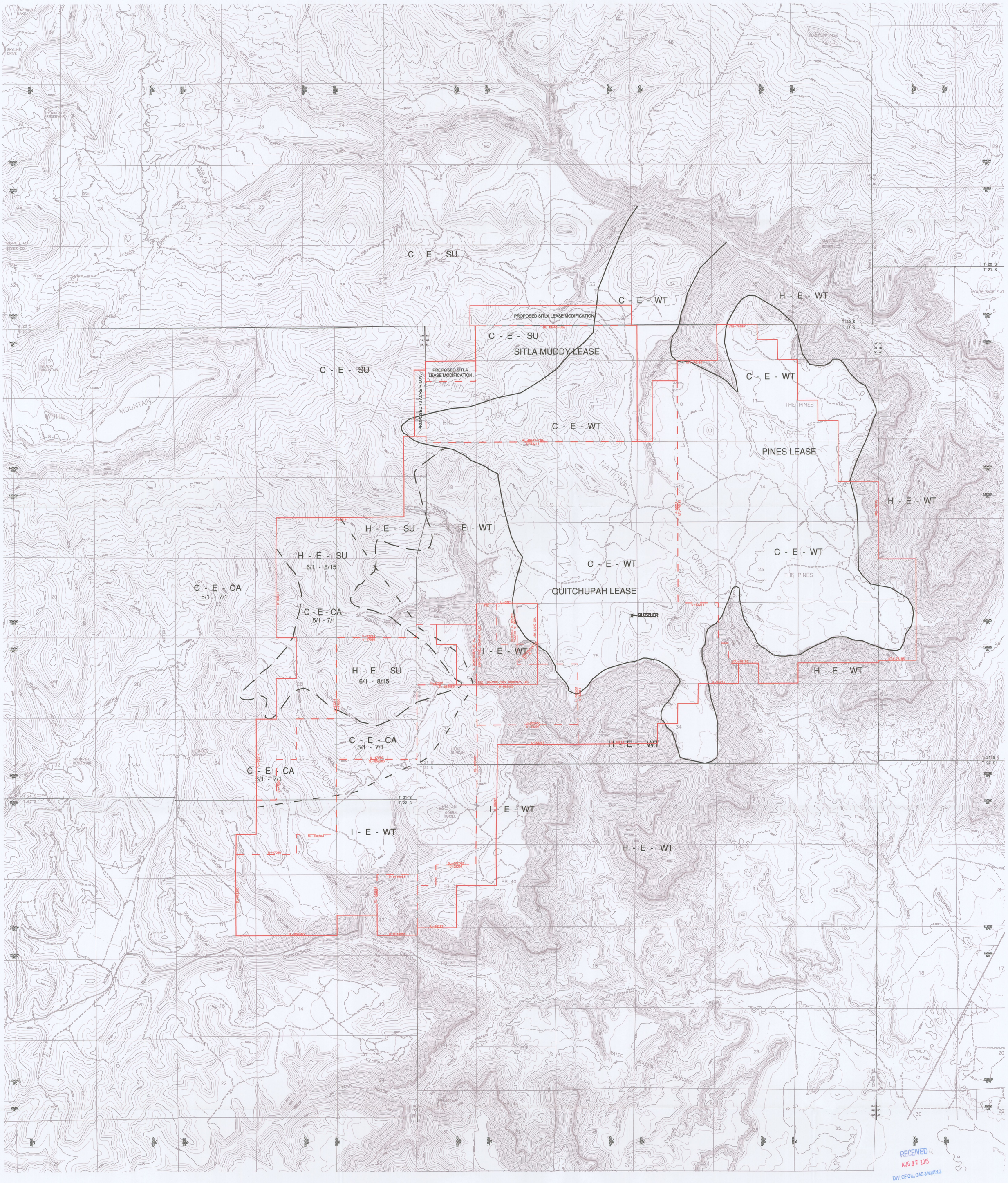
REVISIONS

NO.	DATE	REQ. BY	DWG. BY	REMARKS
3	05/15/2000	M.L.D.	B.D.H.	
4	01/20/2005	M.L.D.	B.D.H.	
5	09/12/2005	M.L.D.	B.D.H.	
6	05/08/2007	M.L.D.	K.B.B.	
7	02/14/2008	M.L.D.	K.B.B.	
8	06/11/2010	M.L.D.	K.B.B.	
9	03/02/2015	V.M.	T.R.B.	ADDED 70 ACRE R.O.W. AREA FOR 5 WEST

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

PLANT COMMUNITIES AND SAMPLING AREA

PEN TBL:		SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
_15ndd-SUFDMP1.ctb		1" = 2,000'	3/11/2015	B.D.H.		M.L.D.	PLATE 3–1 v9
SHT SET: ####	PROJECT NUMBER: ####	FILE NAME: H:\DRAWINGS\MRP\PLATES\PLATE 3–1v9.dwg					



RECEIVED
AUG 27 2015
DIV. OF OIL, GAS & MINING

EXPLANATION

	SUFCO EXTERIOR LEASE BOUNDARY
	SUFCO INTERIOR LEASE BOUNDARY
100000 MC	MINE COORDINATES
2020000 SPC	STATE PLANE COORDINATES
C - E - CA	CRITICAL ELK CALVING AREA
C - E - SU	CRITICAL ELK SUMMER RANGE
C - E - WT	CRITICAL ELK WINTER RANGE
H - E - SU	HIGH PRIORITY ELK SUMMER RANGE
H - E - WT	HIGH PRIORITY ELK WINTER RANGE
I - E - WT	LIMITED USE ELK WINTER RANGE
	CRITICAL ELK CALVING AREA BOUNDARY (WEST OF BOUNDARY LINE)
	HIGH PRIORITY SUMMER RANGE BOUNDARY
	HIGH PRIORITY WINTER RANGE BOUNDARY
5/1 – 7/1	PERIOD OF HEAVIEST RANGE USE
X	GUZZLER

SOURCES:

1. QUITCHUPAH TRACT
   DIVISION OF WILDLIFE RESOURCES
   CEDAR CITY, UTAH
   PAMELA HILL, NOV. 12, 1991
2. PINES TRACT
   DIVISION OF WILDLIFE RESOURCES
   PRICE, UTAH
   PINES TRACT CRITICAL/HIGH VALUE ELK RANGES MAP
   CHRIS COLT, FEB. 27, 1999
3. SITLA MUDDY TRACT
   COAL TRACT EVALUATIONS ON THE MANTI–LA SAL NATIONAL FOREST
   MUDDY TRACT ELK RANGE
   MARCH 2004
   CIRRUS ECOLOGICAL SOLUTIONS, LC
   965 SOUTH 100 WEST, SUITE 200
   LOGAN, UTAH 84321

REGISTERED PROFESSIONAL ENGINEER #334504-2202 JOHN D. BYARS STATE OF UTAH

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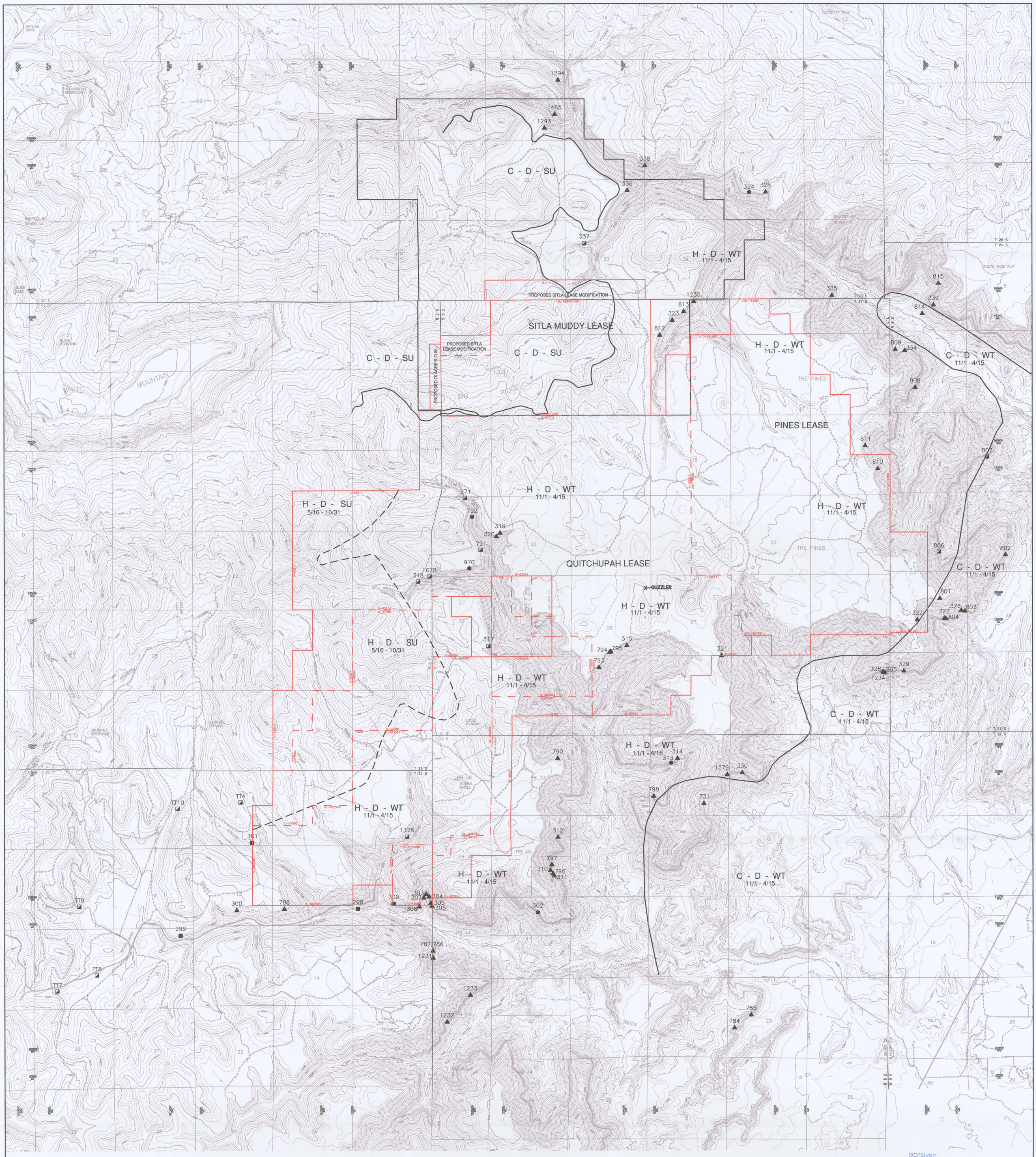
1	03/01/1999	M.L.D.	B.D.H.	
2	03/01/2000	M.L.D.	B.D.H.	
3	01/20/2005	M.L.D.	B.D.H.	
4	09/12/2005	M.L.D.	B.D.H.	
5	05/08/2007	M.L.D.	K.B.B.	
6	06/11/2010	M.L.D.	K.B.B.	
7	03/02/2015	V.M.	T.R.B.	ADDED 70 ACRE R.O.W. AREA FOR 5 WEST

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

ELK RANGE

PEN TBL:	SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
15sdrd-SUFEMP1.ctb	1" = 2,000'	3/11/2015	A.D.D.		M.L.D.	PLATE 3-2 v7
SHT SET: ####	PROJECT NUMBER: ####	FILE NAME: H:\DRAWINGS\MRP\PLATES\PLATE 3-2v7.dwg				



RECEIVED
AUG 27 2015
DIV. OF OIL, GAS & MINING

EXPLANATION

	SUFCO EXTERIOR LEASE BOUNDARY
	SUFCO INTERIOR LEASE BOUNDARY
100000 MC	MINE COORDINATES
2020000 SPC	STATE PLANE COORDINATES
C - D - SU	CRITICAL DEER SUMMER RANGE
C - D - WT	CRITICAL DEER WINTER RANGE
H - D - SU	HIGH PRIORITY DEER SUMMER RANGE
H - D - WT	HIGH PRIORITY DEER WINTER RANGE
11/1 – 4/15	PERIOD OF HEAVIEST RANGE USE
	HIGH PRIORITY SUMMER RANGE BOUNDARY
	CRITICAL WINTER RANGE BOUNDARY
X	GUZZLER
○	BUTEO
◑	FALCON
●	PRAIRIE FALCON
✳	PEREGRINE FALCON
■	RAVEN
◪	REDTAIL HAWK
▲	GOLDEN EAGLE

SOURCE:

RAPTOR NESTS:

DIVISION OF WILDLIFE RESOURCES
475 WEST PRICE RIVER DRIVE
PRICE, UTAH
RAPTOR SURVEY 2004
ANTHONY WRIGHT, JUNE 16, 2004
TERRA TECH
136 EAST SOUTH TEMPLE
SALT LAKE CITY, UTAH
2012–2014

DEER RANGE:

1. QUITCHUPAH TRACT
   DIVISION OF WILDLIFE RESOURCES
   CEDAR CITY, UTAH
   PAMELA HILL, NOV. 12, 1991
2. PINES TRACT
   DIVISION OF WILDLIFE RESOURCES
   PRICE, UTAH
   PINES TRACT CRITICAL/HIGH VALUE DEER RANGES MAP
   CHRIS COLT, FEB. 27, 1999
3. SITLA MUDDY TRACT
   COAL TRACT EVALUATIONS ON THE MANTI–LA SAL NATIONAL FOREST
   MUDDY TRACT DEER RANGE MAP
   MARCH 2004
   CIRRUS ECOLOGICAL SOLUTIONS, LC
   965 SOUTH 100 WEST, SUITE 200
   LOGAN, UTAH 84321

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3	05/21/2001	M.L.D.	B.D.H.	
4	05/24/2002	M.L.D.	B.D.H.	
5	01/20/2005	M.L.D.	B.D.H.	
6	09/12/2005	M.L.D.	B.D.H.	
7	05/08/2007	M.L.D.	K.B.B.	
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DEER RANGE AND RAPTOR NESTS

PEN TBL:	SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
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CHAPTER 4

LAND USE AND AIR QUALITY

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(Appendices appear in Volume 6)

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4-2 Cultural and Historical Resources
4-3 Assessment of Particulate Emissions Report
4-4 Division of Air Quality Approval Order
4-5 Cultural Resource Memorandum of Agreement
4-6 Cultural Resource Documentation

The limited amount of perennial water within the analysis area reduces the potential for many species of fish to be present. However, Muddy Creek and the lower portion of Box Canyon Creek support fish populations.

There are no oil or gas leases associated with the SITLA Muddy Tract area.

Cultural and Historic Resources Information. Cultural resource information and maps identifying cultural and historical study areas are located in Appendix 4-2. An intensive cultural resource evaluation of five coal exploration well locations has been conducted on the Quitchupah Lease by Dr. Richard Hauck of AERC (see Appendix 4-2). As part of this evaluation he also made a record search at the State Historic Preservation office and the National Register of Historic Places. No sites were found that would be effected by the drilling activity. A ten percent cultural resource potential survey was completed by Les Sikle, Forest Archeologist, Manti-La Sal National Forest. A copy of his report is included in Appendix 4-2 along with the Utah State Historical Society's concurrence letter.

An intensive cultural resource evaluation of a proposed breakout, substation and power line in the Link Canyon Locality conducted by Dr. Richard Hauck of AERC is included in Appendix 4-2. No cultural or paleoentological resources were observed within the proposed Link Canyon development area during the archaeological survey.

A cultural resource evaluation of the Link Canyon Mine portals area in Link Canyon was conducted by John Senulis of Senco-Phoenix. A copy of his report is included in Appendix 4-2. The conclusion of his evaluation of the portal site was that no cultural or paleoentological resources are present. Many of his conclusions were based on work previously performed in the immediate portal area and surrounding areas by Dames and Moore, AERC, JBR, and the BLM.

There are no cemeteries, public parks, historic places, or areas within the boundaries of any units of the National System of Trails or the Wild and Scenic Rivers System located in areas to be affected by the SUFCO Mine(See Appendix 4-6 for a description). The Applicant agrees, however, to notify the regulatory authority and

Sufco intends to undermine portions of the East Fork of Box Canyon beginning in the Fall of 2003 as they extract coal from the 3LPE and 4LPE longwall panels. This change in the mining plan will change the required monitoring schedule in accordance with the Memorandum of Agreement for site 42SV2430/ML-3446 - Elusive Peacock which will be undermined under the 3LPE longwall panel. In accordance with pages 11-12 of the MOA the required monitoring schedule of this site will change from Monitor Schedule A (Sites in areas that will be mined using full-support methods) to Monitor Schedule B (Sites in areas which will be mined under and subsided) requiring the implementation of additional monitoring of the site. Monitoring results will be provided in DOGM Annual Reports. (2003, 2004, 2005, 2006, and indefinitely until movement ceases)

Historic properties documented in the Pines Tract area include 42SV2424, a sawmill, and site 42SV2391 a complex of trash scatters. Both sites are considered ineligible for the NRHP.

The Applicant agrees, however, to notify the regulatory authority and the Utah State Historical Preservation Office (SHPO) of previously unidentified cultural resources discovered in the course of mining operations. The Applicant also agrees to have any such cultural resources evaluated in terms of National Register of Historic Places eligibility criteria.

Muddy Creek Coal Tract Area

Cultural and Historic Information. Cultural resource information and maps identifying cultural and historical study areas are located in Appendix 4-2. Cirrus Ecological Solutions, LC conducted an intensive evaluation of the Muddy Tract Area. Thirty-four sites were documented during the evaluation. Refer to Confidential Appendix 4-2, "Muddy Creek Technical Report, Heritage Resources".

The three sites located in the SITLA Muddy Tract lease area are located on or near the east rim of Box Canyon. The sites include two significant lithic scatters (42SV2554 and 42SV2597), and a non-significant lithic scatter (42SV2594). None of these three sites will be undermined under the present mine plan.

The Applicant agrees, however, to notify the regulatory authority and the Utah State Historical Preservation Office (SHPO) of previously unidentified cultural resources discovered in the course of mining operations. The Applicant also agrees to have any such cultural resources evaluated in terms of National Register of Historic Places eligibility criteria.

Results from USDA Manti-La Sal National Forest, Price Ranger District, Project #ML-02-1033, Utah State Project #U-02-MM-0311f, s, b, p

Site #	Site Type	Evaluation (Cirrus Ecological Solutions, LC)	Undermined/potential for impact by mining	Date Surveyed
42SV2584*	LS, RS,C	Significant	No/Not expected	1966(PI 1976)
42SV2592	LS	Non-significant	No/Not expected	1966(PI 1976)
42SV2593	LS	Non-significant	No/Not expected	1966(PI 1976)
42SV2596	LS, RS	Non-significant	No/Not expected	1966(PI 1976)
42SV1571**	LS	Significant	No/Not expected	1966(PI 1976)

LS - Lithic Scatter RS- Rock Shelter C-Ceramics

* Re-recorded on IMACS form, lumped ML#s 2281 and 2282 with this

**Re-mapped, updated 2004, possibly a different site, site also part of the Trough Hollow inventory

West Coal Lease Modification Areas

Cultural and Historic Information. Cultural resource information and maps identifying cultural and historical study areas are located in Appendix 4-2 in the Confidential folder of the M&RP. EarthTouch, Inc. conducted an intensive evaluation of the West Coal Lease Modification Areas.

The results of the cultural resource inventory for the project resulted in the identification of 15 cultural resource sites, which included three previously recorded sites (42SV1301, 42SV1386 and 42SV2688), and 12 new sites (42SV3207-3215 and 42SV3246-3248). Overall, the identified cultural resource sites consist of small- to moderate-sized lithic scatters and small rock shelters/overhangs, some with associated pictographs. Of the 15 sites identified within the West Coal Lease Modification Areas, six sites are recommended eligible for the National Register of Historic Places. These sites include 42SV3209, 42SV3211, 42SV3212, 42SV3213, 42SV3247 and 42SV3248 which consist of small rock shelters and rock shelters with pictographs. Site 42SV3209 will be the only site undermined under the present mine plan. This shelter is more of a terrace overhang that extends 6 meters long, with a 1.5 meter overhang or width.

South Fork of Quitchupah Area of 2R2S Block "A" and 3R2S Block "B"

APPENDIX 4-6

Cultural Resource Documentation

List of Location of Cemeteries in Sanpete, Sevier and Emery Counties –

Counties Adjacent to Sufco Mining Activities

List of Location of Cemeteries in Sanpete, Sevier and Emery Counties –

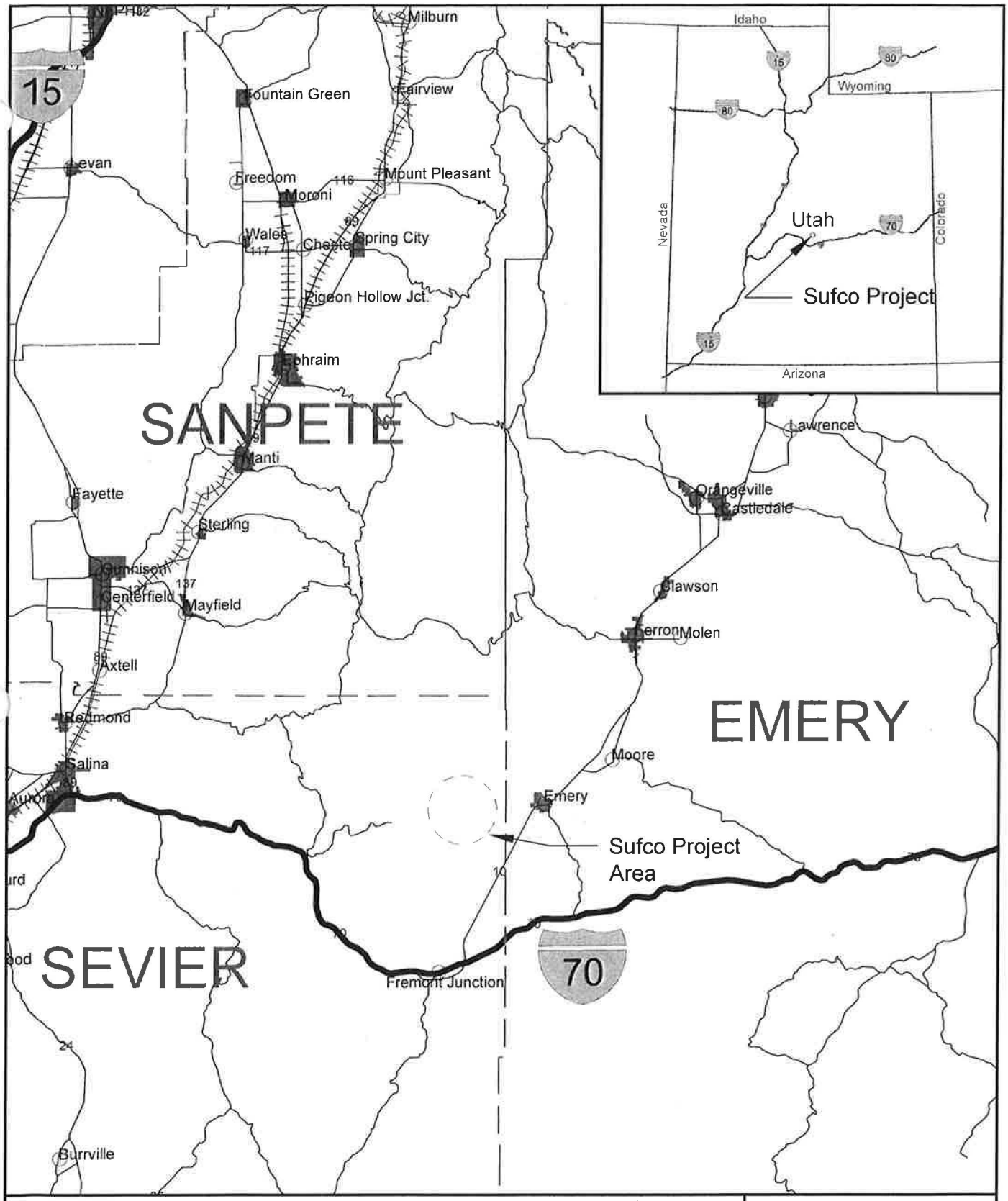
Counties Adjacent to Sufco Mining Activities

List of Location of Cemeteries in Sanpete, Sevier and Emery Counties – Counties Adjacent to Sufco Mining Activities				
Utah Division of State History- Cemeteries (http://heritage.utah.gov/history/contact-cemeteries-program) 8/24/2015				
Name	City	County	Distance from Mining Activity (approximate miles)	Active – A Inactive-I
Axtell Cemetery	Axtell	Sanpete	29	A
Burrville	Burrville	Sevier	57	A
Castle Dale City Cemetery	Castle Dale	Emery	44	A
Chester Cemetery	Chester	Sanpete	65	A
Clawson Cemetery	Clawson	Emery	51	A
Cleveland Town Cemetery	Cleveland	Emery	75	A
Desert Lake Cemetery		Emery	57	I
Dover Cemetery	Dover	Sanpete	65	I
East Side Cemetery	Salina	Sevier	22	A
Elmo Cemetery	Elmo	Emery	79	A
Elsinore Cemetery	Elsinore	Sevier	46	A
Emery Town Cemetery	Emery	Emery	33	A
Ephraim Park Cemetery	Ephraim	Sanpete	56	A
Ephraim Pioneer Cemetery	Ephraim	Sanpete	56	A
Fairview Upper/Lower Cemetery	Fairview	Sanpete	77	A
Fayette Cemetery	Fayette	Sanpete	42	A
Ferron City Cemetery	Ferron	Emery	48	A
Fountain Green Cemetery	Fountain Green	Sanpete	77	A
Freedom Cemetery	Moroni	Sanpete	69	A
Glenwood Pioneer Cemetery	Glenwood	Sevier	38	I
Green River Cemetery	Green River	Emery	92	A
Gunnison City Cemetery	Gunnison	Sanpete	36	A
Huntington Cemetery	Huntington	Emery	68	A
Indian Burial Ground	Indianola	Sanpete	91	I
Indianola Cemetery	Indianola	Sanpete	91	A
Joseph Cemetery	Joseph	Sevier	52	A
Koosharem Cemetery	Koosharem	Sevier	59	A
Lawrence Cemetery	Lawrence	Emery	68	A
Manti City Cemetery	Manti	Sanpete	49	A
Mayfield Town Cemetery	Mayfield	Sanpete	42	A
Molen Cemetery	Ferron	Emery	48	A
Monroe City Cemetery	Monroe	Sevier	50	A
Moroni City Cemetery	Manti	Sanpete	49	A
Mt. Pleasant City Cemetery	Mt. Pleasant	Sanpete	72	A
Muddy Creek Cemetery	Emery	Emery	33	I
Old Emery Cemetery	Emery	Emery	33	I
Orangeville Cemetery	Orangeville	Emery	59	A

Utah Division of State History- Cemeteries (http://heritage.utah.gov/history/contact-cemeteries-program) 8/14/2015				
Name	City	County	Distance from Mining Activity (approximate miles)	Active – A Inactive-I
Pioneer Cemetery	Richfield	Sevier	38	I
Pioneer Cemetery	Ephriam	Sanpete	56	I
Pioneer Cemetery	Salina	Sevier	22	I
Richfield City Cemetery	Richfield	Sevier	38	A
Ridge Cemetery	Emery	Emery	33	A
Sevier Cemetery	Monroe	Sevier	50	A
Sigurd Cemetery	Sigurd	Sevier	38	A
Spring City Cemetery	Spring City	Sanpete	67	A
Spring City Pioneer Cemetery	Spring City	Sanpete	67	I
Sterling Cemetery	Sterling	Sanpete	43	A
Tucker Family Cemetery	Emery	Emery	33	I
Venice Cemetery	Venice	Sevier	35	A
Vermillion Cemetery	Sigurd	Sevier	38	A
Victor Cemetery	Near Elmo	Emery	85	I
Wales Cemetery	Wales	Sanpete	70	A
Woodside Cemetery	Woodside	Emery	111	A
Wilsonville Cemetery	SW of Castle Dale	Emery	50	I
Yorganson Family Cemetery	Fountain Green	Sanpete	77	A

National System of Trails

National System of Trails



LEGEND

- Interstate Route
- City or Town
- Sufco Project
- Local Access Road
- Railroad
- Counties

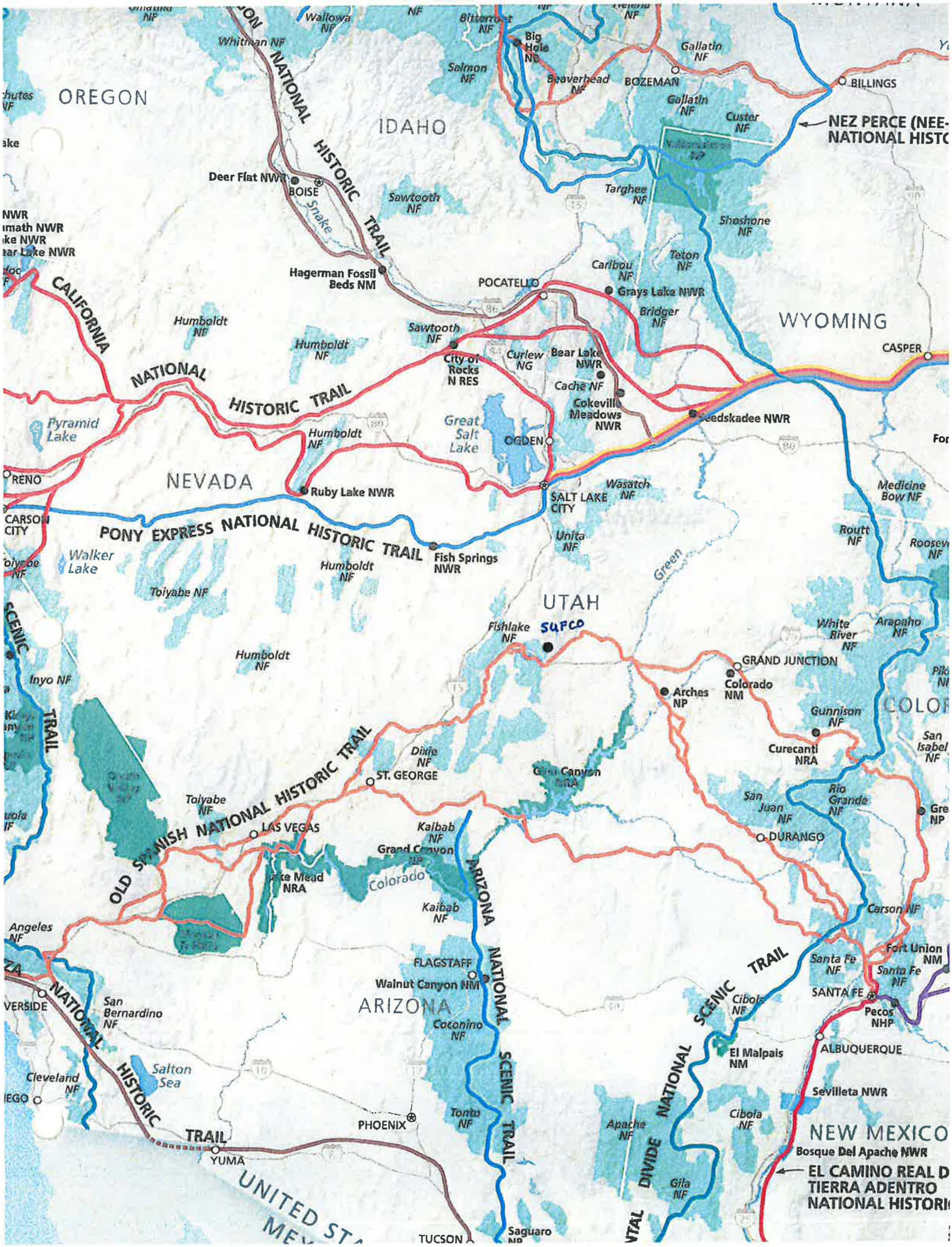
UTAH STATE PLANE
CENTRAL ZONE NAD 27

N

0 15 30
MILE

SUFCO PROJECT
GENERAL
LOCATION MAP

DATE: 8/3/2015
FILE: 51-21 Fig 2.1
SCALE: As Shown
NORWEST CORPORATION



OREGON
IDAHO
WYOMING
NEVADA
UTAH
ARIZONA
NEW MEXICO
NATIONAL HISTORIC TRAIL
CALIFORNIA NATIONAL HISTORIC TRAIL
PONY EXPRESS NATIONAL HISTORIC TRAIL
OLD SPANISH NATIONAL HISTORIC TRAIL
ARIZONA NATIONAL SCENIC TRAIL
NATIONAL SCENIC TRAIL
DIVIDE NATIONAL SCENIC TRAIL
NEZ PERCE (NEE-
NATIONAL HISTO
EL CAMINO REAL D
TIERRA ADENTRO
NATIONAL HISTORI
Big Hole NB
Gallatin NF
BOZEMAN
BILLINGS
Beaverhead NF
Custer NF
Deer Flat NWR
BOISE
Snake
Sawtooth NF
Targhee NF
Shoshone NF
Teton NF
Caribou NF
Hagerman Fossil Beds NM
POCATELLO
Grays Lake NWR
Bridger NF
Humboldt NF
Sawtooth NF
City of Rocks N RES
Curlew NG
Bear Lake NWR
Cache NF
Cokeville Meadows NWR
Seedskadee NWR
CASPER
Pyramid Lake
Great Salt Lake
OGDEN
RENO
Ruby Lake NWR
SALT LAKE CITY
Wasatch NF
Medicine Bow NF
CARSON CITY
Walker Lake
Fish Springs NWR
Unita NF
Routt NF
Toiyabe NF
Green
Fishlake NF
SUFCO
White River NF
Arapaho NF
GRAND JUNCTION
Colorado NM
Arches NP
Inyo NF
Gunnison NF
Curecanti NRA
San Isabel NF
Dixie NF
ST. GEORGE
Toiyabe NF
LAS VEGAS
Kaibab NF
Grand Canyon NP
Lake Mead NRA
Colorado
San Juan NF
Rio Grande NF
DURANGO
Kaibab NF
Carson NF
Angeles NF
FLAGSTAFF
Walnut Canyon NM
Santa Fe NF
Fort Union NM
SANTA FE
Pecos NHP
San Bernardino NF
Coconino NF
Cibola NF
El Malpais NM
ALBUQUERQUE
Salton Sea
Cleveland NF
Sevilleta NWR
PHOENIX
Tonto NF
Apache NF
Cibola NF
YUMA
Bosque Del Apache NWR
Gila NF
TUCSON
Saguaro NP

OLD SPANISH TRAIL
America's 15th National Historic Trail
Old Spanish NHT
Segment Under Study
N
PACIFIC OCEAN
CALIFORNIA
UTAH
ARIZONA
NEW M
SAN FRANCISCO
Golden Gate NRA
Stanislaus NF
Toiyabe NF
Humboldt NF
Yosemite NP
Devils Postpile NM
Inyo NF
Sierra NF
Kings Canyon NP
Sequoia NP
Los Padres NF
Death Valley NP
Toiyabe NF
TECOPA
LAS VEGAS
MAIN ROUTE
ARMIJO ROUTE
MOJAVE ROUTE
Lake Mead NRA
BARSTOW
Mojave N PRES
Angeles NF
SAN GABRIEL MISSION
Santa Monica Mountains NRA
LOS ANGELES
SAN BERNARDINO
San Bernardino NF
Cleveland NF
SAN DIEGO
CEDAR CITY
Dixie NF
ST. GEORGE
Fishlake NF
CASTLE DALE
GREEN RIVER
MOAB
Arches NP
Glen Canyon NRA
PAGE
GRAND JUNCTION
NORTH BRANCH
Gunnison NF
Curecanti NRA
San Juan NF
DURANGO
Rio Grande NF
ALBUQUERQUE
Santa Fe NF
SANTA FE
White River NF
FLAGSTAFF
Cibola NF
El Malpais NM
PHOENIX
Apache NF
Gila NF
Saguaro NP
Coronado NF
Tumacacori NHP
Chamizal N MEM
EL PASO
To Mexico City

Old Spanish National Historic Trail

Wild and Scenic Rivers System

Wild and Scenic Rivers System

UTAH

Utah has approximately 81,899 miles of river, of which 169.3 miles are designated as wild & scenic—2/10ths of 1% of the state's river miles.

Virgin River

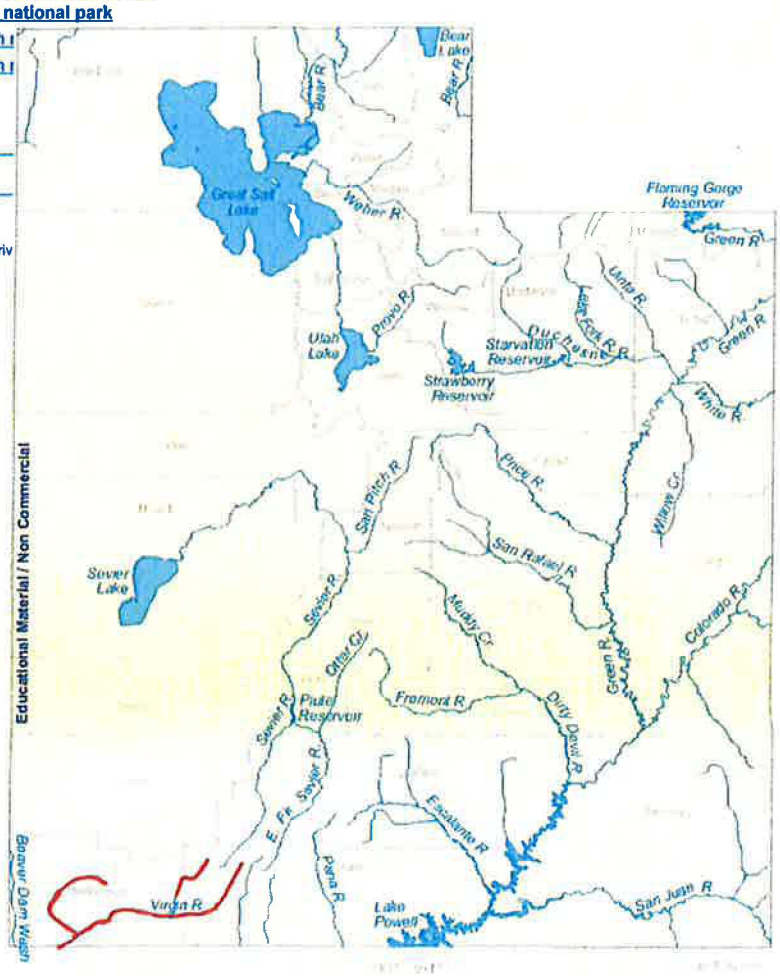
virgin river utah fishing
virgin river utah rafting
virgin river utah camping

zion national park

1 2 3 4 5 Next

virgin river utah map

Yahoo Help Suggestions Priv



VIRGIN RIVER, UTAH

Managing Agency:

Bureau of Land Management, St. George Field Office
National Park Service, Zion National Park

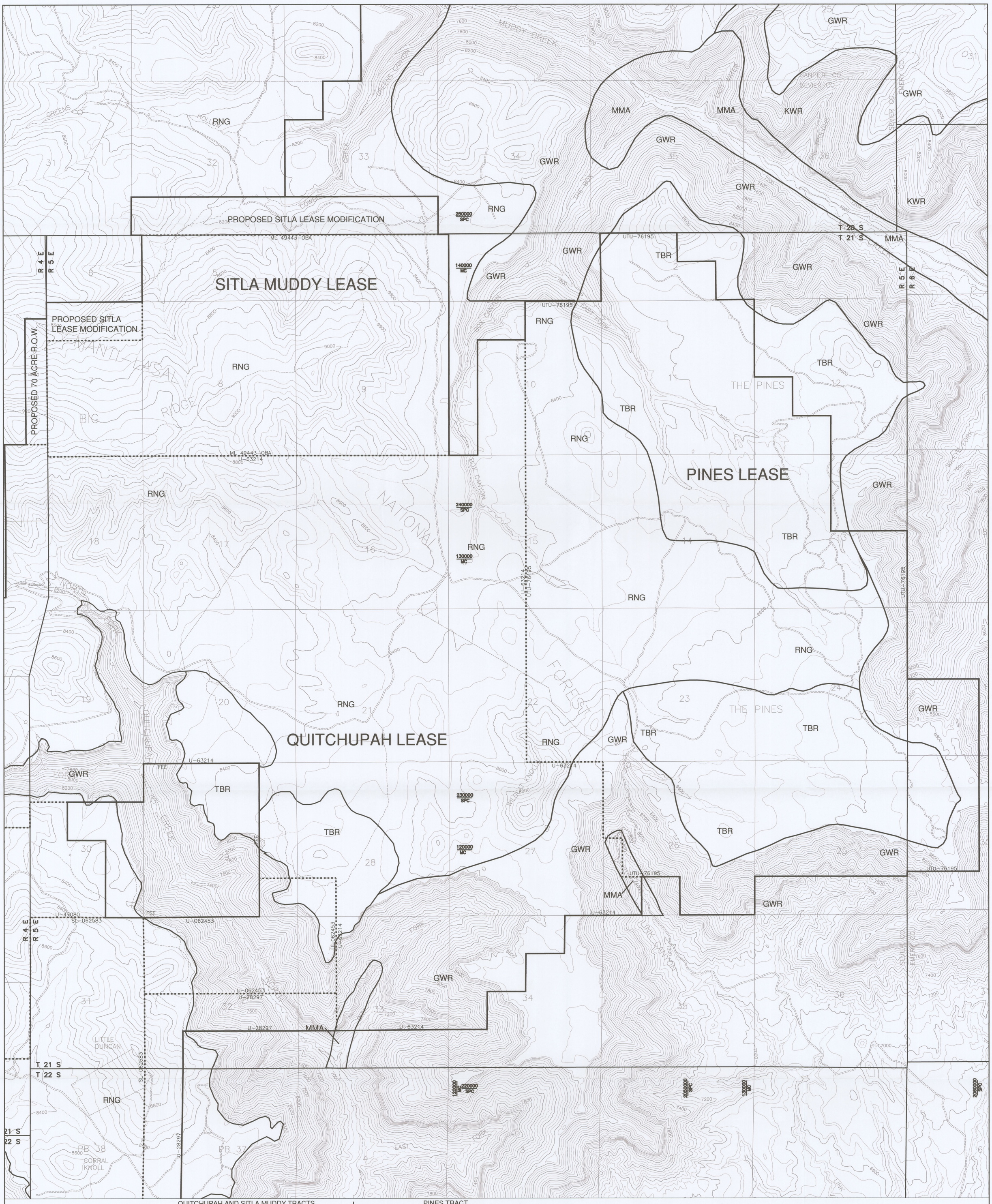
Designated Reach:

March 30, 2009. The Virgin River and tributaries, including:

1. Taylor Creek from the junction of the North, Middle and South Forks of Taylor Creek west to the Zion National Park boundary.
2. The North Fork of Taylor Creek from the head of the North Fork to its junction with Taylor Creek.
3. The Middle Fork of Taylor Creek from the head of the Middle Fork on Bureau of Land Management land to its junction with Taylor Creek.
4. The South Fork of Taylor Creek from the head of the South Fork to its junction with Taylor Creek.
5. Timber Creek and its tributaries from the head of Timber Creek and the tributaries of Timber Creek to its junction with LaVerkin Creek
6. LaVerkin Creek beginning in Section 21, Township 38 South, Range 11 West, on Bureau of Land Management land southwest through Zion National Park to the south end of Section 7, Township 40 South, Range 12 West
7. Willis Creek from Bureau of Land Management land in Section 27, Township 38 South, Range 11 West, to its junction with LaVerkin Creek in Zion National Park.
8. Beartrap Canyon beginning on Bureau of Land Management land in Section 3, Township 39 South, Range 11 West, to its junction with LaVerkin Creek and the segment from the headwaters north of Long Point to its junction with LaVerkin Creek.
9. Hop Valley Creek beginning at the southern boundary of Section 20, Township 39 South, Range 11 West, to its junction with LaVerkin Creek.
10. Current Creek from the head of Current Creek to its junction with LaVerkin Creek.
11. Cane Creek from the head of Cane Creek to its junction with LaVerkin Creek.
12. Smith Creek from the head of Smith Creek to its junction with LaVerkin Creek.
13. North Creek (Left and Right Forks): The Left Fork from its junction with Wildcat Canyon to its junction with the Right Fork; the head of the Right Fork to its junction with the Left Fork; and North Creek from the junction of the Left and Right Forks southwest to the Zion National Park boundary.
14. Wildcat Canyon (Blue Creek) from the Zion National Park boundary to its junction with the Right Fork of North Creek.
15. Little Creek beginning at the head of Little Creek to its junction with the Left Fork of North Creek.
16. Russell Gulch from the head of Russell Gulch to its junction with the Left Fork of North Creek.
17. Grapevine Wash from the Lower Kolob Plateau to its junction with the Left Fork of North Creek.
18. Pine Spring Wash from the head of Pine Spring Wash to its junction with the Left Fork of North Creek.
19. Wolf Springs Wash from the head of Wolf Springs Wash to its junction with Pine Spring Wash.
20. Kolob Creek beginning in Section 30, Township 39 South, Range 10 West, through Bureau of Land Management land and Zion National Park land to its junction with the North Fork of the Virgin River.
21. Oak Creek beginning in Section 19, Township 39 South, Range 10 West, to its junction with Kolob Creek.
22. Goose Creek from the head of Goose Creek to its junction with the North Fork of the Virgin River.
23. Deep Creek beginning on Bureau of Land Management land at the northern boundary of Section 23, Township 39

Choose a State Go
Choose a River Go

Seen as barren by the first explorers to today's first-time visitors, the rivers of the high desert simply hide their treasures well.



QUITCHUPAH AND SITLA MUDDY TRACTS

FOREST MANAGEMENT UNITS

	FOREST MANAGEMENT UNIT BOUNDARY
GWR	GENERAL BIG GAME WINTER RANGE
TBR	LIMITED TIMBERING, INCLUDES GRAZING
RNG	RANGELAND/GRAZING
MMA	LEASABLE MINERAL DEVELOPMENT

SOURCE:
SOUTHERN UTAH FUEL COMPANY
CONVULSION CANYON AND QUITCHUPAH TRACTS
FOREST MANAGEMENT UNITS MAP
EPS, INC. 129 NORTH 1000 EAST
OREM, UTAH 84057
1 OCTOBER 1991

PINES TRACT

FOREST MANAGEMENT UNITS

	FOREST MANAGEMENT UNIT BOUNDARY
MMA	LEASABLE MINERAL DEVELOPMENT
RNG	TIMBER/WOOD FIBER AND FORAGE
TBR	WOOD FIBER PRODUCTION AND HARVEST
GWR	GENERAL BIG GAME WINTER RANGE
KWR	KEY BIG GAME WINTER RANGE

SOURCE:
MANTI-LA SAL NATIONAL FOREST-PINES TRACT PROJECT
FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS)
FIGURE 3-12 FOREST MANAGEMENT UNITS
JANUARY 1999
USDA FOREST SERVICE, REGION FOUR
MANTI-LA SAL NATIONAL FOREST
EMERY AND SEVIER COUNTIES, UTAH

NOTE: NO CEMETERIES, NATIONAL SYSTEM OF TRAILS, OR WILD AND SCENIC RIVERS EXIST WITHIN THE BOUNDARIES OF THE SUFCO MINE, ITS ASSOCIATED FACILITIES, OR MINE WORKINGS.

REFER TO APPENDIX 4-6 FOR JUSTIFICATION.

RECEIVED
AUG 27 2015
DIV. OF OIL, GAS & MINING

EXPLANATION

- SUFCO EXTERIOR LEASE BOUNDARY
- SUFCO INTERIOR LEASE BOUNDARY
- MINE COORDINATES
- STATE PLANE COORDINATES

1000 0 1000

JOHN D. BYARS
STATE OF UTAH

I CERTIFY THE ITEMS SHOWN ON THIS DRAWING ARE ACCURATE TO THE BEST OF MY KNOWLEDGE

REVISIONS OR UP-DATES			DATE: DEC. 02, 1998	
NO.	DATE	BY	DESIGNED BY:	
2	MAR. 01, 2000	MLD	DRAWN BY:	ADD
3	JAN. 20, 2005	MLD	CHECKED BY:	JDB
4	SEPT. 12, 2005	MLD		
5	MAY 8, 2007	MLD		
6	AUG. 19, 2015	JKM	SCALE: 1" = 1000'	

FILENAME: H:\DRAWINGS\MRP\PLATES\PLATE4-1v5.DWG

Canyon Fuel Company, LLC
SUFCO Mine

LAND USES - PINES AND SITLA MUDDY TRACT

397 SOUTH 800 WEST
SALINA, UTAH 84654

DRAWING OR MAP NUMBER PLATE 4-1Bv5

CHAPTER 5

ENGINEERING

of mining activities is discovered on or along the side of this road, SUFCO Mine will repair this damage and implement additional runoff-control measures as needed.

Subsidence from underground mining operations may affect public-access dirt roads throughout the lease and permit areas . As part of the subsidence monitoring program, these roads will be regularly inspected. If material damage occurs to these roads as a result of mine subsidence, the roads will be repaired by SUFCO Mine.

Mining Sequence and Planned Subsidence. The mine plan for the SUFCO Mine is presented in Plate 5-7 (Upper Hiawatha seam) and Plate 5-8 (Lower Hiawatha seam). These maps show the boundaries of all areas proposed to be affected over the estimated total life of the coal mining and reclamation operations, including the size, sequence, and timing of mining of subareas to be affected beyond the present permit term. No surface disturbances are currently anticipated within the permit area beyond that presented in this M&RP.

Plates 5-7 and 5-8 also shows the location and extent of underground workings in which planned-subsidence mining methods will be used as well as areas where measures will be taken to prevent, control, or minimize subsidence and subsidence-related damage. The location of the waste-rock disposal area in relation to the underground mine workings, is discussed in Volume 3 of this M&RP.

Only development (room & pillar) mining is planned in the BLM ROW (UTU-91108) and expansion of SITLA Lease ML49443-OBA (Portions of Section 7, T21SR5 E; Portion of Sections 32 & 33, T20S R5E) in 2015 to facilitate maximum extraction of the coal in the immediate adjacent leased areas.

Land Surface Configuration. Slope measurements for undisturbed areas adjacent to disturbed areas associated with the mine are shown on Plate 5-2A&B. Surface facilities at the site have been in existence since 1941. Pre-mining topographic maps do not exist. Therefore, the slope measurements shown on Plate 5-2A&B are considered generally indicative of original land slopes in the vicinity of the mine.

Coal is transported from the continuous miner to the belt feeder by electric or diesel haulage units. Coal is conveyed out of the panel and on out of the mine by belt conveyors. Diesel-powered, rubber-tired tractors and service cars are used to transport personnel and materials from the portals to the working faces.

Pillars in developed entries will be left to protect adjacent panels.

Longwall Mining. Longwall mining is used for extraction of large, uniform blocks of coal where the panels are more than 2,500 feet in length and where a suitable longwall panel can be laid out. Coal thicknesses of up to 14 feet are mined in the SUFCO Mine using longwall methods. In areas where coal is thicker than the height capacity of the mining equipment, the unmined coal will be left on the bottom of the bed unless economic or safety conditions warrant otherwise.

The longwall mining system at the SUFCO Mine consists of three basic integrated sub-systems: self advancing roof support, shearer, and conveyance. Shield-type roof supports are used. Shield supports are generally considered more suitable for mining conditions such as those encountered at the SUFCO Mine and are designed for expansion, contraction, advancement, and movement in varying thicknesses of coal.

The longwall shearer at the SUFCO Mine utilizes a double-ended shearer system for efficiency and flexibility of operation. Such a system consists of two rotary cutting drums mounted on ranging arms which are pivoted to a common body containing the power and drive assemblies. An optimum-tip drive speed is associated with each drum-pick configuration and diameter to assure minimization of fines in the sheared coal. The conveyance system used in the mine has been designed to convey extracted coal along the 540 to 1000 foot faces.

Anticipated Production. Anticipated annual production of coal from the SUFCO Mine during the permit term is a follows:

~~2011 - 6.40 million tons~~

~~2012 - 6.49 million tons~~

~~2013 - 6.00 million tons~~

~~2014 - 5.99 million tons~~

2015 - 6.5 million tons

2016 - 2020 coal production will range from 5.8 thru 6.5 million tons

Through the remaining life of the mine, coal production from the mine is anticipated to be 4.85 million to 8.0 million tons per year.

Major Equipment. Major equipment in use at the SUFCO Mine is listed in Table 5-1. The same type of equipment or equivalent is expected to be used in the future.

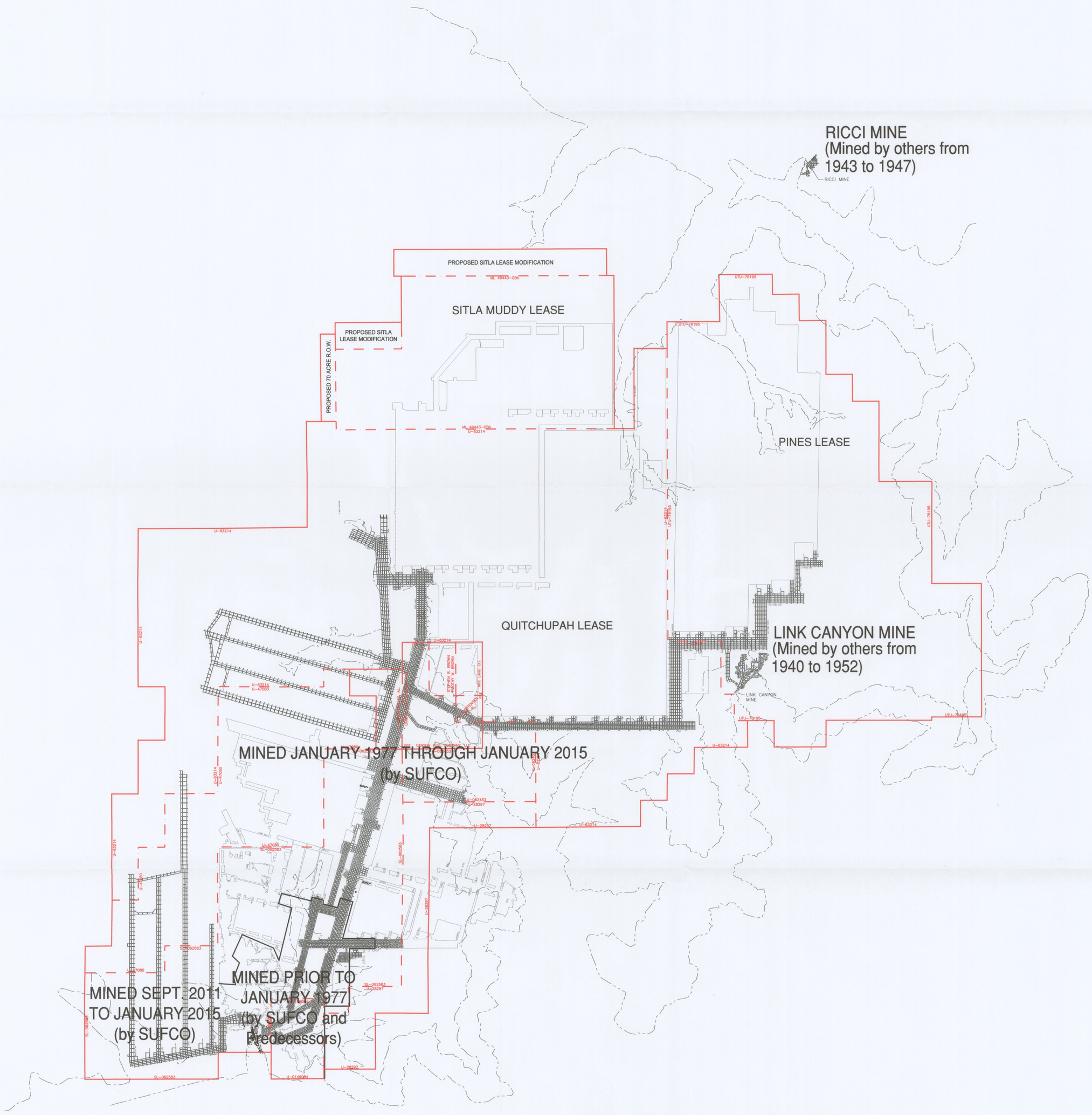
5.2.4 Blasting and Explosives

Mining and reclamation activities at the SUFCO Mine generally does not require the use of blasting or explosives on the surface. Historically the infrequent surface blasting conducted at the SUFCO Mine has been for construction projects and for removal of dislodged boulders that roll into the surface facility area. These blasts have been under the 5 pound exemption in most cases, and have been conducted under the direction of a certified blaster. Any future blasting associated with mining and reclamation activities that may be needed will be conducted in accordance with R645-301-524. All underground blasting activities at the mine are conducted under the direction of a MSHA certified blaster.

5.2.5 Subsidence

SUFCO began operations which caused surface subsidence in June 1976. At that time, continuous miners were used to extract coal from pillars which were developed as part of a retreating panel. The panels were approximately 650 feet wide and varied in length up to 2,500 feet. The average mining height in this initial area of pillar extraction approached 11 feet and the extraction ratio averaged about 80 percent.

The resulting subsidence from the initial retreat mining averaged about 4 feet in plateau areas where the overburden was approximately 900 feet thick. In areas where panel boundaries were



RECEIVED
AUG 27 2015
DIV. OF OIL, GAS & MINING

EXPLANATION

- MINED AREA BOUNDARY
- OUTCROP
- ESCARPMENT
- EXTERIROR LEASE BOUNDARY
- INTERIOR LEASE BOUNDARY

REGISTERED PROFESSIONAL ENGINEER #334504-2202 JOHN D. BYARS STATE OF UTAH

I CERTIFY THE ITEMS SHOWN ON THIS DRAWING ARE ACCURATE TO THE BEST OF MY KNOWLEDGE

2000 0 2000

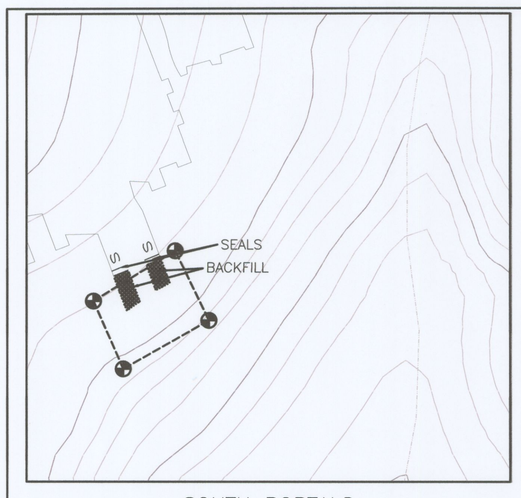
REVISIONS

NO.	DATE	REQ. BY	DWG. BY	REMARKS
1	06/18/1999	M.L.D.	B.D.H.	
2	01/20/2005	M.L.D.	B.D.H.	
3	05/08/2007	M.L.D.	K.B.B.	
4	06/11/2010	M.L.D.	K.B.B.	
5	03/02/2015	V.M.	T.R.B.	ADDED 70 ACRE R.O.W. AREA FOR S WEST

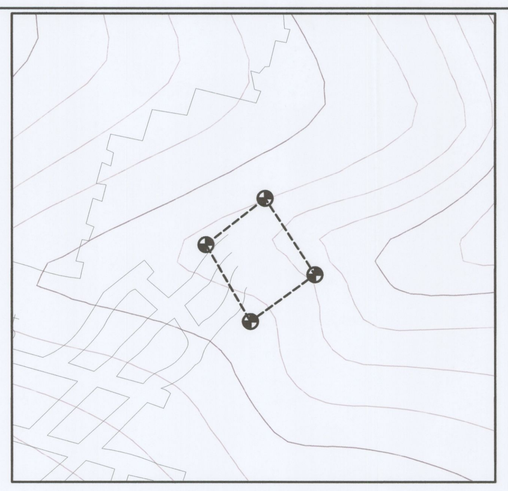
Canyon Fuel Company, LLC
SUFCO Mine
597 South SR 24 – Salina, UT 84654
(435) 286-4880 Phone
(435) 286-4499 Fax

PREVIOUSLY MINED AREAS

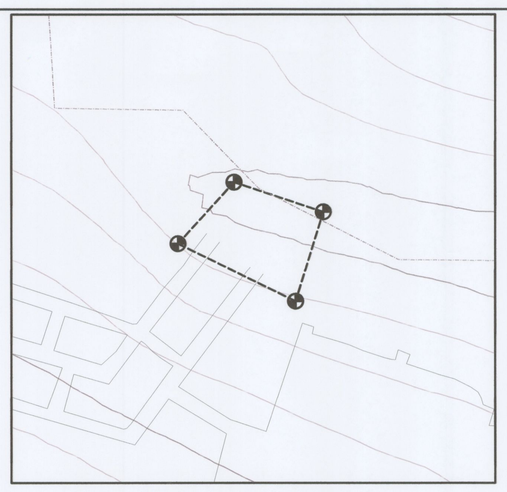
PEN TBL:	SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
_ISMold-SUFDP1.ctb	1" = 2,000'	3/11/2015	A.D.D.		M.L.D.	PLATE 5-1 v5
SHT SET: #### / PROJECT NUMBER: ####	FILE NAME: H:\DRAWINGS\MRP\PLATES\PLATE 5-1v5.dwg					



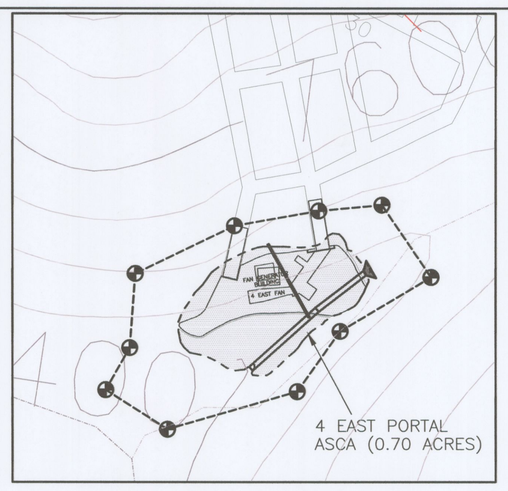
SOUTH PORTALS
SCALE: 1" = 100'



3 EAST PORTALS
SCALE: 1" = 100'

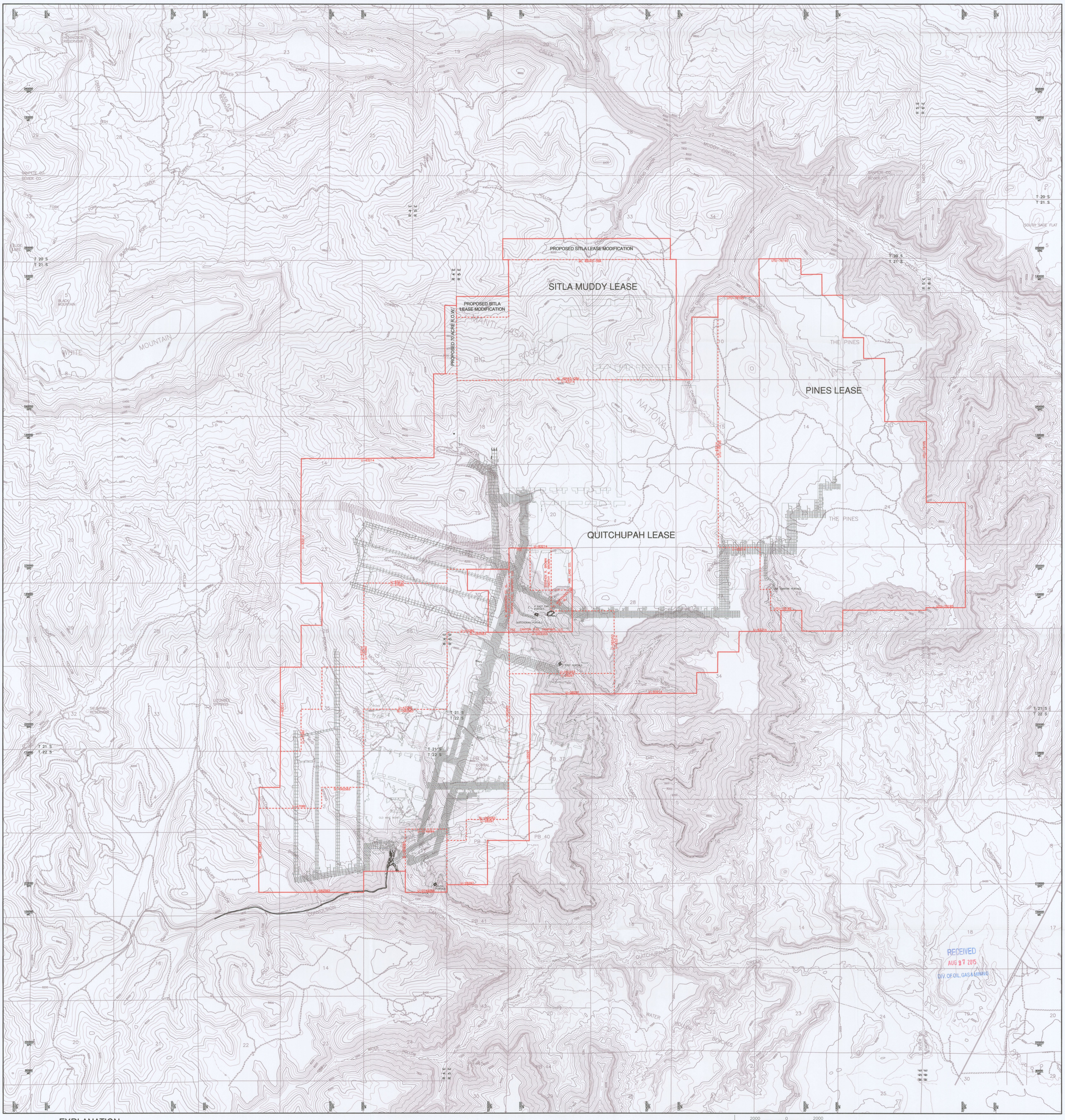


QUITCHUPAH PORTALS
SCALE: 1" = 100'



4 EAST FAN PORTALS
SCALE: 1" = 100'

SURFACE PORTAL FACILITIES – PRE MINING AND POST MINING TOPOGRAPHY



EXPLANATION

- SUFCO EXTERIOR LEASE BOUNDARY
- SUFCO INTERIOR LEASE BOUNDARY
- MINE COORDINATES
- STATE PLANE COORDINATES
- STREAM
- ESCARPEMENT
- OUTCROP
- PERENNIAL STREAM
- DISTURBED AREA BOUNDARY
- DISTURBED AREA BOUNDARY MARKER
- DRAIN LINE
- ALTERNATE SEDIMENT CONTROL AREA (ASCA)

REGISTERED PROFESSIONAL ENGINEER #334504-2202 JOHN D. BYARS STATE OF UTAH

I CERTIFY THE ITEMS SHOWN ON THIS DRAWING ARE ACCURATE TO THE BEST OF MY KNOWLEDGE

2000 0 2000

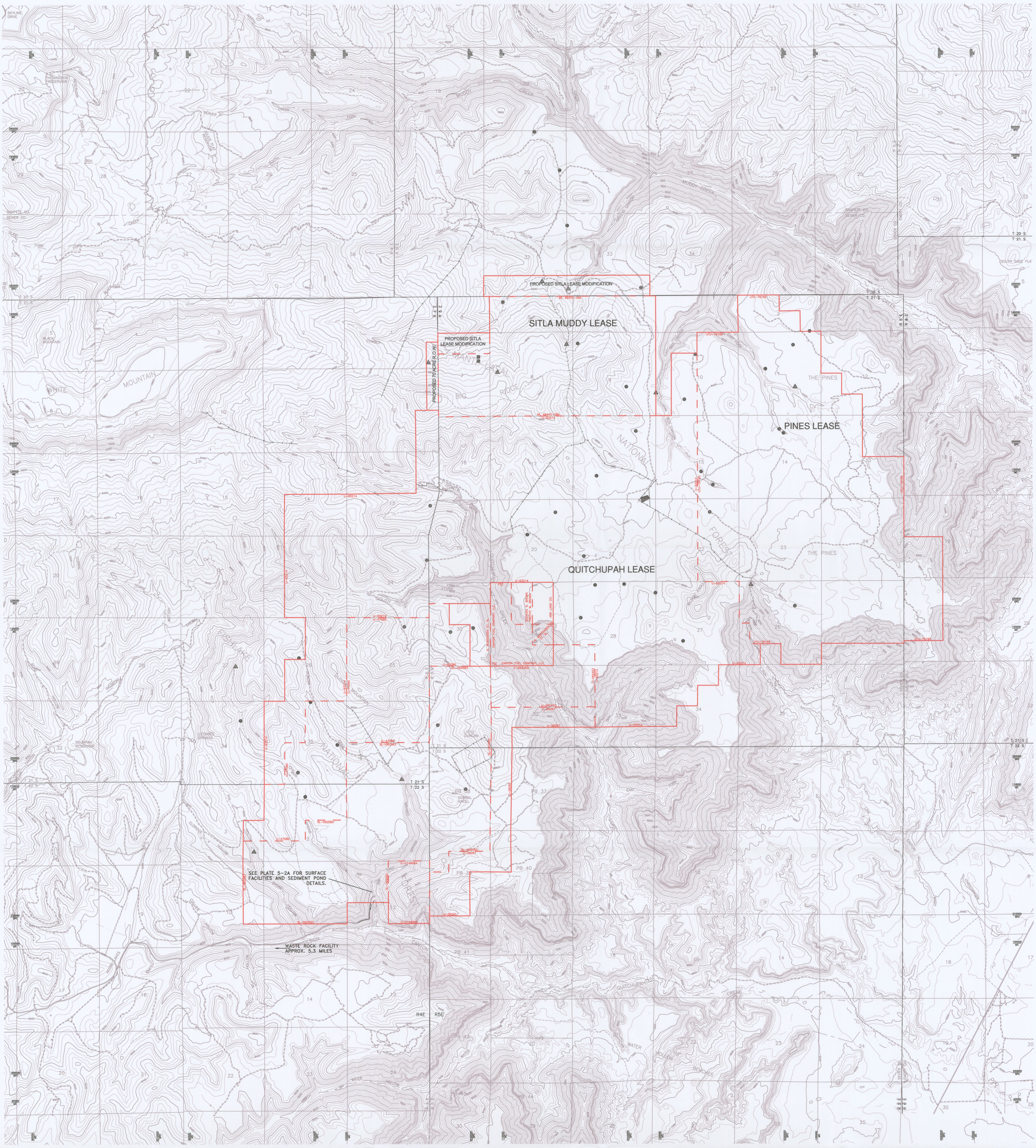
REVISIONS

NO.	DATE	REQ. BY	DWG. BY	REMARKS
5	03/01/2000	M.L.D.	B.D.H.	
6	11/12/2003	M.L.D.	B.D.H.	
7	06/17/2004	M.L.D.	B.D.H.	
8	05/08/2007	M.L.D.	B.D.H.	
9	05/27/2010	M.L.D.	B.D.H.	
10	03/02/2015	V.M.	T.R.B.	ADDED 70 ACRE R.O.W. AREA FOR 5 WEST

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

DETAIL OF PORTAL SURFACE FACILITIES

PEN TBL:	SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
_15ndrd-SUFEMP1.ctb	1" = 2,000'	3/11/2015	B.D.H.		M.L.D.	PLATE 5-2C v10
SHT SET: ####	PROJECT NUMBER: ####	FILE NAME: H:\DRAWINGS\MRP\PLATES\PLATE 5-2Cv10.dwg				



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AUG 27 2015
DIV. OF OIL, GAS & MINING

EXPLANATION

- SUFCO EXTERIOR LEASE BOUNDARY
- SUFCO INTERIOR LEASE BOUNDARY
- MINE COORDINATES
- STATE PLANE COORDINATES
- RUNOFF POND
- NATURAL POND
- STOCK WATERING TROUGH
- TRAIL
- UNIMPROVED ROAD
- IMPROVED ROAD
- FENCE

REGISTERED PROFESSIONAL ENGINEER #334504-2202 JOHN D. BYARS STATE OF UTAH

I CERTIFY THE ITEMS SHOWN ON THIS DRAWING ARE ACCURATE TO THE BEST OF MY KNOWLEDGE

2000 0 2000

REVISIONS

NO.	DATE	REQ. BY	DWG. BY	REMARKS
1	02/16/1999	M.L.D.	B.D.H.	
2	06/03/1999	M.L.D.	B.D.H.	
3	01/20/2005	M.L.D.	B.D.H.	
4	05/08/2007	M.L.D.	K.B.B.	
5	06/11/2010	M.L.D.	K.B.B.	
6	03/02/2015	V.M.	T.R.B.	ADDED 70 ACRE R.O.W. AREA FOR 5 WEST

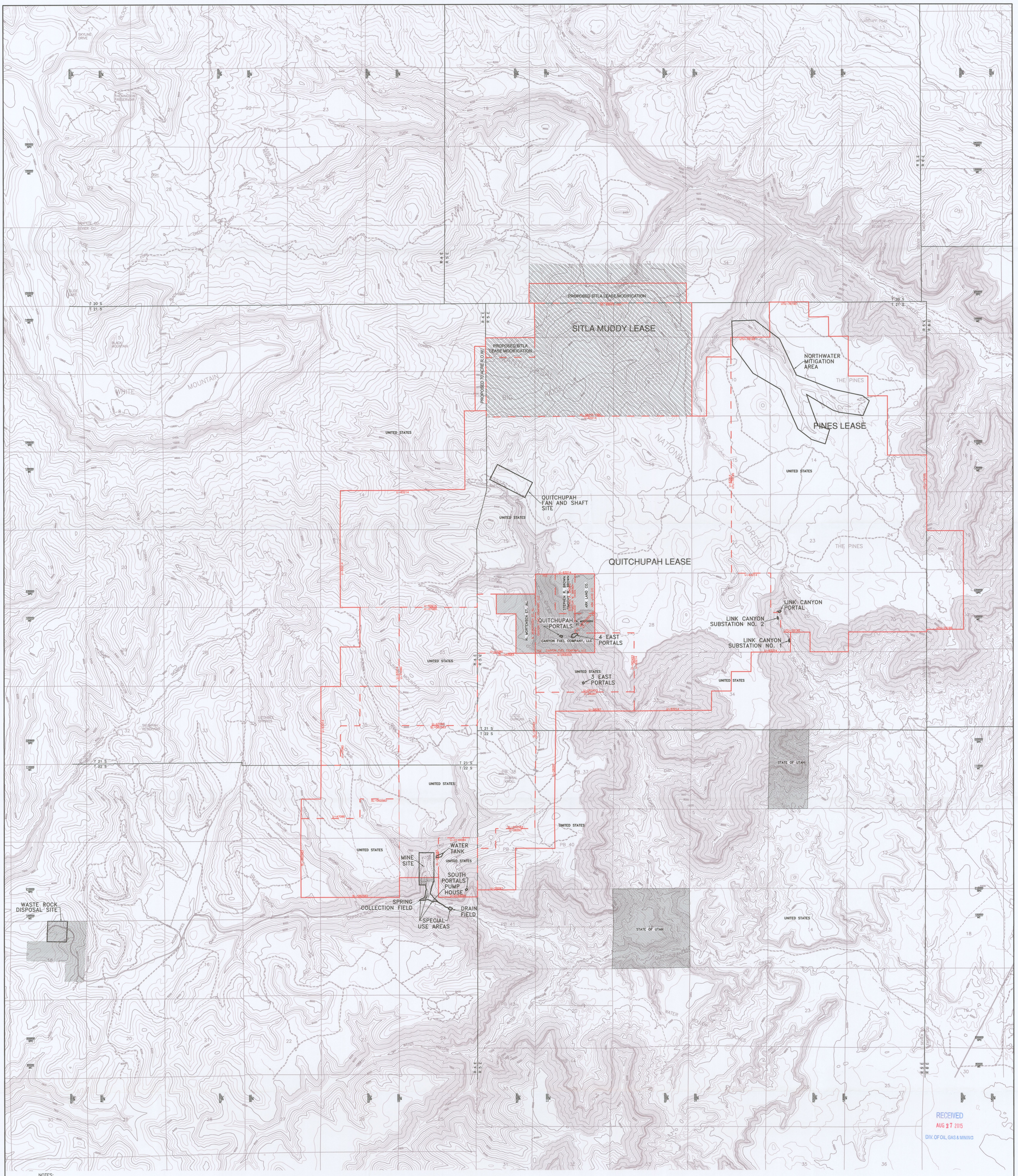
PEN TBL: _15ind4-SUFENP1.ctb
SHT SET: ####
PROJECT NUMBER: ####

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

EXISTING SURFACE AND SUBSURFACE FACILITIES AND FEATURES

SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
1" = 2,000'	3/11/2015	A.D.D.		J.D.B.	PLATE 5-5 v6

FILE NAME: H:\DRAWINGS\MRP\PLATES\PLATE 5-5v6.dwg



NOTES:

1. "LEASE AREA" INCLUDES ALL FEDERAL COAL LEASES, STATE COAL LEASES, FEE LANDS AND U.S.F.S. SPECIAL USE PERMIT (SUP) AREAS SHOWN ON THIS MAP.
2. SEE VOLUME 3 REGARDING OWNERSHIP AT WASTE ROCK DISPOSAL SITE.
3. SEE PLATE 5-2A REGARDING MINESITE AREA DETAIL.
4. SEE PLATE 5-2B REGARDING U.S.F.S. SPECIAL USE AREA DETAIL.
5. SEE PLATE 5-2C REGARDING PORTAL AREA DETAIL.
6. SEE PLATE 5-2D REGARDING LINK CANYON SUBSTATION NO. 1 AREA DETAIL.
7. SEE PLATE 5-2E REGARDING LINK CANYON SUBSTATION NO. 2 AREA DETAIL.
8. SEE PLATE 5-2F REGARDING LINK CANYON PORTAL AREA DETAIL.

EXPLANATION

- SUFCO EXTERIOR LEASE BOUNDARY
- SUFCO INTERIOR LEASE BOUNDARY
- PERMIT BOUNDARY
- SPECIAL USE PERMIT BOUNDARY
- 100000 MC — MINE COORDINATES
- 20000000 SPC — STATE PLANE COORDINATES
- DISTURBED AREA BOUNDARY MARKER
- DISTURBED AREA BOUNDARY

LEASE AREA

20,991.07 ACRES	FEDERAL COAL LEASES
2,555.96 ACRES	UTAH STATE COAL LEASES
640.00 ACRES	FEE COAL LEASES
40.00 ACRES	WASTE ROCK DISPOSAL SITE
15.32 ACRES	U.S.F.S. SPECIAL USE PERMITS
73.97 ACRES	B.L.M. RIGHT-OF-WAY
24,316.32 ACRES	TOTAL LEASE AREA

ADJACENT AREA

1. BIOLOGY ADJACENT AREA IS A 0.5 MILE BUFFER AROUND ALL SURFACE DISTURBANCES.
2. SEE CHIA FOR HYDROLOGIC ADJACENT AREA BOUNDARY.

LAND AND MINERAL OWNERSHIP

LAND	MINERAL
UNITED STATES	STATE OF UTAH
UNITED STATES	UNITED STATES
VARIOUS OWNERS (AS SHOWN)	CANYON FUEL COMPANY, LLC
STATE OF UTAH	UNITED STATES
U.S.F.S. SPECIAL USE AREA	UNITED STATES

PERMIT AREA BOUNDARIES	SITE DESCRIPTION
62.506	SUFCO MAIN FACILITIES COMPLEX
1.595	WATER TANK, EAST SPRING CANYON
0.286	3 EAST PORTALS
1.774	4 EAST PORTALS
0.302	SOUTH PORTALS
0.396	QUITCHUPAH PORTALS
0.287	LINK CANYON SUBSTATION NO. 1
0.245	LINK CANYON SUBSTATION NO. 2
0.380	LINK CANYON PORTAL
12.220	WASTE ROCK DISPOSAL SITE
41.812	NORTH WATER MITIGATION AREA
542.260	QUITCHUPAH FAN & SHAFT SITE
68.640	TOTAL
720.483	

PERMITTED DISTURBED AREA BOUNDARIES	ACTUAL AREA CURRENTLY DISTURBED TO BE RECLAIMED	SITE DESCRIPTION
30.210	17.405	MINE SITE, EAST SPRING CANYON
0.967	0.39	SPRING COLLECTION FIELD, CONVULSION CANYON
0.220	0.075	PUMP HOUSE, CONVULSION CANYON
0.784	0.40	LEACH FIELD, CONVULSION CANYON
1.595	0.193	WATER TANK, EAST SPRING CANYON
0.286	0.017	3 EAST PORTALS
1.774	0.70	4 EAST PORTALS
0.302	0.017	SOUTH PORTALS
0.396	0.017	QUITCHUPAH PORTALS
0.287	0.18	LINK CANYON SUBSTATION NO. 1
0.245	0.12	LINK CANYON SUBSTATION NO. 2
0.380	0.18	LINK CANYON PORTAL
12.220	11.290	WASTE ROCK DISPOSAL SITE
0.000	0.000	NORTH WATER MITIGATION AREA
0.000	0.000	QUITCHUPAH FAN AND SHAFT SITE
49.666	30.984	TOTAL

REGISTERED PROFESSIONAL ENGINEER #334504-2202 JOHN D. BYARS STATE OF UTAH

I CERTIFY THE ITEMS SHOWN ON THIS DRAWING ARE ACCURATE TO THE BEST OF MY KNOWLEDGE

2000 0 2000

REVISIONS

NO.	DATE	REQ. BY	DWG. BY	REMARKS
14	09/12/2005	M.L.D.	B.D.H.	
15	02/20/2007	M.L.D.	K.B.B.	
16	06/09/2009	M.L.D.	K.B.B.	
17	06/11/2010	M.L.D.	K.B.B.	
18	07/26/2012	M.L.D.	K.B.B.	
19	04/10/2013	M.L.D.	T.R.B.	
20	03/02/2015	V.M.	T.R.B.	ADDED 70 ACRE R.O.W. AREA FOR 5 WEST

Canyon Fuel Company, LLC
SUFCO Mine
597 South SR 24 – Salina, UT 84654
(435) 286-4880 Phone
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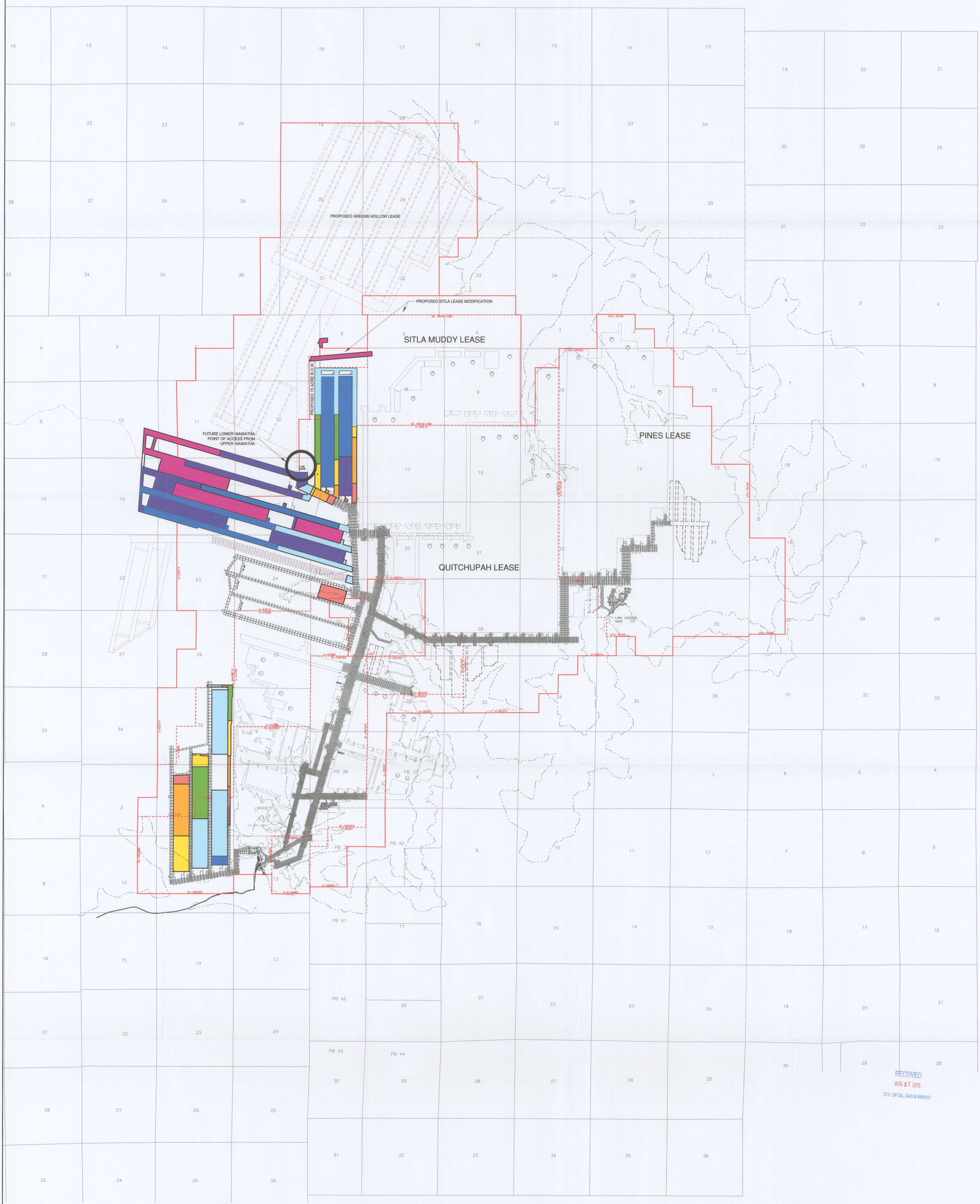
LAND OWNERSHIP, LEASE, AND PERMIT AREA MAP

PEN TBL:	SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
_5Sndrd-SUFEMPt.ctb	1" = 2,000'	3/11/2015	JMB/TRB	JDB	VM	PLATE 5-6 v20

SHT SET: #### PROJECT NUMBER: #### FILE NAME: H:\DRAWINGS\MRP\PLATES\PLATE 5-6v20.dwg



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EXPLANATION

- SUFCO EXTERIOR LEASE BOUNDARY
- SUFCO INTERIOR LEASE BOUNDARY
- ESCARPEMENT
- OUTCROP

MINING LEGEND

- 1ST QUARTER 2015
- 2ND QUARTER 2015
- 3RD QUARTER 2015
- 4TH QUARTER 2015
- 2016
- 2017
- 2018
- 2019

NOTES:

1. GREENS HOLLOW PROJECTIONS ARE SUBJECT TO FUTURE PERMITTING OF THE GREENS HOLLOW TRACT.

2. ANY PROJECTED MINING SHOWN BEYOND EXISTING LEASE BOUNDARY LINES IS SUBJECT TO FUTURE LEASE MODIFICATIONS AND APPROVALS.

REGISTERED PROFESSIONAL ENGINEER #334504-2202 JOHN D. BYARS STATE OF UTAH

I CERTIFY THE ITEMS SHOWN ON THIS DRAWING ARE ACCURATE TO THE BEST OF MY KNOWLEDGE

2000 0 2000

REVISIONS

NO.	DATE	REQ. BY	DWG. BY	REMARKS
4	01/20/2005	M.L.D.	B.D.H.	
5	05/08/2007	M.L.D.	K.B.B.	
6	08/13/2009	M.L.D.	K.B.B.	
7	05/26/2011	M.L.D.	K.B.B.	
8	03/07/2012	M.L.D.	K.B.B.	
9	03/06/2013	M.L.D.	T.R.B.	
10	03/02/2015	V.M.	T.R.B.	ADDED 70 ACRE R.O.W. AREA FOR 5 WEST

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UPPER HIAWATHA MINE PLAN 5 YEAR PROJECTION

PEN TBL:	SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
_15hdrd-SUFDP1.ctb	1" = 2,000'	4/9/2015	BDH/TRB	JDB	VM	PLATE 5-7 v10
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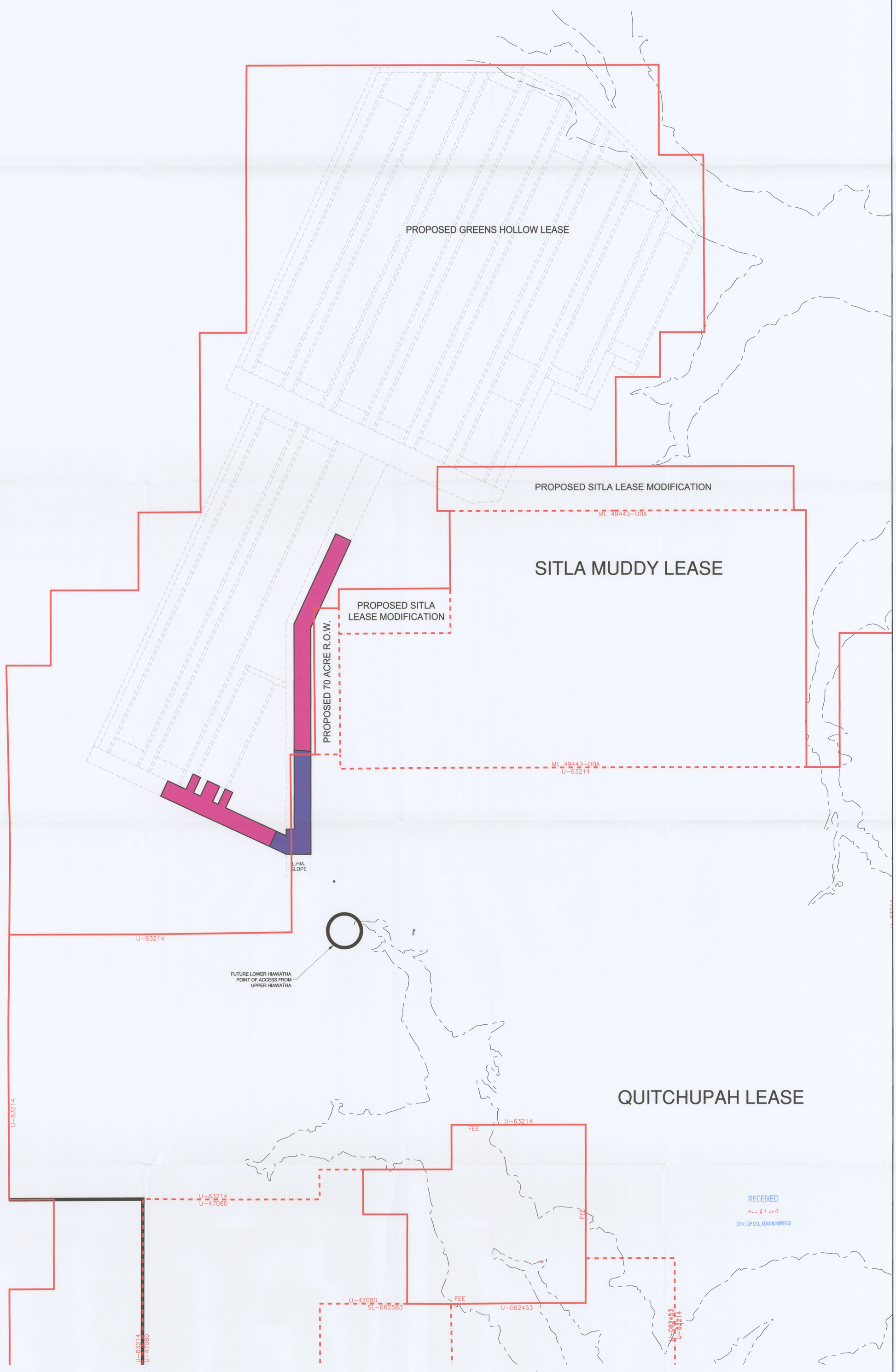

EXPLANATION

- U-63214 — SUFCO EXTERIOR LEASE BOUNDARY
- SUFCO INTERIOR LEASE BOUNDARY
- STREAM
- ESCARPEMENT
- OUTCROP

MINING LEGEND

- 1ST QUARTER 2015 (NO PLANNED MINING)
- 2ND QUARTER 2015 (NO PLANNED MINING)
- 3RD QUARTER 2015 (NO PLANNED MINING)
- 4TH QUARTER 2015 (NO PLANNED MINING)
- 2016 (NO PLANNED MINING)
- 2017 (NO PLANNED MINING)
- 2018
- 2019

NOTE:
GREENS HOLLOW PROJECTIONS ARE SUBJECT TO FUTURE PERMITTING OF THE GREENS HOLLOW TRACT.

REGISTERED PROFESSIONAL ENGINEER #334504-2202 JOHN D. BYARS STATE OF UTAH

I CERTIFY THE ITEMS SHOWN ON THIS DRAWING ARE ACCURATE TO THE BEST OF MY KNOWLEDGE

1000 0 1000

REVISIONS				
NO.	DATE	REQ. BY	DWG. BY	REMARKS
1	05/08/2007	M.L.D.	B.D.H.	
2	08/13/2009	M.L.D.	B.D.H.	
3	03/02/2015	V.M.	T.R.B.	ADDED 70 ACRE R.O.W. AREA FOR 5 WEST

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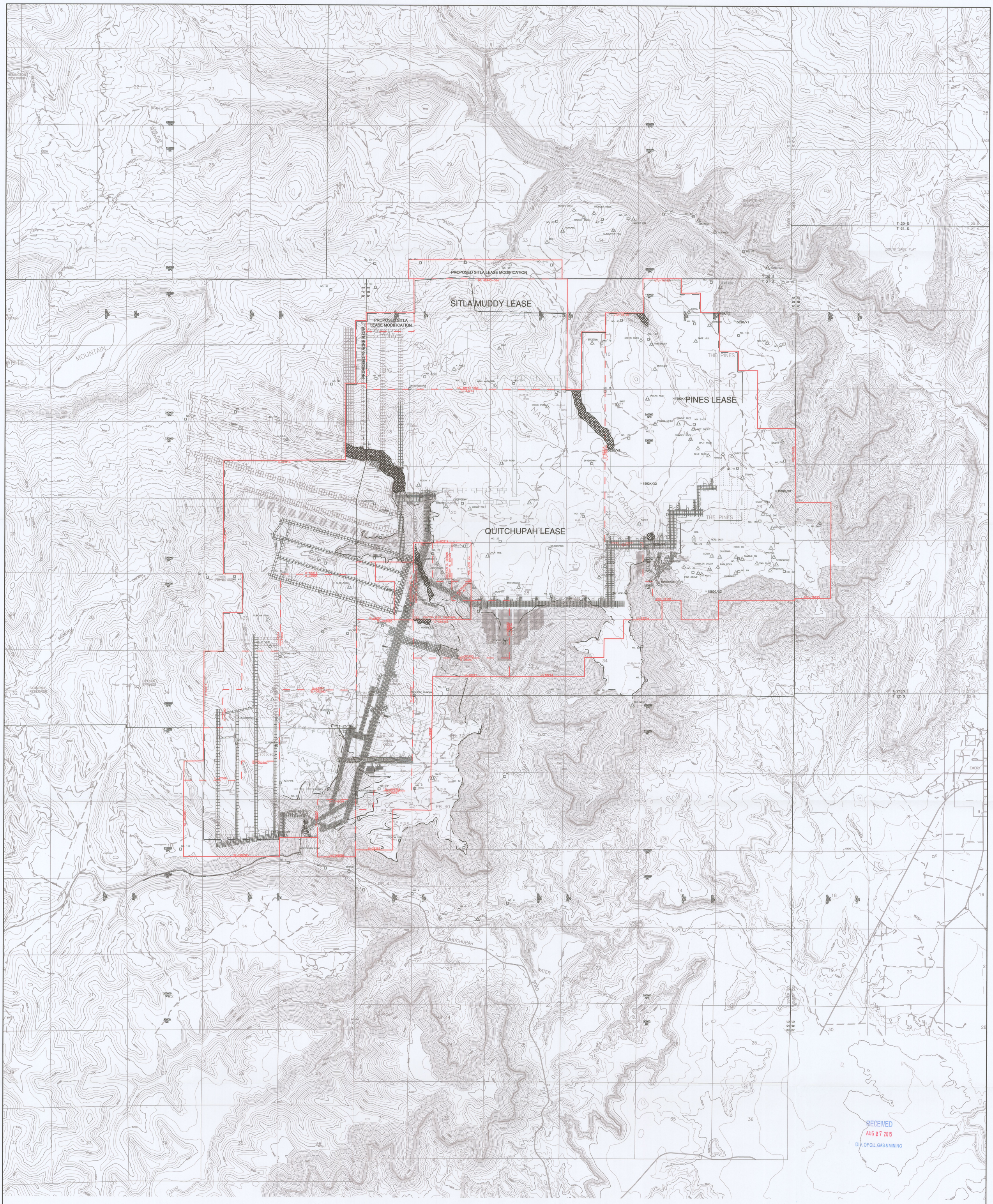
LOWER HIAWATHA MINE PLAN 5 YEAR PROJECTION

PEN TBL:	SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
_1Shdd-SUFDP1.ctb	1" = 1,000'	3/11/2015	BDH/TRB	JDB	VM	PLATE 5-8 v3
SHT SET: ####	PROJECT NUMBER: ####	FILE NAME: H:\DRAWINGS\MRP\PLATES\PLATE 5-8v3.dwg				



EXPLANATION

- SUFCO EXTERIOR LEASE BOUNDARY
- SUFCO INTERIOR LEASE BOUNDARY
- 100000 MC — MINE COORDINATES
- 2020000 SPC — STATE PLANE COORDINATES
- CONTROL POINT
- AERIAL TARGET
- LIMIT OF POTENTIAL SUBSIDENCE
- UNDERGROUND PERENNIAL STREAM AND PROTECTED CULTURAL SITE BUFFER CORRIDOR

REGISTERED PROFESSIONAL ENGINEER #334504-2202 JOHN D. BYARS STATE OF UTAH

I CERTIFY THE ITEMS SHOWN ON THIS DRAWING ARE ACCURATE TO THE BEST OF MY KNOWLEDGE

1000 0 1000

REVISIONS

NO.	DATE	REQ. BY	DWG. BY	REMARKS
7	1/20/2005	M.L.D.	B.D.H.	
8	8/13/2009	M.L.D.	K.B.B.	
9	6/11/2010	M.L.D.	K.B.B.	
10	11/2/11	M.L.D.	K.B.B.	
11	5/30/2013	V.M.	T.R.B.	
12	3/2/2015	V.M.	T.R.B.	ADDED 70 ACRE R.O.W. AREA FOR 5 WEST
13	03/02/2015	V.M.	J.K.M.	REDUCED SCALE AND COMBINED SHEETS
14	8/19/2015	V.M.	J.K.M.	REVISED SUBSIDENCE LIMITS

PEN TBL: _1Sindrd-SUFDNP.ctb
SHT SET: ####
PROJECT NUMBER: ####

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POTENTIAL SUBSIDENCE LIMITS QUITCHUPAH TRACT

SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
1" = 2,000'	8/19/2015	JMB/TRB	J.D.B.	V.M.	PLATE 5-10A v13

FILE NAME: H:\DRAWINGS\MRP\PLATES\PLATE 5-10v12.dwg

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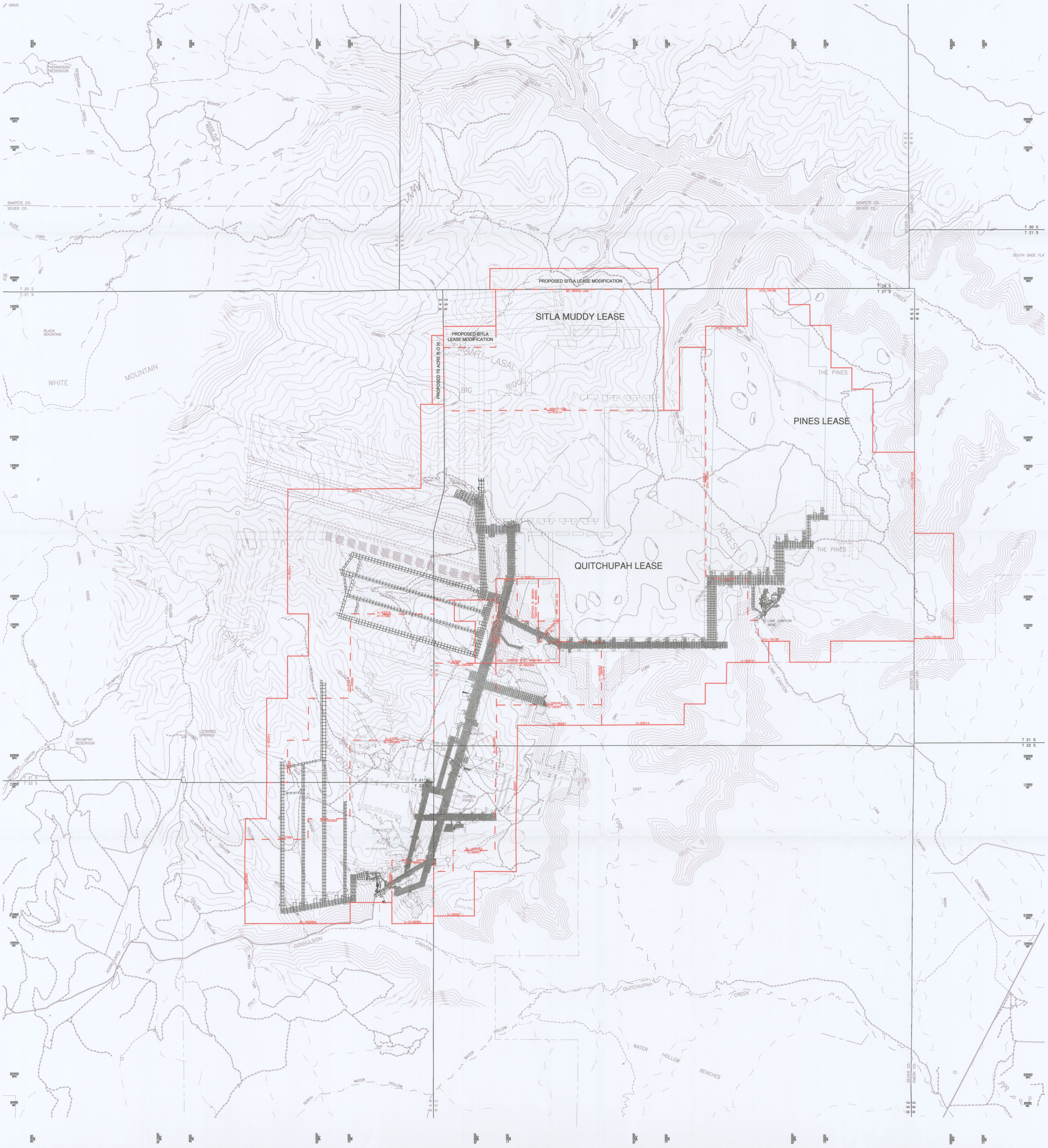

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EXPLANATION

- SUFCO EXTERIOR LEASE BOUNDARY
- SUFCO INTERIOR LEASE BOUNDARY
- MINE COORDINATES
- STATE PLANE COORDINATES

REGISTERED PROFESSIONAL ENGINEER #334504-2202 JOHN D. BYARS STATE OF UTAH

I CERTIFY THE ITEMS SHOWN ON THIS DRAWING ARE ACCURATE TO THE BEST OF MY KNOWLEDGE

2000 0 2000

REVISIONS

NO.	DATE	REQ. BY	DWG. BY	REMARKS
1	01/20/2005	M.L.D.	B.D.H.	
2	05/08/2007	M.L.D.	B.D.H.	
3	06/11/2010	M.L.D.	K.B.B.	
4	03/02/2015	V.M.	T.R.B.	ADDED 70 ACRE R.O.W. AREA FOR 5 WEST

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

OVERBURDEN ISOPACH MAP

PEN TBL:	SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
_15Mdrd-SUFDP1.ctb	1" = 2,000'	3/11/2015	BDH/TRB	JDB	VM	PLATE 5-11 v4
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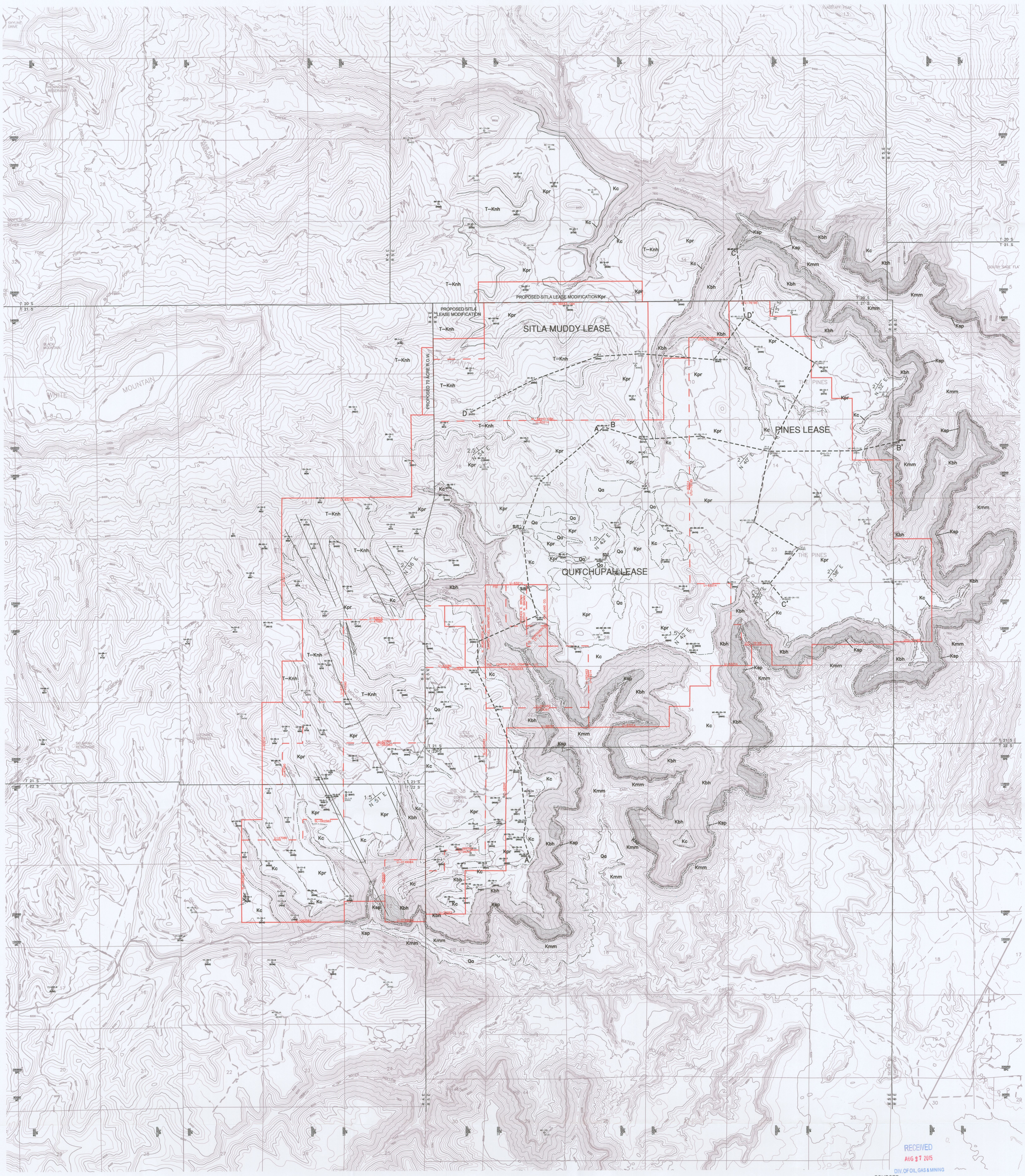


NOTE:
1. CONTACTS HAVE NOT BEEN FIELD CHECKED.
2. FAULTS PROJECTED TO SURFACE FROM MINE

SOURCES:

1. QUITCHUPAH LEASE ADDITION, VOLUME 10, MAPS 5.2, 5.3, 6.1, 1989 HYDROMETRICS INC. SOUTHERN UTAH FUEL COMPANY'S HYDROLOGICAL RESPONSE TO OSM'S APPARENT COMPLETENESS REVIEW
2. MANTI–LA SAL NATIONAL FOREST–PINES TRACT PROJECT FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS) FIGURE 3–1 GEOLOGY MAP JANUARY 1999 USDA FOREST SERVICE, REGION FOUR MANTI–LA SAL NATIONAL FOREST EMERY AND SEVIER COUNTIES, UTAH
3. COAL TRACT EVALUATIONS ON THE MANTI–LASAL NATIONAL FOREST MUDDY CREEK AND NORTH HORN SURFACE AND GROUND WATER TECHNICAL REPORTS FIGURE 2 GEOLOGY MAP WITH SPRING LOCATIONS. MUDDY COAL TRACT EIS, EMERY CO. UTAH OCTOBER 2004

EXPLANATION

- UPPER HIAWATHA COAL SEAM OUTCROP
- EXTERIOR LEASE BOUNDARY
- INTERIOR LEASE BOUNDARY
- MINE BASE COORDINATES
- STATE PLANE COORDINATES
- US-79-2 (8497) — DRILLHOLE LOCATION AND NUMBER, DRILLHOLE SURFACE ELEVATION
- FORMATION OR MEMBER CONTACT
- FAULTS WITH GREATER THAN 2' DISPLACEMENT MAPPED IN MINE
- A'——A — CROSS-SECTION (SEE PLATE 6–2, 6–3, 6–4 AND 6–5)
- PROPOSED NEWLY BUILT ACCESS ROUTES
- PROPOSED ACCESS ROUTES USING EXISTING WHEEL TRACKS OR EXISTING SURFACE

GEOLOGIC KEY

AGE	SYMBOL	NAME
QUATERNARY	Qa	ALLUVIUM, HILL WASH, SLUMPS UNDIFFERENTIATED
TERT–CRET	T–Knh	NORTH HORN FORMATION
CRETACEOUS	Kpr	PRICE RIVER FORMATION
"	Kc	CASTLEGATE SANDSTONE FORMATION
"	Kbh	BLACKHAWK FORMATION–UPPER MEMBER
"	Ksp	BLACKHAWK FORMATION–STARPOINT SANDSTONE MEMBER
"	Kmm	MANCOS SHALE–MASUK MEMBER

1.5 / N 42 E — CALCULATED STRIKE AND DIP TOP UPPER HIAWATHA COAL SEAM

COAL BURN

REGISTERED PROFESSIONAL GEOLOGIST #5280976-2230 MARK DONALD BUNNELL STATE OF UTAH

REGISTERED PROFESSIONAL ENGINEER #334504-2202 JOHN D. BYARS STATE OF UTAH

I CERTIFY THE ITEMS SHOWN ON THIS DRAWING ARE ACCURATE TO THE BEST OF MY KNOWLEDGE

2000 0 2000

REVISIONS

NO.	DATE	REQ. BY	DWG. BY	REMARKS
1	03/16/1998	C.M.K.	B.D.H.	
2	11/24/1998	W.K.S.	B.D.H.	
3	02/19/1999	M.L.D.	B.D.H.	
4	12/10/2001	M.L.D.	B.D.H.	
5	01/20/2005	M.L.D.	B.D.H.	
6	05/08/2007	M.L.D.	K.B.B.	
7	06/11/2010	M.L.D.	K.B.B.	
8	03/02/2015	V.M.	T.R.B.	ADDED 70 ACRE R.O.W. AREA FOR 5 WEST

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

GEOLOGY & DRILL HOLE LOCATION MAP

PEN TBL:	SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
_15subd-SUFDP1.ctb	1" = 2,000'	4/15/2015	KJW/TRB	JDB	VM	PLATE 6–1 v8
SHT SET: ####	PROJECT NUMBER: ####	FILE NAME: H:\DRAWINGS\MRP\PLATES\PLATE 6–1v8.dwg				

CHAPTER 7

HYDROLOGY

Text highlighted in light blue indicates information existing in the permit prior to this amendment.

LIST OF PLATES

Plate

7-1 (Revisions have eliminated this plate)

7-2A Surface and Groundwater Rights - Quitchupah Tract

7-2B Surface and Groundwater Rights - Pines Tract & SITLA Muddy Tract

7-3 Hydrologic Monitoring Stations

7-4 Sedimentation Pond Topography

7-4A Overflow Pond Topography

7-5 Sedimentation Pond Cross Sections

7-5A Overflow Pond Cross Sections and Details

7-5B Overflow Pond Details

7-5B Overflow Pond Details

7-6 East Spring Canyon Drainage Details

7-7 (Revisions have eliminated this plate)

7-8 Watersheds Draining to The East Spring Canyon Surface Facilities

7-9 Link Canyon Watershed

LIST OF APPENDICES (Continued)

(Appendices appear in Volumes 7, 8 and 9)

7-14 Sedimentation Pond Calculations

7-15 Alternative Sediment Control Measures Calculations and Designs

7-16 Small Area Exemption Demonstration Calculations

7-17 Investigation of Surface and Groundwater Systems in the Vicinity of the SUFCO Mine, Sevier County, Utah: Probable Hydrologic Consequences of Coal Mining at the SUFCO Mine and Recommendations for Surface and Groundwater Monitoring

7-18 Investigation of Surface and Groundwater Systems in the Pines Tract Area, Sevier County, Utah: Probable Hydrologic Consequences of Coal Mining in the Pines Tract and Recommendations for Surface and Groundwater Monitoring

7-19 Probable Hydrologic Consequences of Longwall Mining of the 3 Left Panel Modification Area at the SUFCO Mine

7-20 Investigation of Surface and Groundwater Systems in the SITLA Muddy Tract Area, Sevier County, Utah: Probable Hydrologic Consequences of Coal Mining in the SITLA Muddy Tract and Recommendations for Surface and Groundwater Monitoring

7-21 Muddy Tract Hydrologic Baseline Data (Includes SITLA Tract baseline data)

7-22 Investigation Plan for Springs Pines 105, Joes Mill Pond, Pines 310, and 311

7-23 Overflow Pond Calculations

Major surface drainages in the permit and adjacent areas are depicted in Figure 7-4. As indicated, the lease area exists entirely within the Muddy Creek watershed. Most of the lease area drains southward into Quitchupah Creek via the North Fork of Quitchupah Creek and various ephemeral tributaries. Quitchupah Creek flows southeastward into Ivie Creek which in turn flows eastward into Muddy Creek. The northeast portion of the lease area, including the majority of the Pines Tract, drains into Muddy Creek via Box Canyon.

Based on flow data obtained during the collection of water-quality samples, the following streams are considered perennial within the lease area:

- North Fork of Quitchupah Creek (as measured at stations SUFCO-007 and SUFCO-042)
- South Fork of the North Fork of Quitchupah Creek (as measured at station SUFCO-006)
- Quitchupah Creek (as measured at stations SUFCO-041 and SUFCO-046)
- Box Canyon, including East Fork Box Canyon (as measured at stations SUFCO-090, Pines 403, Pines 407 and Pines 408)
- Muddy Creek (as measured at stations Pines 405 and Pines 406)
- Cowboy Creek (as measured at station M-STR4)

According to Thiros and Cordy (1991), Link Canyon contains an ephemeral stream. Two small areas of riparian vegetation are supported in the canyon by discharge from springs near the head of the canyon (Link Canyon Spring GW-21, Plate 7-3) and the abandoned Link Canyon Mine workings (Link Portal West and Link Portal East, Plate 7-3). Water from Spring GW-21 near the head of Link Canyon typically flows only about 300 to 750 feet below the source, depending upon the season. Water discharged from the Link Canyon portals typically flows on the surface for 500

- Contamination of surface water from coal spillage due to hauling operations.

These potential impacts are addressed in the following sections of this M&RP.

7.2.8.2 Baseline Hydrologic and Geologic Information

Baseline geologic information is presented in Chapter 6 of this M&RP. Baseline hydrologic information is presented in Sections 7.2.4.1 and 7.2.4.2 of this M&RP. The baseline monitoring sources are believed to be representative of existing ground water and surface water. An additional inventory is not planned unless circumstances dictate a need for change.

7.2.8.3 PHC Determination

Potential Impacts to the Hydrologic Balance. Potential impacts to the hydrologic balance are addressed in the following subsections of this M&RP and in Appendices 7-17, 7-18, 7-19, 7- 20 and 7-24. Appendices 7-18, 7-20 and 7-24 contain PHC determinations for mining activities in the Pines Tract, SITLA Muddy Tracts and West Coal Lease Modifications, respectively.

Acid- or Toxic- Forming Materials. Information on acid-and toxic-forming materials is presented in Chapter 6. These data reveal boron, sodium absorption ratio, and specific conductance exceedances of the Table 2 guidelines for management of topsoil and overburden (Leatherwood and Duce, 1988) in waste rock from the SUFCO mine. As noted in Section 7.2.4.2 of this M&RP, the alkalinity of the mine discharge water typically exceeds the acidity of this water by a factor of 20. Additionally, mine discharge water typically meets the standards for water quality for the state of Utah (Utah Water Quality Board, 1987). Thus, analytical data obtained from mine-water discharges indicate that although potential exists in localized portions of the mine for acid- or toxic-forming materials to be present, there has been no known impact to the surface or groundwater in the permit and adjacent areas.

Sediment Yield. The potential impact of mining and reclamation on sediment yield is an increase in sediment in the surface waters downstream from disturbed areas. Sediment-control measures

TABLE 7-2

Water Monitoring Program

Monitoring Wells	Protocol	Comments
US-80-2	A	Screened in Castlegate Sandstone
US-80-4	B	Screened in Castlegate Sandstone
89-20-2W	A	Screened in Castlegate Sandstone
US-79-13	B	Screened in Blackhawk Formation
US-81-3	A	Screened in Blackhawk Formation
US-81-4	A	Screened in Blackhawk Formation
01-8-1	A	Screened in Blackhawk Formation
Streams		
SUFCO 006	C,2	Upper South Fork Quitchupah Creek
SUFCO 006A	F,1	Upper South Fork Quitchupah Creek
SUFCO 006B	F,1	Upper South Fork Quitchupah Creek
SUFCO 006C	F,1	Upper South Fork Quitchupah Creek
SUFCO 006D	F,1	Upper South Fork Quitchupah Creek
SUFCO 007	C,2	Upper North Fork Quitchupah Creek
SUFCO 041	C,2	Lower Quitchupah Creek
SUFCO 042	C,2	Lower North Fork Quitchupah Creek
SUFCO 046	C,2	Upper Quitchupah Creek
SUFCO 047A	C,2	Lower East Spring Canyon Creek
SUFCO 090	C,1	Upper Box Canyon Creek
Pines 106	C,2	Upper East Fork Box Canyon
Pines 302	C,1	Muddy Creek-Last Water Creek Confluence
Pines 403	C,2	Lower Box Canyon Creek
Pines 405	C,1	Muddy Creek - Box Creek Confluence
Pines 406b*	C,1	Lower Muddy Creek
Pines 407	C,1	Box Canyon Creek
Pines 408	C,1	East Fork Box Canyon Creek

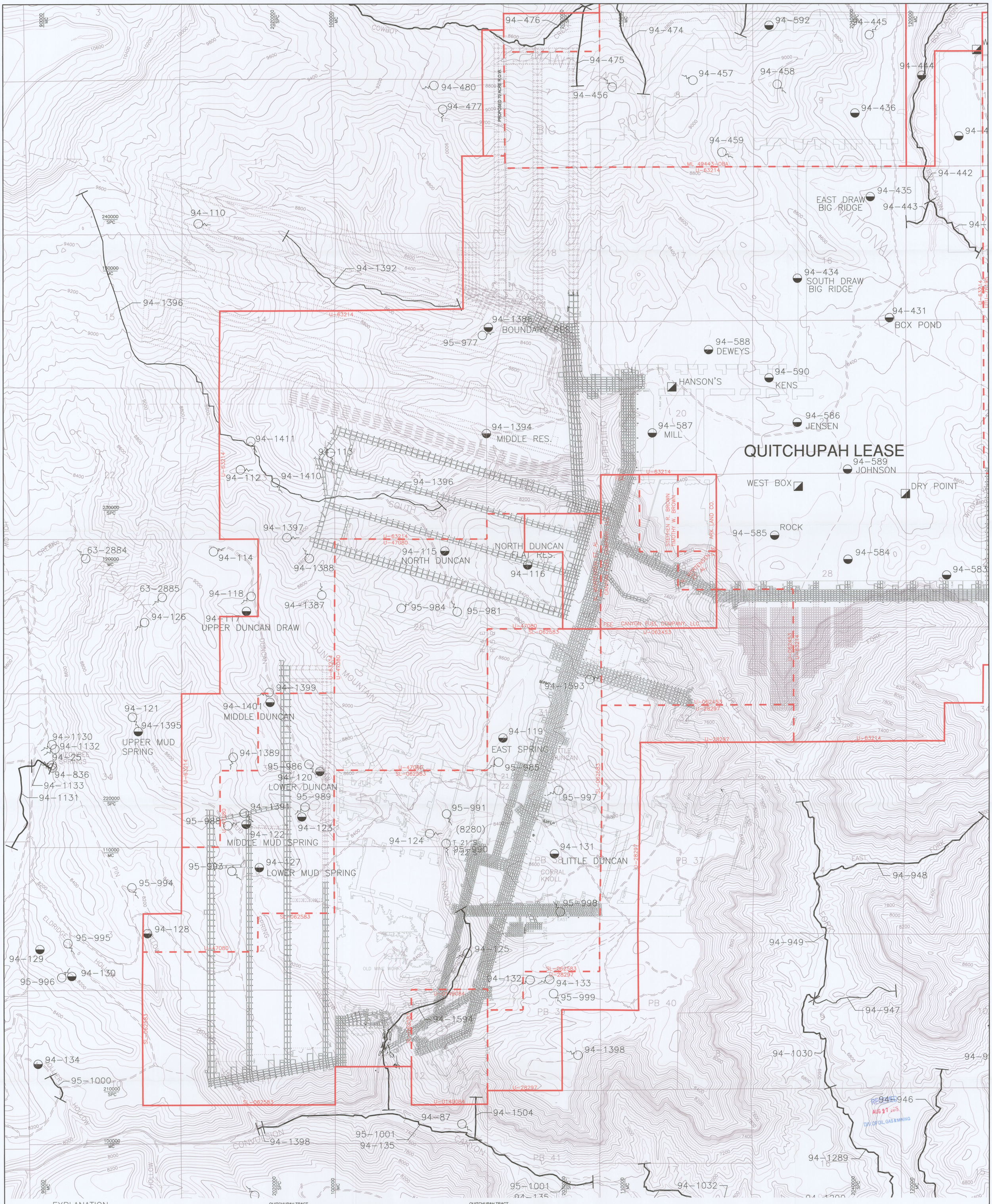
USFS-109	C,1	Upper Main Fork of Box Canyon Creek
Link 001	C,2	Link Canyon Drainage
Link 002	C,2	Link Canyon Drainage
FP-1	G,6	East Fork of Main Fork of Box Canyon
FP-2	G,6	East Fork of East Fork of Box Canyon
M-STR4	C,1	Cowboy Creek

*Monitoring point Pines 406 was moved downstream to the USGS monitoring point in 1999 and renumbered as Pines 406b. The point is located in the NW1/4NE1/4, Sec. 21, T21S. R6E.

TABLE 7-2 (Continued)

Water Monitoring Program

Springs	Protocol	Comments43
SUFCO 001	D,3	Blackhawk Formation
SUFCO 047	D,4	Star Point Sandstone
SUFCO 057A	D,3	North Horn Formation
SUFCO 089	E,3	Castlegate Sandstone
GW-8	D,5	Price River Formation
GW-9	D,5	Price River Formation
GW-13	D,3	North Horn Formation
GW-20	D,5	Castlegate Sandstone
GW-21	D,3	Castlegate Sandstone
Pines 100	D,4	Castlegate Sandstone
Pines 105	D,3	Castlegate Sandstone
Pines 206	D,5	Blackhawk Formation
Pines 209	D,5	Blackhawk Formation
Pines 212	D,5	Blackhawk Formation
Pines 214	D,5	Blackhawk Formation
Pines 218	D,3	Castlegate Sandstone
Pines 303	D,3	Blackhawk Formation
Pines 310	D,7	Castlegate Sandstone
Pines 311	D,7	Castlegate Sandstone
Link Portal-West	D,4	Link Canyon Portal
Link Portal-East	D,4	Link Canyon Portal
M-SP01	D,3	Price River Formation
M-SP02	D,3	Price River Formation
M-SP08	D,3	North Horn Formation
M-SP18	D,3	Price River Formation
M-SP39	D,3	Price River Formation



EXPLANATION

- SUFCO EXTERIOR LEASE BOUNDARY
- SUFCO INTERIOR LEASE BOUNDARY
- MINE COORDINATES
- STATE PLANE COORDINATES
- WATER RIGHT SPRING
- RUNOFF CATCHMENT POND W/ WATER RIGHT
- RUNOFF CATCHMENT POND W/O WATER RIGHT
- SURFACE WATER RIGHT

NOTES:

1. SEE APPENDIX 7-1 FOR DETAILED LISTING OF WATER RIGHTS

QUITCHUPAH TRACT

CATCHMENT PONDS WITH WATER RIGHTS NUMBER	NAME	CURRENT COMMON NAME USED BY USFS, CATTLEMEN AND OTHERS	OTHER HISTORICAL NAMES USED FOR CATCHMENT PONDS
94-115	NORTH DUNCAN RES.		
94-116	NORTH DUNCAN FLAT RES.		
94-117	UPPER DUNCAN DRAW RES.		
94-119	EAST SPRING RES.		
94-120	LOWER DUNCAN RES.		
94-122	MIDDLE MUD SPRING RES.		
94-123	SHORT HOLLOW RES.		
94-127	LOWER MUD SPRING RES.		
94-128	PIN HOLLOW RES.		
94-129	ELDRIDGE HOLLOW RES. #1		
94-130	ELDRIDGE HOLLOW RES. #2		
94-131	LITTLE DUNCAN RES.		
94-134	COLLIER RES.		
94-137	JOLLY MILL POINT RES.		
94-430	UNNAMED RES.	LINK CANYON #1	
94-431	UNNAMED RES.	BOX POND	TRIANGLE, THREE CORNER
94-434	UNNAMED RES.	SOUTH DRAW BIG RIDGE	
94-435	UNNAMED RES.	EAST DRAW BIG RIDGE	
94-436	UNNAMED RES.		
94-439	UNNAMED RES.		

QUITCHUPAH TRACT

CATCHMENT PONDS WITH WATER RIGHTS NUMBER	NAME	CURRENT COMMON NAME USED BY USFS, CATTLEMEN AND OTHERS	OTHER HISTORICAL NAMES USED FOR CATCHMENT PONDS
94-444	UNNAMED RES.		
94-583	DRY POINT RES.		
94-584	SEEPS RES.	SEEPS POND	
94-585	WHITE KNOLL RES.	ROCK POND	
94-586	BOX CANYON RES.	JENSEN	
94-587	MILL RES.	MILL POND	
94-588	DWEYS RES.	DEWYS POND	
94-589	SAGE CREEK RES.	JOHNSON POND	JENSEN, SAGE GROUSE POND
94-590	KENS RES.		
94-592	BIG RIDGE RES.		
94-730	QUITCHUMPAH RES. #1	QUITCHUPAH RES. #1	
94-1386	BOUNDARY RES.		
94-1394	MIDDLE RES.		
94-1395	UPPER MUD SPRINGS RES.		
94-1401	MIDDLE DUNCAN RES.		
94-1580	JOLLY MILL GUZZLER RES.		
OTHER CATCHMENT PONDS WITHOUT WATER RIGHTS			
		WEST BOX	
		DRY POINT	
		HANSON'S POND	JOHNSON, HANS

REGISTERED PROFESSIONAL ENGINEER #334504-2202 JOHN D. BYARS STATE OF UTAH

I CERTIFY THE ITEMS SHOWN ON THIS DRAWING ARE ACCURATE TO THE BEST OF MY KNOWLEDGE

1000 0 1000

REVISIONS

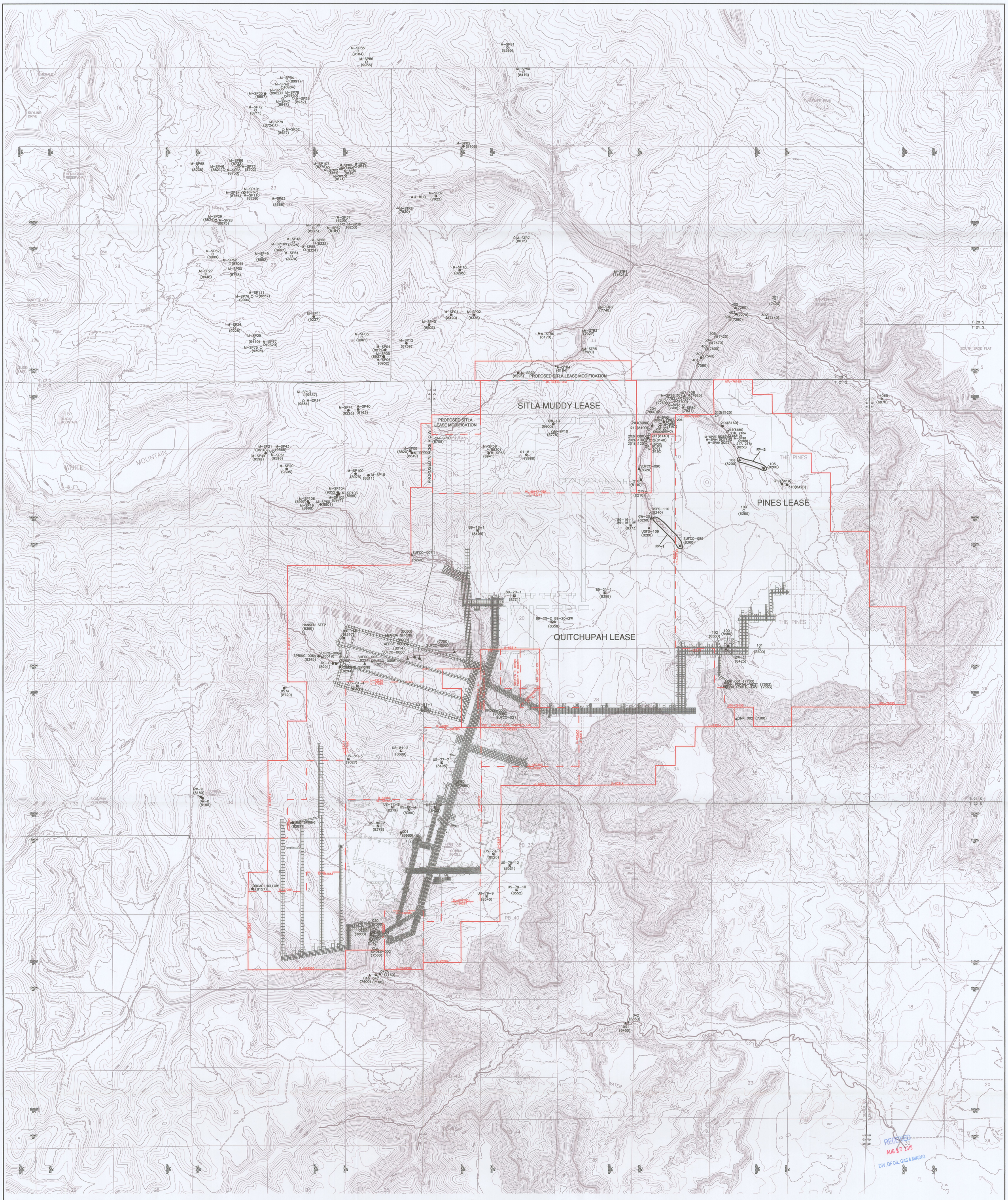
NO.	DATE	REQ. BY	DWG. BY	REMARKS
2	2/10/1999	M.L.D.	B.D.H.	
3	03/01/2000	M.L.D.	B.D.H.	
4	01/20/2005	M.L.D.	B.D.H.	
5	6/11/2010	M.L.D.	K.B.B.	
6	7/26/2012	M.L.D.	K.B.B.	
7	5/30/13	V.M.	T.R.B.	
8	03/02/2015	V.M.	T.R.B.	ADDED 70 ACRE R.O.W. AREA FOR 5 WEST

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

SURFACE AND GROUNDWATER RIGHTS–QUITCHUPAH TRACT

PEN TBL:	SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
_StndrdSUFDWP1.ctb	1" = 1,000'	3/11/2015	JMB/TRB	J.D.B.	V.M.	PLATE 7-2A v8
SHT. SET: ####	PROJECT NUMBER: ####	FILE NAME: H:\DRAWINGS\MRP\PLATES\PLATE 7-2v8.dwg				

RECEIVED AUG 27 2015 DIV. OF OIL, GAS & MINING



NOTES:

1. HISTORIC STREAM, SPRING AND WELL MONITORING SITES ARE OLD BASELINE MONITORING SITES OR SITES THAT HAVE BEEN DISCONTINUED OR MINED THROUGH THAT ARE NOT CURRENTLY BEING MONITORED.

EXPLANATION

	SUFCO MINE EXTERIOR LEASE BOUNDARY	△	HISTORIC STREAM	⬡	UPDES MONITORING POINT
	SUFCO MINE INTERIOR LEASE BOUNDARY	▲	STREAM MONITORING	(U)	IN MINE MONITORING SITE
100000 MC	MINE COORDINATES	◪	HISTORIC MONITORING WELL	(7600)	ELEVATION OF SITE
2020000 SPC	STATE PLANE COORDINATES	◔	MONITORING WELL SITE		PERENNIAL FLOW LOCATION MONITORING POINT
		○	HISTORIC SPRING MONITORING SITE		PERENNIAL FLOWS
		●	SPRING MONITORING		SPRING NOT MONITORED

REGISTERED PROFESSIONAL ENGINEER #334504-2202 JOHN D. BYARS STATE OF UTAH

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2000 0 2000

REVISIONS

NO.	DATE	REQ. BY	DWG. BY	REMARKS
13	10/26/2006	M.L.D.	B.D.H.	
14	05/08/2007	M.L.D.	K.B.B.	
15	08/13/2009	M.L.D.	K.B.B.	
16	6/11/2010	M.L.D.	K.B.B.	
17	01/02/2013	M.L.D.	KBB/TRB	
18	05/30/2013	V.M.	T.R.B.	
19	03/02/2015	V.M.	T.R.B.	ADDED 70 ACRE R.O.W. AREA FOR 5 WEST

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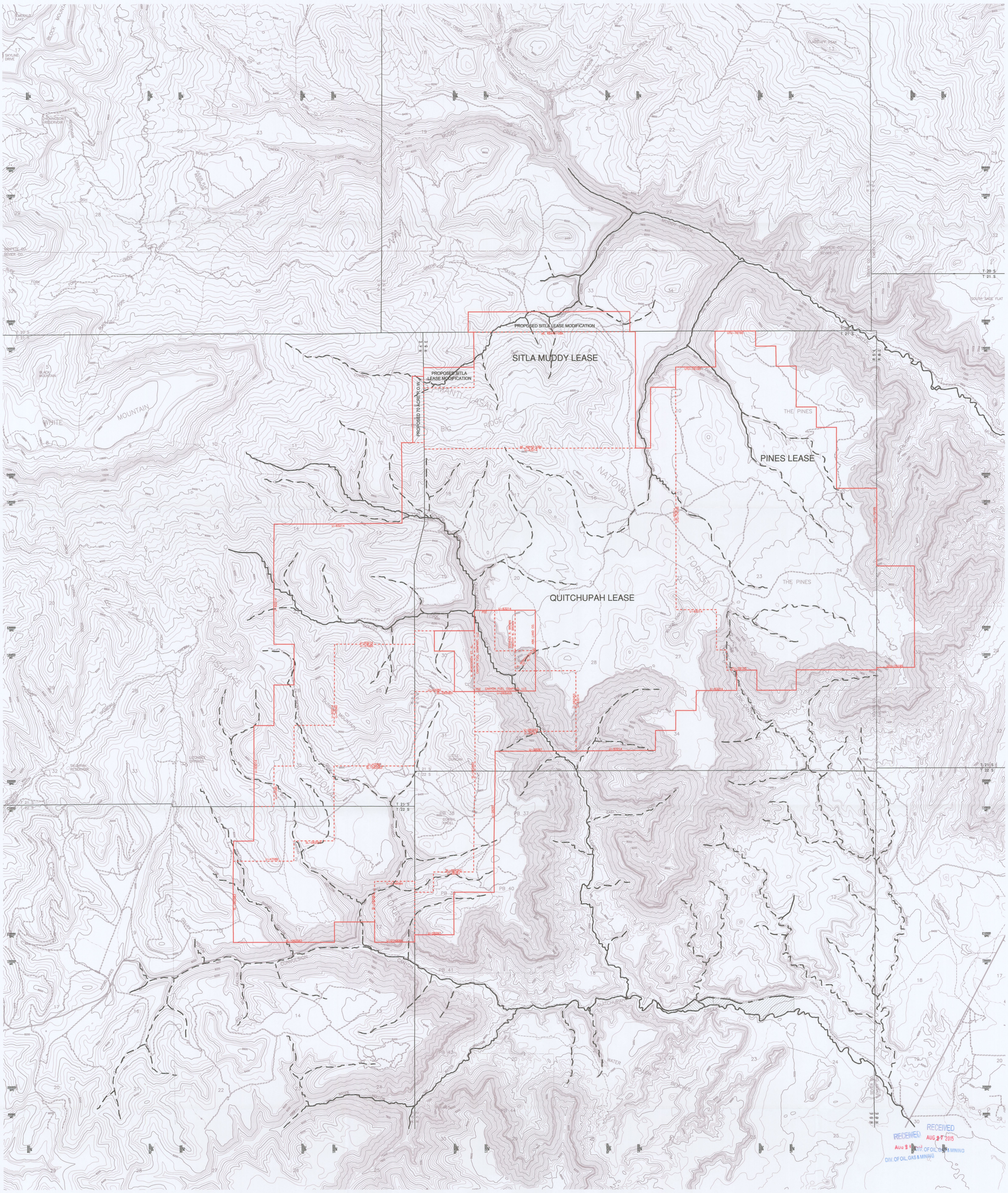
HYDROLOGIC MONITORING STATIONS

PEN TBL:	SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
19mkt-SUFENPl.ctb	1" = 1,000'	5/4/2015	JMB/TRB	J.D.B.	V.M.	PLATE 7-3 v19
SHT SET: ####	PROJECT NUMBER: ####	FILE NAME: H:\DRAWINGS\MRP\PLATES\PLATE 7-3v19.dwg				



EXPLANATION

- SUFCO EXTERIOR LEASE BOUNDARY
- SUFCO INTERIOR LEASE BOUNDARY
- MINE COORDINATES
- STATE PLANE COORDINATES
- EPHEMERAL OR INTERMITTANT FLOWS
- PERENNIAL FLOWS
- IRRIGATION DITCH
- POTENTIALLY FLOOD IRRIGATED
- FLOOD IRRIGATED

SOURCES:

1. QUITCHUPAH TRACT
   HYDROMETRICS, INC.
   SOUTHERN UTAH FUEL COMPANY'S
   HYDROLOGICAL RESPONSE TO OSM'S APPARENT
   COMPLETENESS REVIEW, NOV. 1, 1980
2. PINES TRACT
   MANTI–LA SAL NATIONAL FOREST–PINES TRACT PROJECT
   FINAL ENVIRONMENTAL IMPACT STATEMENT (FEIS)
   FIGURE 3–11 SPRINGS, SEEPS, AND RIPARIAN AREAS
   JANUARY 1999
   USDA FOREST SERVICE, REGION FOUR
   MANTI–LA SAL NATIONAL FOREST
   EMERY AND SEVIER COUNTIES, UTAH

REGISTERED PROFESSIONAL ENGINEER #334504-2202 JOHN D. BYARS STATE OF UTAH

I CERTIFY THE ITEMS SHOWN ON THIS DRAWING ARE ACCURATE TO THE BEST OF MY KNOWLEDGE

2000 0 2000

REVISIONS				
NO.	DATE	REQ. BY	DWG. BY	REMARKS
1	2/18/1999	M.L.D.	A.D.D.	
2	03/01/2000	W.K.S.	A.D.D.	
3	5/8/2007	M.L.D.	A.D.D.	
4	03/02/2015	V.M.	T.R.B.	ADDED 70 ACRE R.O.W. AREA FOR 5 WEST

Canyon Fuel Company, LLC
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ALLUVIAL VALLEY FLOOR CHARACTERISTICS DETERMINATION

PEN TBL:	SCALE:	DATE:	DRAWN BY:	ENGINEER:	CHECKED BY:	SHEET NO.
_1Shdrd-SUFEMP1.ctb	1" = 2,000'	3/11/2015	ADD/TRB	JDB	VM	PLATE 9–1 v4
SHT SET: ####	PROJECT NUMBER: ####	FILE NAME: H:\DRAWINGS\MRP\PLATES\PLATE 9–1v4.dwg				