

PERMIT CHANGE TRACKING FORM

DATE RECEIVED	12/27/94	PERMIT NUMBER	ACT/OIS/025
Title of Proposal:	Subsidence Mitigation	PERMIT CHANGE #	945
Description:	NOV 94-46-4-1B abatement	PERMITTEE	COOP
		MINE NAME	Bear Canyon

<input checked="" type="checkbox"/> 15 DAY INITIAL RESPONSE TO PERMIT CHANGE APPLICATION <input type="checkbox"/> Notice of Review Status of proposed permit change sent to the Permittee. <input type="checkbox"/> Request additional review copies prior to Division/Other Agency review. <input type="checkbox"/> Notice of Approval of Publication. (If change is a Significant Revision.) <input type="checkbox"/> Notice of request to modify proposed permit change prior to approval.	DATE DUE	DATE DONE	RESULT	
			12/30/94	<input checked="" type="checkbox"/> ACCEPTED <input type="checkbox"/> REJECTED
			Permit Change Classification	
			<input type="checkbox"/> Significant Permit Revision	
			<input type="checkbox"/> Permit Amendment	
			<input type="checkbox"/> Incidental Boundary Change	

REVIEW TRACKING	INITIAL REVIEW		MODIFIED REVIEW		FINAL REVIEW AND FINDINGS	
DOGM REVIEWER	DUE	DONE	DUE	DONE	DUE	DONE
<input type="checkbox"/> Administrative _____						
<input type="checkbox"/> Biology _____						
<input checked="" type="checkbox"/> Engineering <u>Pete</u>	1/27					
<input type="checkbox"/> Geology _____						
<input type="checkbox"/> Soils _____						
<input checked="" type="checkbox"/> Hydrology <u>Tom</u>	1/27					
<input type="checkbox"/> Bonding _____						
<input type="checkbox"/> AVS Check _____						

COORDINATED REVIEWS	DUE	DONE	DUE	DONE	DUE	DONE
<input type="checkbox"/> OSMRE						
<input type="checkbox"/> US Forest Service						
<input type="checkbox"/> Bureau of Land Management						
<input type="checkbox"/> US Fish and Wildlife Service						
<input type="checkbox"/> US National Parks Service						
<input type="checkbox"/> UT Environmental Quality						
<input type="checkbox"/> UT Water Resources						
<input type="checkbox"/> UT Water Rights						
<input type="checkbox"/> UT Wildlife Resources						
<input type="checkbox"/> UT State History						
<input type="checkbox"/> Other						

<input type="checkbox"/> Public Notice/Comment/Hearing Complete (If the permit change is a Significant Revision)	<input type="checkbox"/> Permit Change Approval Form signed and approved effective as of this date. <input type="checkbox"/> Permit Change Denied.
<input type="checkbox"/> Copies of permit change marked and ready for MRP.	<input type="checkbox"/> Notice of <input type="checkbox"/> Approval <input type="checkbox"/> Denial to Permittee.
<input type="checkbox"/> Special Conditions/Stipulations written for approval.	<input type="checkbox"/> Copy of Approved Permit Change to File.
<input type="checkbox"/> TA and CHIA modified as required.	<input type="checkbox"/> Copy of Approved Permit Change to Permittee.
<input type="checkbox"/> Permit Change Approval Form ready for approval.	<input type="checkbox"/> Copies to Other Agencies and Price Field Office.

APPLICATION FOR PERMIT CHANGE

Title of Change:

Subsidence Mitigation

Permit Number: *ACT 1 015 1025*

Mine: *Bear Canyon*

Permittee: *Co-op Mining Co.*

Description, include reason for change and timing required to implement:

Abatement for NOV 94-46-4-1B,

- | | | |
|---|--|--|
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 1. Change in the size of the Permit Area? _____ acres <input type="checkbox"/> increase <input type="checkbox"/> decrease. |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 2. Change in the size of the Disturbed Area? _____ acres <input type="checkbox"/> increase <input type="checkbox"/> decrease. |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 3. Will permit change include operations outside the Cumulative Hydrologic Impact Area? |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 4. Will permit change include operations in hydrologic basins other than currently approved? |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 5. Does permit change result from cancellation, reduction or increase of insurance or reclamation bond? |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 6. Does permit change require or include public notice publication? |
| <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No | 7. Permit change as a result of a Violation? Violation # _____ |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 8. Permit change as a result of a Division Order? D.O.# _____ |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 9. Permit change as a result of other laws or regulations? Explain: _____ |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 10. Does permit change require or include ownership, control, right-of-entry, or compliance information? |
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| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 15. Does permit change require or include vegetation monitoring, removal or revegetation activities? |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 16. Does permit change require or include construction, modification, or removal of surface facilities? |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 17. Does permit change require or include water monitoring, sediment or drainage control measures? |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 18. Does permit change require or include certified designs, maps, or calculations? |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 19. Does permit change require or include underground design or mine sequence and timing? |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 20. Does permit change require or include subsidence control or monitoring? |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 21. Have reclamation costs for bonding been provided or revised for any change in the reclamation plan? |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 22. Is permit change within 100 feet of a public road or perennial stream or 500 feet of an occupied dwelling? |
| <input type="checkbox"/> Yes | <input checked="" type="checkbox"/> No | 23. Is this permit change coal exploration activity <input type="checkbox"/> inside <input type="checkbox"/> outside of the permit area? |

Attach 3 complete copies of proposed permit change as it would be incorporated into the Mining and Reclamation Plan.

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.

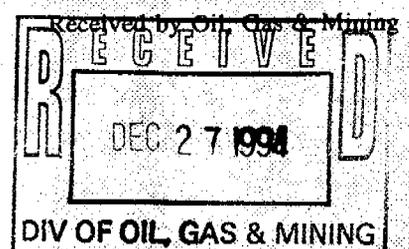
Wendell Chuen - Res Agent 12/20/94
 Signed - Name - Position - Date

Subscribed and sworn to before me this *20* day of *December*, 1994.
Leanne Stone
 Notary Public



Notary Public
 LEANNE STONE
 P.O. Box 300
 Huntington, Utah 84528
 My Commission Expires
 June 18, 1997
 State of Utah

My Commission Expires: _____
 Attest: STATE OF _____
 COUNTY OF _____



ASSIGNED PERMIT CHANGE NUMBER



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

May 10, 1995

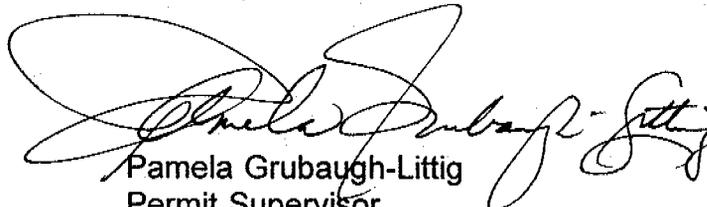
Thomas E. Ehmett, Acting Director
Office of Surface Mining
Reclamation and Enforcement
505 Marquette N.W., Ste. 1200
Albuquerque, NM 87102

Re: Subsidence Mitigation (NOV N94-46-4-1), Bear Canyon Mine, Co-Op Mining Company, ACT/015/025-94J, Folder #2, Emery County, Utah

Dear Mr. Ehmett:

Enclosed please find Appendix 3-N and the updated Table of Contents for Chapter 3, effective April 28, 1995.

Sincerely,


Pamela Grubaugh-Littig
Permit Supervisor

Enclosure

cc: Price Field Office

CO-OP MINING COMPANY

P.O. Box 1245
Huntington, Utah 84528



Office (801) 687-2450
FAX (801) 687-5238
Coal Sales (801) 687-5777

May 4, 1995

Pamela Grubaugh-Littig
Utah Division of Oil, Gas & Mining
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

MAY - 9 1995

Ms. Grubaugh-Littig,

Re: Subsidence Mitigation Plan, NOV N94-46-4-1 Abatement, Bear Canyon Mine, ACT/015/025-94J, Emery County, Utah

Enclosed are three finalized copies of Appendix 3-N and an updated Table of Contents for Chapter 3. This amendment was approved per Division letter dated April 28, 1995. copies have also been forwarded to the Price offices of the DEQ, Water Rights and Wildlife Resources.

If you have any questions, please call Charles Reynolds at (801) 687-2450.

Thank You,

Wendell Owen,
Resident Agent

Enclosure(s)
cr

Sup

APPENDIXES

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INCORPORATE
EFFECTIVE:
JUL 22 1994



State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor

Ted Stewart
Executive Director

James W. Carter
Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
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801-359-3940 (Fax)
801-538-5319 (TDD)

January 19, 1995

Mr. Wendell Owen
Co-Op Mining Company
P. O. Box 1245
Huntington, Utah 84528

Amendment file

93945

Re: Subsidence Mitigation Plan, Co-Op Mining Company, Bear Canyon Mine,
ACT/015/025, Folders #2 & #5, Emery County, Utah

Dear Mr. Owen:

The Division has completed a review of the Subsidence Mitigation Plans which were submitted as an abatement to NOV #94-46-4-1b. At this point your plans are not considered adequate. Please review the enclosed technical review document which discusses the problems with the plans. You should revise your abatement plans making sure that you have addressed the requirement sections of the review. Please be aware that you are still under the abatement obligations and timeframes specified in the NOV. We look forward to your speedy response.

Please call if you have questions.

Sincerely,

Daron R. Haddock

Daron R. Haddock
Permit Supervisor

enclosure

cc: P. Hess
T. Munson
P. Grubaugh-Littig
J. Helfrich

subsilet.bea



SUBSIDENCE MITIGATION REVIEW

Co-Op Mining Company
Bear Canyon Mine, ACT/015/025
NOV# 94-46-4-1b
January 18, 1995

ENGINEERING R645-301-500

Analysis

In reviewing the plan and the photographs which Tom Munson took on October 25, 1994, it is calculated that approximately 1,600 cubic yards of material will be necessary to fill the voids. This is a huge amount of material to attempt to move by manual labor. Although Mr. Reynolds indicates that explosives will be used to "assist" in closing and sealing the openings and large fracture, he does not indicate how the charges will be placed or how any of the other criteria which must be designed will be so done as required by R645-300-524.210 & 212. Mr. Reynolds references Appendix 3-M as the blast design control; however, the blast design in Appendix 3-M specifically refers to boulder size reduction and blasting design for road construction purposes. Boulder size reduction may be utilized in the making of fill for the voids; however, this presents another problem. How does the permittee propose to place the charges to reduce the vertical sides of the holes and how will the reduced boulders be placed in the voids without endangering the lives of the worker?

It appears the plan is to obtain the fill material (1,600 yards) from wherever it can be salvaged. Doing this can destroy vegetation and natural sediment control at random. Work will be conducted right in a drainage. Although the drainage was not flowing at the time of the inspection, its watershed consists of 56 acres, (See page 3N-4). Alternated sediment control is not addressed, (R645-301-742.111). Revegetation is not addressed, (R645-301-353). Compaction is not addressed, (R645-301-553.522).

Requirements:

1. If explosives are to be used, a specific blasting plan and design must be submitted which outlines the purpose of and identifies the results of the blasting.
2. Specific plans must be supplied which identify the source of fill materials to be used.
3. Sediment Control must be addressed.
4. Revegetation plans for the areas affected must be submitted.
5. Compaction of the area must be addressed.

HYDROLOGY R645-301-700

Analysis

The plan addresses on page 3N-4 the specifics related to the reconstructed channel. The plan needs to be clarified in regards to showing the existing channel in cross section and the location of the proposed channel and its cross section. The calculations need to be submitted as well and the operator has used the Type B Distribution to calculate flows from the 24 hour storm when it would be more appropriate to the Type II Distribution. There is no reference to the appropriate tables or figures for riprap sizing and depth, as well as, the need for a filter blanket or cloth to be used under the riprap. It is understood that an actual survey can not occur at this time of year but one should be carried out in the spring and the plans based on more specific channel cross sections. The plan refers to a three foot wide channel when the native channel is 15 feet across.

There is also talk of a monitoring plan but it lacks specifics (i.e., about how information will be collected to determine if any fractures re-establish themselves and/or that the channel stays intact as well as specifics about when the surveys will take place (spring and fall)).

Requirements

The abatement is not complete until the following information is clarified.

1. The designs for the reconstructed channel need to be based on actual cross-sections and information surveyed in the field in the spring. All cross-sections are drawn up and presented with the appropriate design calculations emphasizing the transition between the upstream and downstream cross sections and profiles.
A commitment to do this when the snow clears will be considered adequate.
2. Any riprap installed should have an underliner of filter fabric or grouting to prevent piping into old voids. The purpose being that something is needed to help any flows cross the old fractures without significant infiltration. Reference to the installation of a properly graded riprap of a certain rock size distribution is appropriate.
3. The use of the 10 year-24 hour storm for designs is important to get an idea of an appropriate design event but not as important as creating a channel which blends into the surrounding topography and allows flows to pass over the subsided areas without compromising the repair. It was mentioned that a three foot channel would be constructed when the native channel was fifteen feet, raising some obvious questions.



State of Utah
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3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
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801-359-3940 (Fax)
801-538-5319 (TDD)

December 30, 1994

Mr. Wendell Owen
Co-Op Mining Company
P. O. Box 1245
Huntington, UT 84528

RE: Response to initial application for permit change, Co-Op Mining Company, Bear Canyon Mine, ACT/015/025-94J, Folder #3, Emery County, Utah

The Division received your application for permit change to address subsidence mitigation on December 27, 1994. This letter is your notification that the permit change application has been accepted for review pursuant to rule R645-303-221. It has been assigned amendment number 94J for tracking purposes. We will notify you of the status of the amendment as quickly as possible in order for you to comply with the abatement requirements.

Please call if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Daron R. Haddock".

Daron R. Haddock
Permit Supervisor

cc: P. Grubaugh-Littig
P. Hess
submitig.bea





State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
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Division Director

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340
801-359-3940 (Fax)
801-538-5319 (TDD)

*Put in Amendment
file
THH*

December 30, 1994

Mr. Wendell Owen
Co-Op Mining Company
P. O. Box 1245
Huntington, UT 84528

RE: Response to initial application for permit change, Co-Op Mining Company, Bear Canyon Mine, ACT/015/025-94J, Folder #3, Emery County, Utah

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Sincerely,

Daron R. Haddock
Permit Supervisor

cc: P. Grubaugh-Littig
P. Hess
submitig.bea



015/025 #5

CO-OP MINING COMPANY

P.O. Box 1245
Huntington, Utah 84528



(801) 381-5238
Coal Sales (801) 381-5777

December 21, 1994

Pamela Grubaugh-Littig
Utah Division of Oil, Gas & Mining
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

Ms. Grubaugh-Littig,

Re: Surface Subsidence, NOV94-46-4-1B, Bear Canyon Mine, ACT/015/025, Emery County, Utah

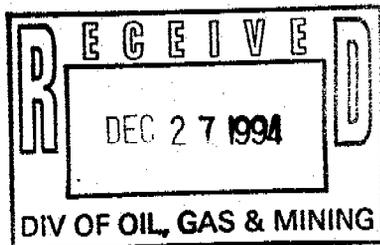
Enclosed is a proposal for mitigation of subsidence which has occurred as a result of mining in the Bear Canyon Mine. The proposal includes the addition of Appendix 3-N and revisions to Plate 3-3. This proposal is being submitted as abatement to NOV 94-46-4-1B.

If you have any questions, please call Charles Reynolds at (801) 687-2450.

Thank You,

Wendell Owen,
Resident Agent

Enclosure(s)
cr



APPLICATION FOR PERMIT CHANGE

Title of Change: Subsidence Mitigation	Permit Number: <i>ACT 0151025</i>
	Mine: <i>Bear Canyon</i>
	Permittee: <i>Co-op Mining Co.</i>

Description, include reason for change and timing required to implement:
Abatement for Nov 94-464-1B,

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	1. Change in the size of the Permit Area? _____ acres <input type="checkbox"/> increase <input type="checkbox"/> decrease.
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Attach 3 complete copies of proposed permit change as it would be incorporated into the Mining and Reclamation Plan.

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.

Wendell Kluen - Res Agent 12/20/94

Signed - Name - Position - Date

Notary Public
LEANNE STONE
 P.O. Box 300
 Huntington, Utah 84528
 My Commission Expires
 June 18, 1997
 State of Utah



Subscribed and sworn to before me this 20 day of December, 1994
Leanne Stone
 Notary Public

My Commission Expires: _____, 19____
 State of _____
 County of _____

Received by Oil, Gas & Mining

RECEIVED

DEC 27 1994

DIV OF OIL, GAS & MINING

ASSIGNED PERMIT CHANGE NUMBER

Appendix 3-N

SURFACE EFFECTS OF SUBSIDENCE

DRAFT

INTRODUCTION

This Appendix describes the proposed mitigation of surface effects of subsidence which have occurred in the Bear Canyon Mine area as a result of mining. The mitigation proposed in this Appendix is in accordance with Appendix 3-C and R645-301-525.230.

MITIGATION AREA 1, 1994

Mitigation Area 1 is located in a side drainage of Huntington Canyon, shown on Plate 3-3. The area was originally mined in 1985, when mining activities in the 1st South section (Plate 3-4) extended beyond the permit area (subject of NOV 85-4-25-1) into Federal Lease U-024318. The surface owner of the affected area is C.O.P. Coal Development Company. As abatement of NOV 85-4-25-1, an incidental boundary change was submitted by Co-Op to include the mined area and potential subsidence impact area. The surface impacts of the subsidence was observe by DOGM and Co-Op technical staff in the fall of 1994. The total impacted area is approximately 0.1 acres.

Subsidence impacts to the surface include two sinkholes where the surface has subsided, a large subsidence crack where the ground has separated and some minor localized surface cracks. The largest sinkhole, located in the bottom of the drainage, consists of open fractures around the perimeter of a 30 ft by 35 ft affected area. The center of the sinkhole is largely intact, but the drainage channel has subsided. Another hole, 12 ft in diameter, exists approximately 150 ft SouthEast of the large hole. The hole has caved to an approximate depth of 30 ft. The significant fracture is approximately 100 ft West of the large sinkhole. Other localized fractures were observed in the same area which have minimal extent.

Co-Op Mining Company proposes to mitigate the impacts of subsidence in accordance with Appendix 3-C by: 1.) closing the fractures within the two holes and the large fracture to eliminate the vertical side slopes of the holes which create a potential hazard for people, livestock or wildlife, and 2.) re-establish the channel in the bottom of the drainage in order to allow runoff to continue in its natural course. The localized tension fractures which do not pose a safety hazard will remain. These type of fractures often occur naturally and will provide additional habitat for burrowing and denning animals (Appendix 3-C).

DRAFT

Co-Op proposes to use explosives to assist in closing and sealing the openings and large fracture. Using explosives, the vertical sides of the holes will be reduced. Material sheared from the vertical sides will fall into the fractures at the toe of the sides and seal them off from access by people or animals and help establish a natural slope. Blasting activities will be performed by a certified blaster and will be conducted in accordance with Appendix 3-M. Timing of the work will be coordinated with the Utah Division of Wildlife Resources in order to minimize impacts on the surrounding wildlife due to noise, while still completing the work in a timely manner.

Once the mitigation described above has been completed, the drainage channel will be re-established by handwork. Based on the 10-Year 24-Hour event of 2.1 inches and a drainage area of 55.7 acres (Plate 3-3), the maximum flow through the drainage is 6.34 cfs (SCS Type B Distribution). The natural drainage channel bottom width is approximately 15 ft. At this width and a conservative slope of 2:1, no riprap is necessary for the channel. However, approximately 35 ft of the reconstructed channel will be 3 ft wide in order to establish a positive drainage across the subsided area. This will result in a runoff velocity of 10.5 fps. 9" m.d. riprap will be placed in the channel over the in-place coarse material in order to prevent erosion.

Following completion of the work, the area will be monitored annually during the subsidence survey to monitor the effectiveness of the mitigation on the fractures and the re-established drainage.