

**Sufco Mine**

John D. Byars  
General Manager  
397 South 800 West  
Salina, Utah 84654  
(435) 286-4400  
Fax (435) 286-4499

January 4, 2019

Permit Supervisor, Utah 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: Revision to M&RP to add Infrared Vegetation Monitoring 2018, Appendix 3-15;  
Canyon Fuel Company, LLC, Sufco Mine, C/041/002

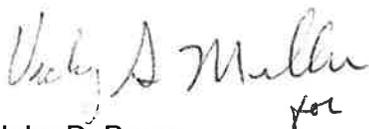
Dear Sirs:

Enclosed with this letter is the infrared vegetation monitoring for 2018. The monitoring program was initiated to monitor the effect of subsidence on the vegetation communities.

Current environmental personnel are familiar with the information from 2008 thru 2018. The analysis of the infrared photography for the past 10 years has shown no detectable impact on vegetation that can be attributed to subsidence. Drought and control burns have the potential to have affected the vegetation in the monitoring area during this five year period.

Please contact Vicky Miller at (435)286-4481 if needed.

Sincerely,



John D. Byars  
General Manager  
Sufco Coal Mine

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/041/002

**Title:** Infrared Vegetation Monitoring 2018, Appendix 3-15

**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.

\_\_\_\_\_  
Jacob Smith  
Print Name

\_\_\_\_\_, Engineering Manager, 01/03/2019  
Sign Name, Position, Date

Subscribed and sworn to before me this 3 day of January, 2019

\_\_\_\_\_  
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

<p><b>For Office Use Only:</b></p>	<p><b>Assigned Tracking Number:</b></p>	<p>Received by Oil, Gas &amp; Mining</p> <p style="font-size: 1.2em; color: blue;"><b>RECEIVED</b></p> <p style="font-size: 1.2em; color: red;"><b>JAN 11 2019</b></p> <p style="font-size: 1.2em; color: blue;"><b>DIV OF OIL, GAS &amp; MINING</b></p>
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APPENDIX 3-15

Infrared Vegetation Monitoring Report

**Appendix 3-15**  
**Sufco Mine**  
**Explanation of Vegetation Change per Infrared Photography 2013 - 2018**

Infrared photography was used to provide the condition of vegetation for evaluation over the five-year period from August/September of 2013 through September of 2018.

Using the USGS VegDRI animated time series the vegetation drought conditions for the area surveyed by Sufco (shown on the infrared photos) were checked at the end of September for the years 2013 through 2018. Conditions were as follows:

<b>Year</b>	<b>Vegetation Condition End of September</b>
2014	Near Normal to Drought Stressed
2015	Near Normal to Drought Stressed
2016	Stressed to Moderate Drought
2017	Stressed to Moderate Drought
2018	Moderate to Severe Drought

<b>Year</b>	<b>Annual Precipitation % of Normal (USGS)</b>
2014	0.90
2015	0.85
2016	0.52
2017	0.38
2018	0.59

From this information it should be noted that in both 2013 and 2018 when the infrared photos were taken in September the vegetation in the area was considered to be in drought condition.

**Conclusion**

The vegetation in the 2018 photo appears to be in similar if not identical locations. Due to the continued dry conditions and lack of precipitation in September the meadow areas adjacent to ponds and streams do not appear as green as they did in 2013.

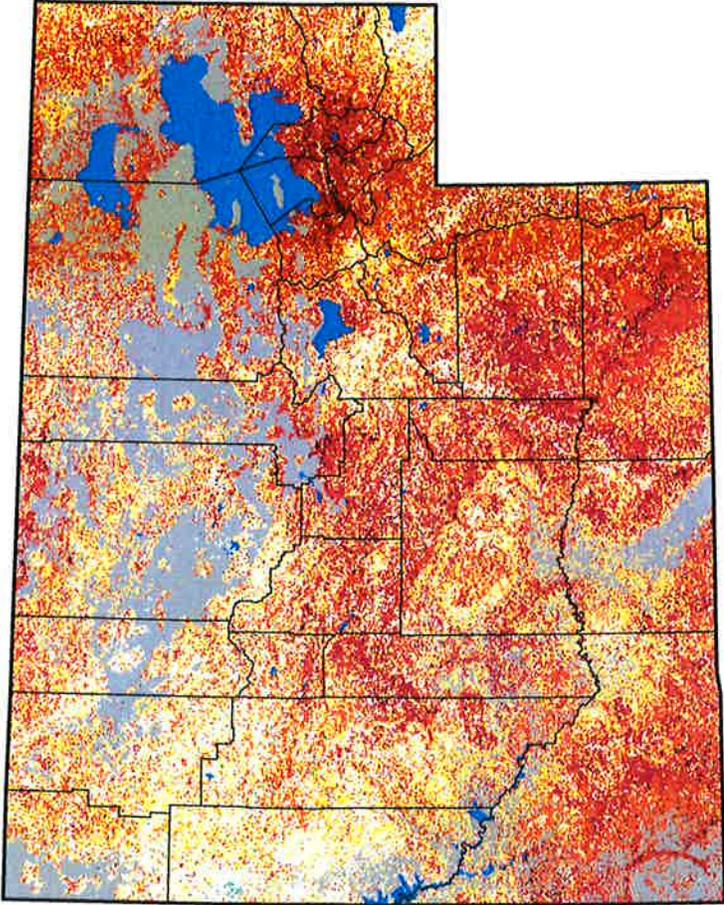
The majority of the stock ponds in the 2013 photo had water in them, while in the 2018 photo the majority of the ponds were dry, with that being the case for the entire year. In August and September of 2013, it rained 30 of the 61 days at the Sufco mine site which would account for the ponds having water in them and likely the condition of the vegetation looking better. In 2018 it only rained 6 days in August and with no precipitation in September.

The vegetation in the monitoring area was in moderate to severe drought condition (VegDRI) and overall and the precipitation averaged 0.65% of normal over the five year period of evaluation, with the last three years average being 50% of normal. The average annual precipitation in the area ranges from 10 to 17 inches depending upon the elevation.

# Vegetation Drought Response Index

Complete: Utah

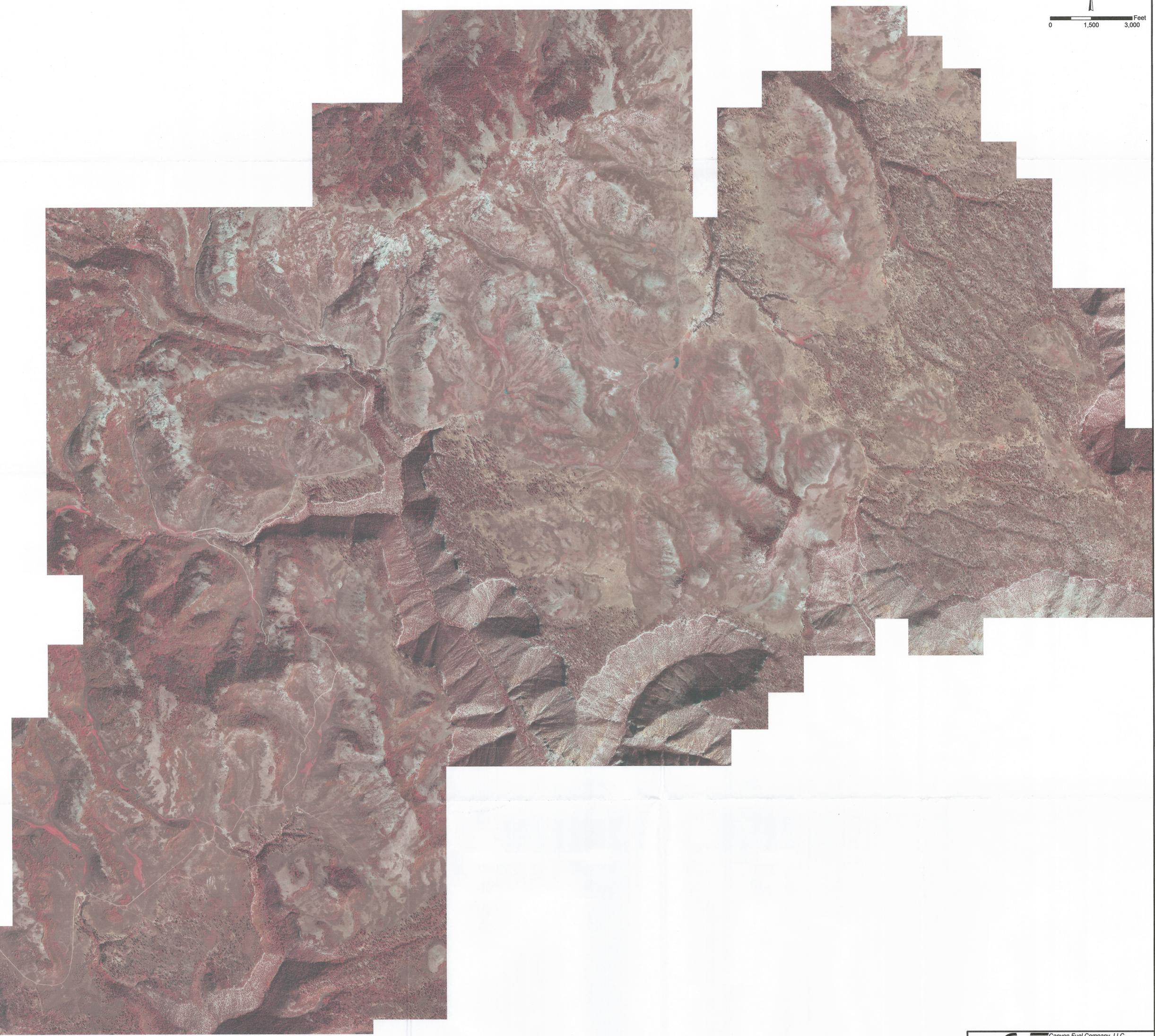
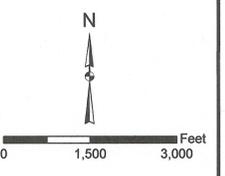
September 30, 2018



### Vegetation Condition

- Extreme Drought
- Severe Drought
- Moderate Drought
- Pre-drought stress
- Near Normal
- Unusually Moist
- Very Moist
- Extreme Moist
- Out of Season
- Water





 Canyon Fuel Company, LLC				
SUFCO Mine 597 South 500 2nd - Salt Lake, UT 84054 (435) 296-4880 Phone (435) 296-4499 Fax				
<b>SUFCO MINE</b> 2013 CIR IMAGERY				
SCALE: 1" = 1,250'	DATE: 11/18/2013	DRAWN BY: T.R.B.	CHECKED BY: V.L.M.	PROJ: .
FILE NAME				SHEET NO: 1

