

August 19, 2020

C/041/002  
Received 8/20/20  
Task #6184

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: Additional Pines East Panel Amendment, Canyon Fuel Company, LLC, Sufco Mine, Permit Number C/041/0002**

Dear Supervisor,

The purpose of this amendment is to add an additional panel to the three pines east panels that were approved by the Division last year. Much of what was submitted with the original pines east panels amendment applies to this additional panel. Highlighted pages from the original pines east panel are included with this amendment for your reference. Please also see Appendices 3-4, 4-2, 7-1, 7-4, 7-18 for additional information submitted for the pines east panels that applies to this additional panel.

Specific to this additional panel are a 2020 raptor survey and a 2020 archeological survey, which are included in this amendment.

Thank you for your time in reviewing this amendment. If you have questions or need additional information, please contact Bryant Bunnell at (435) 286-4490.

Regards,



Bryant Bunnell  
Environmental Engineer

Canyon Fuel Company, LLC  
SUFCO Mine  
P: (435) 286 – 4490  
E: [bbunnell@wolverinefuels.com](mailto:bbunnell@wolverinefuels.com)

Encl.

cc: DOGM Correspondence File

## APPLICATION FOR COAL PERMIT PROCESSING

Permit Change  New Permit  Renewal  Exploration  Bond Release  Transfer

**Permittee:** Canyon Fuel Company, LLC

**Mine:** Sufco Mine

**Permit Number:** C/041/0002

**Title:** New Pines Panel Amendment

**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: \_\_\_\_\_ Disturbed Area: \_\_\_\_\_  increase  decrease.
- Yes  No 2. Is the application submitted as a result of a Division Order? DO# \_\_\_\_\_
- Yes  No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
- Yes  No 4. Does the application include operations in hydrologic basins other than as currently approved?
- Yes  No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
- Yes  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  No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
- Yes  No 9. Is the application submitted as a result of a Violation? NOV # \_\_\_\_\_
- Yes  No 10. Is the application submitted as a result of other laws or regulations or policies?

*Explain:* \_\_\_\_\_

- Yes  No 11. Does the application affect the surface landowner or change the post mining land use?
- Yes  No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
- Yes  No 13. Does the application require or include collection and reporting of any baseline information?
- Yes  No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
- Yes  No 15. Does the application require or include soil removal, storage or placement?
- Yes  No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
- Yes  No 17. Does the application require or include construction, modification, or removal of surface facilities?
- Yes  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  No 20. Does the application require or include subsidence control or monitoring?
- Yes  No 21. Have reclamation costs for bonding been provided?
- Yes  No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
- Yes  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.

JAKE SMITH  
Print Name

[Signature] Eng. Manager 3/23/20  
Sign Name, Position, Date

Subscribed and sworn to before me this 23<sup>rd</sup> day of March 2020

Jill White  
Notary Public  
My commission Expires: 3/28, 2020  
Attest: State of Utah } ss:  
County of Salt Lake



**JILL WHITE**  
Notary Public  
State of Utah  
My Commission Expires 03/28/2020  
COMMISSION NUMBER 687959

**For Office Use Only:**

Assigned Tracking Number:

Received by Oil, Gas & Mining



## Chapter 2 Text

#### Overflow Pond Soils

A general description of the soils located in the Overflow Pond area will be provided in Appendix 2-2.

#### Link Canyon Soils

A description of the soils located in the Link Canyon Substation Nos. 1 and 2 disturbed areas is provided in Appendix 2-6.

#### Link Canyon Mine Portals

A description of the soils located in the Link Canyon Mine Portals area is provided in Appendix 2-9. The description of the soils was prepared by Dan Larsen, a soils scientist with EIS Environmental and Engineering Consultants.

#### Pines Tract

The general description of the soils within the Pines Tract is provided in Appendix 2-8. No surface disturbance associated with the mining of the Pines East Panel(s) is planned on the Pines Tract Lease.

#### SITLA Muddy Tract and Greens Hollow Tract

The general description of the soils within the SITLA Muddy Tract and Greens Hollow Tract is provided in Appendix 2-10.

#### 3 Right 4 East - Quitchupah Tract

A general description of the soils associated with the Quitchupah Tract is provided in the Supplemental Environmental Assessment prepared by UDOGM October 27, 1989, included in Appendix 2-7. No surface disturbance as in the construction of facilities, etc. is associated with the mining of the 3 Right 4 East panel(s).

## Chapter 3 Text

#### **4 Right 4 East Panel - Elk & Mule Deer**

The 4R4E panel is located in the southern portion of the Quitcupah Lease (See Plated 5-6 and 5-7 of the M&RP). The panel is located just outside of within what is considered crucial or critical winter range for deer and elk. The escarpment in the southeastern portion of the tract which lies between Quitcupah Canyon and Link Canyon is known as an elk migration route, providing access to and from the winter range from the plateau top (See Plates 3-2 and 3-3 of the M&RP). The permittee is obligated to monitor and mitigate subsidence that poses a risk to livestock and wildlife as soon as feasibly possible. This will be done according to the subsidence monitoring plan (See Section 5.2.5.1) and migration commitments (See Sections 3.3.3.3 and 3.4.1.2) within the MRP. An effort will be made by the permittee to monitor subsidence between 60 and 90 days following completion of the 4R4E longwall panel or as soon as access is feasible. The permittee recognizes that this time constraint commitment only applies to the 4R4E panel.

#### **4 Right 4 East Panel - Greater Sage-Grouse**

Data provided to the public by the Utah Division of Wildlife Resources (UDR) show approximately 30,000 acres of designated sage grouse habitat north of where the 4R4E panel is located. A small portion of the panel is located in this area, but the majority of the panel lies outside of the designated habitat boundary. After consulting with UDWR, Division (DOGM) personnel determined that the proposed 4R4E panel is not likely to have an impact on sage grouse lekking, nesting, or brood rearing activity.

#### **4 Right 4 East Panel - Seed Mix Information**

Should a seed mix be required to be used on soil filled subsidence cracks the seed mix previously used for the sinkhole repair and reclamation project will be used. See Section 3.4.1.2 for information regarding the sinkhole project seed mix. Soils used to fill subsidence cracks which receive seed will not receive mulch or fertilizer. Refer to Section 5.2.5.2 (Correction of Material Damage) for additional information.

#### **Pines East Panel(s)**

Although no subsidence is anticipated, should a seed mix be required to be used on soil filled subsidence cracks associated with the Pines East panels the 3Right 4 East Panel seed mix (See Section 3.4.1.2) will be used. Soils used to fill subsidence cracks which receive seed will not receive mulch or fertilizer. Refer to Section 5.2.5.2 (Correction of Material Damage) for additional subsidence information.

The wildlife habitats above the panel(s) include critical elk winter range and high value elk and deer range (Plates 3-2, 3-3). The escarpment in the southeastern portion of the tract which

lies between Quitcupah Canyon and Link Canyon is known as an elk migration route, providing transition to and from the winter range from the plateau top. There is no potential spotted owl habitat (Pines Tract Project FEIS, 1999). During a biological survey (Appendix 3-4, Tetra Tech June 2018) of the area done for surface exploration drill no new raptor nests were identified and the Northern Goshawk territory was deemed inactive. In addition the Tetra Tech Biologist detected no threatened, endangered or sensitive species in the area, including greater sage grouse. The panels are not within a known sage grouse lek and it was not verified if sage grouse travel through area above the panels. Utah Division of Wildlife Resources designated sage grouse habitat lies west and north of the panels.

Historic Raptor Nests information for the area:

322 (Eagle) - Dilapidated in 1998, not surveyed since

326 (Eagle) - Inactive 2001, 2007

327 (Eagle) - Dilapidated 2001, no surveyed since

801 (Eagle) - No found 1998

803 (Eagle) - Inactive 2001, 2007

804 (Eagle) - Tended 2001, not surveyed since

806 (Hawk) - Not surveyed 2001 thru 2006, Inactive 2007

810 (Eagle) - Not Found 1999, not surveyed since

~~The area of the Pines East panels will be surveyed for raptor again in 2019 and will continue to be surveyed as described in Section 3.3.3.3.~~ During the raptor survey conducted in 2020 one nest was recorded (TT\_30NoGo) near the area of the southernmost pines east panel. This Northern Goshawk nest was verified as being gone. No other nests were found near the pines east panels. See Appendix 3-4 for more information. This area will continue to be surveyed as described in Section 3.3.3.3. Pines Tract Project FEIS (1999) contains figures of Vegetation Types Figure 3-10 and Riparian Areas Figure 3-11.

### **South Fork Lease Modification**

Wildlife habitat within this area includes critical elk calving area and high priority deer and elk summer range (Plates 3-2, 3-3). There is no designated sage grouse habitat. A biological assessment and biological evaluation for the South Fork Lease Modifications (SFLM) were completed in 2018 (See Appendix 3-17). It was determined that no significant impact to threatened, endangered or sensitive species of both vegetation and wildlife is anticipated. The SFLM area will be surveyed for raptors in 2019 and will continue to be surveyed as described in Section 3.3.3.3.

Plant communities and vegetation types in the SFLM area can be found on Plate 3-1. If a seed mix is required to be used on soil filled subsidence cracks associated with mining that occurs within the area the seed mix previously used for the sinkhole repair and reclamation project will be used. See Section 34.4.4.2 for information regarding the sinkhole project seed mix. Soils used to fill subsidence cracks which receive seed will not receive mulch or fertilizer. Refer to Section 5.2.2.2 ( Correction of Material Damage) for additional subsidence information.

### **Elk**

The elk herd (#14) is a significant wildlife resource to the citizens of Utah and there is considerable hunting pressure. Winter and summer range is in generally good conditions, but drought is an immediate concern (Big Game Annual Report, 1991).

## Chapter 4 Text

The monitoring, treatment plans and mitigation of the cultural resource sites will be in accordance with the Memorandum of Agreement (MOA) 00-MU-11041000-017, and any amendment to it, between the USFS - Manti-La Sal, USHPO, the Advisory Council on Historic Places, UDOGM, and the SUFCA Mine located in Appendix 4-5.

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.

**Pines East Panels** - The area has been previously subject to many cultural resource inventories. Sites recorded within the search area are documented in inventories of the Pines Area located in Confidential-Appendix 4-2 (AERC, Pines Locality, 11/2/1997). SHPO clearance for the Pines East Panels is being sought in 2018/2019 following a review by the USFS and DOGM, see Appendix 4-2 for documentation of the clearance. Site 42SV2426 is the only prehistoric site in the immediate area of the panels and is considered insignificant. Site 42SV2426 consists of a lithic scatter of debitage (flakes, scraper, a projectile point fragment) on the rim of the Wasatch Plateau. As expected the artifacts scatter as encountered was isolated, sparse and of low complexity. In 2018 portions of Sections 13, 24 and 25 of T21S, R5E (Figure 2) were inventoried in association with an exploration drilling project, no artifacts or cultural resources were encountered. The inventory report has been incorporated into Appendix 4-2 (Tetra Tech July 2018).

**Additional Pines East Panel** – An additional cultural resource survey was conducted for the additional (southernmost) panel of the pines east panel group. This survey encountered three IOs. The IOs were evaluated for inclusion on the NRHP and determined to be not eligible for inclusion. The report states that no further work or management is needed for these cultural resources. SHPO concurrence for this survey is being sought following a review by the USFS and the UDOGM. See Appendix 4-2 to review this report and the documentation of concurrence

### **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

## Chapter 5 Text

Upper Hiawatha coal seam. Overburden ranges approximately from 300-900 feet. The projected subsidence across the 4R4E panel ranges from 1 -5 feet and the projected average subsidence is approximately 2 feet. See the 4R4E Projected Subsidence Map in Appendix 6-4. No surface disturbance, new surface facilities or infrastructure will be associated with the mining of the 4R4E panel therefore no bonding will be needed.

#### **Pines East Panel(s)**

Mining of these panels will occur in Lease UTU-76195 which is referred to as the Pines Tract throughout the M&RP in text, appendices and on drawings. This lease was issued to the permittee in October 1999 (Appendix 1-2), portions of the lease were relinquished in 2016 (Appendix 1-1). See Plate 5-6 and Plate 5-7 for the mine plan and respective timing. Mining will occur only in the Upper Hiawatha coal seam. Overburden ranges approximately from 750-1000 feet. The projected subsidence across the panels is 5 feet or less. Subsidence control points have been previously established near the panels (Table 5-2). No surface disturbance, new surface facilities or infrastructure will be associated with the mining of the panels.

#### **South Fork Lease Modification**

The proposed lease modifications are of the existing leases U-63214 (Quitcupah Tract) and UTU-84102 (Greens Hollow Tract). These leases were issued to the permittee in 1989 and 2017 respectively. The proposed mine plan can be found on Plate 5-7. No surface disturbance or facilities are anticipated within this area. Mining will occur only in the Upper Hiawatha coal seam and the over burden associated with the SFLM ranges from approximately 1,250 feet to 2,650 feet. It is projected that less than 5 feet of subsidence will occur. No significant escarpments are found in the area.

##### **5.2.5.1 Subsidence Control Plan**

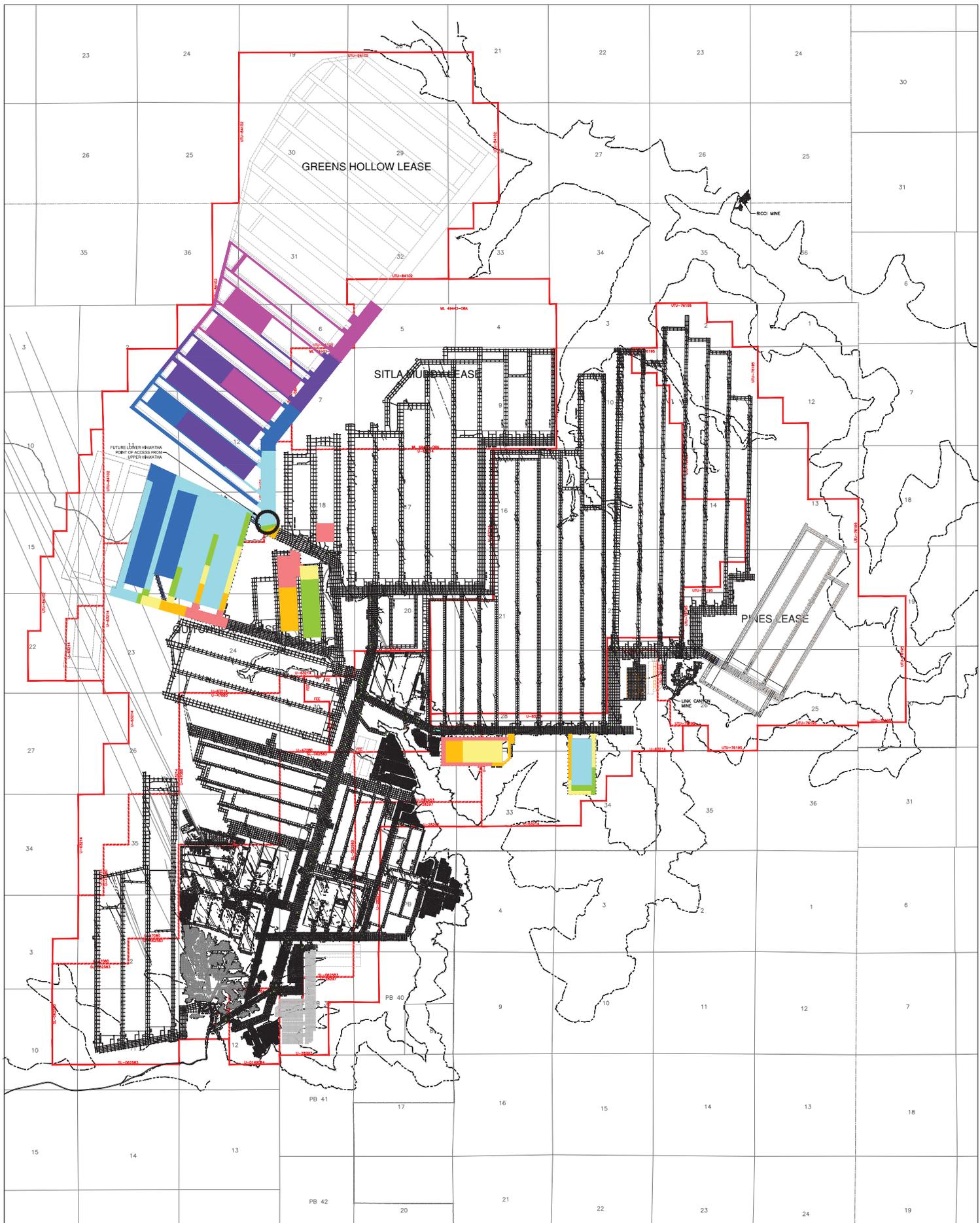
**Potential Areas of Subsidence.** Structures that are present above the existing or planned mine workings that may be affected by mining are shown on Plate 5-5. Renewable resource lands within the lease and permit areas are shown on Plates 4-1 A, B, C, 5-10C, 7-2 and 7-3. Two subsidence monitoring locations were added in 2017, one west of the Greens Hollow lease(#2251), the second is within the Greens Hollow lease (#2250), additional subsidence monitoring locations will be added as mining progresses to the north.

**Green Hollow.** Various information for the Greens Hollow Lease is located in Appendix 7-27 and the renewable resource lands plates listed above. The Greens Hollow area contains troughs, stock and natural ponds which may be affected by subsidence. They are shown on drawing in this appendix under divider "Natural and Stock Ponds" The area of the Greens Hollow lease is not known to contain non-commercial buildings; public buildings and facilities; churches; schools; hospitals; occupied residential dwellings or related structures. The Rough Brothers cabin the only one known of in the area was demolished in 2016 according the USFS personnel owners of the cabin. See "Subsidence Control Measures" for repair and protection commitments and "Subsidence Monitoring" commitments below in this section.

State appropriated water supply locations within the Greens Hollow Lease and adjacent area are shown on the Water Rights Plate 7-2. The water rights information is provided in Appendix 7-1.

The water rights assigned within the Greens Hollow Lease and immediately adjacent belong to the USFS. According to water right records no manmade ponds or troughs are assigned state appropriated water supplies. Because of stipulations within the lease document, the M&RP and





**EXPLANATION**

- SUFCO EXTERIOR LEASE BOUNDARY
- - - SUFCO INTERIOR LEASE BOUNDARY
- - - ESCARPMENT
- - - OUTCROP

**MINING LEGEND**

- |  |  |
|--|--|
| <span style="background-color: #cccccc; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> REMAINING 2017   | <span style="background-color: #add8e6; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> 2020 |
| <span style="background-color: #ffcc99; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> 1ST QUARTER 2018 | <span style="background-color: #0000ff; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> 2021 |
| <span style="background-color: #ffff00; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> 2ND QUARTER 2018 | <span style="background-color: #800080; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> 2022 |
| <span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> 3RD QUARTER 2018 |  |
| <span style="background-color: #32cd32; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> 4TH QUARTER 2018 |  |



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

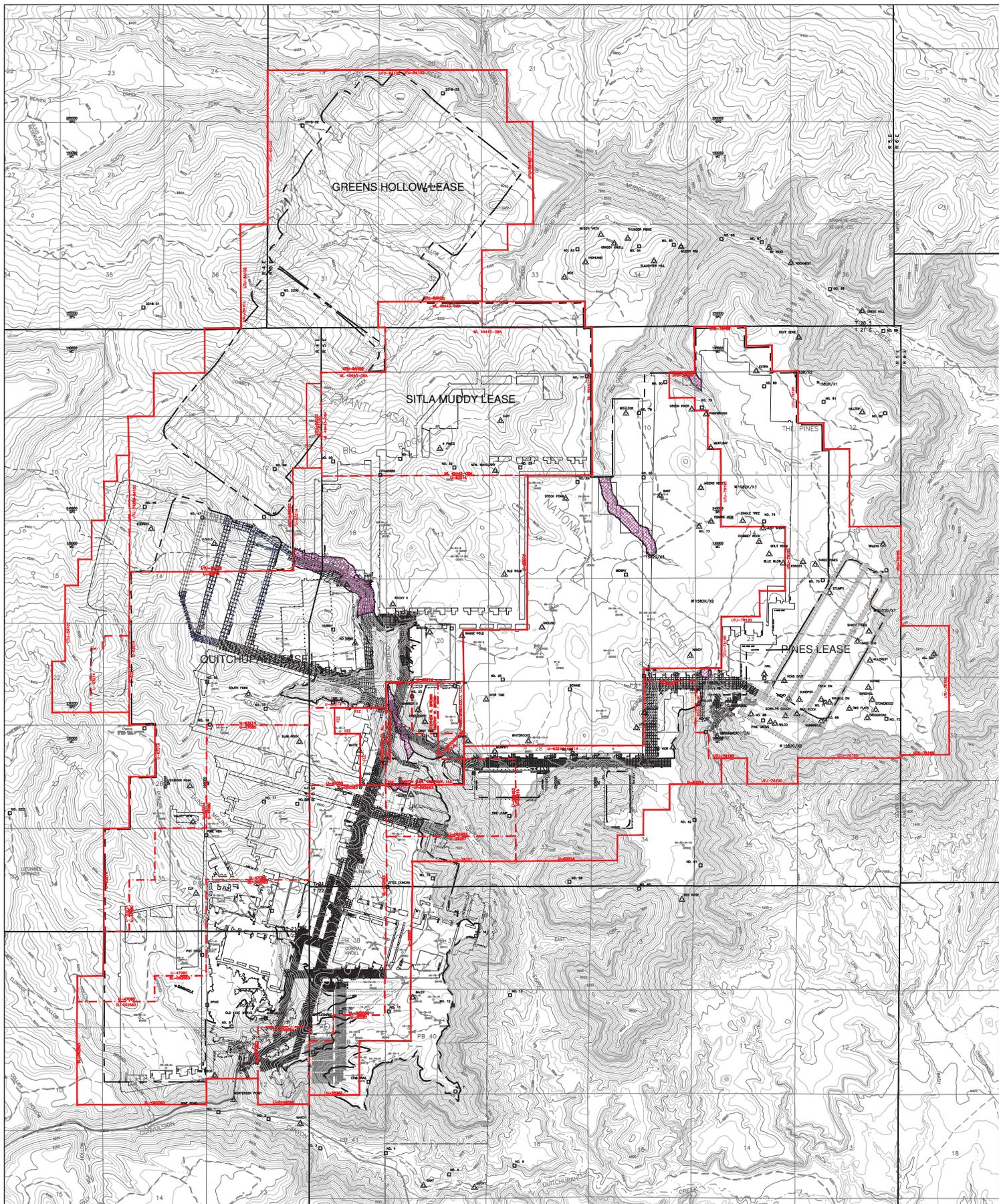


| REVISIONS |            |         |                                 |
|-----------|------------|---------|---------------------------------|
| NO.       | DATE       | REV. BY | DESCRIPTION                     |
| 01        | 11/13/2017 | WJ      | ISSUE FOR PERMIT                |
| 02        | 01/24/2018 | WJ      | ADD AREA CODE                   |
| 03        | 03/05/2018 | WJ      | GREEN HOLLOW STOPPING ANALYSIS  |
| 04        | 04/10/2018 | WJ      | DEEP DRIFTED STOPPING FROM LIME |
| 05        | 07/10/2018 | WJ      | ADD AREA CODE                   |

**CF** Canyon Fuel Company, LLC  
 SUFCO Mine  
 597 South St. 24 - 26th St. 24  
 (304) 286-4400 Phone  
 (304) 286-4450 Fax

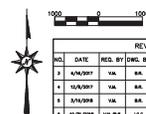
**SUFCO MINE PLAN  
 5 YEAR PROJECTION**

|                      |                   |                   |                |
|----------------------|-------------------|-------------------|----------------|
| DATE: 11/13/2017     | SCALE: AS SHOWN   | DRAWN BY: WJ      | CHECKED BY: WJ |
| PROJECT NUMBER: 8888 | SHEET NUMBER: 5-7 | TOTAL SHEETS: 5-7 |                |



**EXPLANATION**

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



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

| NO. | DATE       | REV. BY  | REVISIONS   | REMARKS |
|-----|------------|----------|---|---------|
| 1   | 4/14/2007  | VAL. BA. | ADD GREEN HOLLOW                                    |         |
| 2   | 10/10/2007 | VAL. BA. | ADD ONE A MINE                                      |         |
| 3   | 3/14/2008  | VAL. BA. | GREEN HOLLOW TECHNICAL ANALYSIS                     |         |
| 4   | 6/20/2008  | VAL. BA. | ADD LIMITS FOR PERENNIAL STREAM AND BUFFER CORRIDOR |         |
| 5   | 1/17/2009  | VAL. BA. | REMOVE ONE A MINE FROM EAST                         |         |
| 6   | 8/7/2009   | VAL. BA. | ADD ONE A MINE                                      |         |

Canyon Fuel Company, LLC  
 SUFCO Mine  
 587 South St., Ste. 200, Sitka, AK 99804  
 (907) 338-4888 Phone  
 (907) 338-4838 Fax

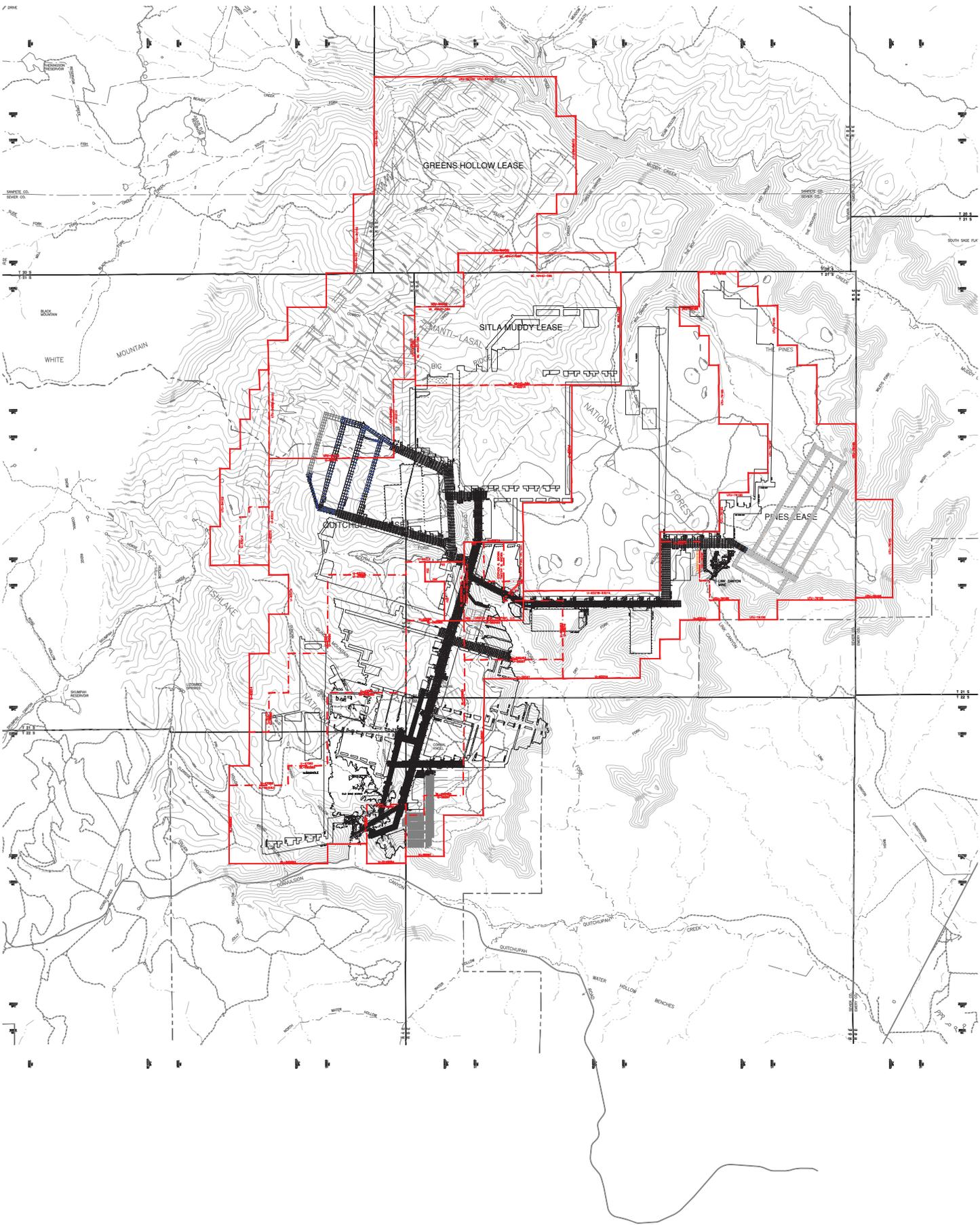
**POTENTIAL SUBSIDENCE LIMITS**

SCALE: 1" = 1000' DATE: 08/20/09 DRAWN BY: [ ] SHEET NO: [ ]

DESIGNED BY: [ ] CHECKED BY: [ ]

FILE NO: 41-10-10-0000-0001-PLATE 5-10.dwg

**PLATE 5-10**

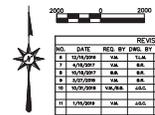


**EXPLANATION**

|  |                               |
|--|-------------------------------|
|  | SUFCO EXTERIOR LEASE BOUNDARY |
|  | SUFCO INTERIOR LEASE BOUNDARY |
|  | MIKE COORDINATES              |
|  | STATE PLANE COORDINATES       |



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



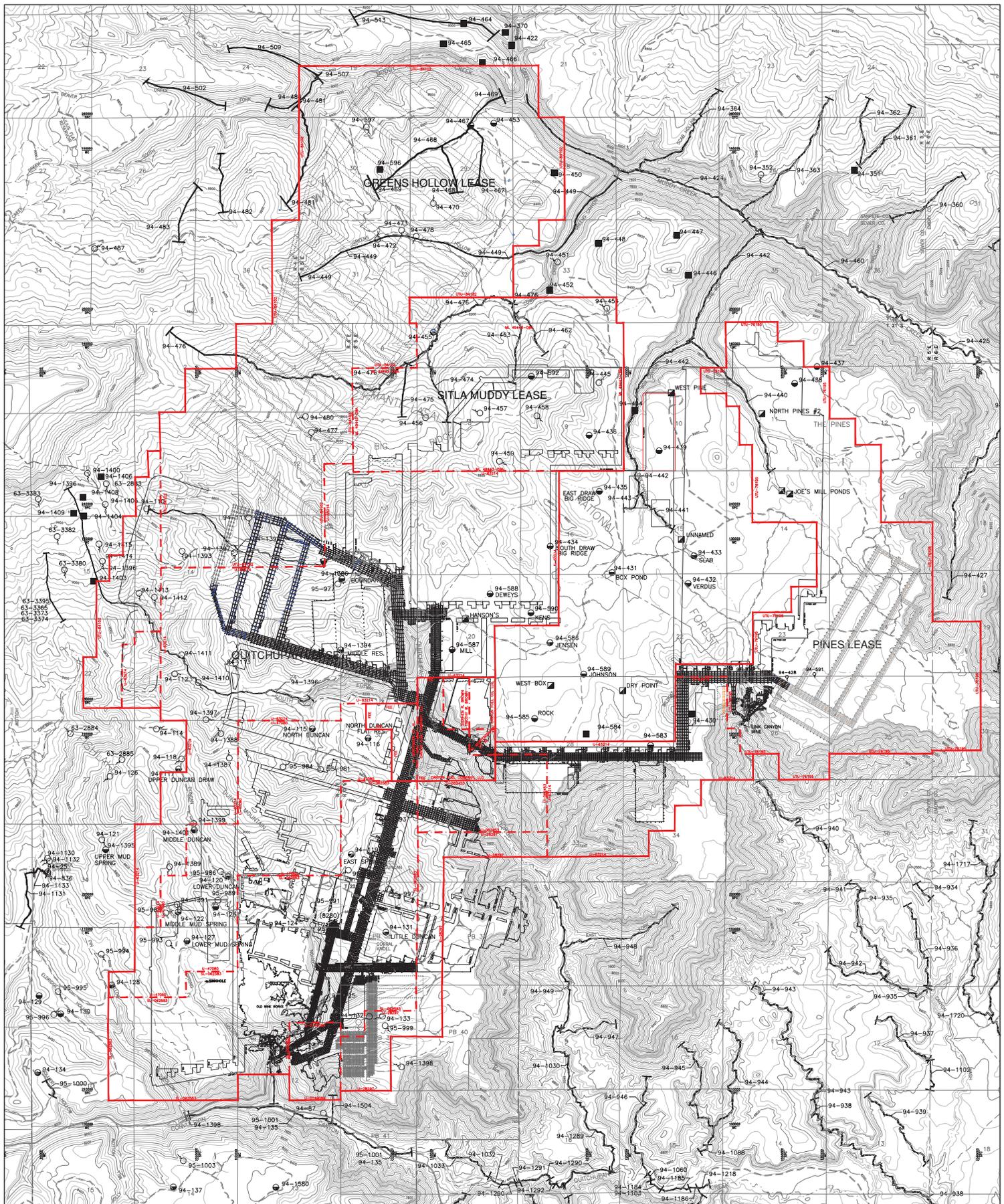
| REVISIONS |           |         |             |
|-----------|-----------|---------|-------------|
| NO.       | DATE      | REV. BY | DESCRIPTION |
| 1         | 1/15/2008 | VA      | 11-11-07    |
| 2         | 1/15/2007 | VA      | AK          |
| 3         | 1/15/2007 | VA      | AK          |
| 4         | 1/15/2007 | VA      | AK          |
| 5         | 1/15/2007 | VA      | AK          |
| 6         | 1/15/2007 | VA      | AK          |
| 7         | 1/15/2007 | VA      | AK          |
| 8         | 1/15/2007 | VA      | AK          |
| 9         | 1/15/2007 | VA      | AK          |
| 10        | 1/15/2007 | VA      | AK          |
| 11        | 1/15/2007 | VA      | AK          |
| 12        | 1/15/2007 | VA      | AK          |
| 13        | 1/15/2007 | VA      | AK          |
| 14        | 1/15/2007 | VA      | AK          |
| 15        | 1/15/2007 | VA      | AK          |
| 16        | 1/15/2007 | VA      | AK          |
| 17        | 1/15/2007 | VA      | AK          |
| 18        | 1/15/2007 | VA      | AK          |
| 19        | 1/15/2007 | VA      | AK          |
| 20        | 1/15/2007 | VA      | AK          |
| 21        | 1/15/2007 | VA      | AK          |
| 22        | 1/15/2007 | VA      | AK          |
| 23        | 1/15/2007 | VA      | AK          |
| 24        | 1/15/2007 | VA      | AK          |
| 25        | 1/15/2007 | VA      | AK          |
| 26        | 1/15/2007 | VA      | AK          |
| 27        | 1/15/2007 | VA      | AK          |
| 28        | 1/15/2007 | VA      | AK          |
| 29        | 1/15/2007 | VA      | AK          |
| 30        | 1/15/2007 | VA      | AK          |
| 31        | 1/15/2007 | VA      | AK          |
| 32        | 1/15/2007 | VA      | AK          |
| 33        | 1/15/2007 | VA      | AK          |
| 34        | 1/15/2007 | VA      | AK          |
| 35        | 1/15/2007 | VA      | AK          |
| 36        | 1/15/2007 | VA      | AK          |
| 37        | 1/15/2007 | VA      | AK          |
| 38        | 1/15/2007 | VA      | AK          |
| 39        | 1/15/2007 | VA      | AK          |
| 40        | 1/15/2007 | VA      | AK          |
| 41        | 1/15/2007 | VA      | AK          |
| 42        | 1/15/2007 | VA      | AK          |
| 43        | 1/15/2007 | VA      | AK          |
| 44        | 1/15/2007 | VA      | AK          |
| 45        | 1/15/2007 | VA      | AK          |
| 46        | 1/15/2007 | VA      | AK          |
| 47        | 1/15/2007 | VA      | AK          |
| 48        | 1/15/2007 | VA      | AK          |
| 49        | 1/15/2007 | VA      | AK          |
| 50        | 1/15/2007 | VA      | AK          |

**SUFCO** Canyon Fuel Company, LLC  
 SUFCO Mine  
 597 South St. 24 - 20000, NV 89454  
 (702) 286-4400 Phone  
 (702) 286-4400 Fax

**OVERBURDEN ISOPACH MAP**

DATE: 1/15/2008  
 DRAWN BY: [Name]  
 CHECKED BY: [Name]  
 PROJECT NUMBER: [Number]  
 SHEET NUMBER: [Number]  
 SHEET TOTAL: [Number]

PLATE 5-11



**EXPLANATION**

- SUFCO EXTERIOR LEASE BOUNDARY
  - SUFCO INTERIOR LEASE BOUNDARY
  - MINE COORDINATES
  - STATE PLANE COORDINATES
  - WATER RIGHT SPRING
  - RUNOFF CATCHMENT POND W/O WATER RIGHT
  - SURFACE WATER RIGHT POINT TO POINT
  - SURFACE WATER RIGHT
- NOTES:  
 1. SEE APPENDIX 7-1 FOR DETAILED LISTING OF WATER RIGHTS

| CATCHMENT POND WITH WATER RIGHTS NUMBER | DESCRIPTION               | OTHER HISTORICAL NAMES USED FOR CATCHMENT POND |
|---|---------------------------|--|
| 84-116                                  | NORTH DUNCAN FLAT REL.    |  |
| 84-117                                  | UPPER DUNCAN SPRING REL.  |  |
| 84-118                                  | UPPER DUNCAN FLAT REL.    |  |
| 84-119                                  | UPPER DUNCAN FLAT REL.    |  |
| 84-120                                  | UPPER DUNCAN FLAT REL.    |  |
| 84-121                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-122                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-123                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-124                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-125                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-126                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-127                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-128                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-129                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-130                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-131                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-132                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-133                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-134                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-135                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-136                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-137                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-138                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-139                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-140                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-141                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-142                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-143                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-144                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-145                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-146                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-147                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-148                                  | MIDDLE DUNCAN SPRING REL. |  |
| 84-149                                  | MIDDLE DUNCAN SPRING REL. |  |

| CATCHMENT POND WITH WATER RIGHTS NUMBER | DESCRIPTION              | OTHER HISTORICAL NAMES USED FOR CATCHMENT POND |
|---|--------------------------|--|
| 84-150                                  | UPPER DUNCAN SPRING REL. |  |
| 84-151                                  | UPPER DUNCAN SPRING REL. |  |
| 84-152                                  | UPPER DUNCAN SPRING REL. |  |
| 84-153                                  | UPPER DUNCAN SPRING REL. |  |
| 84-154                                  | UPPER DUNCAN SPRING REL. |  |
| 84-155                                  | UPPER DUNCAN SPRING REL. |  |
| 84-156                                  | UPPER DUNCAN SPRING REL. |  |
| 84-157                                  | UPPER DUNCAN SPRING REL. |  |
| 84-158                                  | UPPER DUNCAN SPRING REL. |  |
| 84-159                                  | UPPER DUNCAN SPRING REL. |  |
| 84-160                                  | UPPER DUNCAN SPRING REL. |  |
| 84-161                                  | UPPER DUNCAN SPRING REL. |  |
| 84-162                                  | UPPER DUNCAN SPRING REL. |  |
| 84-163                                  | UPPER DUNCAN SPRING REL. |  |
| 84-164                                  | UPPER DUNCAN SPRING REL. |  |
| 84-165                                  | UPPER DUNCAN SPRING REL. |  |
| 84-166                                  | UPPER DUNCAN SPRING REL. |  |
| 84-167                                  | UPPER DUNCAN SPRING REL. |  |
| 84-168                                  | UPPER DUNCAN SPRING REL. |  |
| 84-169                                  | UPPER DUNCAN SPRING REL. |  |
| 84-170                                  | UPPER DUNCAN SPRING REL. |  |
| 84-171                                  | UPPER DUNCAN SPRING REL. |  |
| 84-172                                  | UPPER DUNCAN SPRING REL. |  |
| 84-173                                  | UPPER DUNCAN SPRING REL. |  |
| 84-174                                  | UPPER DUNCAN SPRING REL. |  |
| 84-175                                  | UPPER DUNCAN SPRING REL. |  |
| 84-176                                  | UPPER DUNCAN SPRING REL. |  |
| 84-177                                  | UPPER DUNCAN SPRING REL. |  |
| 84-178                                  | UPPER DUNCAN SPRING REL. |  |
| 84-179                                  | UPPER DUNCAN SPRING REL. |  |
| 84-180                                  | UPPER DUNCAN SPRING REL. |  |
| 84-181                                  | UPPER DUNCAN SPRING REL. |  |
| 84-182                                  | UPPER DUNCAN SPRING REL. |  |
| 84-183                                  | UPPER DUNCAN SPRING REL. |  |
| 84-184                                  | UPPER DUNCAN SPRING REL. |  |
| 84-185                                  | UPPER DUNCAN SPRING REL. |  |
| 84-186                                  | UPPER DUNCAN SPRING REL. |  |
| 84-187                                  | UPPER DUNCAN SPRING REL. |  |
| 84-188                                  | UPPER DUNCAN SPRING REL. |  |
| 84-189                                  | UPPER DUNCAN SPRING REL. |  |
| 84-190                                  | UPPER DUNCAN SPRING REL. |  |



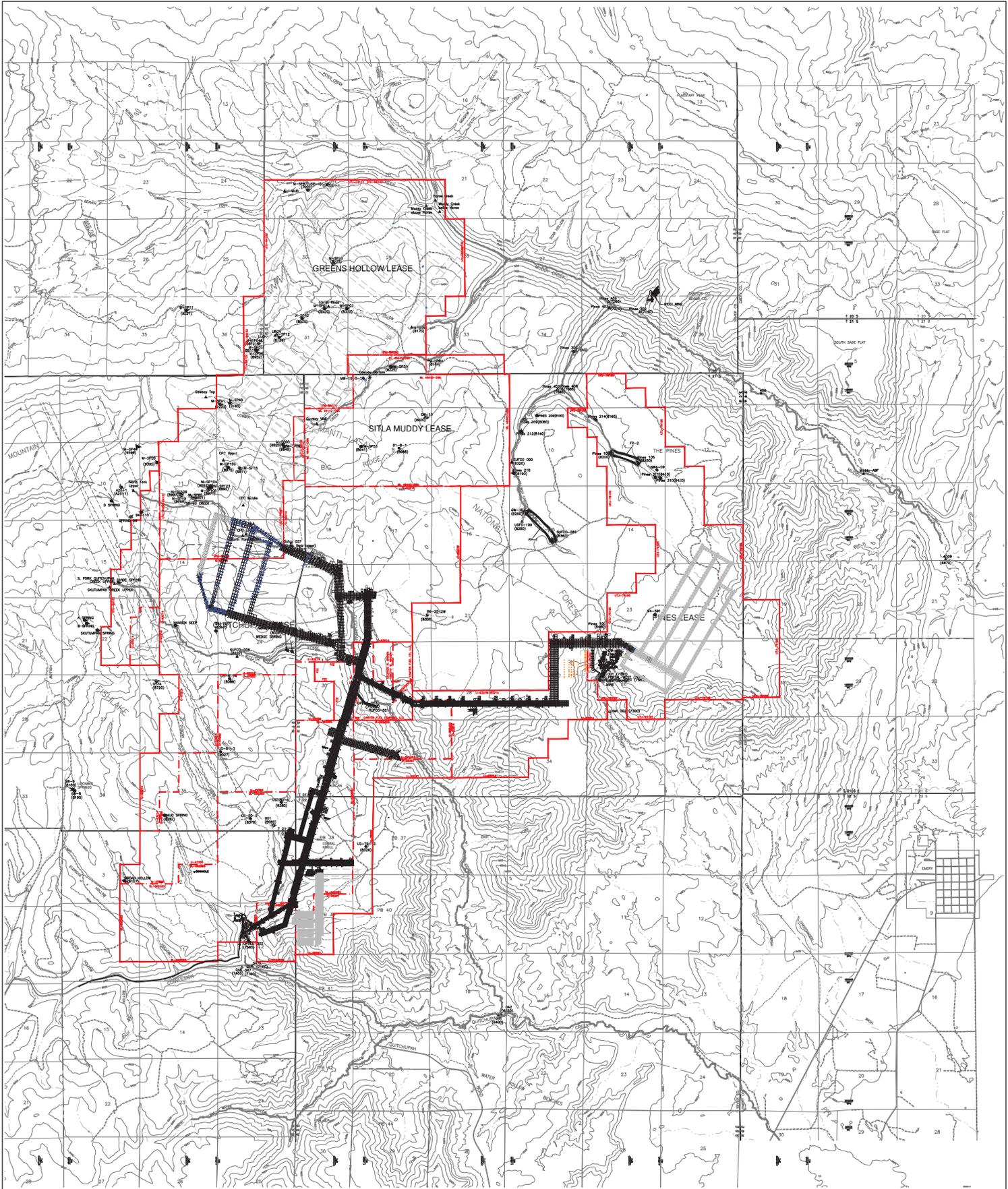
I CERTIFY THE ITEMS SHOWN ON THIS DRAWING ARE ACCURATE TO THE BEST OF MY KNOWLEDGE.

| NO. | DATE     | REV. BY | REVISIONS            |
|-----|----------|---------|----------------------|
| 1   | 1/1/2017 | VA      | ISSUE FOR PERMITTING |
| 2   | 1/1/2017 | VA      | ISSUE FOR PERMITTING |
| 3   | 1/1/2017 | VA      | ISSUE FOR PERMITTING |
| 4   | 1/1/2017 | VA      | ISSUE FOR PERMITTING |
| 5   | 1/1/2017 | VA      | ISSUE FOR PERMITTING |
| 6   | 1/1/2017 | VA      | ISSUE FOR PERMITTING |
| 7   | 1/1/2017 | VA      | ISSUE FOR PERMITTING |
| 8   | 1/1/2017 | VA      | ISSUE FOR PERMITTING |
| 9   | 1/1/2017 | VA      | ISSUE FOR PERMITTING |
| 10  | 1/1/2017 | VA      | ISSUE FOR PERMITTING |

Canyon Fuel Company, LLC  
 SUFCO Mine  
 587 South St. #4 - North Pole, Alaska  
 (432) 286-4499 Fax

**SURFACE AND GROUNDWATER RIGHTS - QUTCHUPAH TRACT**

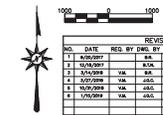
DATE: 1/1/2017  
 DRAWN BY: [Name]  
 CHECKED BY: [Name]  
 SCALE: AS SHOWN  
 SHEET NO: 7-2  
 OF 17 SHEETS (TOTAL)



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
- - - SUFCO MINE INTERIOR LEASE BOUNDARY
- MINE COORDINATES
- STATE PLANE COORDINATES
- UPDES MONITORING POINT
- STREAM MONITORING
- ELEVATION OF SITE (7600)
- MONITORING WELL SITE
- PERENNIAL FLOWS
- SPRING MONITORING



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

| REVISIONS |            |         |                                   |
|-----------|------------|---------|-----------------------------------|
| NO.       | DATE       | REV. BY | REVISIONS                         |
| 1         | 10/24/2017 | JK      | ISSUE FOR PERMITTING              |
| 2         | 10/24/2017 | JK      | REVISIONS                         |
| 3         | 11/14/2017 | JK      | UPDES MONITORING POINTS           |
| 4         | 1/10/2018  | JK      | UPDES MONITORING POINTS           |
| 5         | 10/24/2017 | JK      | ADD SOUTH HOLLOW MONITORING POINT |
| 6         | 11/14/2017 | JK      | ADD SOUTH HOLLOW MONITORING POINT |

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**OPERATIONAL HYDROLOGIC MONITORING STATIONS**

|          |            |          |             |              |            |    |         |            |
|----------|------------|----------|-------------|--------------|------------|----|---------|------------|
| DESIGNER | DATE       | SCALE    | PROJECT NO. | PROJECT NAME | DATE       | BY | CHKD BY | DATE       |
| JK       | 11/14/2017 | AS SHOWN | 17-1-1601   | SUFCO Mine   | 10/24/2017 | JK | JK      | 11/14/2017 |

**PLATE 7-10**