0062

INCOMING
C0411 0002

Canyon Fuel Company, LLC
SUFCO Mine
397 South 800 West
Salina, UT 84654
(435) 286-4880 Fax: (435) 286-4499

October 28, 2003

Daron Haddock, Permit Supervisor
Utah Coal Regulatory Program
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
P. O. Box 145801
Salt Lake City, Utah 84114-5801

Re: Sixth Submittal - Mine Plan Update M&RP Permit Amendment, Canyon Fuel Company, LLC, SUFCO Mine C/041/002

Dear Permit Supervisor:

In response to the Divisions Conditional Approval letter dated September 30, 2003 to incorporate the monitoring and mitigation plan for the undermining of 3LPE and 4LPE in the East Fork of Box Canyon into the M&RP. The enclosed eight copies of materials are being submitted to update the Mine Plan Update M&RP Permit Amendment originally submitted on July 30, 2003. Attached are DOGM forms C-1 and C-2 and appropriate pages.

These new updated clean text pages need to be included in the original submittal binders submitted on July 30, 2003.

If you have any questions or need additional information, please contact Mike Davis at (435) 286-4421.

Sincerely,
CANYON FUEL COMPANY, LLC
SUFCO Mine

Kenneth E. May
Mine Manager

Encl.

KEM/MLD:kb

cc: DOGM Price Office
DOGM Correspondence File

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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: Sixth Submittal - Mine Plan Update Amendment
Description, Include reason for application and timing required to implement:
Conditional Approval September 30, 2003 requiring incorporating Monitoring and Mitigation Plan in MRP.

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 four (4) review copies of the application. If the mine is on or adjacent to Forest Service land please submit five (5) copies, thank you. (These numbers include a copy for the Price Field Office)

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.

KENNETH E. MAY, MINE MANAGER — Kenneth E. May — 10/29/03
Print Name — Sign Name, Position, Date

Subscribed and sworn to before me this 27th day of October, 2003

Ella Ruth Wayman
Notary Public

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

ELLA RUTH WAYMAN
NOTARY PUBLIC • STATE of UTAH
30 NORTH 500 WEST • PO BOX 32
AURORA, UT 84620
COMM. EXP. MARCH 19, 2007

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Form DOGM- C1 (Revised March 12, 2002)

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/041/022
Title: Sixth Submittal - Mine Plan Update Amendment

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	Pages 3-22B, 3-22E, and 3-22F in Mine Plan Update Amendment Submittal Binder.
☒ Add	☐ Replace	☐ Remove	Pages 3-iv, and 3-22G in Mine Plan Update Amendment Submittal Binder.
☐ Add	☒ Replace	☐ Remove	Page 5-39C in Mine Plan Update Amendment Submittal Binder.
☐ Add	☒ Replace	☐ Remove	Page 7-51F in Mine Plan Update Amendment Submittal Binder.
☒ Add	☐ Replace	☐ Remove	Add new Monitoring and Mitigation Plan Appendix 3-10, in Mine Plan Update Amendment Submittal Binder.
☐ Add	☐ Replace	☐ Remove	
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Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.

Use Sixth Submittal - Final Clean Copies C2 form for inserting pages into the M&RP.

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Form DOGM - C2 (Revised March 12, 2002)

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/041/022
Title: Sixth Submittal - Final Clean Copies - Mine Plan Update Amendment

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	Pages 3-iv, 3-14 to 3-17, 3-22A, and 3-23 to 3-25 in Chapter 3, Volume 1 of MRP.
☒ Add	☐ Replace	☐ Remove	Add new pages 3-22B to 3-22G in Chapter 3, Volume 1 of MRP.
☐ Add	☒ Replace	☐ Remove	Pages 4-ii, 4-9 and 4-9A in Chapter 4, Volume 1 of MRP.
☐ Add	☒ Replace	☐ Remove	Pages 5-26, 5-27, and 5-39 in Chapter 5, Volume 1 of MRP.
☒ Add	☐ Replace	☐ Remove	Add new Pages 5-27A and 5-39A to 5-39C in Chapter 5, Volume 1 of MRP.
☐ Add	☒ Replace	☐ Remove	Pages 7-iv, 7-v, 7-vi, 7-32 to 34, 7-38C to 7-38E, 7-39, 7-40, 7-51 and 7-54 in Chapter 7, Volume 2 of MRP.
☒ Add	☐ Replace	☐ Remove	Add new Pages 7-38F, 7-51A to 7-51F, and 7-54A in Chapter 7, Volume 2 of MRP.
☐ Add	☒ Replace	☐ Remove	Plates 5-7, 5-10A and 5-10B in Chapter 5, Volume 1 of MRP.
☒ Add	☐ Replace	☐ Remove	Confidencial Plates 5-10A and 5-10B in confidencial file for MRP.
☒ Add	☐ Replace	☐ Remove	Add pages to back of Appendix 1-2, Volume 4 of MRP.
☒ Add	☐ Replace	☐ Remove	Add new Monitoring and Mitigation Plan Appendix 3-10, Volume 5 of MRP.
☒ Add	☐ Replace	☐ Remove	Add new Memorandum of Agreement (MOA) Appendix 4-5, Volume 6 of MRP.
☒ Add	☐ Replace	☐ Remove	Add new Appendix 7-19, Volume 10 of MRP.
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Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.

This form includes all revised pages for the Mine Plan Update Amendment originally submitted on July 30, 2003, and the revised pages for the deficiency responses submitted. This form when approved will combine and supersede the Original C2 form submitted on July 30, 2003, the Second submittal C2 form submitted on August 15, 2003, the Third submittal C2 form submitted on September 12, 2003, the Fourth submittal C2 form submitted on September 22, 2003, the Fifth submittal C2 form submitted on October 16, 2003, and Sixth submittal C2 form submitted on October 28, 2003.

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LIST OF PLATES

Plate

3-1 Plant Communities and Reference Areas

3-2 Elk Range

3-3 Deer Range & Raptor Nests

LIST OF APPENDICES

(Appendices appear in Volume 5)

Appendix

3-1 Report of 1983 Field Investigations

3-2 Aquatic Resource Inventory of Southern Utah Fuel Company Permit Area

3-3 Wildlife Assessment of the Southern Utah Fuel Company Mining Property and Adjacent Areas

3-4 Raptor and General Avifauna Studies

3-5 Fauna of Southeastern Utah and Life Requisites Regarding their Ecosystems

3-6 Vegetation Information Guidelines, Appendix A

3-7 Power Line Correspondence

3-8 Bat Survey for the SUFCO Mine

3-9 Vegetation and Wildlife of the Pines Tract Project.

3-10 Monitoring and Mitigation Plan for Mining Under the East Fork of Box Canyon

stakes and flagging. The sites include each of the springs found within the portion of the East Fork to be subsided and the Joe's Mill pond area.

A survey of the identified stream and spring monitoring sites will include a concentrated study of vegetative communities associated with the stream and spring sites. The vegetative survey of the East Fork will be conducted following the USFS and D.L. Rosgen stream channel survey protocol. The condition of the riparian vegetation flanking the channel at each of the sites will be described and the hillsides above the channels will also be monitored for changes in morphology. Maps of the surveyed areas will be prepared. The survey will be conducted before subsidence begins in the effected areas of Box Canyon Creek and will be repeated in 2004, 2005, 2006, and 2008.

The conditions of the vegetation at the spring sites will be monitored for the same parameters as the stream sites. The source and discharge area will be included in the survey. Photographs will be obtained at each of the monitoring stations of the vegetative communities along the stream channel, hillsides above the site, and at the spring locations. Permanent photo points will be established to allow for repeatability of photographing the vegetation.

Qualitative surveys of the vegetation at each monitoring station will be conducted twice per year, once at the beginning of the growing season and again at the end of the season, for the first three years as mining is commenced in the East Fork and then in the fifth year following undermining. The surveys will include observations of the conditions, types, notable changes, etc., of the vegetation in the Joe's Mill pond area vegetation and along stream banks and spring locations identified as monitoring sites.

Erosion of the hillsides will be monitored during the twice yearly qualitative vegetation survey using a numerical ranking system to identify the degree of erosion. The ranking system will be as follows:

In addition to the East Fork of Box Canyon vegetative monitoring and mitigation plan, Sufco will implement a hydrologic monitoring plan as well as a stream channel subsidence crack mitigation plan. These plans are discussed in greater detail in Section 7.3.1.2 and Section 5.2.5.1 of this M&RP. Mitigation of cracks, if they occur, in the bottom of the stream channel requires the placement of bentonite grout to stop the diversion of surface flows. If mitigation is required during the critical elk and deer time periods of November 1st through April 1st and May 1st through July 1st, or during the raptor nesting and rearing season of Feburary 1st through August 31st, the Division will be contacted and the mitigation plans reviewed with the appropriate regulatory personnel. Mitigation work will be performed in such a manner as to minimize disturbance to wildlife.

A baseline macroinvertebrate survey was performed on the East Fork of the Box Canyon on October 20, 2003 by Dr. Dennis K. Shiozawa with assistance from Patrick Collins of Mt. Nebo Scientific. Ms. Katherine Foster of the Manti-LaSal National Forest was also present during the survey. Locations of the macroinvertebrate populations survey were determined based on the stream channel floor conditions, availability of water, and potential repeatability of the survey. Sites in the area of EFB-4 were not acceptable to Dr. Shiozawa since the channel floor was not stable and consisted of loose sand. The current environmental conditions, specifically the channel floor configuration, would likely be changing naturally over time and with every significant precipitation event. These naturally occurring changes would make repeating the survey in these types of locations very difficult at best. Additionally, the loose sands that formed the channel floor are abrasive and very detrimental to macroinvertebrate life. The movement of sand through the system as a result of a precipitation event could easily significantly diminish or destroy populations. Therefore, four locations were selected in the area of and upstream of site EFB-11. These locations appeared to have the most stable channel floor, bed rock, and repeatability of the survey at these locations would be possible.

The survey consisted of obtaining two sample sets from each site. The organisms captured at each site will be identified to the species level. The number of organisms per unit of measure

were counted and recorded. Two copies of the results of this baseline survey will be submitted to the Division with the 2004 Annual Report. A second and third survey will be performed in 2004 and 2005 following undermining and two copies of the results will be submitted to the Division with the 2005 and 2006 Annual Reports.

A copy of the October 2003 "Monitoring and Mitigation Plan for Mining Under the East Fork of Box Canyon" prepared by the Division and reviewed and accepted by the Forest with some modifications has been included in Appendix 3-10. The preceding paragraphs have been prepared based on this plan. Sufco will meet all of the monitoring and mitigation responsibilities described in the plan as it pertains to the undermining of the East Fork of Box Canyon.

3.2.2.3 Fish and Wildlife Service Review

If requested, the applicant authorizes the release of information pertaining to Section 3.2.2 and 3.3.3 to the U.S. Fish and Wildlife Service Regional and Field office for their review.

3.2.3 Maps and Aerial Photographs

The lease area was mapped by use of a mosaic of aerial photographs and assured by ground inspection. Vegetation sampling locations/reference areas are shown on Plate 3-1.

3.2.3.1 Location and Boundary of Proposed Reference Area

The locations of the vegetative reference areas are found on Plate 3-1. Area 13 shown on Plate 3-1 is to be used as a mapping unit only and not a reference area or validation site. Site 12 will be used as the reference area for the minesite sedimentation pond area.

3.2.3.2 Elevations and Locations of Monitoring Stations

Raptor nest locations and elk and deer range are shown on Plate 3-2 and 3-3. The permit area contains no fish monitoring stations.

3.2.3.3 Facilities for Protection and Enhancement

Sections 3.3.3.3 and 3.5.8.5 contain additional discussion pertaining to protective measures taken by the applicant in behalf of wildlife.

Power lines within the SUFCO Mine permit area were modified during the summer of 1981 to comply with the guidelines of REA Bulletin 61-10, "Power Line Contacts by Eagles and Other Large Birds" (see Plate 5-5 for the power pole locations).

3.2.3.4 Vegetation Type and Plant Communities

Vegetative types and plant communities are outlined on Plate 3-1 of this application.

to be taken as mitigation. Thereafter, the Division will be advised of continuing mitigation efforts, if needed, in the weekly report.

A copy of the October 2003 "Monitoring and Mitigation Plan for Mining Under the East Fork of Box Canyon" prepared by the Division and reviewed and accepted by the Forest with some modifications has been included in Appendix 3-10. The preceding paragraphs have been prepared based on this plan. Sufco will meet all of the monitoring and mitigation responsibilities described in the plan as it pertains to the undermining of the East Fork of Box Canyon.

Mining within the area of the East Fork of the Box Canyon will be conducted in accordance with State and Federal rules and regulations and the requirements and stipulations presented in the BLM's Conditions of Approval of the Resource Recovery and Protection Plan (July 31, 2003) located in Appendix 1-2.

5.2.5.2 Subsidence Control

Adopted Control Measures. As indicated above, SUFCO Mine has adopted subsidence-control measures in areas where surface resources are to remain protected. These controls consist primarily of leaving support pillars in place in those areas designated on Plate 5-10 as not planned for subsidence. Based on experience and data collected from the permit area, the design of support pillars for those areas where subsidence is not planned has been based on the following equations:

$$SF = SD/OS \qquad (5\text{-}1)$$

where SF = safety factor against pillar failure (fraction)

SD = support strength density (psi)
= $(Y_c)(1\text{-}ER)$

Y_c = average compressive yield strength of the coal (psi)
= 3090 psi for the Upper Hiawatha seam

ER = extraction ratio (fraction)
= $1\text{-}(A_p/A_t)$

A_p = pillar area (ft^2)

A copy of the October 2003 "Monitoring and Mitigation Plan for Mining Under the East Fork of Box Canyon" prepared by the Division and reviewed and accepted by the Forest with some modifications has been included in Appendix 3-10. The preceding paragraphs have been prepared based on this plan. Sufco will meet all of the monitoring and mitigation responsibilities described in the plan as it pertains to the undermining of the East Fork of Box Canyon.

7.3.1.3 Acid- and Toxic-Forming Materials

Results of monitoring of mine discharge, surface, and groundwater, indicate that no impact to these waters from acid- and toxic-forming materials has been found in the permit and adjacent areas (Section 7.2.8.3). Parameters defining acid- and toxic-forming materials continue to be monitored as described in Volume 3 of this M&RP. In the event that acid- or toxic-forming materials are identified, they will be disposed of in the waste rock disposal area. The treatment of these materials will be handled as indicated in Volume 3 of this M&RP.

7.3.1.4 Transfer of Wells

Before final release of bond, exploration or monitoring wells will be sealed in a safe and environmentally sound manner in accordance with R645-301-631, R645-301-738, and R645-301-765. Ownership of wells will be transferred only with prior approval of the UDOGM. The conditions of such a transfer will comply with State and local laws. SUFCO will remain responsible for the management of the well until bond release in accordance with R645-301-529, R645-301-551, R645-301-631, R645-301-738, and R645-301-765.

7.3.1.5 Discharges

APPENDIX 3-10

Monitoring and Mitigation Plan for Mining Under the East Fork of Box Canyon

Monitoring and Mitigation Plan for Mining Under the East Fork of Box Canyon

Implementation of the following mitigation plan should quickly identify surface disturbance or impacts from subsidence fractures intercepting spring and stream flows. Frequent monitoring to monitoring will establish the degree of impacts to water resources, vegetation, wildlife and other uses.

The monitoring and mitigation plan adopted by the permittee should provide sufficient data for all stockholders associated with these resources and lands to make a determination of the degree of impacts. Information and data collection will be continuous before the area is mined, throughout the mining period, and after mining is past, until impacts are not detectable.

Hydrological and Subsidence Mitigation Plan for Mining Under Panels 3LPE and 4LPE in the East Fork of Box Canyon

Subsidence R645-301-525.454

- Conduct pre- and post-mining video surveys of the East Fork of Box Canyon stream channel over panels 3LPE and 4LPE. The Permittee must conduct a post-mining survey during September of 2006. This post-mining video survey must apply the same procedures as the video survey conducted September 2003.
  - Videotape the stream channel from Joe's Mill Ponds to the west gate road of the 3LPE panel.
  - Establish at least 10 stations to portray stream flow, vegetation, soils, etc. GPS coordinates shall be obtained for each site. Each site must be documented with fixed photo points that can be reproduced during subsequent monitoring intervals (see #4 below). Identify and survey in the Thalweg. Monitor at least two pools and associated falls in the perennial section of the channel. Two sites must include EFB9 and EFB11. Monitoring criteria must include width and depth of the pools, and height of fall structures.
  - Establish location of perennial flow, gaining/losing reaches of the stream channel.
  - Qualified botanist must participate in the taping of the channel video.
    - Identify major representative plant species along the stream channel and riparian and spring areas (5 springs: 2 have two separate discharge sites that merge into a single channel leading towards the stream).
    - Identify hanging gardens.
  - Video tape and mention all animal species present:
    - Macroinvertibrate presence at water monitoring stations along the stream channel and riparian and spring areas.
    - All other animal species along the stream channel and riparian and spring areas.

•Fourth quarter water monitoring shall be conducted prior to mining under the stream channel.

•While mining under the channel, promptly identify subsidence-induced fractures, dewatering, diminution of water quality, and movement of the stream channel.

•Monitor sites for fractures two times per week while mining within the angle-of-draw of the stream channel. Continue weekly for a period of 8 weeks after the shears have passed the 15-degree angle-of-draw opposite the stream channel. Monitor flow and channel convergence weekly while in the angle of draw. Then monitor both fractures, flow and convergence every two weeks for the next 8 weeks. Continue monitoring quarterly for 2-year period after no subsidence, interception, diminution or diversions are identified.

•Immediately seal subsidence cracks and fractures identified within the stream channel wet bank with bentonite or bentonite grout. Access must be limited to methods that would not cause additional effects to the aquatic ecosystem.

•Conduct uninterrupted longwall mining progression, except for normally scheduled maintenance, while under the 15-degree angle-of-draw of the stream channel.

•Provide a weekly report to DOGM via e-mail. Identify any changes in surface expression, dates, any fracturing of surface (location, width, spacing, etc.), any repairs, location of longwall. The Division will provide a copy of the report to the Manti-La Sal National Forest.

•If the applicant cannot gain access to the site, attempts must be documented.

•The applicant will be required to abide by the mitigation outlined in the approved MRP.

•Comply with federal and State rules and regulations.

- Refer to Conditions of Approval of the Resource Recovery and Protection Plan (R2P2), July 31, 2003.
- A stream alteration permit is required by Utah Division of Water Rights for any stream channel construction activities. The applicant must obtain the permit prior to mining within the angle-of-draw of 15 degrees of the stream channel.

Water Rights Replacement of State Appropriated Water Supplies (R645-301-731.530)

- Establish a rain and temperature monitoring station.
- Promptly replace or compensate any State appropriated water supply that is contaminated, diminished or interrupted by mining operations for:
  - Cattle
  - Drinking water
- Calculate the amount of diminished flows from monitoring data.

Hydrologic and Subsidence Summary Report

- Submit a summary report to the Division documenting the pre- and post-mining conditions of springs and stream channel. Describe all activities and work conducted by the applicant for site evaluation and mitigation. Identify if impacts have occurred, and if mitigation activities have prevented material damage to resources. The report will be due 90 days after subsidence monitoring is complete for each panel section. The Division will provide a copy of the report to the Manti-La Sal National Forest.

Biology Monitoring Plan for Mining Under Panels 3Left, 4Left in the East Fork of Box Canyon (September 29, 2003)

The Permittee must follow basics of the Division's Guidelines. A qualified botanist must survey the stream channel and associated spring areas starting from Joe's Mill Pond to 3LPE. A qualified biologist must survey the baseline for macroinvertibrate along the stream channel.

Stream channel and spring geomorphology and vegetation:

- Stream channel geomorphology – at a minimum define:
  - Geologic/surface substrate of stream bottom.
  - Width of stream channel at water-monitoring locations.
- Spring and surrounding area geomorphology – at a minimum define:
  - Geologic/surface substrate of spring area where the water discharges.
  - Geologic/surface substrate of the spring *tributary* where water converges from the discharge site(s) and forms a *tributary* of the East Fork stream.
  - Width of the spring *tributary* at the location where the consultant surveys vegetation.
- Stream channel and spring vegetation communities – at a minimum:
  - Survey all stream and spring monitoring locations.
  - Define vegetation communities at all monitoring locations.
  - Inventory map of vegetation communities at all monitoring locations.
- Stream channel and spring area threatened, endangered, candidate, and sensitive species. Survey all TEC and Sensitive species including the Link Canyon Columbine. Provide population location and individual numbers for each population.
- Stream channel and spring area vegetation community condition – at a minimum:
  - Describe condition at the meadow near Joe's Mill Pond.
  - Describe condition along steam bank. Concentrate observations at all monitoring locations.
  - Describe condition at all spring locations. Concentrate observations at all monitoring locations as well as discharge sites if different from monitoring locations.
  - Provide photographs of communities along stream channel, on hillsides flanking the steam channel, and at spring locations. Take photographs at established photo points.

- Describe effects of erosion along stream channel, on hillsides flanking the steam channel, and at spring locations. Numerically rate erosion effects. For example, 1=extreme erosion, 2=high erosion, 3=moderate erosion, 4=slight erosion, 5=no erosion.
- Repeat vegetation community condition observations two times a year (beginning and end of growing seasons) for the first three years and the fifth year following undermining. Refer to schedule below.

- Provide two copies of the survey reports to DOGM. Include one copy in DOGM Annual Reports. The Division will provide the second copies to the Manti-La Sal National Forest.
  - Baseline data prior to undermining: 2003 report in the 2004 Annual Report.
  - 1st year data following undermining: 2004 report in the 2005 Annual Report.
  - 2nd year data following undermining: 2005 report in the 2006 Annual Report. Conduct survey and submit report adhering to the *stream channel and spring area vegetation community condition* requirements, **only**.
  - 3rd year data following undermining: 2006 report in the 2007 Annual Report.
  - 5th year data following undermining: 2008 report in the 2009 Annual Report.

Stream channel and spring infrared vegetation maps:

- Stream channel and spring area low level, colored infrared maps for the baseline year (2003) and fifth year (2008) following undermining.
- Provide two copies of the survey reports and maps to DOGM. Include one copy in the 2004 and 2009 DOGM Annual Reports. The Division will provide the second copies to the Manti-La Sal National Forest.

Stream channel macroinvertibrate:

- Stream channel macroinvertibrate. The survey must include – at a minimum:
  - EFB4 and EFB11 monitoring sites.
  - Organism species and number (#/m^2).
  - Contractor must consult with DOGM for approved survey protocol.
- Provide two copies of the survey reports and maps to DOGM. Include one copy in the DOGM Annual Reports. The Division will provide the second copies to the Manti-La Sal National Forest.
  - Baseline data prior to undermining: 2003 report in the 2004 Annual Report.
  - 1st year data following undermining: 2004 report in the 2005 Annual Report.
  - 2nd year data following undermining: 2005 report in the 2006 Annual Report.

The mine operator will implement, if necessary, a revegetation/mitigation plan as determined by DOGM in consultation with the USFS.

Cultural Resource Monitoring Plan for Mining Under Panels 3Left, 4Left in the East Fork of Box Canyon (September 8, 2003)

Monitoring Plan: (MOA 00-MU-11041000-017; MRP pgs 4-9 to 4-10)

Amend MRP to reflect the implementation of Monitoring Plan in respect to the NRHP eligible -Elusive Peacock. Provide two copies of an Executive Summary of monitoring results. Include one copy in DOGM Annual Reports (2003, 2004, 2005, 2006, and indefinitely until movement ceases). The Division will provide the second copy to the Manti-La Sal National Forest.

Monitoring Plan: (paraphrased from MOA 00-MU-11041000-017 pg 12; refer to MOA for the explicit schedule)

- One time event: The Permittee will provide baseline conditions six months prior to the period of mining.
- One time per month: The Permittee will monitor one time per month within six months following the onset of active subsidence. (1-6 mos)
- Quarterly: The Permittee will monitor one time every three months for six months following the completion of the one time per month schedule. (6-12 mos)
- Yearly1: The Permittee will monitor yearly for two years following the completion of the quarterly schedule. (12 - 36 mos)
- Yearly2: The Permittee will monitor yearly for additional years following the completion of the yearly1 schedule if monitoring indicates further movement of the ground surface. (36 mos – indefinite amount of time)

Note, sites listed under the Monitoring Schedule B are the following:

42SV2492/ML-3582	No name	Prehistoric Rockshelter
42SV2433/ML-3449	Big Mac	Prehistoric Rockshelter
42SV2434/ML-3450	Little Mac	Prehistoric Rockshelter
42SV2341/ML-3335	No name	Prehistoric Rockshelter.
